

RPOZ FEZHOST ISOLATOR CZRJMBO COPYRIGHT (c) 1983 AH-F961B-MC FICHE 2 OF 2

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IDENTIFICATION

PRODUCT CODE:

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PRODUCT NAME:

CZRJMBO RPO7 FRONT-END/ISOLATOR TEST

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MAINTAINER:

CX DIAGNOSTIC ENGINEERING

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- 1.0 GENERAL INFORMATION
- 1.1 PROGRAM ABSTRACT

THE RPO7 FRONT END DIAGNOSTIC IS A PROGRAM WHICH PARTIALLY AUTOMATES THE PATHFINDER DOCUMENT TO ALLOW COMPUTERIZED SEQUENTIAL DIAGNOSIS OF AN RPO7. THE PROGRAM INITIALLY DEMONSTRATES HARDWARE INTEGRITY BETWEEN THE RHXX CONTROLLER, ASSOCIATED CABLING AND THE DISK CONTROLLOGIC (DCL). SATISFACTORY COMPLETION OF THIS PHASE OF TESTING THEN PERMITS "HOST" INVOCATION OF THE RPO7 RESIDENT MICRODIAGNOSTICS, THOSE SPECIFICALLY ALLOWING REMOTE EXECUTION, TO ASCERTAIN A REASONABLE LEVEL OF CONFIDENCE IN THE DISK DRIVE.

THIS DIAGNOSTIC HAS BEEN WRITTEN FOR USE WITH THE DIAGNOSTIC RUNTIME SERVICES SOFTWARE (SUPERVISOR). THESE SERVICES PROVIDE THE INTERFACE TO THE OPERATOR AND TO THE SOFTWARE ENVIRONMENT. THIS PROGRAM CAN BE USED WITH XXDP+, ACT, APT, SLIDE AND PAPER TAPE. FOR A COMPLETE DESCRIPTION OF THE RUNTIME SERVICES, REFER TO THE XXDP+ USER'S MANUAL. THERE IS A BRIEF DESCRIPTION OF THE RUNTIME SERVICES IN SECTION 2 OF THIS DOCUMENT.

1.2 SYSTEM REQUIREMENTS

THIS PROGRAM, IN ORDER TO EXECUTE, WILL REQUIRE THE FOLLOWING SYSTEM HARDWARE:

1. AN XXDP+ LOAD MEDIUM.

2. A CONSOLE KEYBOARD/PRINTER.

3. A MINIMUM OF 28K WORD OF MAIN MEMORY,

- 4. A PDP11 PROCESSOR AND APPROPRIATE MASSBUS CONTROLLER WHICH CONFORMS TO (DEC STD 159) AND WHICH HAS A THROUGHPUT CAPACITY OF 2.2 MBYTES /SEC OR GREATER.
- 5. AT LEAST ONE RPO7 WITH RHXX CONTROLLER
- 1.3 RELATED DOCUMENTS AND STANDARDS

XXDP+ USER'S MANUAL - CHQUS

1.4 DIAGNOSTIC HIERARCY PREREQUISITES

ALL CPU, MEMORY, AND TERMINAL DIAGNOSTICS MUST RUN SUCCESSFULLY TO COMPLETION.

1.5 ASSUMPTIONS

NONE

2.0 OPERATING INSTRUCTIONS

THIS SECTION CONTAINS A BRIEF DESCRIPTION OF THE RUNTIME SERVICES. FOR DETAILED INFORMATION, REFER TO THE XXDP+ USER'S MANUAL (CHQUS).

2.1 COMMANDS

THERE ARE ELEVEN LEGAL COMMANDS FOR THE DIAGNOSTIC RUNTIME SERVICES (SUPERVISOR). THIS SECTION LISTS THE COMMANDS AND GIVES A VERY BRIEF DESCRIPTION OF THEM. THE XXDP+ USER'S MANUAL HAS MORE DETAILS.

COMMAND	EFFECT
	••••••
START	START THE DIAGNOSTIC FROM AN INITIAL STATE
RESTART	START THE DIAGNOSTIC WITHOUT INITIALIZING
CONTINUE	CONTINUE AT TEST THAT WAS INTERRUPTED (AFTER +C)
PROCEED	CONTINUE FROM AN ERROR HALT
EXIT	RETURN TO XXDP+ MONITOR (XXDP+ OPERATION ONLY!)
ADD	ACTIVATE A UNIT FOR TESTING (ALL UNITS ARE
	CONSIDERED TO BE ACTIVE AT START TIME
DROP	DEACTIVATE A UNIT
PRINT	PRINT STATISTICAL INFORMATION (IF IMPLEMENTED
	BY THE DIAGNOSTIC - SECTION 4.0)
DISPLAY	TYPE A LIST OF ALL DEVICE INFORMATION
FLAGS	TYPE THE STATE OF ALL FLAGS (SEE SECTION 2.3)
ZFLAGS	CLEAR ALL FLAGS (SEE SECTION 2.3)

A COMMAND CAN BE RECOGNIZED BY THE FIRST THREE CHARACTERS. SO YOU MAY, FOR EXAMPLE, TYPE "STA" INSTEAD OF "START".

2.2 SWITCHES

THERE ARE SEVERAL SWITCHES WHICH ARE USED TO MODIFY SUPERVISOR OPERATION. THESE SWITCHES ARE APPENDED TO THE LEGAL COMMANDS. ALL OF THE LEGAL SWITCHES ARE TABULATED BELOW WITH A BRIEF DESCRIPTION OF EACH. IN THE DESCRIPTIONS BELOW, A DECIMAL NUMBER IS DESIGNATED BY "DODDD".

SWITCH	EFFECT

/TESTS:LIST	EXECUTE ONLY THOSE TESTS SPECIFIED IN THE LIST. LIST IS A STRING OF TEST NUMBERS. FOR EXAMPLE - /TESTS:1:5:7-10.
	THIS LIST WILL CAUSE TESTS 1.5.7.8.9.10 TO BE RUN. ALL OTHER TESTS WILL NOT BE RUN.
/PASS:DDDDD	EXECUTE DDDDD PASSES (DDDDD = 1 TO 64000)
/FLAGS:FLGS	SET SPECIFIED FLAGS. FLAGS ARE DESCRIBED IN SECTION 2.3.
/EOP:00000	REPORT END OF PASS MESSAGE AFTER EVERY
/UNITS:LIST	DDDDD PASSES ONLY. (DDDDD = 1 TO 64000) TEST/ADD/DROP ONLY THOSE UNITS SPECIFIED
	IN THE LIST. LIST EXAMPLE - /UNITS:0:5:10-12 USE UNITS 0.5.10.11.12 (UNIT NUMBERS = 0-63)

EXAMPLE OF SWITCH USAGE:

START/TESTS:1-5/PASS:1000/EOP:100

THE EFFECT OF THIS COMMAND WILL BE: 1) TESTS 1 THROUGH 5 WILL BE EXECUTED, 2) ALL UNITS WILL TESTED 1000 TIMES AND 3) THE END OF PASS MESSAGES WILL BE PRINTED AFTER EACH 100 PASSES ONLY. A

SWITCH CAN BE RECOGNIZED BY THE FIRST THREE CHARACTERS. YOU MAY, FOR EXAMPLE, TYPE "/TES:1-5" INSTEAD OF "/TESTS:1-5".

BELOW IS A TABLE THAT SPECIFIES WHICH SWITCHES CAN BE USED BY EACH COMMAND.

	TESTS	PASS	FLAGS	EOP	UNITS
START	X	×	×	×	×
RESTART CONTINUE PROCEED	×	X	X	×	X
DROP ADD PRINT					×
DISPLAY					x
ZFLAGS					

2.3 FLAGS

FLAGS ARE USED TO SET UP CERTAIN OPERATIONAL PARAMETERS SUCH AS LOOPING ON ERROR. ALL FLAGS ARE CLEARED AT STARTUP AND REMAIN CLEARED UNTIL EXPLICITLY SET USING THE FLAGS SWITCH. FLAGS ARE ALSO CLEARED AFTER A START COMMAND UNLESS SET USING THE FLAG SWITCH. THE ZFLAGS COMMAND MAY ALSO BE USED TO CLEAR ALL FLAGS. WITH THE EXCEPTION OF THE START AND ZFLAGS COMMANDS, NO COMMANDS AFFECT THE STATE OF THE FLAGS; THEY REMAIN SET OR CLEARED AS SPECIFIED BY THE LAST FLAG SWITCH.

FLAG	EFFECT
HOE	HALT ON ERROR - CONTROL IS RETURNED TO RUNTIME SERVICES COMMAND MODE
LOE	LOOP ON ERROR
IER+	INHIBIT ALL ERROR REPORTS
IBR*	INHIBIT ALL ERROR REPORTS EXCEPT
	FIRST LEVEL (FIRST LEVEL CONTAINS
	ERROR TYPE, NUMBER, PC, TEST AND UNIT)
IXR*	INHIBIT EXTENDED ERROR REPORTS (THOSE
SAIL.	CALLED BY PRINTX MACRO'S)
007	
PRI	DIRECT MESSAGES TO LINE PRINTER
PNT	PRINT TEST NUMBER AS TEST EXECUTES
BOE	"BELL" ON ERROR
UAM	UNATTENDED MODE (NO MANUAL INTERVENTION)
ISR	INHIBIT STATISTICAL REPORTS (DOES NOT
TON	
	APPLY TO DIAGNOSTICS WHICH DO NOT SUPPORT
	STATISTICAL REPORTING)
IDR	INHIBIT PROGRAM DROPPING OF UNITS
ADR	EXECUTE AUTODROP CODE
LOT	LOOP ON TEST
EVL	EXECUTE EVALUATION (ON DIAGNOSTICS WHICH
	HAVE EVALUATION SUPPORT)

^{*} ERROR MESSAGES ARE DESCRIBED IN SECTION 3.1

SEE THE XXDP+ USER'S MANUAL FOR MORE DETAILS ON FLAGS. YOU MAY SPECIFY MORE THAN ONE FLAG WITH THE FLAG SWITCH. FOR EXAMPLE, TO CAUSE THE PROGRAM TO LOOP ON ERROR, INHIBIT ERROR REPORTS AND TYPE A "BELL" ON ERROR, YOU MAY USE THE FOLLOWING STRING:

/FLAGS:LOE: IER: BOE

2.4 HARDWARE QUESTIONS

WHEN A DIAGNOSTIC IS STARTED, THE RUNTIME SERVICES WILL PROMPT THE USER FOR HARDWARE INFORMATION BY TYPING "CHANGE HW (L) ?" YOU MUST ANSWER "Y" AFTER A START COMMAND UNLESS THE HARDWARE INFORMATION HAS BEEN "PRELOADED" USING THE SETUP UTILITY (SEE CHAPTER 6 OF THE XXDP+ USER'S MANUAL). WHEN YOU ANSWER THIS QUESTION WITH A "Y", THE RUNTIME SERVICES WILL ASK FOR THE NUMBER OF UNITS (IN DECIMAL). YOU WILL THEN BE ASKED THE FOLLOWING QUESTIONS FOR EACH UNIT.

UNIT 0
RPCS1 ADRS (0) 176700 ?
VECTOR ADRS (0) 254 ?
BR LEVEL (0) 5 ?
DRIVE # (0) 0 ?

THE 1ST QUESTION "RPCS1 ADRS" REQUIRES THAT THE USER INPUT THE ADDRESS OF RPCS1 OF THE CONTROLLER WHICH IS CONNECTED TO THE DRIVE UNDER TEST. DEFAULT IS 176700 (OCTAL).

THE 2ND QUESTION "VECTOR ADRS" REQUIRES THE USER TO INPUT THE INTERRUPT VECTOR ADDRESS OF THE RHXX CONTROLLER. DEFAULT IS 254 (OCTAL).

THE 3RD QUESTION "BR LEVEL" REQUIRES THE USER TO INPUT THE CONTROLLER INTERRUPT PRIORITY LEVEL. DEFAULT IS LEVEL 5.

THE 4TH QUESTION "DRIVE 4" REQUIRES THE USER TO SPECIFY THE DRIVE NUMBER OF THE DRIVE TO BE TESTED. DEFAULT IS O (OCTAL).

2.5 SOFTWARE QUESTIONS

AFTER YOU HAVE ANSWERED THE HARDWARE QUESTIONS OR AFTER A RESTART OR CONTINUE COMMAND, THE RUNTIME SERVICES WILL ASK FOR SOFTWARE PARAMETERS. THESE PARAMETERS WILL GOVERN SOME DIAGNOSTIC SPECIFIC OPERATION MODES. YOU WILL BE PROMPTED BY "CHANGE SW (L)?" IF YOU WISH TO CHANGE ANY PARAMETERS, ANSWER BY TYPING "Y". THE SOFTWARE QUESTIONS AND THE DEFAULT VALUES ARE DESCRIBED IN THE NEXT PARAGRAPH(S).

THE FOLLOWING QUESTION ASKS IF THE USER WANTS TO EXECUTE THE MASSBUS INTERFACE SWITCH TEST. THIS IS USEFUL IF THE USER IS RUNNING MULTIPLE PASSES AND DOES NOT WISH TO SLOW DOWN TESTING IN ORDER TO 'SWITCH' THE MASSBUS INTERFACE SWITCH.

"EXECUTE TEST 25., MASSBUS INTERFACE SWITCH TEST (L) Y ?"

THE FOLLOWING QUESTION ASKS IF THE USER WANTS THE RPO7 INTERNAL ERROR LOG CONTENTS. THE ERROR LOG IN THE RPO7 MAY BE USEFUL AS A TROUBLESHOOTING TOOL, AND AS SUCH MAY BE OUTPUT UPON REQUEST.

"EXECUTE TEST 52., PRINT CONTENTS OF INTERNAL ERROR LOG (L) Y ?"

THE FOLLOWING QUESTION ASKS THE USER IF THE INTERNAL RPO7 READ/WRITE ROUTINE SHOULD BE LIMITED ONLY TO ONE TRACK. THIS MAY BE USEFUL TO HELP ISOLATE A SELECTED HEAD/CHIP FAILURE.

"SELECT A TRACK FOR THE RPO7 INTERNAL RD-WRT TESTS (L) N ?"

THE FOLLOWING QUESTION ASKED ONLY IF THE ABOVE QUESTION IS ANSWERED "YES". ALLOWS A USER TO SELECT ONE HEAD FOR THE INTERNAL READ/WRITE TESTS.

"TRACK ADDRESS (D) 0 ?"

THE FOLLOWING QUESTION ASKS IF THE USER DESIRES TO RUN ONLY ONE MICRODIAGNOSTIC. IF THE ANSWER IS YES, AND THE MANUAL MODE OF OPERATION IS ENABLED, THE USER WILL BE INTERROGATED AS TO WHICH ROUTINE TO SELECT FOR EXECUTION.

"EXECUTE TEST 60., SELECT A MICRO-DIAGNOSTIC FOR EXECUTION (L) N ?"

NOTE

ONCE THIS QUESTION HAS BEEN ANSWERED 'YES' AND THE ROUTINE HAS BEEN RUN AT LEAST ONCE, PROVIDING THAT THE USER HAS CORRECTLY INPUT A ROUTINE NUMBER WHICH IS VALID, THE SELECTED ROUTINE WILL ALWAYS RUN WHEN THE TEST IS SELECTED FOR EXECUTION. THE ONLY WAY THE USER MAY CHANGE THE ROUTINE SELECTED FOR EXECUTION IS TO HALT THE PROGRAM VIA THE CONTROL C (+C) MECHANISM AND ISSUE A NEW 'START' COMMAND. ANY OTHER METHOD OF RESUMING PROGRAM OPERATION WILL CONTINUE TO EXECUTE THE ROUTINE PREVIOUSLY ACCEPTED AS INPUT FROM THE USER.

2.6 EXTENDED P-TABLE DIALOGUE

WHEN YOU ANSWER THE HARDWARE QUESTIONS, YOU ARE BUILDING ENTRIES IN A TABLE THAT DESCRIBES THE DEVICES UNDER TEST. THE SIMPLEST WAY TO BUILD THIS TABLE IS TO ANSWER ALL QUESTIONS FOR EACH UNIT TO BE TESTED. IF YOU HAVE A MULTIPLEXED DEVICE SUCH AS A MASS STORAGE CONTROLLER WITH SEVERAL DRIVES OR A COMMUNICATION DEVICE WITH SEVERAL LINES, THIS BECOMES TEDIOUS SINCE MOST OF THE ANSWERS ARE REPETITIOUS.

TO ILLUSTRATE A MORE EFFICIENT METHOD, SUPPOSE YOU ARE TESTING A FICTIONAL DEVICE, THE XY11. SUPPOSE THIS DEVICE CONSISTS OF

A CONTROL MODULE WITH EIGHT UNITS (SUB-DEVICES) ATTACHED TO IT. THESE UNITS ARE DESCRIBED BY THE OCTAL NUMBERS O THROUGH 7. THERE IS ONE HARDWARE PARAMETER THAT CAN VARY AMONG UNITS CALLED THE Q-FACTOR. THIS Q-FACTOR MAY BE O OR 1. BELOW IS A SIMPLE WAY TO BUILD A TABLE FOR ONE XY11 WITH EIGHT UNITS.

UNITS (D) ? 8<CR>

UNIT 1 CSR ADDRESS (0) ? 160000<CR> SUB-DEVICE # (0) ? 0<CR> Q-FACTOR (0) 0 ? 1<CR>

UNIT 2 CSR ADDRESS (0) ? 160000 CR> SUB-DEVICE # (0) ? 1 CR> Q-FACTOR (0) 1 ? 0 CR>

UNIT 3
CSR ADDRESS (0) ? 160000 CR>
SUB-DEVICE # (0) ? 2 CR>
Q-FACTOR (0) 0 ? CR>

UNIT 4 CSR ADDRESS (0) ? 160000<CR> SUB-DEVICE # (0) ? 3<CR> Q-FACTOR (0) 0 ? <CR>

UNIT 5
CSR ADDRESS (0) ? 160000 CR>
SUB-DEVICE # (0) ? 4 CR>
Q-FACTOR (0) 0 ? CR>

UNIT 6
CSR ADDRESS (0) ? 160000<CR>
SUB-DEVICE # (0) ? 5<CR>
Q-FACTOR (0) 0 ? <CR>

UNIT 7 CSR ADDRESS (0) ? 160000<CR> SUB-DEVICE # (0) ? 6<CR> Q-FACTOR (0) 0 ? 1<CR>

UNIT 8
CSR ADDRESS (0) 160000<CR>
SUB-DEVICE # (0) ? 7<CR>
Q-FACTOR (0) 1 ? <CR>

NOTICE THAT THE DEFAULT VALUE FOR THE Q-FACTOR CHANGES WHEN A NON-DEFAULT RESPONSE IS GIVEN. BE CAREFUL WHEN SPECIFYING MULTIPLE UNITS!

AS YOU CAN SEE FROM THE ABOVE EXAMPLE, THE HARDWARE PARAMETERS DO NOT VARY SIGNIFICANTLY FROM UNIT TO UNIT. THE PROCEDURE SHOWN IS NOT VERY EFFICIENT.

THE RUNTIME SERVICES CAN TAKE MULTIPLE UNIT SPECIFICATIONS HOWEVER.

LET'S BUILD THE SAME TABLE USING THE MULTIPLE SPECIFICATION FEATURE.

UNITS (D) ? 8<CR>

UNIT 1 CSR ADDRESS (0) ? 160000<CR> SUB-DEVICE # (0) ? 0.1<CR> Q-FACTOR (0) 0 ? 1.0<CR>

UNIT 3 CSR ADDRESS (0) ? 160000 CR> SUB-DEVICE # (0) ? 2-5 CR> Q-FACTOR (0) 0 ? 0 CR>

UNIT 7 CSR ADDRESS (0) ? 160000<CR> SUB-DEVICE # (0) ? 6,7<CR> Q-FACTOR (0) 0 ? 1<CR>

AS YOU CAN SEE IN THE ABOVE DIALOGUE, THE RUNTIME SERVICES WILL BUILD AS MANY ENTRIES AS IT CAN WITH THE INFORMATION GIVEN IN ANY ONE PASS THROUGH THE QUESTIONS. IN THE FIRST PASS, TWO ENTRIES ARE BUILT SINCE TWO SUB-DEVICES AND Q-FACTORS WERE SPECIFIED. THE SERVICES ASSUME THAT THE CSR ADDRESS IS 160000 FOR BOTH SINCE IT WAS SPECIFIED ONLY ONCE. IN THE SECOND PASS, FOUR ENTRIES WERE BUILT. THIS IS BECAUSE FOUR SUB-DEVICES WERE SPECIFIED. THE "-" CONSTRUCT TELLS THE RUNTIME SERVICES TO INCREMENT THE DATA FROM THE FIRST NUMBER TO THE SECOND. IN THIS CASE, SUB-DEVICES 2, 3, 4 AND 5 WERE SPECIFIED. (IF THE SUB-DEVICE WERE SPECIFIED BY ADDRESSES, THE INCREMENT WOULD BE BY 2 SINCE ADDRESSES MUST BE ON AN EVEN BOUNDARY.) THE CSR ADDRESSES AND Q-FACTORS FOR THE FOUR ENTRIES ARE ASSUMED TO BE 160000 AND 0 RESPECTIVELY SINCE THEY WERE ONLY SPECIFIED ONCE. THE LAST TWO UNITS ARE SPECIFIED IN THE THIRD PASS.

THE WHOLE PROCESS COULD HAVE BEEN ACCOMPLISHED IN ONE PASS AS SHOWN BELOW.

UNITS (D) ? 8<CR>

UNIT 1 CSR ADDRESS (0) ? 160000<CR> SUB-DEVICE # (0) ? 0-7<CR> Q-FACTOR (0) 0 ? 0.1.0...1,1<CR>

AS YOU CAN SEE FROM THIS EXAMPLE, NULL REPLIES (COMMAS ENCLOSING A NULL FIELD) TELL THE RUNTIME SERVICES TO REPEAT THE LAST REPLY.

2.7 QUICK START-UP PROCEDURE (XXDP+)

TO START-UP THIS PROGRAM:

- 1. BOOT XXDP+
- 2. GIVE THE DATE AND ANSWER THE LSI AND 50HZ (IF THERE

IS A CLOCK) QUESTIONS

- 3. TYPE "R NAME". WHERE NAME IS THE NAME OF THE BIN OR BIC FILE FOR THIS PROGRAM
- 4. TYPE "START"
- 5. ANSWER THE "CHANGE HW" QUESTION WITH "Y"
- 6. ANSWER ALL THE HARDWARE QUESTIONS
- 7. ANSWER THE "CHANGE SW" QUESTION WITH "N"

WHEN YOU FOLLOW THIS PROCEDURE YOU WILL BE USING ONLY THE DEFAULTS FOR FLAGS AND SOFTWARE PARAMETERS. THESE DEFAULTS ARE DESCRIBED IN SECTIONS 2.3 AND 2.5.

- 3.0 ERROR INFORMATION
- 3.1 TYPES OF ERROR MESSAGES

THERE ARE THREE LEVELS OF ERROR MESSAGES THAT MAY BE ISSUED BY A DIAGNOSTIC: GENERAL, BASIC AND EXTENDED. GENERAL ERROR MESSAGES ARE ALMAYS PRINTED UNLESS THE "IER" FLAG IS SET (SECTION 2.3). THE GENERAL ERROR MESSAGE IS OF THE FORM:

NAME TYPE NUMBER ON UNIT NUMBER TST NUMBER PC:XXXXXX ERROR MESSAGE

WHERE; NAME = DIAGNOSTIC NAME

TYPE = ERROR TYPE (SYS FATAL, DEV FATAL, HARD OR SOFT)

NUMBER = ERROR NUMBER

UNIT NUMBER = O - N (N IS LAST UNIT IN PTABLE)

TST NUMBER = TEST AND SUBTEST WHERE ERROR OCCURRED

PC:XXXXXX = ADDRESS OF ERROR MESSAGE CALL

BASIC ERROR MESSAGES ARE MESSAGES THAT CONTAIN SOME ADDITIONAL INFORMATION ABOUT THE ERROR. THESE ARE ALWAYS PRINTED UNLESS THE "JER" OR "IBR" FLAGS ARE SET (SECTION 2.3). THESE MESSAGES ARE PRINTED AFTER THE ASSOCIATED GENERAL MESSAGE.

EXTENDED ERROR MESSAGES CONTAIN SUPPLEMENTARY ERROR INFORMATION SUCH AS REGISTER CONTENTS OR GOOD/BAD DATA. THESE ARE ALWAYS PRINTED UNLESS THE "IER", "IBR" OR "IXR" FLAGS ARE SET (SECTION 2.3). THESE MESSAGES ARE PRINTED AFTER THE ASSOCIATED GENERAL ERROR MESSAGE AND ANY ASSOCIATED BASIC ERROR MESSAGES.

3.2 SPECIFIC ERROR MESSAGES

- COMPOSITE ERROR SET WHEN NOT EXPECTED -

THIS MESSAGE IS GENERATED WHEN COMPOSITE ERROR IS FOUND TO BE SET WHEN IT SHOULD HAVE BEEN RESET.

- DRIVE HUNG, DRY NOT SET IN TIME -

THIS MESSAGE IS GENERATED WHEN GO IS FOUND TO BE SET. THE FUNCTION IS TIMED, AND WHEN THE TIMING FUNCTION EXPIRES, THE ABOVE MESSAGE IS PRODUCED.

- DRIVE WRITE LOCKED -

THIS MESSAGE IS PRODUCED WHEN THE PROGRAM PREPARES TO EXECUTE A WRITE FUNCTION AND THE WRITE LOCK BIT (RPDS:WRL) IS FOUND TO BE ASSERTED.

- DRIVE OFFLINE -

THIS MESSAGE IS GENERATED WHEN THE PROGRAM PREPARES TO EXECUTE A COMMAND AND THE MEDIUM ON LINE BIT (RPDS:MOL) IS FOUND TO BE RESET.

- RPCS2: OR FAILED TO SET IN TIME -

THIS MESSAGE IS GENERATED WHEN WHILE USING A TIMER, THE OUTPUT READY BIT (RPCS2:OR) IS FOUND TO BE RESET UNTIL THE TIMER FUNCTION EXPIRES.

- RPCS2:OR FAILED TO CLEAR IN TIME -

THIS MESSAGE IS GENERATED WHEN WHILE USING A TIMER, THE OUTPUT READY BIT (RPCS2:OR) IS FOUND TO BE SET UNTIL THE TIMER FUNCTION EXPIRES.

- RH CONTROLLER DIDN'T RESPOND (NO SSYNC). -

THIS MESSAGE IS GENERATED WHEN THE PROGRAM ATTEMPTS TO ACCESS THE CONTROLLER AT THE USER SPECIFIED ADDRESS, AND IT DOESN'T RESPOND.

- BIT(S) UNDER TEST DIDN'T CHANGE STATE -

THIS MESSAGE IS GENERATED WHEN THE REGISTER RESULTS ARE NOT THE COMPLIMENT OF THE REGISTER STATE AT THE START OF THE TEST.

- RPCS2:CLR DIDN'T FUNCTION PROPERLY -

THIS MESSAGE IS GENERATED WHEN THE PROGRAM FINDS THAT THE CONTROLLER

CLEAR FUNCTION DID NOT FUNCTION PROPERLY.

- REG CONTENTS DON'T MATCH EXPECTED DATA -

THIS MESSAGE IS PRODUCED WHEN EXTRA BITS SET OR CLEAR WHEN THEY ARE NOT EXPECTED TO FUNCTION IN THIS MANNER.

- REG DIDN'T CLEAR WHEN EXPECTED -

THIS MESSAGE IS GENERATED WHEN A REGISTER DOESN'T RESET WHEN EXPECTED.

- SC OR TRE SET WHEN NOT EXPECTED -

THIS MESSAGE IS GENERATED AS A RESULT OF DETECTING A TRANSFER ERROR (RPCS1:TRE) OR DETECTING AN UNEXPECTED ATA (RPCS1:SC)

- RPCS2: IR FAILED TO SET IN TIME -

THIS MESSAGE IS GENERATED WHEN USING A TIMER, INPUT READY (RPCS2:IR) IS FOUND TO BE RESET AFTER THE TIMING FUNCTION HAS EXPIRED.

- RPCS1, MCPE DIDN'T SET WHEN EXPECTED -

THIS MESSAGE IS GENERATED WHEN THE PROGRAM FAILS TO DETECT A MASSBUS CONTROL PARITY ERROR (RPCS1, MCPE).

- RPCS1, SC OR TRE DIDN'T SET WHEN EXPECTED -

THIS MESSAGE IS GENERATED WHEN THE PROGRAM FORCES AN ERROR OR ATTENTION, AND THE RESULTING TRE OR SC IN RPCS1 DOES NOT SET.

- BIT(S) UNDER TEST DIDN'T SET WHEN EXPECTED -

THIS MESSAGE IS GENERATED WHEN THE STIMULUS AND THE RESULT DO NOT MATCH, AND THE RESULT WAS EXPECTED TO FORCE REGISTER BIT(S) TO TOGGLE FROM 0 TO 1.

- BIT(S) UNDER TEST DIDN'T CLEAR WHEN EXPECTED -

THIS MESSAGE IS GENERATED WHEN THE STIMULUS AND THE RESULT DO NOT MATCH. AND THE RESULT WAS EXPECTED TO FORCE REGISTER BITS TO TOGGLE FROM

1 TO 0.

- RH INTERRUPTED AT WRONG PRIORITY -

THIS MESSAGE IS PRODUCED WHEN THE RH CONTROLLER INTERRUPTS AT A PRIORITY HIGHER THAN THE EXPECTED PRIORITY.

- RH GENERATED FALSE INTERRUPT -

THIS MESSAGE IS PRODUCED WHEN THE RH IS TESTED TO HAVE NO PREREQUISITE CONDITIONS WHICH COULD GENERATE AN INTERRUPT, YET DOES GENERATE AN INTERRUPT ANYWAY.

- RH DIDN'T INTERRUPT WHEN EXPECTED -

THIS MESSAGE IS GENERATED WHEN THE PROGRAM EXPECTS AN INTERRUPT BUT DOESN'T GET ONE.

- DRIVE NOT PRESENT, TEST INVALID -

THIS MESSAGE IS GENERATED WHEN THE UNIT UNDER TEST IS FOUND TO BE NOT PRESENT.

- COMMAND EXECUTION INCORRECT -

THIS MESSAGE IS GENERATED WHEN A COMMAND IS EXECUTED AND THE DRIVE DOESN'T RETURN THE CORRECT STATUS FOR THE COMPLETED OPERATION.

- DATA LINES STUCK LOW -

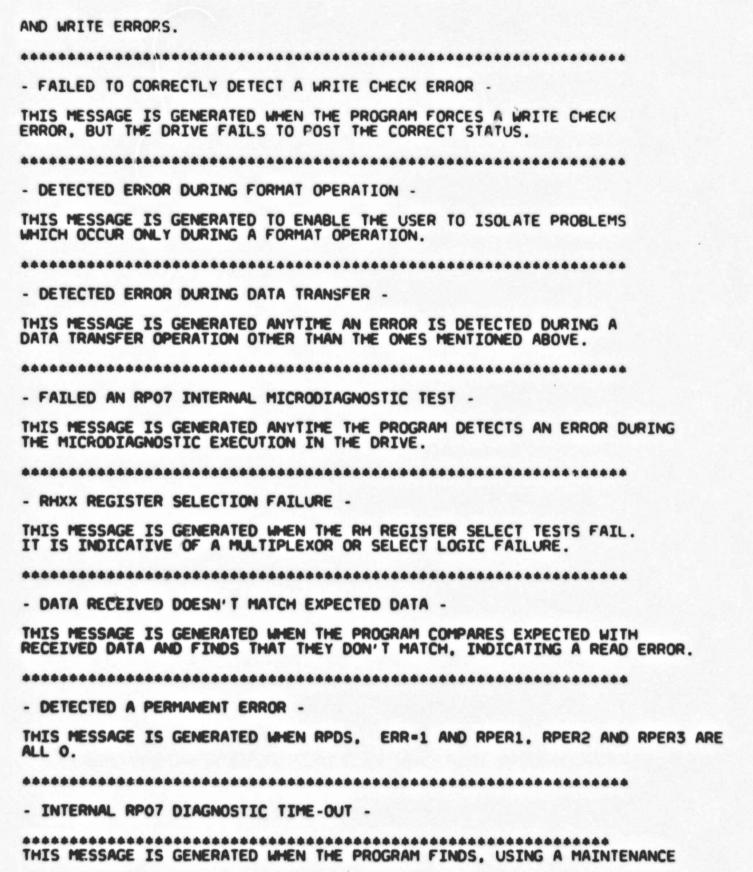
THIS MESSAGE IS GENERATED WHEN, DURING A "READ ALL TRACK DESCRIPTOR"
OPERATION, THE DATA RECEIVED DOESN'T FORCE ALL 16 DATA LINES FROM A O TO 1.

- FAILED TO SEEK PROPERLY -

THIS MESSAGE IS GENERATED WHEN THE PROGRAM FAILS TO RECEIVE THE CORRECT STATUS FROM THE DRIVE UPON THE COMPLETION OF A SEEK OPERATION.

- DETECTED ERROR DURING WRITE DATA OPERATION -

THIS MESSAGE IS PRODUCED TO ENABLE THE USER TO DISCERN BETWEEN READ



TIMER, THAT THE DIAGNOSTIC EXECUTION DID NOT COMPLETE WHEN THE TIMER FUNCTION EXPIRED.

4.0 PERFORMANCE AND PROGRESS REPORTS

AT THE END OF EACH PASS, THE PASS COUNT IS GIVEN ALONG WITH THE TOTAL NUMBER OF ERRORS REPORTED SINCE THE DIAGNOSTIC WAS STARTED. THE "EOP" SWITCH CAN BE USED TO CONTROL HOW OFTEN THE END OF PASS MESSAGE IS PRINTED. SECTION 2.2 DESCRIBES SWITCHES.

5.0 DEVICE INFORMATION TABLES

THE DEFAULT HARDWARE P-TABLE CONTAINS DEFAULT VALUES OF THE TEST-DEVICE PARAMETERS. THE STRUCTURE OF THIS TABLE IS IDENTICAL TO THE STRUCTURE OF THE HARDWARE P-TABLES.

.WORD 176700 :RPCS1 BASE REGISTER ADDRESS
.WORD 254 :VECTOR ADDRESS
.WORD 240 :BR LEVEL 5 DEVICE
.WORD 0 :DRIVE NUMBER

THE SOFTWARE P-TABLE CONTAINS THE VALUES OF THE PROGRAM PARAMETERS THAN CAN BE CHANGED BY THE OPERATOR.

SWTTST: .WORD 1

:USED TO SELECT MASSBUS INTERFACE TEST;
:DISABLED= 0, ENABLED= 1

:USED TO ENABLE THE RPO7 ERROR LOG DUMP

SELTRK: .WORD 0

:USED TO SELECT A TRACK ADDRESS IN THE MICRO:DIAGNOSTIC TEST

TRAKAD: .WORD 0

:USED TO GET THE USER TRACK ADDRESS
:USED TO DETERMINE IF USER SELECTED A MICRO:DIAGNOSTIC TEST

IN THE BASIC DRIVE TEST, THERE IS A USER PROMPT WHICH ASKS THE OPERATOR TO DISABLE SWITCH A12-501 IN THE DRIVE. IF THE USER RESPONDS "NO", THE TEST IS BYPASSED. IF THE USER RESPONDS "YES", THE PROGRAM EXPECTS THE SWITCH TO BE DISABLED WHEN THE USER RESPONDS. THE PROGRAM, UPON COMPLETION OF THE TEST, ASKS THE USER TO RE-ENABLE THE SWITCH. IF THE USER RESPONDS "NO" THE PROGRAM LOOPS UNTIL THE SWITCH HAS BEEN RE-ENABLED AND THE USER RESPONDS "YES".

IF THE MANUAL MODE OF OPERATION IS ENABLED AND THE USER HAS.
THROUGH THE SOFTWARE QUESTIONS, INDICATED THAT ONE MICRO-DIAGNOSTIC
IS TO BE SELECTED FOR EXECTUION, THE USER WILL BE ASKED TO INPUT
A 2 CHARACTER HEX ENTRY WHICH WILL ALLOW SELECTION AND EXECUTION
OF THAT PARTICULAR MICRO-DIAGNOSTIC.

6.0 TEST SUMMARIES

THE FOLLOWING REPRESENT A GENERAL LIST OF TESTS WHICH WILL BE PERFORMED TO THE RH70 CONTROLLER. THOSE TESTS MARKED WITH AN ASTERISK (*) WILL NOT BE EXECUTED WHEN AN RH11 CONTROLLER IS DETERMINED TO BE THE RP07 INTERFACE.

TEST 1: UNIT UNDER TEST

SELECTS A USER SPECIFIED CONTROLLER AND ASCERTAINS THAT THE CONTROLLER DOES INDEED EXIST, IE VALID SSYN RESPONSE

TEST 2: RP CLEAR TEST

THIS TEST ASCERTAINS CORRECTNESS OF THE DEVICE CLEAR FUNCTION BY WRITTING RPBA TO ALL ONES, SETTING RP CLR (BIT 5) IN RPCS2 AND PROVING THAT AT LEAST SOME OF THE BITS DID CLEAR IN RPBA. IT IS NOT THE INTENT OF THE PROGRAM, AT THIS TIME, TO PROVE THE CORRECTNESS OF THE RPBA REGISTER, IT IS JUST TO PROVE THAT THE RPCLR FUNCTION DOES WORK.

TEST 3: RPCS2 STATIC FUNCTIONAL TEST

THIS WALKS A ONE, ZERO, ALL ZEROS, ALL ONES THROUGH RPCS2. THE RANGE WILL BE FROM BIT 0 TO BIT 2. EXECUTE A DEVICE CLEAR (RPCS2: CLR) AND ENSURE THAT REGISTER DID RESET.

TEST 4: RPWC STATIC FUNCTIONAL TEST

THIS TEST WALKS A ONE, ZERO, ALL ONES THROUGH RPWC. WRITE RE-GISTER TO ZERO, AND ENSURE THAT REGISTER DID RESET. BITS TO TEST = BIT O - BIT 15.

TEST 5: RPBA STATIC FUNCTIONAL TEST

THIS TEST WALKS A ONE, ZERO, ALL ZER/A, ALL ONES THROUGH RPBA. ALLOW A DEVICE CLEAR AND CHECK THAT REGISTER DID RESET. BITS TO TEST = BIT 1 - BIT 15.

TEST 6: SC AND TRE TEST #1 (RH11 ONLY)

THIS TEST WILL TEST RPCS2, MXF (BIT 09) TO PROPERLY SET AND CLEAR. ONCE PROVEN FUNCTIONALLY CORRECT, SET THE BIT (RPCS2, MXF) = 1 AGAIN AND OBSERVE RPCS1, SC AND RPCS1, TRE. BOTH BITS SHOULD BE SET DUE TO MISSED TRANSFER (RPCS2, MXF - BIT09) BEING SET. SET RPCS2, CLR = 1 AND ENSURE THAT BITS CLEARED.

TEST 7: IR AND OR TEST

THIS TEST WILL TEST RPCS2, IR TO SET AND ENSURE THAT IT DOES WITHIN A FIXED TIME LIMIT. WHEN IT SETS, WRITE RPDB ONCE AND THEN TEST FOR RPCS2, OR TO SET WITHIN A FIXED TIME LIMIT.

TEST 8: RPDB READ/WRITE TEST #1

THIS TEST WRITES RPDB WITH 3 DATA PATTERNS INTERLOCKED WITH THE CORRECT TRANSITION OF RPCS2, IR. WHEN RPCS2, OR SET, READ RPDB AND CHECK DATA FOR CORRECTNESS.

TEST 9: RPDB READ/WRITE TEST #2

THIS TEST WRITES RPDB TWICE WITH THE SAME DATA PATTERN, INTERLOCKED WITH THE CORRECT TRANSITION OF RPCS2, IR. READ RPDB TWICE, INTERLOCKED WITH THE CORRECT TRANSITION OF RPCS2, OR, AND ENSURE THAT DATA IS CORRECT.

TEST 10: RPDB READ/WRITE TEST #3

THIS TEST WRITES DATA TO RPDB USING 8 DIFFERENT DATA PATTERNS, INTERLOCKED WITH THE CORRECT TRANSITIONS OF RPCS2, IR. READ RPDB AND VERIFY CORRECTNESS OF DATA, INTERLOCKED WITH THE CORRECT TRANSITIONS OF RPCS2, OR.

TEST 11: MOPE, SC AND TRE TEST #2

THIS TEST WILL SET RPCS2, PAT=1. ENSURE THAT SC AND TRE IN RPCS1 = 0. ENSURE THAT RPCS2, MDPE DID NOT SET. WRITE RPDB ONCE AND VERIFY THAT RPCS1 SC AND TRE=1, DUE TO THE INVERTED (WRONG) PARITY. CHECK RPCS2, MDPE = 1. SET RPCS2, CLR AND ENSURE THAT BITS DID CLEAR.

TEST 12: *RPCS3 STATIC FUNCTIONAL TEST

THIS TEST WALKS A ONE, ZERO, ALL ZEROS, ALL ONES THROUGH RPCS3, FOR THE RANGE OF BITS 0-3 AND BIT 6. EXECUTE A DEVICE CLEAR AND ENSURE THAT REGISTER DID RESET.

TEST 13: *RPBAE STATIC FUNCTIONAL TEST

THIS TEST WALKS A ONE, ZERO, ALL ZEROS, ALL ONES THROUGH RPBAE. ISSUE DEVICE CLEAR AND ENSURE THAT REGISTER DID RESET.

TEST 14: *TEST DUPLICATED ADDRESS BIT 16

THIS TEST WILL RESET DEVICE AND SET RPCS1 A16 = 1, TEST THAT A16 ONLY SET. ENSURE THAT CORRESPONDING BIT IN RPBAE (BIT 0) ALSO = 1. ISSUE DEVICE CLEAR AND ENSURE THAT CORRESPONDING BITS DID CLEAR.

TEST 15: *TEST DUPLICATED ADDRESS BIT 17

THIS TEST WILL RESET THE DEVICE AND SET RPCS1 A17 = 1, TEST THAT A17 ONLY SET. ENSURE THAT CORRESPONDING BIT IN RPBAE (BIT 1) ALSO = 1. ISSUE DEVICE CLEAR AND ENSURE THAT CORRESPONDING BITS DID CLEAR.

TEST 16: TEST RPCS1 INTERRUPT ENABLE BIT

THIS TEST WILL RESET DEVICE AND SET RPCS1 IE (BIT 6) = 1. ENSURE THAT THE BIT UNDER TEST DID SET. ISSUE DEVICE CLEAR AND ENSURE THAT CORRESPONDING BITS DID CLEAR.

TEST 17: *TEST DUPLICATED INTERRUPT ENABLE BIT

THIS TEST SETS RPCS1, IE (BIT 06) = 1 ENSURE THAT RPCS3:IE ALSO SETS. ISSUE DEVICE CLEAR AND ENSURE THAT AP-PROPRIATE BITS CLEAR.

TEST 18: *IPCKO TEST

THIS TEST WILL ISSUE DEVICE CLEAR, THEN SET IPCKO (RPCS3 BIT 0)=1. CHECK THAT (RPCS2 IR (BIT 6) = 1) WITHIN A TIME PERIOD. WHEN IT DOES, WRITE O'S (ONCE) INTO RPDB. THIS SHOULD FORCE (RPCS1 TRE AND SC = 1). READ RPDB WITH (RPCS2 OR = 1) AND (RPCS2 MDPE SHOULD = 1). DO SECOND INITIALIZATION AND DEVICE SHOULD CLEAR OUT.

TEST 19: *IPCK1 TEST

THIS TEST WILL ISSUE DEVICE CLEAR, THEN SET IPCK1 (RPCS3 BIT 1)=1. CHECK THAT (RPCS2 IR = 1) WITHIN A TIME PERIOD.

WHEN IT DOES, WRITE O'S (ONCE) INTO RPDB.
THIS SHOULD FORCE (RPCS1 TRE AND SC = 1). READ
RPDB WITH (RPCS2 OR = 1) AND (RPCS2 MDPE (BIT 7)
SHOULD = 1). DC SECOND INITIALIZATION AND DEVICE
SHOULD CLEAR OUT.

TEST 20: *IPCK2 TEST

THIS TEST WILL ISSUE DEVICE CLEAR THEN SET IPCK2 (RPCS3 BIT 2)=1. CHECK THAT (RPCS2 IR = 1) WITHIN A TIME LIMIT.
WHEN IT DOES, WRITE O'S (TWICE) INTO RPDB. THIS SHOULD FORCE (RPCS1 TRE AND SC = 1). READ RPDB WITH (RPCS2 OR = 1) AND (RPCS2 MDPE SHOULD = 1). DO SECOND INITIALIZATION AND DEVICE SHOULD CLEAR OUT.

TEST 21: *IPCK3 TEST

THIS TEST WILL ISSUE DEVICE CLEAR, THEN SET IPCK3 (RPCS3 BIT 3)=1. CHECK THAT (RPCS2 IR = 1). WHEN IT DOES, WRITE RPBD WITH O'S (TWICE). CHECK FOR SAME ERRORS AS 14 ABOVE. ISSUE DEVICE CLEAR AND ENSURE THAT DEVICE DID CLEAR OUT.

TEST 22: RHXX INTERRUPT TEST 4 1

THIS TEST FORCES THE RHXX CONTROLLER TO INTERRUPT FROM THE HIGHEST PRIORITY LEVEL DOWN TO AND INCLUDING THE USER SPECIFIED PRIORITY LEVEL. IF THE DEVICE DOES ACTUALLY GENERATE AN INTERRUPT WHICH DOES GET RECOGNIZED BY THE PROGRAM, THE CONTROLLER PRIORITY CIRCUITRY IS SUSPECT.

TEST 23: RHXX INTERRRUPT TEST #2

THIS TEST ASSUMES THAT SC-O AND RPDS, ATA ALSO-O. IT THEN

ARMS THE CONTROLLER FOR AN INTERRUPT WHICH IT DOES NOT EXPECT TO RECEIVE. IF IT DOES, AND THERE IS NO APPARENT REASON FOR HAVING RECEIVED IT, IE SC=0 AND RDY DID NOT TOGGLE, THEN A HARDWARE MALFUNCTION MAY BE ASSUMED.

TEST 24: RHXX INTERRUPT TEST #3

THIS TEST SETS THE PRIORITY TO ONE LESS THAN THE USER SPECIFIED PRIORITY. IT THEN ARMS AN INTERRUPT AND FORCES THE CONTROLLER TO TOGGLE RDY. THESE ACTIONS SHOULD GENERATE AND INTERRUPT TO THE CORRECT VECTOR ADDRESS. IF THE INTERRUPT DOESN'T OCCUR, OR OCCURS AT THE WRONG ADDRESS, A HARDWARE MALFUNCTION IS ASSUMED.

TEST 25: BASIC DRIVE SELECT TEST

THIS TEST REQUIRES MANUAL INTERVENTION. IT WILL BE SKIPPED IF THE DIAGNOSTIC IS RUN IN UNATTENDED MODE, OR THE USER RESPONDS "N" TO THE QUESTION: "FOR DRIVE) N, WILL YOU PLACE THE MASSBUS DISABLE SWITCH J12-SO1 IN THE 'DISABLED' (DOWN) POSITION?" TO RUN THIS TEST, USE THE DISABLE SWITCH (J12-SO1) TO DISCONNECT THE "DRIVE UNDER TEST" FROM THE MASSBUS. NOW READ REG OF (RPDT) AND VERIFY THAT NO DRIVE RESPONDS TO THIS DRIVE'S ADDRESS (REGISTER SHOULD = 0). WHEN THE TEST IS COMPLETE, THE USER WILL BE REQUIRED TO RE-ENABLE THE MASSBUS DISABLE SWITCH IN ORDER TO RUN ALL OTHER TESTS.

TEST 26: DEMAND AND TRANSFER TEST

THIS TEST WILL READ DRIVE TYPE REGISTER (SHOULD NOT EQUAL 0), BUT IGNORE DATA AND ERRORS. THE DRIVE TYPE REGISTER SHOULD NOT =0, ELSE THE TEST WILL FAIL.

TEST 27: UNIQUE UNIT UNDER TEST

THIS TEST WILL GUARANTEE THAT A UNIT UNDER TEST DOES NOT RESPOND TO ANY OTHER DRIVE ADDRESS ON THE MASSBUS.

WRITE DATA PATTERN 46(8) TO REGISTER O OF DRIVE UNDER TEST

WRITE O'S TO REGISTER O OF ALL OTHER DRIVES ON THE BUS.

AFTER WRITING EACH DRIVE ON THE BUSS, READ AND VERIFY THAT REGISTER O IN THE DRIVE UNDER TEST HAS NOT BEEN MODIFIED.

TEST 28: READ DRIVE TYPE TEST

THIS TEST WILL READ DRIVE TYPE REGISTER AND ACCEPT 20042, 24042. ANY OTHER VALUE WILL PRODUCE AN ERROR MESSAGE.

TEST 29: RPDA CONSTANT'S TEST

THIS TEST WILL WRITE-READ-VERIFY 1'S AND O'S IN RPDA, AND AND FLOAT 1'S AND O'S THROUGH RPDA.

TEST 30: PARITY BIT TRANSITION TEST

THIS TEST WILL VERIFY THAT PARITY BIT SENT FROM DRIVE TO RHXX IS

NOT STUCK AT 1 OR 0. (USE RPDA REGISTER), WRITE 000000 => P=1 READ/CHECK FOR PARITY (SHOULD NOT GET A CONTROLLER PARITY ERROR), WRITE 000001 => P=0 READ/CHECK FOR PARITY (SHOULD NOT GET A CONTROLLER PARITY ERROR)

TEST 31: FLOATING DATA PARITY TEST

THIS TEST WILL WRITE ALL 1'S AND ALL O'S, THEN FLOAT 1'S AND O'S THROUGH RPDA, READING RPER1 AFTER EACH WRITE, AND VERIFY THAT NO PARITY ERROR SET IN RPER1.

TEST 32: REGISTER SELECT TEST 1

THIS TEST WILL WRITE EACH WRITEABLE REGISTER WITH THE PATTERN 70(8)
READ IT BACK AND VERIFY FOR CORRECTNESS. REGISTERS USED IN THE TEST ARE: RPCS1. RPDA. RPDC. RPOF.

TEST 33: REGISTER SELECT TEST 2

ENSURE THAT EACH WRITEABLE REGISTER HAS A UNIQUE ADDRESS.
WRITEABLE REGISTERS 0, 5, 11, 12
DATA = 70(8) REF REGISTERS,
DATA = 0 OTHER REGISTERS
WRITE 70(8) INTO SOME MASSBUS WRITEABLE REGISTER
WRITE 0'S TO EVERY OTHER ADDRESSABLE REGISTER ON THE MASSBUS.
AFTER EACH WRITE (STOP-2), READ AND VERIFY THAT THE REFERENCE
REGISTER HAS NOT BEEN MODIFIED (IF SO, IDENTIFY CONTROL LINE PAIR BY REGISTER NUMBERS)
REPEAT 1 - 3 FOR ALL WRITEABLE REGISTERS.

TEST 34: DATA TEST RPMR1

THIS TEST WILL WRITE, READ/VERIFY THE MAINTENANCE REGISTER (RPMR1) USING PATTERNS:

ALL 0'S ALL 1'S FLOAT 0'S FLOAT 1'S

POSSIBLE FAULT: J8

TEST 35: MASSBUS INITIALIZE DRIVE CLEAR TEST

THIS TEST WILL SET RPMR1: DMD = 1, THEN ISSUE RPCS2, CLR, CHECK DMD = 0. IF 0, MARK THE EVENT. SET DMD = 1 AGAIN, THEN ISSUE DRIVE CLEAR COMMAND. VERIFY THAT DMD DID AGAIN CLEAR.

IF DMD DIDN'T CLEAR WITH EITHER RPCS2, CLR OR DRIVE CLEAR COMMAND, POSSIBLE FAULTS ARE: J12 OR J8.

IF DMD DIDN'T CLEAR WITH RPCS2, CLR, BUT DID CLEAR WITH DRIVE CLEAR COMMAND, POSSIBLE FAULTS ARE J12, CABLE, OR THE RHXX.

IF DMD DIDN'T CLEAR WHEN DRIVE CLEAR COMMAND WAS EXECUTED, BUT DID CLEAR WHEN RPCS2, CLR WAS ASSERTED.

POSSIBLE FAULTS ARE J11. OR J12.

TEST 36: PARITY INITIALIZE TEST

THIS TEST WILL CHECK PARITY FOLLOWING MASSBUS INITIALIZE.
PROGRAM WILL THEN READ RPER1 AND VERIFY THAT RPER1, PAR AND ILF
ARE CLEAR.

TEST 37: PARITY ERROR DETECTION TEST

IMPLIED IN THIS TEST IS THAT THE PREVIOUS TEST DID SUCCESSFULLY PASS. THIS TEST CREATES A "DOUBLE FAULT", WHICH IS USED TO DETERMINE THAT THE PARITY DETECTION CIRCUITS WORK PROPERLY, AND THAT ANY COMMAND IS REJECTED WHEN A PARITY ERROR IS DETECTED.

THE PROGRAM WILL SET RPCS2, PAT AND ISSUE A KNOWN ILLEGAL COMMAND, CHECK RPCS1 AND VERIFY THAT GO (BIT 0) DID RESET READ RPER1 AND CHECK FOR FOLLOWING:

- 1. IF RPER1, PAR IS THE ONLY ERROR BIT SET, THERE WAS NO ERROR.
- 2. IF RPER1, ILF IS THE ONLY ERROR BIT FOUND, REPLACE J12.
- 3. IF RPER1, ILF AND PAR ARE BOTH SET OR BOTH CLEAR, REPLACE EITHER J9, J10, OR J12. (THERE IS A GOOD CHANCE THAT THE 2901 IS BROKEN.)

TEST 38: CORRECT PARITY TEST

THIS TEST CHECKS A VARIETY OF DATA PATTERNS AND VERIFIES THAT NO PARITY ERRORS OCCURRED. THE OPERATING SEQUENCE IS AS FOLLOWS:

1. LOAD DATA PATTERNS INTO THE RPDA REGISTER.
2. READ THE RPDA REGISTER AND ENSURE THAT RHXX DOES NOT DETECT ANY PARITY ERRORS.
PATTERNS:

ALL ONES ALL ZEROS FLOAT 1'S FLOAT 0'S

TEST 39: CLEAR COMPOSITE ERROR BIT TEST

THIS TEST ENSURES THAT RPDS, ERR IS NOT STUCK AT A ONE. IF IT IS (I) AND RPER1, RPER2 AND RPER3 ARE O, A PERMANENT ERROR IS REPORTED, ELSE A COMPOSITE ERROR IS REPORTED. OPERATING SEQUENCE IS AS FOLLOWS:

- 1. ISSUE A CONTROLLER CLEAR.
 2. READ RPDS AND ENSURE THAT ERR (BIT 14) IS CLEAR.
- TEST 40: SET AND CLEAR COMPOSITE ERROR TEST

THIS TEST ENSURES THAT COMPOSITE ERROR RPDS, BIT 14 WILL SET AND CLEAR. SEQUENCE IS AS FOLLOWS:

- 1. SET PAT IN RPCS2, THEN WRITE DATA TO RPDA. THIS SHOULD CAUSE A PARITY ERROR,
- 2. READ RPDS AND CHECK THAT RPDS, ERR=1. ALSO CHECK THAT RPER1, PAR IS ALSO SET,
- 3. ISSUE A CONTROLLER CLEAR,
- 4. READ RPDS AND ENSURE THAT ERR (BIT 14)=0. READ RPER1 AND ENSURE THAT PAR (BIT 3)=0.

TEST 41: CLEAR ATA TEST

THIS TEST ENSURES THAT RPDS, ATA (BIT 15) IS NOT STUCK AT 1. SEQUENCE IS AS FOLLOWS:

- 1. ISSUE CONTROLLER CLEAR.
- 2. READ RPDS. ATA AND VERIFY THAT IT IS CLEAR.

TEST 42: SET AND CLEAR ATA TEST

THIS TEST, BY FORCING AN ERROR, TESTS THE CORRECT FUNCTIONALITY OF RPDS, ATA. SEQUENCE FOLLOWS:

- 1. SET RPCS2, PAT (BIT 04)=1, THEN WRITE DATA TO RPDA, FORCING A PARITY ERROR.
- READ RPDS AND CHECK ATA (BIT 15) AND ERR (BIT 14) TO BOTH BE SET.
- 3. ISSUE A DRIVE CLEAR,
- 4. READ RPDS AND VERIFY THAT ATA (BIT 15) AND ERR (BIT 14) DID BOTH CLEAR.
- 5. REPEAT STEP 1,
- 6. SET RPCS2, CLR (BIT 5),
- 7. REPEAT STEP 4.

TEST 43: CLEAR RPAS TEST

THIS TEST ENSURES THAT NO BITS ARE SET IN RPAS. SEQUENCE IS AS FOLLOWS:

- 1. SET RPCS2. CLR (BIT 5)=1.
 2. READ RPAS AND ENSURE THAT IT IS CLEAR.

NOTE

IF THIS TEST IS FAILED. THE CONTENTS OF THE PSEUDO REGISTER (RPAS) WILL BE PRINTED OUT, AND THE CONTENTS OF THE STATUS REGISTER FOR EVERY OTHER DRIVE ON THE MASSBUS. IF THE CAUSE OF THE FAILURE IS ANOTHER DRIVE ON THE BUS. EACH DRIVE MAY NEED TO BE POWERED DOWN ONE AT A TIME, UNTIL THE BAD DRIVE IS FOUND.

TEST 44: RPAS CORRECT POSITION DECODE TEST

THIS TEST CHECKS FOR THE CORRECT POSITION OF THE BIT DECODED IN THE PSEUDO REGISTER. SEQUENCE OF TEST FOLLOWS: 1. SET RPCS2, CLR (BIT 05)=1,

SET PAT IN RPCS2. THEN WRITE DATA TO RPDA, FORCING A PARITY ERROR,

3. READ RPAS AND VERIFY THAT BIT POSITION IS CORRECT FOR THE DRIVE UNDER TEST. ALSO VERIFY THAT RPDS, ATA AND ERR IS ALSO SET.

4. WRITE RPAS WITH THE CORRECT BIT FOR THE DRIVE

UNDER TEST.

READ RPAS AND VERIFY THAT IT DID CLEAR. RPDS AND ENSURE THAT ATA CLEARED, BUT ERR DID NOT CLEAR.

TEST 45: RPAS UNIQUE POSITION DECODE TEST

THIS TEST VERIFIES THE UNIQUENESS OF THE PSEUDO REGISTER'S BIT WHICH CORRESPONDS TO THE UNIT-UNDER-TEST. SEQUENCE IS AS FOLLOWS:

1. SET RPCS2, CLR=1.
2. SET RPCS2, PAT=1, AND WRITE DATA TO RPDA, FORCING YET ANOTHER PARITY ERROR.

3. READ RPAS AND ENSURE THAT THE PROPER BIT IS SET. ENSURE THAT RPDS, ATA AND ERR ARE ALSO SET.

4. WRITE THE PSEUDO REGISTER WITH THE COMPLIMENT OF THE EXPECTED DATA IN ITEM 3.

5. READ RPAS AND ENSURE THAT THE BIT FOUND IN ITEM 3 DID NOT CLEAR. VERIFY THAT RPDS, ATA AND ERR DID NOT CLEAR.

TEST 46: CLEAR MASSBUS ATTN TEST

THIS TEST VERIFIES THAT MASSBUS ATTN IS NOT STUCK AT A 1. SEQUENCE IS AS FOLLOWS:

SET RPCS2, CLR=1, READ RPCS1 AND VERIFY THAT SC (BIT 15) DID NOT SET (FOR RH20, ENSURE THAT ATTN=0).

NOTE

IF ANOTHER DRIVE IS SUSPECTED TO BE CAUSING THE MALFUNCTION, EACH DRIVE ON THE BUS MUST BE POWERED DOWN, ONE AT A TIME, UNTIL THE OFFENDING UNIT IS LOCATED.

TEST 47: SET AND CLEAR MASSBUS ATTN

THIS TEST VERIFIES THAT THE MASSBUS LINE "ATTN" CAN BE SET AND CLEARED. SEQUENCE FOLLOWS:

- SET RPCS2, PAT=1, AND WRITE RPDA WITH DATA. FORCING A PARITY ERROR
- READ RPCS1, SC (BIT 15) AND VERIFY THAT IT SET. (USE "ATTN" IN RH20.).
- 3. SET RPCS2, CLR = 1, AND ENSURE THAT RPCS1, SC DID CLEAR.

TEST 48: READ-IN-PRESET COMMAND TEST

THIS IS THE FIRST TEST TO ISSUE A VALID COMMAND TO THE RPO7. IT ENSURES THAT COMPOSITE ERROR DOES NOT SET AS A RESULT OF THE COMMAND EXECUTION. SEQUENCE FOLLOWS:

1. SET RPCS2. CLR=1.

2. ISSUE READ-IN-PRESET COMMAND.

3. VERIFY THAT RPDS. ERR=O.

TEST 49: RHXX UNIQUE REGISTER TEST

THIS TEST LOADS EACH WRITABLE RHXX REGISTER WITH A UNIQUE DATA PATTERN, AND EXPECTS THAT THE PATTERN WILL NOT CHANGE AS FURTHER REGISTERS ARE WRITTEN.

TEST 50: RPLA STATIC TEST

THIS TEST CHECKS RPLA FOR EVERY VALID SECTOR ADDRESS.

IF, WHILE USING A MAINTENANCE TIMER, A SECTOR ADDRESS IS NOT FOUND IN TIME, AN ERROR IS REPORTED.

TEST 51: RPMR1 - RPER2 WRAP AROUND TEST

THIS TEST WRITE RPMR1 - LOW BYTE AND, AFTER WAITING A REASONABLE AMOUNT OF TIME FOR HARDWARE AND FIRMWARE LATENCY, EXPECTS RPER2, LOW BYTE, TO CONTAIN THE SAME DATA AS JUST WRITTEN INTO RPMR1. IF THE DATA IS NOT THE SAME, A HARDWARE MALFUNCTION MAY BE ASSUMED.

TEST 52: ERROR LOG DUMP

THIS ROUTINE UNLOADS THE RPO7 INTERNAL ERROR LOG WHEN IT WAS REQUESTED BY THE USER. CONTENTS ARE NOT CHECKED, JUST REPORTED TO THE USER.

TEST 53: COMPOSITE MICROCODE TEST

THIS TEST IS A COMPOSITE TEST WHICH RUNS ALL OF THE AVAILABLE RPO7 MICRODIAGNOSTICS. THE ROUTINE EMULATES THE RPO7 POWER UP SEQUENCE. ERROR CODES ARE REPORTED IN HEX AS ARE THE ROUTINE NUMBERS WHICH WERE RUNNING AT THE TIME OF THE FAILURE.

TEST 54: READ-IN-PRESET FUNCTIONAL TEST

THIS TEST SETS UP RPDC, RPDA = -1, AND SETS RPOF: FMT16=1. IT THEN ISSUES A RIP AND EXPECTS RPDC AND RPDA TO BE ZERO. IT ALSO EXPECTS RPDC AND RPDA TO BE ZERO. IT ALSO EXPECTS RPOF: FMT TO BE RESET.

TEST 55: COMMAND REJECT TEST

THIS TEST, INVERTS PARITY AND ISSUES A RIP COMMAND. IF THE COMMAND EXECUTED WITH A PARITY ERROR PRESENT, IE RPDC OR RPDA=0 OR FMT16=0, THEN A HARDWARE MALFUNCTION MAY BE ASSUMED.

TEST 56: DATA TEST # 1

THIS TEST EXECUTES IN THE FOLLOWING MANNER; READ TRACK DESCRIPTORS FROM ANYWHERE ON THE

PACK. THE PURPOSE IS TO ENSURE THAT THE DATA LINES TOGGLE. REPEAT PROCESS UNTIL ALL TESTABLE LINES HAVE TOGGLED (BITS O THROUGH 15). IGNORE ALL ERRORS: THEY MAY BE CAUSED BY CORRUPTED TRACK DESCRIPTOR RECORDS.

IF AFTER READING EVERY TRACK AND CYLINDER ON THE DRIVE, ALL DATA LINES STILL HAVE NOT TOGGLED FROM 0 TO 1, AN ERROR WILL BE REPORTED.

TEST 57: DATA TEST #2

THIS TEST EXECUTES IN THE FOLLOWING MANNER:

1. ATTEMPT TO ACCESS A C.E. CYLINDER WITHOUT SETTING RPMR1:DMD (BIT 15). EXPECT RPER1, IAE TO SET.

2. ISSUE A RECAL COMMAND, THEN CHECK RPCC = 0.

2. ISSUE A RECAL COMMAND, THEN CHECK RPCC = 0.

3. ATTEMPT TO ACCESS A C.E. CYLINDER WITH RPMR1: DMD=1, VERIFY CORRECT POSITION BY COMPARING RPDC WITH RPCC.

TEST 58: DATA TEST #3

THIS TEST EXECUTES IN THE FOLLOWING MANNER:

1. ATTEMPT TO FIND A DEFECT FREE C.E. TRACK BY DETERMINING PRESENCE OF A TO WITH NULL SET INFORMATION. IF ONE IS NOT FOUND DISPATCH MESSAGE STATING THAT C.E. TRACK #0 WILL BE FORMATTED PRIOR TO PERFORMING OPERATION.

2. FORMAT TRACK AND VERIFY SAME (USING NULLSET INFORMATION).
3. PERFORM SIMPLE DATA TESTING ON THE FORMATTED TRACK.

SIMPLE DATA TESTING TO INCLUDE:

- 1. WRITING DATA PATTERNS WITHOUT ERROR. RPWC WILL BE TESTED TO = 0, RPBA WILL BE TESTED TO INCREMENT.
- 2. WRITE CHECK DATA FORCING A WRITE CHECK ERROR. BUFFER POSITION OF THE ERROR WILL BE VERIFIED USING THE RPBA REGISTER.
- 3. MRITE CHECK DATA WITHOUT ERROR.
 4. ISSUE A RIP COMMAND, FOLLOWED BY A READ HEADER AND DATA COMMAND ON CYL 630 TRACK JUST FORMATTED. VERIFY THAT RPER1, FER DID SET.

TEST 59: RPER1 NEGATIVE BIT TEST

THIS TEST ISSUES AN ILLEGAL FUNCTION AND EXPECTS RPER1, ILF TO SET. IT THEN ISSUES A COMMAND WITH THE WRONG SECTOR, WRONG TRACK ADDRESS AND EXPECTS RPER1, IAE TO SET AFTER EACH COMMAND.

TEST 60: USER SELECTED MICRODIAGNOSTIC ROUTINE

THIS TEST, IF MANUAL INTERVENTION IS ALLOWED AND THE USER; THROUGH USE OF THE SOFTWARE QUESTIONS, DID ANSWER 'YES' TO THE QUESTION 'DO YOU WANT TO SELECT ONE MICRODIAGNOSTIC FOR EXECUTION?', WILL

ALLOW THE USER TO SPECIFY A MICRODIAGNOSTIC ROUTINE FOR EXECUTION.
ONLY LEGAL 'HEX' CHARACTERS WILL BE ACCEPTED AS INPUT. ANY PAIR
OF HEX CHARACTERS WILL BE ACCEPTED. IT IS UP TO THE USER TO
INSURE THAT A VALID ROUTINE IS SELECTED, OTHERWISE THE DRIVE WILL
PRODUCE AN ERROR FOR AN INVALID ROUTINE SELECTION. THIS ROUTINE
IS INTENDED PRIMARILY FOR DEBUG OF A PROBLEM, NOT SYSTEM ACCEPTANCE.

ONE APPLICATION OF THIS ROUTINE COULD BE TO LOOP 'FOREVER' ON A USER SELECTED MICRO DIAGNOSTIC ROUTINE, POSSIBLY TO DETECT INTERMITTENT PROBLEMS. THE COMMAND STRING TO PERFORM THIS WOULD BE AS FOLLOWS: 'STA/TES:60/FLA:<OPTION LIST>'. THE OPTION IN THIS CASE WOULD BE 'LOT' (LOOP ON TEST). TO CHANGE THE ROUTINE, THE USER WOULD AGAIN USE THE 'START' COMMAND: 'STA/TES:60/FLA:LOT'. THIS ACTION WOULD PERMIT THE USER TO CHANGE THE ROUTINE SELECTED FOR EXECUTION. ANY OTHER COMMAND, IE 'RES' OR 'CON', ETC, WILL USE THE ROUTINE PREVIOUSLY SELECTED BY THE USER, AND WILL NOT PERMIT THE USER TO CHANGE THE SELECTED ROUTINE.

TEST 61: NOP FUNCTIONAL TEST

THIS TEST VERIFIES THE CORRECT FUNCTIONALITY OF THE NOP COMMAND. INITIALLY, THE TEST VERIFIES THAT RPDS, DRY = 1, THEN ISSUES THE COMMAND. RPDS, DRY IS AGAIN CHECKED TO BE SET WITHIN A FIXED TIME LIMIT. IF THE LIMIT EXPIRES AND RPDS, DRY IS NOT SET, A 'DRIVE HUNG' MESSAGE WILL BE GENERATED. COMPOSITE ERROR AND TRANSFER ERROR ARE ALSO CHECKED AND VERIFIED TO NOT BE ASSERTED.

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SEQ 0027

.REM &

VERSION (CZRJM-A-O)

1. THIS VERSION IS THE STARTING POINT FOR CX DIAGNOSTIC SUPPORT OF THE RPO7 DISK DRIVE.

VERSION (CZRJM-B-0)

1. CORRECTED A DIAGNOSTIC COMMAND TERMINATION PROBLEM IN TEST 51. WRAP AROUND TEST. THE TEST NOW ISSUES AN "FF" EXIT DIAGNOSTIC COMMAND AFTER EVERY "FE" DIAGNOSTIC COMMAND.

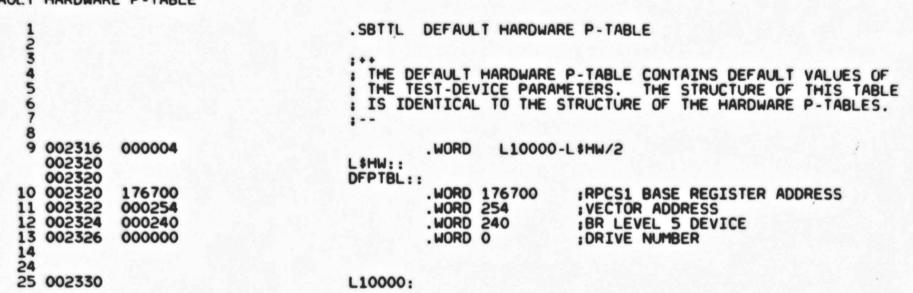
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    002022
            002320
                                               WORD
                                                       L SHW
    002024
                                      L#SPTP::
                                                                PTR. TO S.W. PTABLE
    002024
            002332
                                               . WORD
                                                       L$SW
    002026
                                      L$LADP::
                                                                DIAG. END ADDRESS
    002026
            045666
                                               . WORD
                                                       L$LAST
    002030
                                      L#STA::
                                                                RESERVED FOR APT STATS
    002030
                                               . WORD
            000000
                                                       0
    002032
                                      L$C0::
    002032
            000000
                                               . WORD
                                                       0
    002034
                                      L$DTYP::
                                                                DIAGNOSTIC TYPE
    002034
                                               . WORD
            000000
                                                       0
    002036
                                      L$APT::
                                                                : APT EXPANSION
    002036
                                               . WORD
            000000
                                                       0
    002040
                                      L#DTP::
                                                                PTR. TO DISPATCH TABLE
    002040
                                               . WORD
            002124
    002042
                                      L$PRIO::
                                                                DIAGNOSTIC RUN PRIORITY
    002042
            000000
                                               . WORD
                                                       0
    002044
                                      L$ENVI::
                                                                FLAGS DESCRIBE HOW IT WAS SETUP
    002044
            000000
                                               . WCRD
                                                       0
                                      L$EXP1::
    002046
                                                                :EXPANSION WORD
```

			and the second	
	002046	000000	. WORD	0
	002050		L\$MREV::	SVC REV AND EDIT #
	002050	003	.BYTE	C\$REVISION
	002051	003	.BYTE	C\$EDIT
	002052		L\$EF::	DIAG. EVENT FLAGS
	002052	000000	. WORD	0
	002054	000000	. WORD	0
	002056		L\$SPC::	
	002056	000000	. WORD	0
	002060		L\$DEVP::	; POINTER TO DEVICE TYPE LIST
	002060	006354	. WORD	L\$DVTYP
	002062		L\$REPP::	PTR. TO REPORT CODE
	002062	000000	. WORD	0
	002064		L\$EXP4::	
	002064	000000	. WORD	0
	002066		L\$EXP5::	
	002066	000000	. WORD	0
	002070		L\$AUT::	:PTR. TO ADD UNIT CODE
	002070	000000	. WORD	0
	002072		L\$DUT::	PTR. TO DROP UNIT CODE
	002072	000000	. WORD	0
	002074		L\$LUN::	LUN FOR EXERCISERS TO FILL
	002074	000000	, WORD	0
	002076		L DESP::	POINTER TO DIAG. DESCRIPTION
	002076	006362	, WORD	L\$DESC
	002100		L\$LOAD::	GENERATE SPECIAL AUTOLOAD EMT
	002100	104035	EMT	E\$LOAD
	002102		L\$ETP::	POINTER TO ERRTBL
	002102	000000	, WORD	0
	002104		L\$ICP::	PTR. TO INIT CODE
	002104	020652	. WORD	L\$INIT
	002106		L\$CCP::	PTR. TO CLEAN-UP CODE
	002106	021350	. WORD	L\$CLEAN
	002110		L\$ACP::	PTR. TO AUTO CODE
	002110	021346	. WORD	L\$AUTO
	002112		L\$PRT::	PTR. TO PROTECT TABLE
	002112	020644	, WORD	L\$PROT
	002114		L&TEST::	: TEST NUMBER
	002114	000000	. WORD	0
	002116		L\$DLY::	DELAY COUNT
	002116	000000	. WORD	0
	002120		LSHIME::	PTR. TO HIGH MEM
	002120	000000	. WORD	0
129				

```
.SBTTL DISPATCH TABLE
                                    : THE DISPATCH TABLE CONTAINS THE STARTING ADDRESS OF EACH TEST.
                                    : IT IS USED BY THE SUPFRVISOR TO DISPATCH TO EACH TEST.
8 002122 000075
                                             . WORD
                                                     61
  002124
                                 L$DISPATCH::
  002124
          021514
                                             . WORD
  002126
          021612
                                             . WORD
                                                      12
  002130
          022000
                                             . WORD
                                                     T3
  002132
          022142
                                             . WORD
                                                      T4
  002134
          022302
                                             . WORD
                                                      T5
          022444
  002136
                                             . WORD
                                                      16
  002140
          022774
                                             . WORD
                                                      T7
  002142 023270
                                             . WORD
                                                      18
  002144 023442
                                             . WORD
                                                      T9
  002146
         023602
                                             . WORD
                                                     T10
  002150
          023772
                                             . WORD
                                                     T11
  002152
          024152
                                             . WORD
                                                     112
  002154
          024334
                                             . WORD
                                                     T13
          024510
  002156
                                             . WORD
                                                     T14
  002160
          025034
                                             . WORD
                                                     T15
  002162
          025360
                                             . WORD
                                                     T16
  002164
          025540
                                             . WORD
                                                     T17
          025732
026230
  002166
                                             . WORD
                                                      T18
  002170
                                             . WORD
                                                      T19
  002172
          026526
                                             . WORD
                                                      T20
  002174
         027044
                                             . WORD
                                                      T21
  002176 027362
                                             CROW.
                                                      T22
  002200
         027634
                                             . WORD
                                                      T23
  002202
          030102
                                             . WORD
                                                      T24
  002204
          030322
                                             . WORD
                                                      T25
  002206
          030514
                                             . WORD
                                                      T26
  002210
          030624
                                             . WORD
                                                      T27
  002212
          031016
                                             . WORD
                                                      T28
  002214
          031154
                                             . WORD
                                                     T29
  002216
          031322
                                             . WORD
                                                     T30
  002220
          031446
                                             . WORD
                                                      T31
  002222
          031600
                                             . WORD
                                                      T32
  002224
         031736
                                             . WORD
                                                      T33
  002226
         032136
                                                      T34
                                             . WORD
  002230
         032302
                                             . WORD
                                                      T35
  002232
          032562
                                             . WORD
                                                      136
          032720
  002234
                                             . WORD
                                                      T37
  002236
          033142
                                             . WORD
                                                      T38
  002240
          033324
                                             . WORD
                                                      T39
  002242
          033454
                                             . WORD
                                                      T40
  002244
          033732
                                             . WORD
                                                      T41
  002246
          034032
                                             . WORD
                                                      142
  002250
          034320
                                              . WORD
                                                      T43
          034424
  002252
                                             . WORD
                                                      T44
                                             . WORD
  002254
          034636
                                                      T45
  002256
          035110
                                                      T46
  002260
          035206
                                             . WORD
                                                      T47
  002262 035324
                                             . WORD
                                                      T48
```

002264	035502	, WORD	T49
002266	035760	. WORD	T50
002270	036232	. WORD	T51
002272	036742	, WORD	T52
002274	037712	WORD	153
002276	040140	. WORD	T54
002300	040374	, WORD	T55
002302	040634	, WORD	T56
002304	041166	. WORD	T57
002306	041706	, WORD	T58
002310	044014	WORD	T59
002312	044332	. WORD	T60
002314	044624	. WORD	T61



1	.SBTTL SOFTWARE P-TA	BLE
3 4 5 6	THE SOFTWARE P-TABLE PARAMETERS THAT CAN	E CONTAINS THE VALUES OF THE PROGRAM BE CHANGED BY THE OPERATOR.
8 002330 000005		1-L\$SW/2
002332 002332	L\$SW:: SFPTBL::	
9 002332 000001	SWTTST: .WORD 1	:USED TO SELECT MASSBUS INTERFACE TEST:
11 002334 000001	ERRDMP: .WORD 1	:DISABLED= 0, ENABLED= 1 :USED TO ENABLE THE RP07 ERROR LOG DUMP
12 002336 000000	SELTRK: .WORD 0	JUSED TO SELECT A TRACK ADDRESS IN THE MICRO-
13 14 002340 000000	TRAKAD: . WORD O	:DIAGNOSTIC TEST :USED TO GET THE USER TRACK ADDRESS
15 002342 000000 16 24	SELRUN: WORD 0	USED TO DETERMINE IF USER SELECTED A MICRO-
25 002344	L10001:	

```
12
                                     .SBTTL GLOBAL EQUATES SECTION
40
50
52
53
54
55
                                     ; THE GLOBAL EQUATES SECTION CONTAINS PROGRAM EQUATES THAT
                                     ; ARE USED IN MORE THAN ONE TEST.
56
                                     : BIT DEFINITIONS
            100000
                                     BIT15== 100000
            040000
                                     BIT14== 40000
                                     BIT13== 20000
            020000
                                     BIT12 == 10000
            010000
            004000
                                     BIT11 == 4000
            002000
                                     BIT10== 2000
            001000
                                     BIT09== 1000
            000400
                                     BIT08== 400
            000200
                                     BIT07== 200
            000100
                                     BIT06== 100
            000040
                                     BIT05== 40
            000020
                                     BIT04== 20
            000010
                                     BIT03== 10
            000004
                                     BIT02 -- 4
            000002
                                     BIT01 == 2
            000001
                                     BIT00== 1
            001000
                                     BIT9 -- BIT09
            000400
                                     BITS -- BITOS
            000200
                                     BIT7 -- BITO7
                                     BITS -- BITO6
            000100
            000040
                                     BITS -- BITOS
            000020
                                     BIT4-- BITO4
            000010
                                     BIT3 == BITO3
            000004
                                     BIT2 -- BITO2
            000002
                                     BIT1 -- BIT01
            000001
                                     BITO -- BITOO
                                     : EVENT FLAG DEFINITIONS
                                         EF32:EF17 RESERVED FOR SUPERVISOR TO PROGRAM COMMUNICATION
            000040
                                     EF.START --
                                                                                           START COMMAND WAS ISSUED
            000037
                                     EF.RESTART --
                                                      31.
                                                                                           RESTART COMMAND WAS ISSUED
            000036
                                     EF.CONTINUE --
                                                      30.
                                                                                          CONTINUE COMMAND WAS ISSUED
                                                      29.
            000035
                                     EF . NEW --
                                                                                          A NEW PASS HAS BEEN STARTED
                                     EF.PWR --
            000034
                                                                                        : A POWER-FAIL/POWER-UP OCCURRED
                                       PRIORITY LEVEL DEFINITIONS
            000340
                                     PRI07== 340
            000300
                                     PRI06 -- 300
            000240
                                     PRI05 -- 240
            000200
                                     PRI04 == 200
            000140
                                     PRI03 -- 140
            000100
                                     PRI02 -- 100
```

000040 000000	PRIO1== 40 PRIO0== 0
	OPERATOR FLAG BITS
000004	ÉVL== 4
000010	LOT 10
000020	ADR== 20
000040	IDU== 40
000100	ISR== 100
000200	UAM== 200
000400	BOE== 400
001000	PNT== 1000
002000	PRI== 2000
004000	IXE== 4000
010000	IBE== 10000
020000	IER== 20000
040000	LOE== 40000
100000	HOE== 100000

```
.SBTTL RHXX REGISTERS
 23
                                     CONTROL AND STATUS REGISTER 1 (RPCS1)
            000100
                                     IE
                                            = 100
                                                                        :INTERRUPT ENABLE (BIT #6)
            000200
                                     RDY
                                            = 200
                                                                        :READY (BIT #7)
            000400
                                                                        HIGH ORDER BUS ADDRESS BIT (BIT #8)
                                     A16
                                            - 400
            001000
                                            =1000
                                     A17
                                                                        HIGH ORDER BUS ADDRESS BIT (BIT 49)
 9
            002000
                                     PSEL
                                            =2000
                                                                        :PORT SELECT (BIT #10)
                                                                       :MASSBUS PARITY ERROR (BIT #13)
:TRANSFER ERROR (BIT #14)
10
            020000
                                     MCPE
                                            -20000
11
                                     TRE
            040000
                                            -40000
100000
                                            -100000
                                                                        SPECIAL CONDITION (BIT #15)
                                     :WORD COUNT REGISTER (RPWC)
                                      :EACH BIT IS CALLED BY BIT NUMBER
                                     ;BUS ADDRESS REGISTER (RPBA)
                                     ; EACH BIT IS CALLED BY BIT NUMBER
                                     :CONTROL AND STATUS REGISTER 2 (RPCS2)
            000001
                                                                        ;UNIT SELECT (BIT 40)
                                     US2 = US4 =
            000002
                                              5
                                                                        :UNIT SELECT (BIT #1)
            000004
                                                                        UNIT SELECT (BIT #2)
                                     BAI - 10
            000010
                                                                        BUS ADDRESS INCREMENT INHIBIT (BIT #3)
                                          - 20
            000020
                                     PAT
                                                                        MASSBUS PARITY INHIBIT (BIT #4)
                                     CLR
                                           .
            000040
                                              40
                                                                        :CLEAR (BIT 45)
                                     IR
OR
            000100
                                                                        :INPUT READY (BIT 46)
                                           .
                                              100
                                              200
                                                                        OUTPUT READY (BIT 47)
            000200
            000400
                                     MOPE
                                           .
                                              400
                                                                        MASSBUS PARITY ERROR (BIT #8)
            001000
                                     MXF
                                              1000
                                                                        MISSED TRANSFER ERROR (BIT 49)
                                              2000
                                                                        PROGRAM ERROR (BIT #10)
            002000
                                     PGE
                                           .
            004000
                                     NEM
                                              4000
                                                                        NON EXISTENT MEMORY (BIT #11)
                                     NED
                                                                        NON EXISTENT DRIVE (BIT #12)
            010000
                                              10000
                                              20000
                                                                        UNIBUS PARITY ERROR
            020000
            040000
                                     WCE
                                              40000
                                                                        ; WRITE CHECK ERROR (BIT #14)
40
41
42
43
44
45
            100000
                                              100000
                                                                        :DATA LATE (BIT #15)
                                      ;DATA BUFFER REGISTER (RPDB)
                                      EACH BIT IS DEFINED BY BIT NUMBER
46
47
48
49
50
51
52
53
54
55
56
57
                                      .SBTTL RP07 REGISTERS
                                      CONTROL AND STATUS 1 (400)
            000001
                                                                        :GO BIT (BIT 40)
            000002
                                     F1
                                         . 2
                                                                        FUNCTION CODE BIT #1
                                     F2
F3
            000004
                                         .
                                                                        FUNCTION CODE BIT #2
                                        .
            000010
                                             10
                                                                        FUNCTION CODE BIT 43
            000020
                                     F4
                                         .
                                             20
                                                                        FUNCTION CODE BIT #4
            000040
                                     F5
                                         .
                                             40
                                                                        FUNCTION CODE BIT 45
            004000
                                     DVA -
                                             4000
                                                                        DEVICE AVAILABLE (BIT #11)
```

58			
59		DRIVE STATUS REGISTE	R (RPDS <#01>)
60			
61	000001	OM = 1	;OFFSET MODE (BIT #O)
62	000002	EWN = 2	(EARLY WARNING (BIT #1)
63	000004	ILEV= 4	:INTERLEAVING AVAILABLE (BIT #2)
64	000100	VV = 100	; VOLUME VALID (BIT #6)
65	000200	DRY = 200	;DATA READY (BIT #7)
66	000400		DATA CONTON
60			;DRIVE PRESENT (BIT #8)
67	001000	PGM = 1000	;PROGRAMABLE (BIT #9)
68	002000	LBT = 2000	;LAST BLOCK TRANSFERRED (BIT #10)
69	004000	WRL = 4000	; WRITE LOCKED (BIT #11)
70	010000	MOL = 10000	MEDIUM ON LINE (BIT #12)
71	020000	PIP = 20000	POSITIONER IN PROGRESS (BIT #13)
72	040000	ERR = 40000	COMPOSITE ERROR (BIT #14)
73	100000	ATA - 100000	ATTENTION ACTIVE (BIT #15)
74	100000	HIN - 100000	INTERITOR RELITE (BIT 413)
75			
76		F0000 05070750 AL (6	2000
10		;ERROR REGISTER #1 (F	PER1 (#02>)
77			
78	000001	ILF = 1	;ILLEGAL FUNCTION (BIT #0)
79	000002	ILR = 2	;ILLEGAL REGISTER (BIT #1)
80	000004	RMR = 4	REGISTER MODIFICATION REFUSED (BIT #2)
81	000010	PAR = 10	;PARITY ERROR (BIT #3)
82	000020	FER - 20	FORMAT ERROR (BIT #4)
83	000040	WCF = 40	WRITE CLOCK FAIL (BIT #5)
84	000100	ECH - 100	ECC HARD ERROR (BIT 46)
85	000200	HCE = 200	
86	000400		HEADER COMPARE ERROR (BIT 47)
87		HCRC= 400	HEADER CRC ERROR (BIT #8)
	001000	AOE - 1000	ADDRESS OVERFLOW ERROR (BIT 49)
88	002000	IAE - 2000	; INVALID ADDRESS ERROR (BIT #10)
89	004000	WLE = 4000	;WRITE LOCK ERROR (BIT #11)
90	010000	DTE = 10000	;DRIVE TIMING ERROR (BIT #12)
91	020000	OPI = 20000	OPERATION INCOMPLETE (BIT #13)
92	040000	UNS = 40000	;DRIVE UNSAFE (BIT #14)
93	100000	DCK = 100000	DATA CHECK ERROR (BIT #15)
94			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
95			
96		DIAGNOSTIC MAINTAIN	ABLILTY REGISTER (RPMR1 <#03>)
97		IDINGIOSITE INTIGINITAL	BELLII REGISTER (RFIRI (4037)
98	100000	DMD - 100000	DIACHOCTIC MODE (DIT ALE)
99	100000	DMD = 100000	;DIAGNOSTIC MODE (BIT #15)
100			
101		ATTENTION SUMMARY PS	SEUDO REGISTER (RPAS <#04>)
102			
103	000001	ATO = 1	;DEVICE O (BIT #O)
104	000002	AT1 = 2	DEVICE 1 (BIT #1)
105	000004	AT2 = 4	DEVICE 2 (BIT #2)
106	000010	AT3 - 10	DEVICE 2 (BIT #2)
107	000020	AT4 = 20	DEVICE 4 (BIT 04)
108	000040		DEVICE + (DIT 45)
109			DEVICE 5 (BIT 45)
	000100	AT6 - 100	DEVICE 6 (BIT 46)
110	000200	AT7 = 200	DEVICE 7 (BIT 47)
111			
112			[유럽 [18] [18] [18] [18] [18] [18] [18] [18]
113		DESIRED SECTOR/TRACK	(ADDRESS REGISTER (RPDA <#05>)
114		; EACH BIT IS CALLED E	BY BIT NUMBER

```
115
116
117
                                       :DRIVE TYPE REGISTER (RPDT <#06>)
118
119
             000001
                                       DRTO = 1
                                                                          :DRIVE TYPE NUMBER (BIT #0)
120
             000002
                                       DRT1 = 2
                                                                          :DRIVE TYPE NUMBER (BIT #1)
121
             000004
                                       DRT2 =
                                                                          DRIVE TYPE NUMBER (BIT 42)
122
123
124
125
126
127
             000010
                                       DRT3 = 10
                                                                          DRIVE TYPE NUMBER (BIT #3)
             000020
                                       DRT4 = 20
                                                                          DRIVE TYPE NUMBER (BIT #4)
             000040
                                       DRT5 = 40
                                                                          DRIVE TYPE NUMBER (BIT 45)
             000100
                                       DRT6 = 100
                                                                          DRIVE TYPE NUMBER (BIT #6)
             000200
                                       DRT7 =
                                               200
                                                                          ;DRIVE TYPE NUMBER (BIT #7)
             000400
                                       DRT8 = 400
                                                                          DRIVE TYPE NUMBER (BIT 48)
DRIVE REQUEST REQUIRED (BIT 411)
128
             004000
                                       DRQ =
                                              4000
129
130
131
132
133
             020000
                                       MOH =
                                              20000
                                                                          MOVING HEAD TYPE DRIVE (BIT #13)
             040000
                                       TAP =
                                              40000
                                                                          :TAPE DRIVE (BIT #14)
             100000
                                              100000
                                       NBA =
                                                                          ; NOT BLOCK ADDRESSED (BIT #15)
134
135
136
137
138
139
                                       :LOOK AHEAD REGISTER (RPLA <#07>)
                                                                          SECTOR COUNT FIELD 1 (BIT 46)
             000100
                                       SC2
SC4
SC8
             000200
                                            .
                                               200
             000400
                                            .
                                                400
                                                                          ; SECTOR COUNT FIELD 4 (BIT 48)
             001000
                                            .
                                                1000
                                                                          SECTOR COUNT FIELD 8 (BIT 49)
140
             002000
                                       SC16 =
                                                2000
                                                                          SECTOR COUNT FIELD 16 (BIT #10)
141
             004000
                                       SC32 =
                                                4000
                                                                          SECTOR COUNT FIELD 32 (BIT #11)
142
             010000
                                       SC64 =
                                                                          SECTOR COUNT FIELD 64 (BIT #12)
                                                10000
143
144
145
                                       ;RPO7 SERIAL NUMBER REGISTER (RPSN <#10>)
146
                                       :EACH BIT IS CALLED BY BIT NUMBER
147
148
149
                                       :RPO7 OFFSET REGISTER (RPOF <#11>)
150
151
152
153
154
155
             000200
                                       OFFDIR
                                               = 200
                                                                          ;OFFSET DIRECTION (BIT #7)
             002000
                                       HCI
                                                .
                                                  2000
                                                                          HEADER COMPARE CODE INHIBIT (BIT #10)
                                       ECI
             004000
                                                = 4000
                                                                          ERROR CORRECTION CODE INHIBIT (BIT #11)
             010000
                                       FMT
                                                                          :16 BIT FORMAT (BIT #12)
                                                = 10000
             040000
                                                = 40000
                                                                          MOVE TRACK DESCRIPTOR (BIT #14)
                                       MTD
156
157
158
159
160
             100000
                                       CMOD
                                                - 100000
                                                                          (COMMAND MODIFIER (BIT #15)
                                       :RPO7 DESIRED CYLINDER ADDRESS (RPDC <#12>)
                                       EACH BIT IS CALLED BY BIT NUMBER
161
162
163
                                       ;RPO7 CURRENT CYLINDER ADDRESS (RPCC <#13>)
164
                                       EACH BIT IS CALLED BY BIT NUMBER
165
166
167
                                       ;RPO7 ERROR REGISTER 3 (RPER3 <#15>)
168
169
             000002
                                                - 2
                                                                          ;SYNC CLOCK FAILURE (BIT #1)
170
             000004
                                       SBE
                                                                          SYNC BYTE ERROR (BIT #2)
171
                                       DPE
             000010
                                                - 10
                                                                          ;DATA PARITY ERROR (BIT #3)
```

172 173 174 175 176	000020 000040 000100 000200 000400	SDF = 20 DCU = 40 IXU = 100 DVC = 200 PHF = 400	:SERDES DATA FAILURE (BIT #4) :DC UNSAFE (BIT #5) :INDEX UNSAFE (BIT #6) :DEVICE CHECK (BIT #7) :8080 PROCESSOR HANDSHAKE FAILURE (BIT #8)
177 178 179 180	001000 002000 020000 040000	LCE = 1000 LBC = 2000 DSE = 20000 SKI = 40000	;LOSS OF CYLINDER ERROR (BIT #9) ;LOSS OF BIT CLOCK (BIT #10) ;DEFECT SKIP ERROR (BIT #13) ;SEEK INCOMPLETE (BIT #14)
181 182 183 184	100000	BSE = 100000 :RP07 ERROR REGISTER #2 (
185 186 187 188 189 190 191 192 193	000400 001000 002000 004000 010000 020000 040000 100000	WRU = 400 WOR = 1000 RWU1 = 2000 RWU2 = 4000 RWU3 = 10000 CPU = 20000 CPE = 40000 PGE = 100000	BITS O THROUGH 7 = READ ONLY BITS WRITE READY UNSAFE (BIT #8) WRITE OVERRUN (BIT #9) READ/WRITE UNSAFE #1 (BIT #10) READ/WRITE UNSAFE #2 (BIT #11) READ/WRITE UNSAFE #3 (BIT #12) CPU UNSAFE (BIT #13) CROM PARITY ERROR (BIT #14) PROGRAMMING ERROR
194 195 196 197 198 199 200 201 202 203		:ECC POSITION REGISTER (R:EACH BIT IS DEFINED BY B :ECC PATTERN REGISTER (RP:EACH BIT IS DEFINED BY B .SBTTL RP07 COMMAND DEFI	EC2 <#17>) ET NUMBER
204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221	000005 000007 000011 000013 000015 000021 000031 000035 000051 000053 000061 000063 000065 000071	SEEK = 5 RECAL = 7 DRCLR = 11 RELEASE = 13 NOP = 15 RIP = 21 SEARCH = 31 DIAG = 35 WCKD = 51 WCKHD = 53 WRCHD = 53 WRDTA = 61 FORTRK = 63 WRTD = 65 RDDTA = 71 RDHDTA = 73 RTD = 75	SEEK RECALIBRATE DRIVE CLEAR DRIVE RELEASE NO OPERATION READ IN PRESET (NO OPERATION) SEARCH DIAGNOSTIC MODE WRITE CHECK DATA WRITE CHECK HEADER AND DATE WRITE DATA FORMAT HEADER AND SD FOR ENTIRE TRACK WRITE TRACK DESCRIPTOR READ DATA READ HEACER AND DATA READ TRACK DESCRIPTOR

```
.SBTTL GLOBAL DATA SECTION
                                      ; THE GLOBAL DATA SECTION CONTAINS DATA THAT ARE USED
                                      IN MORE THAN ONE TEST.
 8 002344
           000001
                                     PATT1:: 000001
 9 002346
            177776
                                     PATT2:: 177776
10 002350
            177777
                                     PATT3:: 177777
11 002352
            000000
                                     PATT4:: 000000
12 002354
            125252
                                      PATT5:: 125252
13 002356
            052525
                                     PATT6:: 052525
14 002360
            000070
                                      PATT7:: 000070
15 002362
            030221
                                      PATT8:: 030221
                                                                        :PATTERN 8 (WORST CASE)
16 002364
           000002
                                     PATT9:: 000002
18 002366
                                                                        BUFFER POINTER
            000000
                                      TABADD:: . WORD
19 002370
                                                      31.
            000037
                                      ENDTRK:: . WORD
                                                                        :LAST TRACK (RPO7+)
20 002372
            000000
                                      LASTRK:: . WORD
                                                                        PROGRAM CONTROLLED LAST TRACK
21 002374
            001165
                                      ENDCYL:: . WORD
                                                       629.
                                                                        :LAST CYLINDER, (RPO7+)
22 002376
23 002400
24 002402
                                      LASCYL:: . WORD
            000000
                                                                        PROGRAM CONTROLLED LAST CYLINDER
            000000
                                      BITPOS:: . WORD
                                                                        JUSED TO MASK THE CORRECT RPAS BIT POSITION
            000012
                                      ITCOUN:: . WORD
                                                       10.
                                                                        :ITERATION COUNTER
25 002404
26 002406
27 002410
                                                                        ERROR MESSAGE INDEX #1
            000000
                                      ERRWD1::.WORD
                                                       0
            000000
                                      ERRWD2::.WORD
                                      BYTCHT::. WORD
                                                                        JUSED TO INDICATE FOF WORDS TRANSFERRED
            000000
28 002412
                                      NEGHRD:: . WORD
                                                                                         COUNT FOR DRIVER
            000000
                                                                        INEGATED WORD
                                      DESTRK::. WORD
29 002414
                                                                        JUSED TO SELECT A DESIRED TRACK
            000000
                                                       0
30 002416
            000000
                                      DESCYL::. WORD
                                                       0
                                                                        JUSED TO SELECT A DESIRED CYLINDER
31 002420
            000000
                                      FUNCTN::.WORD
                                                       0
                                                                        JUSED TO SPECIFY A SELECTED FUNCTON
   002422
            000000
                                      ROUTDO::.WORD
                                                                        JUSE THIS PARAMETER ('USER SELECTED' INDICATOR)
33 002424
                                      SELNUM: : . WORD
            000000
                                                                        JUSED TO STORE THE USER MICRODIAGNOSTIC INPUT
35 002426
            000000
                                      CLKSTA:: . WORD
                                                                        :CLOCK STATUS (NO CLOCK= 0.KW11-P= 1 OR KW11-L= -1
36 002430
            000000
                                      FASTAT:: . WORD
                                                                         FAILED STATUS (USED INTERNALLY BY PROGRAM)
37 002432
            000000
                                      CSTORE:: . WORD
                                                                         SAVE CARRY FROM PREVIOUS XFER
38 002434
                                                                        TEMPORARY STORAGE FOR SCOPE LOOPS
            000000
                                      PATCHT:: . WORD
39 002436
            000000
                                      TEMP:: . WORD
                                                       0
40 002440
            000000
                                                                         ADDRESS OF REGISTER UNDER TEST
                                      SNK::
                                               . WORD
                                                       0
                                                                         ADDRESS OF TESTING DATA PATTERN
41 002442
            000000
                                      SRC::
                                               . WORD
                                                       0
42 002444
            000000
                                      SRCTMP::. WORD
                                                                         DATA PATTERN TEMPORARY STORAGE
                                                       0
43 002446
            000000
                                      MASK:: . WORD
                                                                        CONTAINS . OF BITS TO TEST
                                                       0
44 002450
            000000
                                              . WORD
                                      MSK::
                                                                        CONTAINS BIT UNDER TEST
45 002452
            000000
                                      RCVED:: . WORD
                                                                        CONTAINS RECEIVED BAD DATA
46 002454
            000000
                                      EXPTED::. WORD
                                                       0
                                                                         CONTAINS EXPECTED GOOD DATA
47 002456
            000000
                                      TESTRG::.WORD
                                                       0
                                                                         CONTAINS ADDRESS OF REGISTER UNDER TEST
48 002460
                                                                         USED TO INDICATE RPDB IR/OR POLLING
            000000
                                      ILOCK:: . WORD
                                                       0
49 002462
                                      INTFLG::.WORD
                                                                         JUSED TO INDICATE THAT AN INTERRUPT HAS OCCURRED
            000000
                                                       0
                                                                        JUSED TO CHECK FOR MANUAL INTERVENTION REPORTS PASS/FAIL STATUS TO CALLING MODULE FUNCTION AT TIME OF FAILURE
50 002464
            000000
                                      UNABLE::.WORD
                                     ERSTAT::.WORD
FATOF::.WORD
51 002466
            000000
52 002470
            000000
                                                       0
54 002472
            000000
                                      UNIT:: . WORD
                                                                         JUSED TO SELECT A UNIT FOR TEST
55 002474
            176700
                                      RPADR:: . WORD
                                                       176700
                                                                         CONTAINS RPCS1 BASE ADDRESS
56 002476
            000254
                                      RPVEC:: . WORD
                                                       254,5+32.
                    000240
                                                                        CONTAINS VECTOR ADDRESS & BR LEVEL
57 002502
            000050
                                      RHEXT:: . WORD
                                                                         CONTAINS RH70 OFFSET TO RPBAE
```

```
58 002504
                                      RHTYPE :: . WORD
            000000
                                                                         CONTAINS RHXX TYPE: RH11= 0, RH70= 1
                                                       0
59 002506
            000000
                                      DRVNO:: . WORD
                                                       0
                                                                         DRIVE NUMBER
60 002510
            000000
                                      DRVSN:: . WORD
                                                        0
                                                                         STORAGE FOR EACH S/N DIGIT
61
62 002512
            176700
                                      RPCS1:: . WORD
                                                        176700
                                                                         BASE ADDRESS USED FOR THE DRIVE
63 002514
            176702
                                      RPWC:: . WORD
                                                        176702
                                                                         : WORD COUNT REGISTER
64 002516
                                      RPBA::
            176704
                                               . WORD
                                                        176704
                                                                         BYTE ADDRESS REGISTER
65 002520
                                      RPDA::
                                                                         DESIRED SECTOR/TRACK ADDRESS
            176706
                                               . WORD
                                                        176706
66 002522
                                      RPCS2:: . WORD
            176710
                                                        176710
                                                                         RPO7 STATUS REGISTER
67 002524
            176712
                                      RPDS:: . WORD
                                                        176712
                                                                         RPO7 DRIVE STATUS
68 002526
            176714
                                      RPER1:: . WORD
                                                        176714
                                                                         IRPO7 ERROR REGISTER #1
69 002530
            176716
                                      RPAS:: . WORD
                                                        176716
                                                                         RP07 ATTENTION SUMMARY PSEUDO REGISTER
 70 002532
            176720
                                      RPLA:: . WORD
                                                                         RPO7 LOOK AHEAD REGISTER
                                                        176720
 71 002534
                                      RPDB:: . WORD
                                                                         IRPO7 DATA BUFFER
            176722
                                                        176722
 72 002536
                                      RPMR1:: . WORD
                                                                         RPO7 MAINTENANCE REGISTER #1
            176724
                                                        176724
 73 002540
            176726
                                      RPDT:: . WORD
                                                        176726
                                                                         DRIVE TYPE REGISTER
 74 002542
            176730
                                      RPSN::
                                               . WORD
                                                        176730
                                                                         RPO7 SERIAL NUMBER
 75 002544
            176732
                                      RPOF::
                                               . WORD
                                                        176732
                                                                         RPO7 OFFSET REGISTER
                                                                         RPO7 DESIRED CYLINDER
RPO7 CURRENT CYLINDER
RPO7 ERROR REGISTER #2
RPO7 ERROR REGISTER #3
 76 002546
            176734
                                      RPDC::
                                               . WORD
                                                        176734
 77 002550
            176736
                                      RPCC::
                                               . WORD
                                                        176736
 78 002552
            176740
                                      RPER2:: . WORD
                                                        176740
 79 002554
                                      RPER3:: . WORD
            176742
                                                        176742
                                       RPEC1:: . WORD
                                                        176744
 80 002556
            176744
                                                                         IRPO7 ERROR POSITION
 81 002560
            176746
                                      RPEC2:: . WORD
                                                        176746
                                                                         RPO7 ERROR PATTERN
 82 002562
            176750
                                      RPBAE:: . WORD
                                                        176750
                                                                         RH70 REGISTER
 83 002564
            176752
                                      RPCS3:: . WORD
                                                        176752
                                                                         RH70 REGISTER
 84
 85
                                       :ATTENTION BITS TABLE (ATABIT-8 BYTES)
 86
87
                                               THIS TABLE CONTAINS THE CORRESPONDING BIT TO EACH DRIVES
                                               ATTENTION BIT
 89 002566
                001
                                      ATABIT::.BYTE
                                                                 DRIVE O
 90 002567
                002
                                                                 DRIVE
                                               .BYTE
 91 002570
                004
                                                                 DRIVE
                                                .BYTE
 92 002571
                010
                                                                 DRIVE
                                                .BYTE
                                                        10
 93 002572
                020
                                                                 DRIVE
                                                .BYTE
                                                        20
 94 002573
                040
                                                                 DRIVE 5
                                                        40
                                                .BYTE
 95 002574
                100
                                               .BYTE
                                                        100
                                                                 DRIVE 6
 96 002575
                                                        200
                                                                 DRIVE 7
                                                .BYTE
 97
 98
                                       : STORAGE FOR DEVICE REGISTERS
100 002576
                                       REG::
                                               .BLKW 22.
                                                                         SAVE REGISTERS HERE
101
102 002652
                                      PSTACK: .. BLKW 10.
                                                                         SOFTWARE PSEUDO STACK
103 002676
                                      MCUTXT::.BLKW 13.
                                                                         ASCII TEXT POINTER FILE
104 002730
                                      IOBUFF :: . BLKW <50.46>
                                                                         BUFFER USED FOR DATA TRANSFERS
105
106
                                       : MODULE CALLOUT DISPATCH TABLE
107
108 004060
            011161
                                       MCUTAB:: J1
                                                                                      (BITO ERRWD1)
109 004062
            011166
                                                                         AO2 MODULE (BIT1 ERRHD1)
110 004064
                                               J3
            011173
                                                                         AOS MODULE (BIT2 ERRHD1)
111 004066
                                               J4
J5
J6
J7
                                                                         AO4 MODULE (BITS ERRHOL)
            011200
112 004070
            011205
                                                                         AOS MODULE (BIT4 ERRID1)
                                                                         AO6 MODULE (BITS ERRHD1)
113 004072
            011212
114 004074
            011217
```

115 004076 116 004100 117 004102 118 004104 119 004106 120 004110 121 004112 122 004114 123 004116 124 004120 125 004122 126 004124 127 004126 128 004130 129 004132 130 004134 131 004136 132 004140 133 004144 135 004146 136 004150 137 004152 138 004154	011224 011231 011236 011243 011250 011255 011262 011267 011274 011301 011132 011151 011121 011074 011306 011313 011320 011325 011341 011361 011421 011443 011455	J8 J9 J10 J11 J12 J13 J14 J15 J16 J17 RH CA DS AD J20 J21 HDA TERM SENSOR BLOMER PTRANS MTRBRK K1RELA OPROL	AO8 MODULE (BIT 8 ERRHD1) AO9 MODULE (BIT 8 ERRHD1) A10 MODULE (BIT 9 ERRHD1) A11 MODULE (BIT 10 ERRHD1) A12 MODULE (BIT 11 ERRHD1) A13 MODULE (BIT 12 ERRHD1) A14 MODULE (BIT 13 ERRHD1) A15 MODULE (BIT 14 ERRHD1) A16 MODULE (BIT 15 ERRHD1) A17 MODULE (BIT 15 ERRHD1) A17 MODULE (BIT 0 ERRHD2) CABLE (BIT 2 ERRHD2) MASSBUS DISABLE SWITCH (BIT 3 ERRHD2) DUAL DRIVE RESPONSE (BIT 4 ERRHD2) A20 MODULE (BIT 5 ERRHD2) A21 MODULE (BIT 7 ERRHD2) FOMASE DETECTOR SENSOR (BIT 9 ERRHD2) BLOWER ASSY, (BIT 10 ERRHD2) POWER TRANSFORMER (BIT11 ERRHD2) POWER TRANSFORMER (BIT11 ERRHD2) POWER TRANSFORMER (BIT11 ERRHD2) RELAY K1 (BIT 13 ERRHD2) COPERATOR'S PANEL (BIT 14 ERRHD2)
139 004156 140 141 004160 142 004162 143 004164 144 004166 145 004170 146	011477 000002 002522 000037 002344 002346	DRVBLT TST03:: 2 RPCS2 000037 PATT1 PATT2	:DRIVE BELT (BIT 15 ERRWD2) :# OF PATTERNS USED IN THIS TEST :REGISTER TO TEST :BIT MASK, BITS TO TEST = 1 :PATTERN TO USE :PATTERN TO USE
147 004172 148 004174 149 004176 150 004200 151 004202 152	000002 002514 177777 002344 002346	TST04:: 2 RPWC 177777 PATT1 PATT2	# OF PATTERNS USED IN THIS TEST REGISTER TO TEST BIT MASK, BITS TO TEST = 1 PATTERN TO USE PATTERN TU USE
153 004204 154 004206 155 004210 156 004212 157 004214 158	000002 002516 177776 002364 002346	TST05:: 2 RPBA 177776 PATT9 PATT2	## OF PATTERNS USED IN THIS TEST REGISTER TO TEST BIT MASK. BITS TO TEST = 1 PATTERN TO USE PATTERN TO USE
159 004216 160 004220 161 004222 162 004224 163 004226 164 004230 165	000003 002534 177777 002344 002346 002354	TSTO8:: 3 RPD8 177777 PATT1 PATT2 PATT5	PATTERN TO USE
166 004232 167 004234 168 004236 169 004240 170 004242	000002 002564 000117 002344 002346	TST11:: 2 RPCS3 000117 PATT1 PATT2	PATTERN TO USE IN THIS TEST REGISTER TO TEST BIT MASK, BITS TO TEST = 1 PATTERN TO USE PATTERN TO USE

000002 002562 000077 002344 002346		RPBAE 000077 PATT1 PATT2	# OF PATTERNS TO USE IN THIS TEST REGISTER TO TEST BIT MASK, BITS TO TEST = 1 PATTERN TO USE PATTERN TO USE
000003 002520 177777 002344 002346 002350	TST28::	3 RPDA 177777 PATT1 PATT2 PATT3	## OF PATTERNS TO USE REGISTER TO TEST BIT MASK, BITS TO TEST = 1 PATTERN TO USE PATTERN TO USE PATTERN TO USE
002520 002544 002546		RPDA RPOF RPDC	FILE OF REGISTERS TO BE USED IN THIS TEST LAST REGISTER USED - THIS TEST
000010 002536 177777 002344 002346 002350 002354 002356 002360 002362	TST34::		REGISTER TO TEST BITS TO TEST USE THIS PATTERN
002512 002514 002516 002520 002522 002536 002544 002546 002562 002562	TST49::	RPCS1 RPWC RPBA RPDA RPCS2 RPMR1 RPOF RPDC RPBAE RPCS3	FILE OF WRITABLE REGISTERS TO TEST
	002562 000077 002344 002346 00003 002520 177777 002344 002346 002350 002512 002520 002544 002546 000010 002536 177777 002344 002346 002350 002354 002350 002354 002360 002362 002364 002512 002514 002516 002520 002522 002536 002544 002546	002562 000077 002344 002346 000003 002520 177777 002344 002346 002520 002544 002546 000010 002536 177777 002344 002346 002350 002350 002354 002356 002356 002360 002362 002364 002512 002514 002514 002516 002520 002522 002536 002520 002522 002536 002544 002516	002562 000077 002344 002346 000003 002520 177777 002344 002346 002350 002512 002520 002544 002546 002546 002536 175777 17777 17777 17777 17777 17777 17777 17777 17777 17777 17777 17777 1777 1777 1777 1777 17777 17777 17777 17777 17777 17777 17777 17777 17777 17777 1777 17777 17777 17777 17777 1777 17777 1777 17777 1777 17777 1777 17777 17777 17777 17777 17777 17777 17777 17777 17777 17777 1777 17777 17777 17777 17777 17777 17777 17777 17777 17777 17777 1777 17777 1777

1	.SBTTL	MODULE CALLOUT TABLE	
3		LAST ERROR CODE GUIDE	REVISION: 3/15/81 (REV A)
4		LAST CHANGE TO THIS S	SOURCE CODE: 4/22/81
6 004354 000000	EC.00:	0	NOT USED (OO ERROR CODE)
7 004356 000000		0	NOT USED
8 004360 000000		0	NOT USED (01 ERROR CODE)
9 004362 000000		0	NOT USED
10 004364 000000		0	NOT USED (02 ERROR CODE)
11 004366 000000		0	NOT USED
12 004370 000000 13 004372 000000		0	:NOT USED (03 ERROR CODE)
14 004374 000000		0	;NOT USED ;NOT USED (04 ERROR CODE)
15 004376 000000		0	NOT USED
16 004400 000000		Ŏ	NOT USED (05 ERROR CODE)
17 004402 000000		0	NOT USED
18 004404 000000		0	NOT USED (06 ERROR CODE)
19 004406 000000		0 0 0	NOT USED
20 004410 000000		0	NOT USED (07 ERROR CODE)
21 004412 000000			NOT USED
22 004414 000000 23 004416 000000		0	NOT USED (08 ERROR CODE)
24 004420 000000		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NOT USED (09 ERROR CODE)
25 004422 000000		o .	NOT USED
26 004424 000000		Ŏ	NOT USED (OA ERROR CODE)
27 004426 000000		Ō	NOT USED
28 004430 000000		0	(NOT USED (OB ERROR CODE)
29 004432 000000		0	:NOT USED
30 004434 000000			:NOT USED (OC ERROR CODE)
31 004436 000000 32 004440 000000		0	NOT USED
32 004440 000000 33 004442 000000		0	NOT USED (OD ERROR CODE)
34 004444 000000		0	NOT USED (OE ERROR CODE)
35 004446 000000		0	NOT USED
36 004450 000000		Ō	NOT USED (OF ERROR CODE)
37 004452 000000		0	; NOT USED
38 004454 000100		BIT6	:A7 MODULE (10 ERROR CODE)
39 004456 000000		0	NO CALLOUT
40 004460 000100 41 004462 000000		BIT6	:A7 MODULE (11 ERROR CODE)
42 004464 000100		O BIT6	:NO CALLOUT :A7 MODULE (12 ERROR CODE)
43 004466 000000		0	INO CALLOUT
43 004466 000000 44 004470 000100 45 004472 000000		BIT6	:NO CALLOUT :A7 MODULE (13 ERROR CODE)
45 004472 000000		0	INO CALLOUT
46 004474 000100		BIT6	:NO CALLOUT :A7 MODULE (14 ERROR CODE) :NO CALLOUT :A7 MODULE (15 ERROR CODE)
47 004476 000000		0	INO CALLOUT
48 004500 000100		BIT6	;A7 MODULE (15 ERROR CODE)
49 004502 000000 50 004504 000100		BIT6	:NO CALLOUT :A7 MODULE (16 ERROR CODE)
51 004506 000000		0	MOT USED
51 004506 000000 52 004510 000100		BIT6	NOT USED A7 MODULE (17 ERROR CODE) NO CALLOUT
53 004512 000000		0	INO CALLOUT
54 004514 000100		BIT6	A7 MODULE (18 ERROR CODE)
55 004516 000000		0	INO CALLOUT
56 004520 000100		BIT6	A7 MODULE (19 ERROR CODE)
57 004522 000000		0	INO CALLOUT

58 004524	000100	DTTE	47 MODULE (14 EDDOD CODE)
59 004526		BIT6	A7 MODULE (1A ERROR CODE)
	000000	O BIT3:BIT4:BIT5 BIT7	NO CALLOUT
60 004530	000070	BIT3!BIT4!BIT5	: A4, A5, A6 MODULES (1B ERROR CODE)
61 004532	000200	BIT7	;HDA
62 004534	000070	BIT3:BIT4:BIT5	:A4, A5, A6 MODULES (1C ERROR CODE)
63 004536	000200	BIT7	; HDA
64 004540	000070	BIT3!BIT4!BIT5	:A4, A5, A6 MODULES (1D ERROR CODE)
65 004542	000200	BIT7	HDA
66 004544	000070	DITTIOTTAIDTTS	
67 004546		BIT3:BIT4:BIT5	:A4, A5, A6 MODULES (1E ERROR CODE)
	000200		:HDA
68 004550	177776	+CBITO!BIT1!BIT2	:A4 - A16 MODULES (1F ERROR CODE)
69 004552	000040	BITS	; A20 MODULE
70 004554	000100	BIT6	:A7 MODULE (20 ERROR CODE)
71 004556	00000	0	NO CALLOUT
72 004560	000100	PCBITO:BIT1:BIT2 BIT5 BIT6 0 BIT6 0 BIT6 0 BIT6 0 BIT6 0 BIT6 0 BIT6	:A7 MODULE (21 ERROR CODE)
73 004562	000000	0	NO CALLOUT
74 004564	000100	DITE	.47 MODULE (32 EDDOD CODE)
		9110	:A7 MODULE (22 ERROR CODE)
75 004566	000000	0	NO CALLOUT
76 004570	000100	BI10	A7 MODULE (23 ERROR CODE)
77 004572	000000	0	:NO CALLOUT :A7 MODULE (24 ERROR CODE)
78 004574	000100	BIT6	:A7 MODULE (24 ERROR CODE)
79 004576	000000	0	NO CALLOUT
80 004600	000100	RTT6	A7 MODULE (25 ERROR CODE)
81 004602	000000	0210	MO CALLOUT
82 004604	000100	DTTC	NO CALLOUT
	000100	BTIO	:A7 MODULE (26 ERROR CODE)
83 004606	000000		
84 004610	000522	BIT1:BIT4:BIT6:BIT8	:A2, A5, A7, A9 MODULES (28 ERROR CODE)
85 004612	000000	0	NO CALLOUT
86 004614	000050	BIT3!BIT5	:A4, A6 MODULE (28 ERROR CODE)
87 004616	000000	0	NO CALLOUT
88 004620	000030	BIT3!BIT4	:A4, A5 MODULE (29 ERROR CODE)
89 004622	000000	0210.0214	MO CALLOUT
90 004624	000050	DITTIOTIE	NO CALLOUT
91 004626		BIT3:BIT5	:A4, A6 MODULES (2A ERROR CODE)
	000000	0	NO CALLOUT
92 004630	000030	BIT3:BIT4	:A4, A5 MODULE (28 ERROR CODE)
93 004632	000000	0	;NO CALLOUT
94 004634	000050	BIT3:BIT5	;A4, A6 MODULE (2C ERROR CODE)
95 004636	000000	0	NO CALLOUT
96 004640	000050	BIT3:BIT5	:A4, A6 MODULE (2D ERROR CODE)
97 004642	000000	0	NO CALLOUT
98 004644	000030	BIT3:BIT4	
99 004646	000000		:A4, A5 MODULE (2E ERROR CODE)
100 004650	00000	0	INO CALLOUT
	000030	BIT3:BIT4	:A4, A5 MODULE (2F ERROR CODE)
101 004652	000000	0	;NO CALLOUT
102 004654	001400	BIT8!BIT9	:A9, A10 MODULES (30 ERROR CODE)
103 004656	000000	0	INO CALLOUT
104 004660	001000	BIT9	(A10 MODULE (31 ERROR CODE)
105 004662	000000	0	NO CALLOUT
106 004664	001000	BIT9	A10 MODULE (32 ERROR CODE)
107 004666	000000	0119	INTO HODOLE (32 ENRUM CODE)
108 004670		0	INO CALLOUT
100 004670	001400	BIT8:BIT9	(A9,A10 MODULE (33 ERROR CODE)
109 004672	000000	0	;NO CALLOUT
	001000	BIT9	:A10 MODULE (34 ERROR CODE)
111 004676	000000	0	NO CALLOUT
112 004700	001000	BIT9	A10 ERROR CODE (35 ERROR CODE)
	000000	0	NO CALLOUT
114 004704	001000	BIT9	A10 MODULE (36 ERROR CODE)
22. 301.04		0.17	THE HOUSE (30 ENNOW CODE)

```
115 004706
                000000
                                                                             :NO CALLOUT
   116 004710
                                                   BIT9
                001000
                                                                             :A10 MODULE (37 ERROR CODE)
    117 004712
                000000
                                                   0
                                                                             :NO CALLOUT
    118 004714
                 001000
                                                   BIT9
                                                                             :A10 MODULE (38 ERROR CODE)
    119 004716
                 000000
                                                                             :NO CALLOUT
    120 004720
                 001000
                                                   BIT9
                                                                             ;A10 MODULE (39 ERROR CODE)
    121 004722
                 000000
                                                                             :NO CALLOUT
    122 004724
                 001000
                                                   BIT9
                                                                             :A10 MODULE (3A ERROR CODE)
    123 004726
                 000000
                                                                             :NOT USED
    124 004730
                 001000
                                                   BIT9
                                                                             :A10 MODULE (3B ERROR CODE)
    125 004732
                 900000
                                                                             : NOT USED
    126 004734
                 000100
                                                                             :A7 MODULE (3C ERROR CODE)
                                                   BIT6
    127 004736
                 000000
                                                                             NOT USED
    128 004740
                 000100
                                                   BIT6
                                                                             ; A7 MODULE (3D ERROR CODE)
    129 004742
                 000000
                                                                             ; NOT USED
    130 004744
                 000100
                                                   BIT6
                                                                             ; A7 MODULE (3E ERROR CODE)
    131 004746
                 000000
                                                                             : NOT USED
    132 004750
                 001102
                                                   BIT1!BIT6!BIT9
                                                                             :A2, A7, A10 MODULES (3F ERROR CODE)
    133 004752
                 000000
                                                                             : NOT USED
    134 004754
                 000000
                                                                             :NO CALLOUT (40 ERROR CODE)
    135 004756
                 000000
                                                                             NO CALLOUT
    136 004760
                                                                             :A2, A7 MODULES (41 ERROR CODE)
                 000102
                                                   BIT1!BIT6
    137 004762
                 002000
                                                   BIT10
                                                                             BLOWER ASSY
    138 004764
                                                   BITO:BIT1:BIT5:BIT6:BIT7:A1, A2, A6, A7, A8 MODULES (42 ERROR CODE)
BIT7:BIT9:BIT11:BIT12:BIT13:BIT15:HDA, PHASE DETECTOR, TRANSFORMER, MOTOR, K1, BELT
                 000343
    139 004766
                135200
CALLOUT
    140 004770
                 000040
                                                   BIT5
                                                                             ; A6 MODULE (43 ERROR CODE)
    141 004772
                 000200
                                                   BIT7
                                                                             HDA CALLOUT
    142 004774
                 000070
                                                   BIT3!BIT4!BIT5
                                                                             : A4, A5, A6 MODULES (44 ERROR CODE)
    143 004776
                 000200
                                                                             HDA CALLOUT
                                                   BIT7
    144 005000
                 000070
                                                   BIT3:BIT4:BIT5
                                                                             ; A4. A5. A6 (45 ERROR CODE)
    145 005002
                 000200
                                                                             :HDA CALLOUT
                                                   BIT7
    146 005004
                 000070
                                                   BIT3:BIT4:BIT5
                                                                             :A4. A5, A6 MODULES (46 ERROR CODE)
    147 005006
                 000200
                                                                             :HDA
                                                   BIT7
    148 005010
                 000070
                                                   BIT3!BIT4!BIT5
                                                                             ; A4, A5, A6 MODULES (47 ERROR CODE)
    149 005012
                 000200
                                                                             ; HDA
                                                   BIT7
                 000030
    150 005014
                                                   BIT3:BIT4
                                                                             : A4, A5 MODULES (48 ERROR CODE)
    151 005016
                 000000
                                                                             NO CALLOUT
    152 005020
                                                                             : A4. A5 MODULES (49 ERROR CODE)
                 000030
                                                   BIT3:BIT4
    153 005022
                 000000
                                                                             NO CALLOUT
    154 005024
                 000070
                                                   BIT3!BIT4!BIT5
                                                                             : A4, A5, A6 MODULES (4A ERROR CODE)
    155 005026
                 000200
                                                   BIT7
                                                                             : HDA
    156 005030
                 000032
                                                   BIT1!BIT3!BIT4
                                                                             ;A2, A4, A5 MODULES (4B ERROR CODE)
    157 005032
                                                                             NO CALLOUT
                 000000
    158 005034
                 000020
                                                   BIT4
                                                                             :A5 MODULE (4C ERROR CODE)
    159 005036
                 000000
                                                                             NO CALLOUT
    160 005040
                 000020
                                                   BIT4
                                                                             :AS MODULE (4D ERROR CODE)
    161 005042
                 000000
                                                                             : NO CALLOUT
    162 005044
                 000053
                                                   BITO:BIT1:BIT3:BIT5
                                                                             :A1, A2, A4, A6 MODULES (4E ERROR CODE)
    163 005046
                 000000
                                                                             NO CALLOUT
    164 005050
                                                   BIT1!BIT3
                 000012
                                                                                  A4 MODULES (4F ERROR CODE)
    165 005052
                 000000
                                                                             NOT USED
    166 005054
                 000070
                                                   BIT3!BIT4!BIT5
                                                                             :A4, A5, A6 MODULES (50 ERROR CODE)
    167 005056
                 000200
                                                                             HDA
                                                   BIT7
    168 005060
                 000070
                                                   BIT3:BIT4:BIT5
                                                                              :A4. A5. A6 MODULES (51 ERROR CODE)
    169 005062
                 000200
                                                                             : HDA
                                                   BIT7
    170 005064
                 000070
                                                   BIT3!BIT4!BIT5
                                                                              : A4, A5, A6 MODULES (52 ERROR CODE)
    171 005066
                 000200
                                                   BIT7
                                                                              HDA
```

172 005070 0	00050		
TIE 003010 0	00050	BIT3:BIT5	A4, A6 MODULES (53 ERROR CODE)
	00050		
		0	NO CALLOUT
174 005074 0	00012	BIT1!BIT3	A2, A4 MODULES (54 ERROR CODE)
	00000		NOT USED
176 005100 0	00070	BIT3!BIT4!BIT5	A4, A5, A6 MODULES (55 ERROR CODE)
	00200	BIT7	HDA .
178 005104 0	00012	BIT1!BIT3	A2, A4 MODULES (56 ERROR CODE)
170 ANE 106 A	00000		
179 005106 0		0	NOT USED
180 005110 0	00030	BIT3!BIT4	A4, A5 MODULES (57 ERROR CODE)
			THE PARTY OF THE P
181 005112 0			NO CALLOUT
182 005114 0	00030	BIT3!BIT4	A4, A5 MODULES (58 ERROR CODE)
			NO CALL OUT
	*****	0	NO CALLOUT
184 005120 0	00030	BIT3:BIT4	A4, A5 MODULES (59 ERROR CODE)
185 005122 0	00000		
102 002155 0	00000	0	NO CALLOUT
186 005124 0	00030	BIT3!BIT4	A4, A5 MODULES (5A ERROR CODE)
	00000	^	
		0	NO CALLOUT
188 005130 0	00030	BIT3!BIT4	A4, A5 MODULES (5B ERROR CODE)
	00000		NO CALLOUT
		0	NO CALLOUT
190 005134 0	00030	BIT3:BIT4	A4, A5 MODULES (5C ERROR CODE)
	~~~~		
171 003130 0		0	NO CALLOUT
192 005140 0	00050	BIT3:BIT4	A4, A5 MODULES (5D ERROR CODE)
193 005142 0	00000	0	NO CALLOUT
100 005245 0	00000		INO CALLOOT
194 005144 0	00030	BIT3!BIT4	A4, A5 MODULES (5E ERROR CODE)
195 005146 0		0	NO CALLOUT
	00000		IND CALLOOT
196 005150 0	00030	BIT3:BIT4	A4, A5 MODULES (5F ERROR CODE)
197 005152 0	00000	0	NO CALLOUT
100 005154 0	00770		THE CALLOUT
	00330	BIT3:BIT4:BIT6:BIT7	:A4, A5, A7, A8 MODULES (60 ERROR CODE)
199 005156 0	40000		OPERATOR'S PANEL
200 005160 0	00070	DTTTIOTTAIDTTE	AA AF AC MODIFIES (CA FORCE COSE)
	00070	BIT3:BIT4:BIT5	A4, A5, A6 MODULES (61 ERROR CODE)
201 005162 0	00200		; HDA
		0211	
	ACCEA	DITTIOTIC	AA AC MODINES (CO EDDOS CODE)
202 005164 0	00050	BIT3:BIT5	: A4, A6 MODULES (62 ERROR CODE)
202 005164 0 203 005166 0	00050	BIT3:BIT5	: A4, A6 MODULES (62 ERROR CODE)
202 005164 0 203 005166 0	00000	0	: A4. A6 MODULES (62 ERROR CODE) :NO CALLOUT
202 005164 0 203 005166 0 204 005170 0	00000	O BIT4	: A4, A6 MODULES (62 ERROR CODE) :NO CALLOUT : A5 MODULE (63 ERROR CODE)
202 005164 0 203 005166 0 204 005170 0 205 005172 0	00000	O BIT4	: A4, A6 MODULES (62 ERROR CODE) :NO CALLOUT : A5 MODULE (63 ERROR CODE)
202 005164 0 203 005166 0 204 005170 0 205 005172 0	00000	O BIT4	: A4, A6 MODULES (62 ERROR CODE) :NO CALLOUT : A5 MODULE (63 ERROR CODE)
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0	00000 00020 00000 04570	0 BIT4 0 BIT3:BIT4:BIT5:BIT6:BIT8	:A4, A6 MODULES (62 ERROR CODE) :NO CALLOUT :A5 MODULE (63 ERROR CODE) :NOT USED !BIT11:A4, A5, A6, A7, A9, A12 MODULES (64 ERROR CODE)
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0	00000 00020 00000 04570 00200	0 BIT4 0 BIT3!BIT4!BIT5!BIT6!BIT8 BIT7	:A4, A6 MODULES (62 ERROR CODE) :NO CALLOUT :A5 MODULE (63 ERROR CODE) :NOT USED !BIT11:A4, A5, A6, A7, A9, A12 MODULES (64 ERROR CODE) :HDA
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0	00000 00020 00000 04570 00200	0 BIT4 0 BIT3!BIT4!BIT5!BIT6!BIT8 BIT7	:A4, A6 MODULES (62 ERROR CODE) :NO CALLOUT :A5 MODULE (63 ERROR CODE) :NOT USED !BIT11:A4, A5, A6, A7, A9, A12 MODULES (64 ERROR CODE) :HDA
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0	00000 00020 00000 04570 00200 04550	0 BIT4 0 BIT3:BIT4:BIT5:BIT6:BIT8 BIT7 BIT3:BIT5:BIT6:BIT8:BIT1:	:A4, A6 MODULES (62 ERROR CODE) :NO CALLOUT :A5 MODULE (63 ERROR CODE) :NOT USED !BIT11:A4, A5, A6, A7, A9, A12 MODULES (64 ERROR CODE) :HDA 1:A4, A6, A7, A9, A12 MODULES (65 ERROR CODE)
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0	00000 00020 00000 04570 00200 04550	O BIT4 O BIT3:BIT4:BIT5:BIT6:BIT8 BIT7 BIT3:BIT5:BIT6:BIT8:BIT1: O	:A4, A6 MODULES (62 ERROR CODE) :NO CALLOUT :A5 MODULE (63 ERROR CODE) :NOT USED !BIT11:A4, A5, A6, A7, A9, A12 MODULES (64 ERROR CODE) :HDA 1:A4, A6, A7, A9, A12 MODULES (65 ERROR CODE)
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0	00000 00020 00000 04570 00200 04550	O BIT4 O BIT3:BIT4:BIT5:BIT6:BIT8 BIT7 BIT3:BIT5:BIT6:BIT8:BIT1: O	:A4, A6 MODULES (62 ERROR CODE) :NO CALLOUT :A5 MODULE (63 ERROR CODE) :NOT USED !BIT11:A4, A5, A6, A7, A9, A12 MODULES (64 ERROR CODE) :HDA 1:A4, A6, A7, A9, A12 MODULES (65 ERROR CODE) :NO CALLOUT
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0 210 005204 0	00000 00020 00000 04570 00200 04550 00000	0 BIT4 0 BIT3:BIT4:BIT5:BIT6:BIT8 BIT7 BIT3:BIT5:BIT6:BIT8:BIT1: 0 BIT3:BIT4:BIT5	:A4. A6 MODULES (62 ERROR CODE) :NO CALLOUT :A5 MODULE (63 ERROR CODE) :NOT USED !BIT11:A4. A5. A6. A7. A9. A12 MODULES (64 ERROR CODE) :HDA 1:A4. A6. A7. A9. A12 MODULES (65 ERROR CODE) :NO CALLOUT :A4. A5. A6 MODULES (66 ERROR CODE)
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0 210 005204 0 211 005206 0	00000 00020 00000 04570 00200 04550 00000	0 BIT4 0 BIT3:BIT4:BIT5:BIT6:BIT8 BIT7 BIT3:BIT5:BIT6:BIT8:BIT1: 0 BIT3:BIT4:BIT5	:A4. A6 MODULES (62 ERROR CODE) :NO CALLOUT :A5 MODULE (63 ERROR CODE) :NOT USED !BIT11:A4. A5. A6. A7. A9. A12 MODULES (64 ERROR CODE) :HDA 1:A4. A6. A7. A9. A12 MODULES (65 ERROR CODE) :NO CALLOUT :A4. A5. A6 MODULES (66 ERROR CODE) :NO CALLOUT
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0 210 005204 0 211 005206 0	00000 00020 00000 04570 00200 04550 00000	0 BIT4 0 BIT3:BIT4:BIT5:BIT6:BIT8 BIT7 BIT3:BIT5:BIT6:BIT8:BIT1: 0 BIT3:BIT4:BIT5	:A4. A6 MODULES (62 ERROR CODE) :NO CALLOUT :A5 MODULE (63 ERROR CODE) :NOT USED !BIT11:A4. A5. A6. A7. A9. A12 MODULES (64 ERROR CODE) :HDA 1:A4. A6. A7. A9. A12 MODULES (65 ERROR CODE) :NO CALLOUT :A4. A5. A6 MODULES (66 ERROR CODE) :NO CALLOUT
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0 210 005204 0 211 005206 0 212 005210 0	00000 00020 00000 04570 00200 04550 00000 00070	0 BIT4 0 BIT3:BIT4:BIT5:BIT6:BIT8 BIT7 BIT3:BIT5:BIT6:BIT8:BIT1: 0 BIT3:BIT4:BIT5	:A4. A6 MODULES (62 ERROR CODE) :NO CALLOUT :A5 MODULE (63 ERROR CODE) :NOT USED !BIT11:A4. A5. A6. A7. A9. A12 MODULES (64 ERROR CODE) :HDA 1:A4. A6. A7. A9. A12 MODULES (65 ERROR CODE) :NO CALLOUT :A4. A5. A6 MODULES (66 ERROR CODE) :NO CALLOUT :A6 MODULES (67 ERROR CODE)
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0 210 005204 0 211 005206 0 212 005210 0 213 005212 0	00000 00020 00000 04570 00200 04550 00000 00070 00000	0 BIT4 0 BIT3:BIT4:BIT5:BIT6:BIT8 BIT7 BIT3:BIT5:BIT6:BIT8:BIT1: 0 BIT3:BIT4:BIT5 0 BIT5	:A4. A6 MODULES (62 ERROR CODE) :NO CALLOUT :A5 MODULE (63 ERROR CODE) :NOT USED !BIT11:A4. A5. A6. A7. A9. A12 MODULES (64 ERROR CODE) :HDA 1:A4. A6. A7. A9. A12 MODULES (65 ERROR CODE) :NO CALLOUT :A4. A5. A6 MODULES (66 ERROR CODE) :NO CALLOUT :A6 MODULES (67 ERROR CODE) :NO CALLOUT
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0 210 005204 0 211 005206 0 212 005210 0 213 005212 0 214 005214 0	00000 00020 00000 04570 00200 04550 00000 00070 00000 00040	0 BIT4 0 BIT3:BIT4:BIT5:BIT6:BIT8 BIT7 BIT3:BIT5:BIT6:BIT8:BIT1: 0 BIT3:BIT4:BIT5 0 BIT5	:A4. A6 MODULES (62 ERROR CODE) :NO CALLOUT :A5 MODULE (63 ERROR CODE) :NOT USED !BIT11:A4. A5. A6. A7. A9. A12 MODULES (64 ERROR CODE) :HDA 1:A4. A6. A7. A9. A12 MODULES (65 ERROR CODE) :NO CALLOUT :A4. A5. A6 MODULES (66 ERROR CODE) :NO CALLOUT :A6 MODULES (67 ERROR CODE) :NO CALLOUT
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0 210 005204 0 211 005206 0 212 005210 0 213 005212 0 214 005214 0	00000 00020 00000 04570 00200 04550 00000 00070 00000 00040	0 BIT4 0 BIT3:BIT4:BIT5:BIT6:BIT8 BIT7 BIT3:BIT5:BIT6:BIT8:BIT1: 0 BIT3:BIT4:BIT5 0 BIT5 0 BIT5	:A4. A6 MODULES (62 ERROR CODE) :NO CALLOUT :A5 MODULE (63 ERROR CODE) :NOT USED !BIT11:A4. A5. A6. A7. A9. A12 MODULES (64 ERROR CODE) :HDA 1:A4. A6. A7. A9. A12 MODULES (65 ERROR CODE) :NO CALLOUT :A4. A5. A6 MODULES (66 ERROR CODE) :NO CALLOUT :A6 MODULES (67 ERROR CODE) :NO CALLOUT :A4. A6 MODULES (68 ERROR CODE)
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0 210 005204 0 211 005206 0 212 005210 0 213 005212 0 214 005214 0	00000 00020 00000 04570 00200 04550 00000 00070 00000 00040	0 BIT4 0 BIT3:BIT4:BIT5:BIT6:BIT8 BIT7 BIT3:BIT5:BIT6:BIT8:BIT1: 0 BIT3:BIT4:BIT5 0 BIT5 0 BIT5	:A4. A6 MODULES (62 ERROR CODE) :NO CALLOUT :A5 MODULE (63 ERROR CODE) :NOT USED !BIT11:A4. A5. A6. A7. A9. A12 MODULES (64 ERROR CODE) :HDA 1:A4. A6. A7. A9. A12 MODULES (65 ERROR CODE) :NO CALLOUT :A4. A5. A6 MODULES (66 ERROR CODE) :NO CALLOUT :A6 MODULES (67 ERROR CODE) :NO CALLOUT :A4. A6 MODULES (68 ERROR CODE)
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0 210 005204 0 211 005206 0 212 005210 0 213 005212 0 214 005214 0 215 005216 0 216 005220 0	00000 00020 00000 04570 00200 04550 00000 00070 00000 00000 00000 00000	0 BIT4 0 BIT3:BIT4:BIT5:BIT6:BIT8 BIT7 BIT3:BIT5:BIT6:BIT8:BIT1: 0 BIT3:BIT4:BIT5 0 BIT5 0 BIT5	:A4. A6 MODULES (62 ERROR CODE) :NO CALLOUT :A5 MODULE (63 ERROR CODE) :NOT USED !BIT11:A4. A5. A6. A7. A9. A12 MODULES (64 ERROR CODE) :HDA 1:A4. A6. A7. A9. A12 MODULES (65 ERROR CODE) :NO CALLOUT :A4. A5. A6 MODULES (66 ERROR CODE) :NO CALLOUT :A6 MODULES (67 ERROR CODE) :NO CALLOUT :A4. A6 MODULES (68 ERROR CODE)
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0 210 005204 0 211 005206 0 212 005210 0 213 005212 0 214 005214 0 215 005216 0 216 005220 0	00000 00020 00000 04570 00200 04550 00000 00070 00000 00000 00000 00000	0 BIT4 0 BIT3:BIT4:BIT5:BIT6:BIT8 BIT7 BIT3:BIT5:BIT6:BIT8:BIT1: 0 BIT3:BIT4:BIT5 0 BIT5 0 BIT3:BIT5	A4. A6 MODULES (62 ERROR CODE)  NO CALLOUT  A5 MODULE (63 ERROR CODE)  NOT USED  BIT11:A4. A5. A6. A7. A9. A12 MODULES (64 ERROR CODE)  HDA  1:A4. A6. A7. A9. A12 MODULES (65 ERROR CODE)  NO CALLOUT  A4. A5. A6 MODULES (66 ERROR CODE)  NO CALLOUT  A6 MODULES (67 ERROR CODE)  NO CALLOUT  A4. A6 MODULES (68 ERROR CODE)  NO CALLOUT  A4. A6 MODULES (68 ERROR CODE)
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0 210 005204 0 211 005206 0 212 005210 0 213 005212 0 214 005214 0 215 005216 0 216 005220 0	00000 00020 00000 04570 00200 04550 00000 00070 00000 00000 00000 00000	0 BIT4 0 BIT3:BIT4:BIT5:BIT6:BIT8 BIT7 BIT3:BIT5:BIT6:BIT8:BIT1: 0 BIT3:BIT4:BIT5 0 BIT5 0 BIT3:BIT5	A4. A6 MODULES (62 ERROR CODE)  NO CALLOUT  A5 MODULE (63 ERROR CODE)  NOT USED  BIT11:A4. A5. A6. A7. A9. A12 MODULES (64 ERROR CODE)  HDA  1:A4. A6. A7. A9. A12 MODULES (65 ERROR CODE)  NO CALLOUT  A4. A5. A6 MODULES (66 ERROR CODE)  NO CALLOUT  A6 MODULES (67 ERROR CODE)  NO CALLOUT  A4. A6 MODULES (68 ERROR CODE)  NO CALLOUT  A4. A6 MODULES (68 ERROR CODE)
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0 210 005204 0 211 005206 0 212 005210 0 213 005212 0 214 005214 0 215 005216 0 216 005220 0 217 005222 0 218 005224 0	00000 00020 004570 00200 04550 00000 00070 00000 00040 00000 00050 00000 00200 00200	0 BIT4 0 BIT3:BIT4:BIT5:BIT6:BIT8 BIT7 BIT3:BIT5:BIT6:BIT8:BIT1: 0 BIT3:BIT4:BIT5 0 BIT5 0 BIT3:BIT5	A4. A6 MODULES (62 ERROR CODE)  NO CALLOUT  A5 MODULE (63 ERROR CODE)  NOT USED  BIT11:A4. A5. A6. A7. A9. A12 MODULES (64 ERROR CODE)  HDA  1:A4. A6. A7. A9. A12 MODULES (65 ERROR CODE)  NO CALLOUT  A4. A5. A6 MODULES (66 ERROR CODE)  NO CALLOUT  A6 MODULES (67 ERROR CODE)  NO CALLOUT  A4. A6 MODULES (68 ERROR CODE)  NO CALLOUT  A4. A6 MODULES (68 ERROR CODE)
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0 210 005204 0 211 005206 0 212 005210 0 213 005212 0 214 005214 0 215 005216 0 216 005220 0 217 005222 0 218 005224 0	00000 00020 00000 04570 00200 04550 00000 00070 00000 00000 00000 00050 00000 00000	0 BIT4 0 BIT3:BIT4:BIT5:BIT6:BIT8 BIT7 BIT3:BIT5:BIT6:BIT8:BIT1: 0 BIT3:BIT4:BIT5 0 BIT5 0 BIT3:BIT5 0 BIT7:BIT11	A4. A6 MODULES (62 ERROR CODE) NO CALLOUT A5 MODULE (63 ERROR CODE) SIT11; A4. A5. A6. A7. A9. A12 MODULES (64 ERROR CODE) HDA 1; A4. A6. A7. A9. A12 MODULES (65 ERROR CODE) NO CALLOUT A4. A5. A6 MODULES (66 ERROR CODE) NO CALLOUT A6 MODULES (67 ERROR CODE) NO CALLOUT A4. A6 MODULES (68 ERROR CODE) NO CALLOUT A4. A6 MODULES (68 ERROR CODE) NO CALLOUT A6. A6 MODULES (68 ERROR CODE) NO CALLOUT A8. A6 MODULES (69 ERROR CODE)
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0 210 005204 0 211 005206 0 212 005210 0 213 005212 0 214 005214 0 215 005216 0 216 005220 0 217 005222 0 218 005224 0 219 005226 0	00000 00020 004570 00200 04550 00000 00070 00000 00040 00000 00050 00050 00000 00200 00200	0 BIT4 0 BIT3:BIT4:BIT5:BIT6:BIT8 BIT7 BIT3:BIT5:BIT6:BIT8:BIT1: 0 BIT3:BIT4:BIT5 0 BIT5 0 BIT3:BIT5 0 BIT7:BIT11 BIT2	A4, A6 MODULES (62 ERROR CODE) NO CALLOUT A5 MODULE (63 ERROR CODE) NOT USED BIT11; A4, A5, A6, A7, A9, A12 MODULES (64 ERROR CODE) HDA 1; A4, A6, A7, A9, A12 MODULES (65 ERROR CODE) NO CALLOUT A4, A5, A6 MODULES (66 ERROR CODE) NO CALLOUT A6 MODULES (67 ERROR CODE) NO CALLOUT A4, A6 MODULES (68 ERROR CODE) NO CALLOUT A4, A6 MODULES (68 ERROR CODE) NO CALLOUT A8, A6 MODULES (68 ERROR CODE) NOT USED A8, A12 MODULES (6A ERROR CODE) MASSBUS CABLE
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0 210 005204 0 211 005206 0 212 005210 0 213 005212 0 214 005214 0 215 005216 0 216 005220 0 217 005222 0 218 005224 0 219 005230 0	00000 00020 004570 00200 04550 00000 00070 00000 00040 00000 00050 00000 00200 00200 00200	0 BIT4 0 BIT3:BIT4:BIT5:BIT6:BIT8 BIT7:BIT3:BIT5:BIT6:BIT8:BIT1: 0 BIT3:BIT4:BIT5 0 BIT5:BIT5 0 BIT7:BIT11 BIT2:0	:A4, A6 MODULES (62 ERROR CODE) :NO CALLOUT :A5 MODULE (63 ERROR CODE) :NOT USED !BIT11;A4, A5, A6, A7, A9, A12 MODULES (64 ERROR CODE) :MDA 1;A4, A6, A7, A9, A12 MODULES (65 ERROR CODE) :NO CALLOUT :A4, A5, A6 MODULES (66 ERROR CODE) :NO CALLOUT :A6 MODULES (67 ERROR CODE) :NO CALLOUT :A4, A6 MODULES (68 ERROR CODE) :NO CALLOUT :A4, A6 MODULES (68 ERROR CODE) :NO CALLOUT :A8 MODULE (69 ERROR CODE) :NOT USED :A8, A12 MODULES (6A ERROR CODE) :MASSBUS CABLE :NOT USED (6B ERROR CODE)
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0 210 005204 0 211 005206 0 212 005210 0 213 005212 0 214 005214 0 215 005216 0 216 005220 0 217 005222 0 217 005224 0 219 005230 0 221 005230 0	00000 00020 004570 00200 04550 00000 00070 00000 00040 00000 00050 00000 000200 00000 004200 00000	0 BIT4 0 BIT3:BIT4:BIT5:BIT6:BIT8 BIT7:BIT3:BIT5:BIT6:BIT8:BIT1: 0 BIT3:BIT4:BIT5 0 BIT5:BIT5 0 BIT7:BIT11 BIT2:0	:A4, A6 MODULES (62 ERROR CODE) :NO CALLOUT :A5 MODULE (63 ERROR CODE) :NOT USED !BIT11;A4, A5, A6, A7, A9, A12 MODULES (64 ERROR CODE) :MDA 1;A4, A6, A7, A9, A12 MODULES (65 ERROR CODE) :NO CALLOUT :A4, A5, A6 MODULES (66 ERROR CODE) :NO CALLOUT :A6 MODULES (67 ERROR CODE) :NO CALLOUT :A4, A6 MODULES (68 ERROR CODE) :NO CALLOUT :A4, A6 MODULES (68 ERROR CODE) :NO CALLOUT :A8 MODULE (69 ERROR CODE) :NOT USED :A8, A12 MODULES (6A ERROR CODE) :MASSBUS CABLE :NOT USED (6B ERROR CODE)
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0 210 005204 0 211 005206 0 212 005210 0 213 005212 0 214 005214 0 215 005216 0 216 005220 0 217 005222 0 217 005224 0 219 005230 0 221 005230 0	00000 00020 004570 00200 04550 00000 00070 00000 00040 00000 00050 00000 000200 00000 004200 00000	0 BIT4 0 BIT3!BIT4!BIT5!BIT6!BIT8 BIT7 BIT3!BIT5!BIT6!BIT8!BIT1: 0 BIT3!BIT4!BIT5 0 BIT5 0 BIT3!BIT5 0 BIT7!BIT11 BIT2 0	:A4, A6 MODULES (62 ERROR CODE) :NO CALLOUT :A5 MODULE (63 ERROR CODE) :NOT USED !BIT11:A4, A5, A6, A7, A9, A12 MODULES (64 ERROR CODE) :HDA 1:A4, A6, A7, A9, A12 MODULES (65 ERROR CODE) :NO CALLOUT :A4, A5, A6 MODULES (66 ERROR CODE) :NO CALLOUT :A6 MODULES (67 ERROR CODE) :NO CALLOUT :A4, A6 MODULES (68 ERROR CODE) :NO CALLOUT :A4, A6 MODULES (68 ERROR CODE) :NOT USED :A8, A12 MODULES (6A ERROR CODE) :MASSBUS CABLE :NOT USED (6B ERROR CODE) :NOT USED
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0 210 005204 0 211 005206 0 212 005210 0 213 005212 0 214 005214 0 215 005216 0 216 005220 0 217 005222 0 218 005224 0 219 005230 0 221 005230 0 221 005234 0	00000 00020 004570 00200 04550 00000 00070 00000 00000 00050 00000 00000 00200 00000 00200 00000	0 BIT4 0 BIT3:BIT4:BIT5:BIT6:BIT8 BIT3:BIT5:BIT6:BIT8:BIT1: 0 BIT3:BIT4:BIT5 0 BIT5 0 BIT7 0 BIT7:BIT11 BIT2 0 0 BIT4:BIT5:BIT6	:A4, A6 MODULES (62 ERROR CODE) :NO CALLOUT :A5 MODULE (63 ERROR CODE) :NOT USED !BIT11:A4, A5, A6, A7, A9, A12 MODULES (64 ERROR CODE) :HDA 1:A4, A6, A7, A9, A12 MODULES (65 ERROR CODE) :NO CALLOUT :A4, A5, A6 MODULES (66 ERROR CODE) :NO CALLOUT :A6 MODULES (67 ERROR CODE) :NO CALLOUT :A4, A6 MODULES (68 ERROR CODE) :NO CALLOUT :A4, A6 MODULES (68 ERROR CODE) :NOT USED :A8, A12 MODULES (6A ERROR CODE) :MASSBUS CABLE :NOT USED (6B ERROR CODE) :NOT USED :A5, A6, A7 MODULES (6C ERROR CODE)
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0 210 005204 0 211 005206 0 212 005210 0 213 005212 0 214 005214 0 215 005216 0 216 005220 0 217 005222 0 217 005222 0 218 005224 0 219 005230 0 221 005230 0 221 005234 0 222 005234 0	00000 00020 004570 00200 04550 00000 00000 00000 00000 00050 00000 00000 00200 00000 00000 00000	0 BIT4 0 BIT3:BIT4:BIT5:BIT6:BIT8 BIT3:BIT5:BIT6:BIT8:BIT1: 0 BIT3:BIT4:BIT5 0 BIT5 0 BIT7 0 BIT7:BIT11 BIT2 0 0 BIT4:BIT5:BIT6	:A4, A6 MODULES (62 ERROR CODE) :NO CALLOUT :A5 MODULE (63 ERROR CODE) :NOT USED !BIT11:A4, A5, A6, A7, A9, A12 MODULES (64 ERROR CODE) :HDA 1:A4, A6, A7, A9, A12 MODULES (65 ERROR CODE) :NO CALLOUT :A4, A5, A6 MODULES (66 ERROR CODE) :NO CALLOUT :A6 MODULES (67 ERROR CODE) :NO CALLOUT :A4, A6 MODULES (68 ERROR CODE) :NO CALLOUT :A4, A6 MODULES (68 ERROR CODE) :NOT USED :A8, A12 MODULES (6A ERROR CODE) :MASSBUS CABLE :NOT USED (6B ERROR CODE) :NOT USED :A5, A6, A7 MODULES (6C ERROR CODE)
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0 210 005204 0 211 005206 0 212 005210 0 213 005212 0 214 005214 0 215 005216 0 216 005220 0 217 005222 0 217 005222 0 218 005224 0 219 005230 0 221 005230 0 221 005234 0 222 005234 0	00000 00020 004570 00200 04550 00000 00070 00000 00000 00000 00000 00200 00000 004200 00000 00000 00000	0 BIT4 0 BIT3!BIT4!BIT5!BIT6!BIT8 BIT3!BIT5!BIT6!BIT8!BIT1 0 BIT3!BIT4!BIT5 0 BIT5 0 BIT3!BIT5 0 BIT7!BIT11 BIT2 0 0 BIT4!BIT5!BIT6	:A4, A6 MODULES (62 ERROR CODE) :NO CALLOUT :A5 MODULE (63 ERROR CODE) :NOT USED !BIT11:A4, A5, A6, A7, A9, A12 MODULES (64 ERROR CODE) :MDA 1:A4, A6, A7, A9, A12 MODULES (65 ERROR CODE) :NO CALLOUT :A4, A5, A6 MODULES (66 ERROR CODE) :NO CALLOUT :A6 MODULES (67 ERROR CODE) :NO CALLOUT :A4, A6 MODULES (68 ERROR CODE) :NO CALLOUT :A8, A6 MODULES (68 ERROR CODE) :NOT USED :A8, A12 MODULES (6A ERROR CODE) :MASSBUS CABLE :NOT USED (6B ERROR CODE) :NOT USED :A5, A6, A7 MODULES (6C ERROR CODE) :NOT USED :A5, A6, A7 MODULES (6C ERROR CODE) :NO CALLOUT
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0 210 005204 0 211 005206 0 212 005210 0 213 005212 0 214 005214 0 215 005216 0 216 005220 0 217 005222 0 218 005224 0 219 005226 0 220 005230 0 221 005230 0 221 005236 0 222 005234 0 223 005236 0 224 005240 0	00000 00020 004570 00200 04550 00000 00070 00000 00000 00000 00000 00000 00000 0000	0 BIT4 0 BIT3:BIT4:BIT5:BIT6:BIT8 BIT3:BIT5:BIT6:BIT8:BIT1: 0 BIT3:BIT4:BIT5 0 BIT5: 0 BIT7:BIT11 BIT2 0 0 BIT4:BIT5:BIT6	A4. A6 MODULES (62 ERROR CODE) NO CALLOUT A5 MODULE (63 ERROR CODE) BIT11; A4. A5. A6. A7. A9. A12 MODULES (64 ERROR CODE) HDA A6. A7. A9. A12 MODULES (65 ERROR CODE) NO CALLOUT A4. A5. A6 MODULES (66 ERROR CODE) NO CALLOUT A6 MODULES (67 ERROR CODE) NO CALLOUT A4. A6 MODULES (68 ERROR CODE) NO CALLOUT A4. A6 MODULES (68 ERROR CODE) NO CALLOUT A8. A12 MODULES (64 ERROR CODE) NOT USED A8. A12 MODULES (6A ERROR CODE) NOT USED NOT USED NOT USED A5. A6. A7 MODULES (6C ERROR CODE) NOT USED A5. A6. A7 MODULES (6C ERROR CODE)
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0 210 005204 0 211 005206 0 212 005210 0 213 005212 0 214 005214 0 215 005216 0 216 005220 0 217 005222 0 218 005224 0 219 005230 0 221 005230 0 221 005230 0 221 005234 0 223 005234 0 225 005242 0	00000 00000 04570 00200 04550 00000 00070 00000 00000 00000 00000 00200 00000 00200 00000 00000 00000 00000 00000 00000 00000	0 BIT4 0 BIT3:BIT4:BIT5:BIT6:BIT8 BIT3:BIT5:BIT6:BIT8:BIT1: 0 BIT3:BIT4:BIT5 0 BIT5: 0 BIT7:BIT11 BIT2 0 0 BIT4:BIT5:BIT6	A4. A6 MODULES (62 ERROR CODE) NO CALLOUT A5 MODULE (63 ERROR CODE) BIT11; A4. A5. A6. A7. A9. A12 MODULES (64 ERROR CODE) HDA A6. A7. A9. A12 MODULES (65 ERROR CODE) NO CALLOUT A4. A5. A6 MODULES (66 ERROR CODE) NO CALLOUT A6 MODULES (67 ERROR CODE) NO CALLOUT A4. A6 MODULES (68 ERROR CODE) NO CALLOUT A4. A6 MODULES (68 ERROR CODE) NO CALLOUT A8. A12 MODULES (64 ERROR CODE) NOT USED A8. A12 MODULES (6A ERROR CODE) NOT USED NOT USED NOT USED A5. A6. A7 MODULES (6C ERROR CODE) NOT USED A5. A6. A7 MODULES (6C ERROR CODE)
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0 210 005204 0 211 005206 0 212 005210 0 213 005212 0 214 005214 0 215 005216 0 216 005220 0 217 005222 0 218 005224 0 219 005230 0 221 005230 0 221 005230 0 221 005234 0 223 005234 0 225 005242 0	00000 00000 04570 00200 04550 00000 00070 00000 00000 00000 00000 00000 00200 00000 00200 00000 00000 00160 00000	0 BIT4 0 BIT3:BIT4:BIT5:BIT6:BIT8 BIT3:BIT5:BIT6:BIT8:BIT1: 0 BIT3:BIT4:BIT5 0 BIT3:BIT5 0 BIT7:BIT11 BIT2 0 0 BIT4:BIT5:BIT6 0 BIT4:BIT5:BIT6	A4. A6 MODULES (62 ERROR CODE) NO CALLOUT A5 MODULE (63 ERROR CODE) NOT USED BIT11; A4. A5. A6. A7. A9. A12 MODULES (64 ERROR CODE) HDA 1; A4. A6. A7. A9. A12 MODULES (65 ERROR CODE) NO CALLOUT A4. A5. A6 MODULES (66 ERROR CODE) NO CALLOUT A4. A6 MODULES (67 ERROR CODE) NO CALLOUT A4. A6 MODULES (68 ERROR CODE) NO CALLOUT A8. A6 MODULES (68 ERROR CODE) NOT USED A8. A12 MODULES (6A ERROR CODE) NOT USED A8. A12 MODULES (6A ERROR CODE) NOT USED A8. A6. A7 MODULES (6C ERROR CODE) NOT USED A5. A6. A7 MODULES (6C ERROR CODE) NO CALLOUT A5. A6. A7 MODULE (6D ERROR CODE) NO CALLOUT
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0 210 005204 0 211 005206 0 212 005210 0 213 005212 0 214 005214 0 215 005216 0 216 005220 0 217 005222 0 218 005230 0 219 005230 0 221 005230 0 221 005230 0 221 005234 0 222 005234 0 225 005242 0 225 005244 0	00000 00000 04570 00200 04550 00000 00070 00000 00000 00000 00000 00200 00000 00200 00000 00000 00000 00160 00000 00160 00000	0 BIT4 0 BIT3:BIT4:BIT5:BIT6:BIT8 BIT3:BIT5:BIT6:BIT8:BIT1: 0 BIT3:BIT4:BIT5 0 BIT3:BIT5 0 BIT7:BIT11 BIT2 0 0 BIT4:BIT5:BIT6 0 BIT4:BIT5:BIT6	A4, A6 MODULES (62 ERROR CODE) NO CALLOUT A5 MODULE (63 ERROR CODE) NOT USED BIT11; A4, A5, A6, A7, A9, A12 MODULES (64 ERROR CODE) HDA 1; A4, A6, A7, A9, A12 MODULES (65 ERROR CODE) NO CALLOUT A4, A5, A6 MODULES (66 ERROR CODE) NO CALLOUT A4, A6 MODULES (67 ERROR CODE) NO CALLOUT A4, A6 MODULES (68 ERROR CODE) NO CALLOUT A4, A6 MODULES (68 ERROR CODE) NOT USED A8, A12 MODULES (6A ERROR CODE) NOT USED A8, A12 MODULES (6A ERROR CODE) NOT USED A5, A6, A7 MODULES (6C ERROR CODE) NOT USED A5, A6, A7 MODULES (6C ERROR CODE) NO CALLOUT A5, A6, A7 MODULE (6D ERROR CODE) NO CALLOUT A5, A6 MODULE (6E ERROR CODE)
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0 210 005204 0 211 005206 0 212 005210 0 213 005212 0 214 005214 0 215 005216 0 216 005220 0 217 005222 0 218 005224 0 219 005230 0 221 005230 0 221 005230 0 221 005234 0 222 005234 0 223 005240 0 225 005242 0 226 005244 0 226 005246 0	00000 00000 04570 00200 04550 00000 00000 00000 00000 00000 00000 00200 00000 00200 00000 00000 00160 00000 00160 00000	0 BIT4 0 BIT3:BIT4:BIT5:BIT6:BIT8 BIT3:BIT5:BIT6:BIT8:BIT1: 0 BIT3:BIT4:BIT5 0 BIT3:BIT5 0 BIT7:BIT11 BIT2 0 0 BIT4:BIT5:BIT6 0 BIT4:BIT5:BIT6	A4. A6 MODULES (62 ERROR CODE) NO CALLOUT A5 MODULE (63 ERROR CODE) NOT USED BIT11; A4. A5. A6. A7. A9. A12 MODULES (64 ERROR CODE) HDA 1; A4. A6. A7. A9. A12 MODULES (65 ERROR CODE) NO CALLOUT A4. A5. A6 MODULES (66 ERROR CODE) NO CALLOUT A4. A6 MODULES (67 ERROR CODE) NO CALLOUT A4. A6 MODULES (68 ERROR CODE) NO CALLOUT A8. A6 MODULES (68 ERROR CODE) NOT USED A8. A12 MODULES (6A ERROR CODE) NOT USED A8. A12 MODULES (6A ERROR CODE) NOT USED A8. A6. A7 MODULES (6C ERROR CODE) NOT USED A5. A6. A7 MODULES (6C ERROR CODE) NO CALLOUT A5. A6. A7 MODULE (6D ERROR CODE) NO CALLOUT
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0 210 005204 0 211 005206 0 212 005210 0 213 005212 0 214 005214 0 215 005216 0 216 005220 0 217 005222 0 218 005224 0 219 005230 0 221 005230 0 221 005230 0 221 005234 0 222 005234 0 223 005240 0 225 005242 0 226 005244 0 226 005246 0	00000 00000 04570 00200 04550 00000 00000 00000 00000 00000 00000 00200 00000 00200 00000 00000 00000 00160 00000 00160 00000	0 BIT4 0 BIT3:BIT4:BIT5:BIT6:BIT8 BIT3:BIT5:BIT6:BIT8:BIT1: 0 BIT3:BIT4:BIT5 0 BIT3:BIT5 0 BIT7:BIT11 BIT2 0 0 BIT4:BIT5:BIT6 0 BIT4:BIT5:BIT6	A4, A6 MODULES (62 ERROR CODE) NO CALLOUT A5 MODULE (63 ERROR CODE) SITTI; A4, A5, A6, A7, A9, A12 MODULES (64 ERROR CODE) HDA 1; A4, A6, A7, A9, A12 MODULES (65 ERROR CODE) NO CALLOUT A6, A5, A6 MODULES (66 ERROR CODE) NO CALLOUT A6 MODULES (67 ERROR CODE) NO CALLOUT A4, A6 MODULES (68 ERROR CODE) NO CALLOUT A8 MODULE (69 ERROR CODE) NOT USED A8, A12 MODULES (6A ERROR CODE) NOT USED A8, A12 MODULES (6A ERROR CODE) NOT USED A5, A6, A7 MODULES (6C ERROR CODE) NOT USED A5, A6, A7 MODULES (6D ERROR CODE) NO CALLOUT A5, A6, A7 MODULE (6D ERROR CODE) NO CALLOUT A5, A6, A7 MODULE (6D ERROR CODE) NO CALLOUT A5, A6, A7 MODULE (6E ERROR CODE) NO CALLOUT A5, A6, A7 MODULE (6E ERROR CODE)
202 005164 0 203 005166 0 204 005170 0 205 005172 0 206 005174 0 207 005176 0 208 005200 0 209 005202 0 210 005204 0 211 005206 0 212 005210 0 213 005212 0 214 005214 0 215 005216 0 216 005220 0 217 005222 0 218 005224 0 219 005230 0 221 005230 0 221 005230 0 221 005236 0 222 005234 0 223 005240 0 225 005242 0 226 005244 0 227 005246 0	00000 00000 04570 00200 04550 00000 00000 00000 00000 00000 00000 00200 00000 00200 00000 00000 00000 00160 00000 00160 00000	0 BIT4 0 BIT3:BIT4:BIT5:BIT6:BIT8 BIT3:BIT5:BIT6:BIT8:BIT1: 0 BIT3:BIT4:BIT5 0 BIT3:BIT5 0 BIT7:BIT11 BIT2 0 0 BIT4:BIT5:BIT6 0 BIT4:BIT5:BIT6	A4, A6 MODULES (62 ERROR CODE) NO CALLOUT A5 MODULE (63 ERROR CODE) NOT USED BIT11; A4, A5, A6, A7, A9, A12 MODULES (64 ERROR CODE) HDA 1; A4, A6, A7, A9, A12 MODULES (65 ERROR CODE) NO CALLOUT A4, A5, A6 MODULES (66 ERROR CODE) NO CALLOUT A4, A6 MODULES (67 ERROR CODE) NO CALLOUT A4, A6 MODULES (68 ERROR CODE) NO CALLOUT A4, A6 MODULES (68 ERROR CODE) NOT USED A8, A12 MODULES (6A ERROR CODE) NOT USED A8, A12 MODULES (6A ERROR CODE) NOT USED A5, A6, A7 MODULES (6C ERROR CODE) NOT USED A5, A6, A7 MODULES (6C ERROR CODE) NO CALLOUT A5, A6, A7 MODULE (6D ERROR CODE) NO CALLOUT A5, A6 MODULE (6E ERROR CODE)

```
229 005252
                000000
                                                                           :NO CALLOUT
    230 005254
                000130
                                                  BIT3!BIT4!BIT6
                                                                           ;A4, A5, A7 MODULES (70 ERROR CODE)
    231 005256
                000000
                                                                           :NO CALLOUT
    232 005260
                000010
                                                  BIT3
                                                                           ; A4 MODULE (71 ERROR CODE)
    233 005262
                000000
                                                                           NO CALLOUT
    234 005264
                000012
                                                  BIT1!BIT3
                                                                           ;A2,A4 MODULE (72 ERROR CODE)
    235 005266
                000000
                                                                           : NO CALLOUT
    236 005270
                000012
                                                 BIT1!BIT3
                                                                           : A2. A4 MODULE (73 ERROR CODE)
    237 005272
                000000
                                                                           NO CALLOUT
    238 005274
                000020
                                                                           :A5 MODULE (74 ERROR CODE)
                                                  BIT4
    239 005276
                000000
                                                                           NO CALLOUT
    240 005300
                000020
                                                  BIT4
                                                                           : AS MODULE (75 ERROR CODE)
    241 005302
                000000
                                                                           NO CALLOUT
    242 005304
                000020
                                                  BIT4
                                                                           ; AS MODULE (76 ERROR CODE)
    243 005306
                000000
                                                                           :NO CALLOUT
    244 005310
                000020
                                                  BIT4
                                                                           :A5 MODULE (77 ERROR CODE)
    245 005312
                000000
                                                  0
                                                                           : NO CALLOUT
    246 005314
                000020
                                                  BIT4
                                                                           :A5 MODULE (78 ERROR CODE)
    247 005316
                000000
                                                                           NO CALLOUT
    248 005320
                000020
                                                  BIT4
                                                                           ; A5 MODULE (79 ERROR CODE)
    249 005322
                000000
                                                                           :NO CALLOUT
    250 005324
                000020
                                                  BIT4
                                                                           ; AS MODULE (7A ERROR CODE)
    251 005326
                000000
                                                                           :NO CALLOUT
    252 005330
                000020
                                                  BIT4
                                                                           ; AS MODULE (7B ERROR CODE)
    253 005332
                000000
                                                                           :NO CALLOUT
    254 005334
                000020
                                                  BIT4
                                                                           : A5 MODULE (7C ERROR CODE)
    255 005336
                000000
                                                                           :NO CALLOUT
    256 005340
                000020
                                                  BIT4
                                                                           : AS MODULE (7D ERROR CODE)
    257 005342
                000000
                                                                           :NO CALLOUT
                                                 BIT6:BIT7:BIT8:BIT9:BIT11:BIT13:BIT14:BIT15:A7. A8. A9. A10. A12. A14. A15. A16 (7E
    258 005344
                165700
ERROR CODE)
    259 005346
                000201
                                                  BITO!BIT7
                                                                           ;A17,HDA CALLOUT (7E ERROR CODE)
                                                 BIT7:BIT10:BIT11:BIT12 ;A8. A11, A12, A13 (7F ERROR CODE)
    260 005350
                016200
    261 005352
                000000
                                                                           NO CALLOUT
                000100
    262 005354
                                                  BIT6
                                                                           :A7 MODULE (80 ERROR CODE)
    263 005356
                001000
                                                  BIT9
                                                                           PHASE DETECTOR
    264 005360
                001600
                                                  BIT7!BIT8!BIT9
                                                                           :A8, A9, A10 MODULE (81 ERROR CODE)
    265 005362
                000000
                                                                           NO CALLOUT
    266 005364
                001400
                                                                           :A9, A10 MODULES (82 ERROR CODE)
                                                  BIT8!BIT9
    267 005366
                000000
                                                                           NO CALLOUT
    268 005370
                001700
                                                  BIT6!BIT7!BIT8!BIT9
                                                                           :A7, A8, A9, A10 MODULES (83 ERROR CODE)
    269 005372
                000000
                                                                           NO CALLOUT
    270 005374
                025600
                                                  BIT7:BIT8:BIT9:BIT11:BIT13:A8, A9, A10, A12, A14 MODULES (84 ERROR CODE)
                000000
    271 005376
                                                                           :NO CALLOUT
    272 005400
                001400
                                                                           ;A9, A10 MODULES (85 ERROR CODE)
                                                  BIT8!BIT9
    273 005402
                000000
                                                                           NO CALLOUT
    274 005404
                001400
                                                  BIT8!BIT9
                                                                           ; A9, A10 MODULES (86 ERROR CODE)
    275 005406
                000000
                                                                           NO CALLOUT
    276 005410
                000600
                                                  BIT7!BIT8
                                                                           :A8. A9 MODULES (87 ERROR CODE)
    277 005412
                000000
                                                                           NO CALLOUT
    278 005414
                000000
                                                                           INO CALLOUT (88 ERROR CODE)
    279 005416
                000000
                                                                           NO CALLOUT
    280 005420
                000500
                                                  BIT7
                                                                           ; A8 MODULE (89 ERROR CODE)
    281 005422
                000000
                                                                           NOT USED
    282 005424
                 000240
                                                  BITS!BIT7
                                                                           :A6, A8 MODULE (8A ERROR CODE)
    283 005426
                 000000
                                                                           NO CALLOUT
    284 005430
                 000020
                                                  BIT4
                                                                           : A5 MODULE (8B ERROR CODE)
    285 005432
                000000
                                                                           NO CALLOUT
```

286 005434	000020	BIT4	; A5 MODULE (8C ERROR CODE)
287 005436	00000	0	;NO CALLOUT
288 005440	000020	BIT4	;A5 MODULE (8D ERROR CODE) ;NO CALLOUT IT14!BIT15;A8, A10, A12, A14, A15, A16 MODULE (8E ERROR CODE)
289 005442	000000	0	INO CALLOUT
290 005444	165200	BIT7!BIT9!BIT11!BIT13!B	TT14 RTT15 AR. A10. A12. A14. A15. A16 MODULE (RE EPPOP CODE)
291 005446	000200	BIT7	HDA
292 005450	001400	RTTRIRTTO	(A9, A10 MODULES (8F ERROR CODE)
293 005452	000000	BIT8:BIT9	NO CALLOUT
294 005454	004000	•	NO CALLOUT
205 005454	004000	BIT11	(A12 MODULE (90 ERROR CODE)
295 005456	000000 004200 000000	0	INO CALLOUT
296 005460	004200	BIT7!BIT11	;A8, A12 MODULES (91 ERROR CODE) ;NO CALLOUT ;A12 MODULE (92 ERROR CODE) ;NO CALLOUT
297 005462	000000	0	;NO CALLOUT
298 005464	004000	BIT11	;A12 MODULE (92 ERROR CODE)
299 005466	004000 000000	0	; NO CALLOUT
300 005470	004200	BIT7!BIT11	· AR A12 PRINTER COC FOOD PRINTE
301 005472	000000	0	NO CALLOUT A12 MODULE (94 ERROR CODE) NO CALLOUT A7, A8, A12 MODULES (95 ERROR CODE)
302 005474	004000	BIT11	A12 MODULE (94 ERROR CODE)
303 005476	000000	0	NO CALLOUT
304 005500	004300	BIT6:BIT7:BIT11	AT AR A12 MODILLES (OF EDDOD CODE)
305 005502	000000	0110:0117:01111	AN CALL HOUSES (95 ERROR CODE)
306 005504	004000	DTT11	INC CALLOUT
300 005504	004000	BIT11	: AIZ HODOLE (96 ERROR CODE)
307 005506	000000	0	NO CALLOUT
308 005510	004000 000000	BIT11	:NO CALLOUT :A12 MODULE (96 ERROR CODE) :NO CALLOUT :A12 MODULE (97 ERROR CODE)
309 005512	000000	0	:NO CALLOUT :A8. A12 MODULES (98 ERROR CODE) :NO CALLOUT
310 005514	004200	BIT7:BIT11	; A8, A12 MODULES (98 ERROR CODE)
311 005516	000000 004200	0	; NO CALLOUT
312 005520	004200	BIT7!BIT11	:A8. A12 MODULES (99 ERROR CODE)
313 005522 314 005524 315 005526	000000 004200	0	: A8. A12 MODULES (99 ERROR CODE) :NO CALLOUT
314 005524	004200	BIT7!BIT11	:A8. A12 MODULES (9A ERROR CODE)
315 005526	000000 004200	0	:NO CALLOUT :A8. A12 MODULES (9B ERROR CODE) :NO CALLOUT :A8. A12 MODULES (9C ERROR CODE)
316 005530	004200	BIT7:BIT11	AR A12 MODULES (OR EPPOR CODE)
317 005532	000000	0	NO CALLOUT
318 005534	004200	BIT7:BIT11	AR A12 MOUNTES (OF ERROR CODE)
319 005536	000000	0111:01111	NO CAL OUT
320 005540	004000	DITTI	; NO CALLOUT ; A12 MODULE (9D ERROR CODE)
321 005542	000000	BIT11	HIZ HODOLE (90 ERROR CODE)
322 005544	000000	0	:NO CALLOUT :A12 MODULE (9E ERROR CODE) :NO CALLOUT :A12 MODULE (9F ERROR CODE)
322 003344 327 005546	004000	BIT11	(ATS HODOLE (AE EKKOK CODE)
323 005546	000000 004000	0	INO CALLOUT
324 005550	004000	BIT11	;A12_MODULE (9F ERROR CODE)
325 005552	000000	0	; NO CALLOUT ; A12 MODULE (A0 ERROR CODE)
326 005554	004000	BIT11	; A12 MODULE (AO ERROR CODE)
327 005556	000000 004000	0	; NO CALLOUT
328 005560	004000	BIT11	:A12 MODULE (A1 ERROR CODE)
326 005554 327 005556 328 005560 329 005562 330 005564	000000	0	#A12 MODULE (A0 ERROR CODE)  #NO CALLOUT  #A12 MODULE (A1 ERROR CODE)  #NO CALLOUT  #A12 MODULE (A2 ERROR CODE)  #NO CALLOUT  #A12 MODULE (A3 ERROR CODE)  #NO CALLOUT  #A12 MODULE (A4 ERROR CODE)  #NO CALLOUT  #A6. A12 MODULES (A5 ERROR CODE)  #NO CALLOUT
330 005564	004000	BIT11	A12 MODULE (A2 ERROR CODE)
331 005566 332 005570 333 005572 334 005574 335 005576	000000	0	INO CALLOUT
332 005570	004000 000000 004000	BIT11	A12 MODULE (A3 ERROR CODE)
333 005572	000000	0	INO CALLOUT
334 005574	004000	BIT11	A12 MODULE (AA EPPOP CODE)
335 005576	000000	0	MO CALLOUT .
336 005600	004200	PTT71PTT11	AR A12 MODINES (AS EDDOD CODE)
337 005602	000000	BIT7:BIT11	IND. MIE MUUULES (MS ERRUK CUUE)
338 005604	004200	0777107711	:NO CALLOUT :A8. A12 MODULES (A6 ERROR CODE)
338 005604 339 005606 340 005610	004200	BIT7!BIT11	IND. WIS MODULES (NO ENKON CODE)
740 005610	000000	0	IND CALLOUT
340 005610	004000	BIT11	A12 MODULE (A7 ERROR CODE)
341 005612	000000	0	:NO CALLOUT :A12 MODULE (A7 ERROR CODE) :NO CALLOUT
342 005614	004000	BIT11	;A12 MODULE (A8 ERROR CODE)
			집 경험 이 사람 하다 걸 보다면 하다면 살이 보다 되었다.

343 005616			
	000000	0	; NO CALLOUT
344 005620	004000	BIT11	(A12 MODULE (A9 ERROR CODE)
	004000	01.11	THE HODOLE (H) ERROR CODE)
345 005622	000000	0	INO CALLOUT
346 005624	004000	BIT11	:A12 MODULE (AA ERROR CODE)
347 005626	000000	0	NO CALLOUT
	00000	0	INO CALLOUT
348 005630	004000	BIT11	:A12 MODULE (AB ERROR CODE)
349 005632	000000	0	-NO CALLOUT
	00000		INO CHELOUT
350 005634	004000	BIT11	:A12 MODULE (AC ERROR CODE)
351 005636	000000	0	· NO CALLOUT
	000000	07711	ALO MODITE (AD EDDOD CODE)
352 005640	004000	81111	HAZ MUDULE (AD ERRUR CODE)
353 005642	000000	0	:NO CALLOUT
354 005644	004000	DTT11	ALO MODULE (AE EDDOD CODE)
	004000	DITT	INTS LIONOFE (WE ENKON CODE)
355 005646	000000	0	:NO CALLOUT
356 005650	004000	RTT11	A12 MODULE (AF EPPOP CODE)
	000000	01111	ME HOUSE (M' ENNON COOL)
357 005652	000000	0	; NO CALLOUT
358 005654	004000	BIT11	:A12 MODULE (BO ERROR CODE)
359 005656	000000	^	-NO CALLOUT
	00000	0	IND CHELOUT
360 005660	004000	BIT11	:A12 MODULE (B1 ERROR CODE)
361 005662	000000	0	NO CALLOUT
	000000		INO CHELOUT
362 005664	004000	BIIII	(B2 ERROR CODE)
363 005666	000000	0	NO CALLOUT
364 005670	004000	DTT11	ALC MODULE (DZ EDDOD CODE)
	004000	PILIT	WIS UNDOFF (B2 ENKIN CODE)
365 005672	000000	0	INO CALLOUT
366 005674	004000	PTT11	A12 MODULE (BA EDDOD CODE)
	004000	DITT	HIE HOUGHE (B4 ENAUN CODE)
367 005676	000000	0	:NO CALLOUT
368 005700	004000	RTT11	A12 MODULE (R5 ERROR CODE)
360 005700	000000	01111	MO CALLOUT
369 005702	000000	0	; NO CALLOUT
370 005704	004000	BIT11	: A12 MODULE (B6 ERROR CODE)
371 005706	000000	0	- NO CALLOUT
	00000		INO CHELOUT
\$72 DOS 710			
372 005710	004000	BIIII	: A12 MODULE (B7 ERROR CODE)
373 005712	000000	81111	NO CALLOUT
373 005712	000000	0	; A12 MODULE (B7 ERROR CODE)
373 005712 374 005714	00000 004000	BIT11	; A12 MODULE (B7 ERROR CODE) ; NO CALLOUT ; A12 MODULE (B8 ERROR CODE)
373 005712 374 005714 375 005716	00000 004000 004000	BIT11 G	:NO CALLOUT :NO CALLOUT :NO CALLOUT
373 005712 374 005714 375 005716	000000 004000 000000	BIT11 0 BIT11 C	#A12 MODULE (A9 ERROR CODE) #NO CALLOUT #A12 MODULE (AA ERROR CODE) #NO CALLOUT #A12 MODULE (AB ERROR CODE) #NO CALLOUT #A12 MODULE (AC ERROR CODE) #NO CALLOUT #A12 MODULE (AD ERROR CODE) #NO CALLOUT #A12 MODULE (AF ERROR CODE) #NO CALLOUT #A12 MODULE (AF ERROR CODE) #NO CALLOUT #A12 MODULE (B0 ERROR CODE) #NO CALLOUT #A12 MODULE (B1 ERROR CODE) #NO CALLOUT #A12 MODULE (B2 ERROR CODE) #NO CALLOUT #A12 MODULE (B3 ERROR CODE) #NO CALLOUT #A12 MODULE (B4 ERROR CODE) #NO CALLOUT #A12 MODULE (B5 ERROR CODE) #NO CALLOUT #A12 MODULE (B6 ERROR CODE) #NO CALLOUT #A12 MODULE (B6 ERROR CODE) #NO CALLOUT #A12 MODULE (B7 ERROR CODE) #NO CALLOUT #A12 MODULE (B8 ERROR CODE) #NO CALLOUT #A13 MODULE (B8 ERROR CODE) #NO CALLOUT #A14 MODULE (B8 ERROR CODE) #NO CALLOUT
373 005712 374 005714 375 005716 376 005720	004300	BIT6:BIT7:BIT11	:NO CALLOUT :NO CALLOUT :NO CALLOUT :NO CALLOUT :A7, A8, A12 MODULE (B9 ERROR CODE)
373 005712 374 005714 375 005716 376 005720 377 005722	004300 000000	BIT6!BIT7!BIT11	:A7. A8. A12 MODULE (B9 ERROR CODE)
373 005712 374 005714 375 005716 376 005720 377 005722	004300 000000	BIT6!BIT7!BIT11	:A7. A8. A12 MODULE (B9 ERROR CODE)
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724	004300 000000 004200	BIT6:BIT7:BIT11	:A7, A8, A12 MODULE (B9 ERROR CODE) :NO CALLOUT :A8, A12 MODULES (BA ERROR CODE)
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726	004300 000000 004200 000000	BIT6:BIT7:BIT11 0 BIT7:BIT11	:A7, A8, A12 MODULE (B9 ERROR CODE) :NO CALLOUT :A8, A12 MODULES (BA ERROR CODE) :NO CALLOUT
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730	004300 000000 004200 000000	BIT6:BIT7:BIT11 0 BIT7:BIT11	:A7, A8, A12 MODULE (B9 ERROR CODE) :NO CALLOUT :A8, A12 MODULES (BA ERROR CODE) :NO CALLOUT
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730	004300 000000 004200 000000	BIT6:BIT7:BIT11 0 BIT7:BIT11	:A7, A8, A12 MODULE (B9 ERROR CODE) :NO CALLOUT :A8, A12 MODULES (BA ERROR CODE) :NO CALLOUT :NO CALLOUT (BB ERROR CODE)
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730 381 005732	004300 000000 004200 000000 000000	BIT6:BIT7:BIT11 0 BIT7:BIT11	:A7, A8, A12 MODULE (B9 ERROR CODE) :NO CALLOUT :A8, A12 MODULES (BA ERROR CODE) :NO CALLOUT :NO CALLOUT (BB ERROR CODE) :NO CALLOUT
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730 381 005732 382 005734	004300 000000 004200 000000 000000 000000	BIT6!BIT7!BIT11	:A7, A8, A12 MODULE (B9 ERROR CODE) :NO CALLOUT :A8, A12 MODULES (BA ERROR CODE) :NO CALLOUT :NO CALLOUT (BB ERROR CODE) :NO CALLOUT :NO CALLOUT (BC ERROR CODE)
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730 381 005732 382 005734	004300 000000 004200 000000 000000 000000	BIT6:BIT7:BIT11 0 BIT7:BIT11 0 0	:A7, A8, A12 MODULE (B9 ERROR CODE) :NO CALLOUT :A8, A12 MODULES (BA ERROR CODE) :NO CALLOUT :NO CALLOUT (BB ERROR CODE) :NO CALLOUT :NO CALLOUT (BC ERROR CODE)
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730 381 005732 382 005734 383 005736	004300 000000 004200 000000 000000 000000 000000	BIT6:BIT7:BIT11 0 BIT7:BIT11 0 0 0	:A7, A8, A12 MODULE (B9 ERROR CODE) :NO CALLOUT :A8, A12 MODULES (BA ERROR CODE) :NO CALLOUT :NO CALLOUT (BB ERROR CODE) :NO CALLOUT :NO CALLOUT (BC ERROR CODE) :NO CALLOUT
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730 381 005732 382 005734 383 005736 384 005740	004300 000000 004200 000000 000000 000000 000000 000000	BIT6:BIT7:BIT11 0 BIT7:BIT11 0 0 0	:A7, A8, A12 MODULE (B9 ERROR CODE) :NO CALLOUT :A8, A12 MODULES (BA ERROR CODE) :NO CALLOUT :NO CALLOUT (BB ERROR CODE) :NO CALLOUT :NO CALLOUT (BC ERROR CODE) :NO CALLOUT :NO CALLOUT (BD ERROR CODE)
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730 381 005732 382 005734 383 005736 384 005740 385 005742	004300 000000 004200 000000 000000 000000 000000 000000 0000	BIT6:BIT7:BIT11 0 BIT7:BIT11 0 0 0 0	:A7, A8, A12 MODULE (B9 ERROR CODE) :NO CALLOUT :A8, A12 MODULES (BA ERROR CODE) :NO CALLOUT :NO CALLOUT (BB ERROR CODE) :NO CALLOUT :NO CALLOUT (BC ERROR CODE) :NO CALLOUT :NO CALLOUT (BD ERROR CODE)
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730 381 005732 382 005734 383 005736 384 005740 385 005742	004300 000000 004200 000000 000000 000000 000000 000000 0000	BIT6:BIT7:BIT11 0 BIT7:BIT11 0 0 0 0	:A7, A8, A12 MODULE (B9 ERROR CODE) :NO CALLOUT :A8, A12 MODULES (BA ERROR CODE) :NO CALLOUT :NO CALLOUT (BB ERROR CODE) :NO CALLOUT :NO CALLOUT (BC ERROR CODE) :NO CALLOUT :NO CALLOUT (BD ERROR CODE)
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730 381 005732 382 005734 383 005736 384 005740 385 005742	004300 000000 004200 000000 000000 000000 000000 000000 0000	BIT6:BIT7:BIT11 0 BIT7:BIT11 0 0 0 0 0 0 0 0 0 0 0 0 0	:A7. A8. A12 MODULE (B9 ERROR CODE) :NO CALLOUT :A8. A12 MODULES (BA ERROR CODE) :NO CALLOUT :NO CALLOUT (BB ERROR CODE) :NO CALLOUT :NO CALLOUT (BC ERROR CODE) :NO CALLOUT :NO CALLOUT :NO CALLOUT :NO CALLOUT :NO CALLOUT :NO CALLOUT (BD ERROR CODE) :NO CALLOUT
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730 381 005732 382 005734 383 005736 384 005740 385 005742 386 005744	004300 000000 004200 000000 000000 000000 000000 000000 0000	BIT6:BIT7:BIT11 0 BIT7:BIT11 0 0 0 0 0 0 0 0 0 BIT11	:A7. A8. A12 MODULE (B9 ERROR CODE) :NO CALLOUT :A8. A12 MODULES (BA ERROR CODE) :NO CALLOUT :NO CALLOUT (BB ERROR CODE) :NO CALLOUT :NO CALLOUT (BC ERROR CODE) :NO CALLOUT :NO CALLOUT :NO CALLOUT :NO CALLOUT :NO CALLOUT :NO CALLOUT (BD ERROR CODE) :NO CALLOUT
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730 381 005732 382 005734 383 005736 384 005740 385 005742 386 005744	004300 000000 004200 000000 000000 000000 000000 000000 0000	BIT6:BIT7:BIT11 0 BIT7:BIT11 0 0 0 0 0 0 0 0 0 BIT11	:A7. A8. A12 MODULE (B9 ERROR CODE) :NO CALLOUT :A8. A12 MODULES (BA ERROR CODE) :NO CALLOUT :NO CALLOUT (BB ERROR CODE) :NO CALLOUT :NO CALLOUT (BC ERROR CODE) :NO CALLOUT :NO CALLOUT :NO CALLOUT :NO CALLOUT :NO CALLOUT :NO CALLOUT (BD ERROR CODE) :NO CALLOUT
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730 381 005732 382 005734 383 005736 384 005740 385 005742 386 005744	004300 000000 004200 000000 000000 000000 000000 000000	BIT6:BIT7:BIT11 0 BIT7:BIT11 0 0 0 0 0 0 BIT11 0 BIT11	:A7. A8. A12 MODULE (B9 ERROR CODE) :NC CALLOUT :A8. A12 MODULES (BA ERROR CODE) :NO CALLOUT :NO CALLOUT (BB ERROR CODE) :NO CALLOUT :NO CALLOUT (BC ERROR CODE) :NO CALLOUT :NO CALLOUT :NO CALLOUT :NO CALLOUT :NO CALLOUT :NO CALLOUT :A12 MODULE (BE ERROR CODE) :NO CALLOUT :A12 MODULE (BF ERROR CODE)
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730 381 005732 382 005734 383 005736 384 005740 385 005742 386 005744 387 005746 388 005750 389 005752	004300 000000 004200 000000 000000 000000 000000 000000	BIT6:BIT7:BIT11 0 BIT7:BIT11 0 0 0 0 0 0 0 BIT11 0 BIT11	:A7. A8. A12 MODULE (B9 ERROR CODE) :NC CALLOUT :A8. A12 MODULES (BA ERROR CODE) :NO CALLOUT :NO CALLOUT (BB ERROR CODE) :NO CALLOUT :NO CALLOUT (BC ERROR CODE) :NO CALLOUT :NO CALLOUT :NO CALLOUT :NO CALLOUT :NO CALLOUT :NO CALLOUT :A12 MODULE (BE ERROR CODE) :NO CALLOUT :A12 MODULE (BF ERROR CODE)
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730 381 005732 382 005734 383 005736 384 005740 385 005742 386 005744 387 005746 388 005750 389 005752	004300 000000 004200 000000 000000 000000 000000 000000	BIT6:BIT7:BIT11 0 BIT7:BIT11 0 0 0 0 0 0 BIT11 0 BIT11	:A7. A8. A12 MODULE (B9 ERROR CODE) :NC CALLOUT :A8. A12 MODULES (BA ERROR CODE) :NO CALLOUT :NO CALLOUT (BB ERROR CODE) :NO CALLOUT :NO CALLOUT (BC ERROR CODE) :NO CALLOUT :NO CALLOUT :NO CALLOUT :NO CALLOUT :NO CALLOUT :A12 MODULE (BE ERROR CODE) :NO CALLOUT :A12 MODULE (BF ERROR CODE) :NO CALLOUT :A12 MODULE (CO ERROR CODE)
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730 381 005732 382 005734 383 005736 384 005740 385 005742 386 005744 387 005746 388 005750 389 005752	004300 000000 004200 000000 000000 000000 000000 000000	BIT6:BIT7:BIT11 0 BIT7:BIT11 0 0 0 0 0 0 BIT11 0 BIT11	:A7. A8. A12 MODULE (B9 ERROR CODE) :NC CALLOUT :A8. A12 MODULES (BA ERROR CODE) :NO CALLOUT :NO CALLOUT (BB ERROR CODE) :NO CALLOUT :NO CALLOUT (BC ERROR CODE) :NO CALLOUT :NO CALLOUT :NO CALLOUT :NO CALLOUT :NO CALLOUT :A12 MODULE (BE ERROR CODE) :NO CALLOUT :A12 MODULE (BF ERROR CODE) :NO CALLOUT :A12 MODULE (CO ERROR CODE)
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730 381 005732 382 005734 383 005736 384 005740 385 005742 386 005744 387 005746 388 005750 389 005752 390 005754	004300 000000 000000 000000 000000 000000	BIT6:BIT7:BIT11 0 BIT7:BIT11 0 0 0 0 0 0 BIT11 0 BIT11	:A7. A8. A12 MODULE (B9 ERROR CODE) :NC CALLOUT :A8. A12 MODULES (BA ERROR CODE) :NO CALLOUT :NO CALLOUT (BB ERROR CODE) :NO CALLOUT :NO CALLOUT (BC ERROR CODE) :NO CALLOUT :NO CALLOUT :NO CALLOUT :NO CALLOUT :NO CALLOUT :A12 MODULE (BE ERROR CODE) :NO CALLOUT :A12 MODULE (BF ERROR CODE) :NO CALLOUT :A12 MODULE (CO ERROR CODE)
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730 381 005732 382 005734 383 005736 384 005740 385 005742 386 005744 387 005746 388 005750 389 005752 390 005754	004300 000000 000000 000000 000000 000000	BIT6:BIT7:BIT11 0 BIT7:BIT11 0 0 0 0 0 0 BIT11 0 BIT11	A7. A8. A12 MODULE (B9 ERROR CODE)  NO CALLOUT  NO CALLOUT (BB ERROR CODE)  NO CALLOUT (BB ERROR CODE)  NO CALLOUT (BC ERROR CODE)  NO CALLOUT (BD ERROR CODE)  NO CALLOUT (BD ERROR CODE)  NO CALLOUT  A12 MODULE (BE ERROR CODE)  NO CALLOUT  A12 MODULE (BF ERROR CODE)  NO CALLOUT  A12 MODULE (CO ERROR CODE)  NO CALLOUT  A5 MODULE (CO ERROR CODE)
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730 381 005732 382 005734 383 005736 384 005740 385 005742 386 005744 387 005746 388 005750 389 005752 390 005754	004300 000000 000000 000000 000000 000000	BIT6:BIT7:BIT11 0 BIT7:BIT11 0 0 0 0 0 0 BIT11 0 BIT11	A7. A8. A12 MODULE (B9 ERROR CODE)  NO CALLOUT  NO CALLOUT (BB ERROR CODE)  NO CALLOUT (BB ERROR CODE)  NO CALLOUT (BC ERROR CODE)  NO CALLOUT (BD ERROR CODE)  NO CALLOUT (BD ERROR CODE)  NO CALLOUT (BB ERROR CODE)  NO CALLOUT  A12 MODULE (BE ERROR CODE)  NO CALLOUT  A12 MODULE (BF ERROR CODE)  NO CALLOUT  A5 MODULE (CO ERROR CODE)  NO CALLOUT  A5 MODULE (C1 ERROR CODE)
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730 381 005732 382 005734 383 005736 384 005740 385 005742 386 005744 387 005746 388 005750 389 005752 390 005754 391 005756 392 005760 393 005762	004300 000000 004200 000000 000000 000000 000000 004000 004000 004000 004000 000000 000000 000000 000000	BIT6:BIT7:BIT11 0 BIT7:BIT11 0 0 0 0 0 0 BIT11 0 BIT11 0 BIT4 0 BIT4	A7. A8. A12 MODULE (B9 ERROR CODE)  NO CALLOUT  NO CALLOUT (BB ERROR CODE)  NO CALLOUT (BB ERROR CODE)  NO CALLOUT (BC ERROR CODE)  NO CALLOUT (BD ERROR CODE)  NO CALLOUT (BD ERROR CODE)  NO CALLOUT (BB ERROR CODE)  NO CALLOUT  A12 MODULE (BE ERROR CODE)  NO CALLOUT  A12 MODULE (BF ERROR CODE)  NO CALLOUT  A5 MODULE (CO ERROR CODE)  NO CALLOUT  A5 MODULE (C1 ERROR CODE)
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730 381 005732 382 005734 383 005736 384 005740 385 005742 386 005744 387 005746 388 005750 389 005752 390 005754 391 005756 392 005760 393 005762	004300 000000 000000 000000 000000 000000	BIT6:BIT7:BIT11 0 BIT7:BIT11 0 0 0 0 0 0 BIT11 0 BIT4 0 BIT4 0 BIT3:BIT4	A7. A8. A12 MODULE (B9 ERROR CODE)  NO CALLOUT  NO CALLOUT (BB ERROR CODE)  NO CALLOUT (BB ERROR CODE)  NO CALLOUT (BC ERROR CODE)  NO CALLOUT (BD ERROR CODE)  NO CALLOUT (BD ERROR CODE)  NO CALLOUT (BB ERROR CODE)  NO CALLOUT  A12 MODULE (BE ERROR CODE)  NO CALLOUT  A12 MODULE (BF ERROR CODE)  NO CALLOUT  A5 MODULE (CO ERROR CODE)  NO CALLOUT  A5 MODULE (C1 ERROR CODE)
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730 381 005732 382 005734 383 005736 384 005740 385 005742 386 005744 387 005746 388 005750 389 005752 390 005754 391 005756 392 005760 393 005764 395 005766	004300 000000 000000 000000 000000 000000	BIT6:BIT7:BIT11 0 BIT7:BIT11 0 0 0 0 0 0 BIT11 0 BIT11 0 BIT4 0 BIT4	A7. A8. A12 MODULE (B9 ERROR CODE)  NO CALLOUT  NO CALLOUT (BB ERROR CODE)  NO CALLOUT (BB ERROR CODE)  NO CALLOUT (BC ERROR CODE)  NO CALLOUT (BD ERROR CODE)  NO CALLOUT (BD ERROR CODE)  NO CALLOUT (BB ERROR CODE)  NO CALLOUT  A12 MODULE (BE ERROR CODE)  NO CALLOUT  A12 MODULE (BF ERROR CODE)  NO CALLOUT  A5 MODULE (CO ERROR CODE)  NO CALLOUT  A5 MODULE (C1 ERROR CODE)
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730 381 005732 382 005734 383 005736 384 005740 385 005742 386 005744 387 005746 388 005750 389 005752 390 005754 391 005756 392 005760 393 005764 395 005766	004300 000000 000000 000000 000000 000000	BIT6:BIT7:BIT11 0 BIT7:BIT11 0 0 0 0 0 0 BIT11 0 BIT4 0 BIT4 0 BIT3:BIT4	A7. A8. A12 MODULE (B9 ERROR CODE)  NO CALLOUT  NO CALLOUT (BB ERROR CODE)  NO CALLOUT (BB ERROR CODE)  NO CALLOUT (BC ERROR CODE)  NO CALLOUT (BD ERROR CODE)  NO CALLOUT (BD ERROR CODE)  NO CALLOUT (BB ERROR CODE)  NO CALLOUT  A12 MODULE (BE ERROR CODE)  NO CALLOUT  A12 MODULE (BF ERROR CODE)  NO CALLOUT  A5 MODULE (CO ERROR CODE)  NO CALLOUT  A5 MODULE (C1 ERROR CODE)
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730 381 005732 382 005734 383 005736 384 005740 385 005742 386 005744 387 005746 388 005750 389 005752 390 005754 391 005756 392 005760 393 005762 394 005764 395 005766	004300 000000 000000 000000 000000 000000	BIT6:BIT7:BIT11 0 BIT7:BIT11 0 0 0 0 0 0 BIT11 0 BIT11 0 BIT4 0 BIT4 0 BIT3:BIT4	A7. A8. A12 MODULE (B9 ERROR CODE)  NO CALLOUT  NO CALLOUT (BB ERROR CODE)  NO CALLOUT (BB ERROR CODE)  NO CALLOUT (BC ERROR CODE)  NO CALLOUT (BD ERROR CODE)  NO CALLOUT (BD ERROR CODE)  NO CALLOUT  A12 MODULE (BE ERROR CODE)  NO CALLOUT  A12 MODULE (BF ERROR CODE)  NO CALLOUT  A13 MODULE (CO ERROR CODE)  NO CALLOUT  A5 MODULE (C1 ERROR CODE)  NO CALLOUT  A5 MODULE (C1 ERROR CODE)  NO CALLOUT  A6. A5 MODULES (C2 ERROR CODE)  NO CALLOUT  A7. A5 MODULES (C3 ERROR CODE)
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730 381 005732 382 005734 383 005736 384 005740 385 005742 386 005744 387 005746 388 005750 389 005752 390 005754 391 005756 392 005760 393 005764 395 005766 396 005770 397 005772	004300 000000 004200 000000 000000 000000 000000 000000	BIT6:BIT7:BIT11 0 BIT7:BIT11 0 0 0 0 0 0 BIT11 0 BIT4 0 BIT4 0 BIT3:BIT4	A7. A8. A12 MODULE (B9 ERROR CODE)  NO CALLOUT  NO CALLOUT (BB ERROR CODE)  NO CALLOUT (BB ERROR CODE)  NO CALLOUT (BC ERROR CODE)  NO CALLOUT (BD ERROR CODE)  NO CALLOUT (BD ERROR CODE)  NO CALLOUT  A12 MODULE (BE ERROR CODE)  NO CALLOUT  A12 MODULE (BF ERROR CODE)  NO CALLOUT  A13 MODULE (CO ERROR CODE)  NO CALLOUT  A5 MODULE (C1 ERROR CODE)  NO CALLOUT  A5 MODULE (C1 ERROR CODE)  NO CALLOUT  A6. A5 MODULES (C2 ERROR CODE)  NO CALLOUT  A7. A5 MODULES (C3 ERROR CODE)
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730 381 005732 382 005734 383 005736 384 005740 385 005742 386 005744 387 005746 388 005750 389 005752 390 005754 391 005756 392 005760 393 005764 395 005766 396 005770 397 005772	004300 000000 004200 000000 000000 000000 000000 000000	BIT6:BIT7:BIT11 0 BIT7:BIT11 0 0 0 0 0 0 BIT11 0 BIT4 0 BIT4 0 BIT3:BIT4	A7. A8. A12 MODULE (B9 ERROR CODE)  NO CALLOUT  NO CALLOUT (BB ERROR CODE)  NO CALLOUT (BB ERROR CODE)  NO CALLOUT (BC ERROR CODE)  NO CALLOUT (BD ERROR CODE)  NO CALLOUT (BD ERROR CODE)  NO CALLOUT  A12 MODULE (BE ERROR CODE)  NO CALLOUT  A12 MODULE (BF ERROR CODE)  NO CALLOUT  A13 MODULE (CO ERROR CODE)  NO CALLOUT  A5 MODULE (C1 ERROR CODE)  NO CALLOUT  A5 MODULE (C1 ERROR CODE)  NO CALLOUT  A6. A5 MODULES (C2 ERROR CODE)  NO CALLOUT  A7. A5 MODULES (C3 ERROR CODE)
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730 381 005732 382 005734 383 005736 384 005740 385 005742 386 005744 387 005746 388 005750 389 005752 390 005754 391 005756 392 005760 393 005762 394 005764 395 005766 396 005770 397 005772 398 005774	004300 000000 000000 000000 000000 000000	BIT6:BIT7:BIT11 0 BIT7:BIT11 0 0 0 0 0 0 BIT11 0 BIT4 0 BIT4 0 BIT4 0 BIT4 0 BIT4 0 BIT4	A7. A8. A12 MODULE (B9 ERROR CODE)  NO CALLOUT  NO CALLOUT (BB ERROR CODE)  NO CALLOUT (BB ERROR CODE)  NO CALLOUT (BC ERROR CODE)  NO CALLOUT (BD ERROR CODE)  NO CALLOUT (BD ERROR CODE)  NO CALLOUT  A12 MODULE (BE ERROR CODE)  NO CALLOUT  A12 MODULE (BF ERROR CODE)  NO CALLOUT  A5 MODULE (CO ERROR CODE)  NO CALLOUT  A5 MODULE (C1 ERROR CODE)  NO CALLOUT  A5 MODULE (C1 ERROR CODE)  NO CALLOUT  A5 MODULE (C2 ERROR CODE)  NO CALLOUT  A6 MODULE (C3 ERROR CODE)  NO CALLOUT  A7 MODULE (C3 ERROR CODE)  NO CALLOUT  A7 MODULE (C4 ERROR CODE)
373 005712 374 005714 375 005716 376 005720 377 005722 378 005724 379 005726 380 005730 381 005732 382 005734 383 005736 384 005740 385 005742 386 005744 387 005746 388 005750 389 005752 390 005754 391 005756 392 005760 393 005764 395 005766 396 005770 397 005772	004300 000000 004200 000000 000000 000000 000000 000000	BIT6:BIT7:BIT11 0 BIT7:BIT11 0 0 0 0 0 0 BIT11 0 BIT4 0 BIT4 0 BIT3:BIT4	A7. A8. A12 MODULE (B9 ERROR CODE)  NO CALLOUT  NO CALLOUT (BB ERROR CODE)  NO CALLOUT (BB ERROR CODE)  NO CALLOUT (BC ERROR CODE)  NO CALLOUT (BD ERROR CODE)  NO CALLOUT (BD ERROR CODE)  NO CALLOUT  A12 MODULE (BE ERROR CODE)  NO CALLOUT  A12 MODULE (BF ERROR CODE)  NO CALLOUT  A13 MODULE (CO ERROR CODE)  NO CALLOUT  A5 MODULE (C1 ERROR CODE)  NO CALLOUT  A5 MODULE (C1 ERROR CODE)  NO CALLOUT  A6. A5 MODULES (C2 ERROR CODE)  NO CALLOUT  A7. A5 MODULES (C3 ERROR CODE)

400 006000 000000 0				
401 005000 000000	400 006000 0	000060	RITAIRITS	AS AS MODILLES (CE EDDOD CODE)
402 006004 000000 0				NO CALLOUT
403 006006 000000 0 0 1 1 1 1 1 1 1 1 1 1 1				IND CALLUDI
404 006010 000000 0 0 1NOT USED (CC ERROR CODE) 405 006012 000000 0 0 1NOT USED (CC ERROR CODE) 406 006016 000000 0 0 1NOT USED (CS ERROR CODE) 407 006012 000000 0 0 1NOT USED (CS ERROR CODE) 408 006012 000000 0 0 1NOT USED (CS ERROR CODE) 410 00602 000000 0 0 1NOT USED (CS ERROR CODE) 411 006026 000000 0 0 1NOT USED (CS ERROR CODE) 412 006030 000000 0 0 1NOT USED (CS ERROR CODE) 413 006032 000000 0 0 1NOT USED (CS ERROR CODE) 414 006026 000000 0 0 1NOT USED (CS ERROR CODE) 415 006035 000000 0 0 1NOT USED (CS ERROR CODE) 416 006040 000000 0 0 1NOT USED (CS ERROR CODE) 417 006040 000000 0 0 1NOT USED (CS ERROR CODE) 418 006040 000000 0 0 1NOT USED (CS ERROR CODE) 419 006046 000000 0 0 1NOT USED (CS ERROR CODE) 419 006046 000000 0 0 1NOT USED (CS ERROR CODE) 410 006040 000000 0 0 1NOT USED (CS ERROR CODE) 410 006040 000000 0 0 1NOT USED (CS ERROR CODE) 410 006040 000000 0 0 1NOT USED (CS ERROR CODE) 410 006040 000000 0 0 1NOT USED (CS ERROR CODE) 410 006040 000000 0 0 1NOT USED (CS ERROR CODE) 410 006040 000000 0 0 1NOT USED (CS ERROR CODE) 411 006052 000000 0 0 1NOT USED (CS ERROR CODE) 412 006054 001400 0 0 1NOT USED (CS ERROR CODE) 413 006054 001400 0 0 1NOT USED (CS ERROR CODE) 414 006054 000000 0 0 1NOT USED (CS ERROR CODE) 415 006054 001400 0 0 1NOT USED (CS ERROR CODE) 416 006054 000000 0 0 1NOT USED (CS ERROR CODE) 417 006140 006100 0 0 1NOT USED (CS ERROR CODE) 418 006104 006100 0 0 1NOT USED (CS ERROR CODE) 419 006064 000000 0 0 1NOT USED (CS ERROR CODE) 410 006124 000000 0 0 1NOT USED (CS ERROR CODE) 410 006124 000000 0 0 1NOT USED (CS ERROR CODE) 411 006125 000000 0 0 1NOT USED (CS ERROR CODE) 412 006054 000000 0 0 1NOT USED (CS ERROR CODE) 413 006072 000000 0 0 1NOT USED (CS ERROR CODE) 414 006124 000000 0 0 1NOT USED (CS ERROR CODE) 415 006104 006100 0 0 1NOT USED (CS ERROR CODE) 416 006124 000000 0 0 1NOT USED (CS ERROR CODE) 417 006112 000000 0 0 1NOT USED (CS ERROR CODE) 418 006104 006100 0 0 1NOT USED (CS ERROR CODE) 419 006124 000000 0 0 1NOT USED (CS ERROR CODE) 410 006124 000000 0 0 1NOT USED			B114	; AS MODULE (C6 ERROR CODE)
405 006010 000000 0 1NOT USED (CC ERROR CODE) 405 006012 000000 0 1NOT USED (CC ERROR CODE) 406 006020 000000 0 1NOT USED (CS ERROR CODE) 407 006022 000000 0 1NOT USED (CS ERROR CODE) 410 006024 000000 0 1NOT USED (CS ERROR CODE) 411 006026 000000 0 1NOT USED (CS ERROR CODE) 411 006026 000000 0 1NOT USED (CS ERROR CODE) 412 006030 000000 0 1NOT USED (CS ERROR CODE) 413 006034 000000 0 1NOT USED (CS ERROR CODE) 414 006034 000000 0 1NOT USED (CS ERROR CODE) 415 006035 000000 0 1NOT USED (CS ERROR CODE) 416 006040 000000 0 1NOT USED (CS ERROR CODE) 417 006042 000000 0 1NOT USED (CS ERROR CODE) 418 006040 000000 0 1NOT USED (CS ERROR CODE) 418 006040 000000 0 1NOT USED (CS ERROR CODE) 419 006020 000000 0 1NOT USED (CS ERROR CODE) 410 006040 000000 0 1NOT USED (CS ERROR CODE) 410 006040 000000 0 1NOT USED (CS ERROR CODE) 410 006040 000000 0 1NOT USED (CS ERROR CODE) 410 006040 000000 0 1NOT USED (CS ERROR CODE) 410 006040 000000 0 1NOT USED (CS ERROR CODE) 410 006040 000000 0 1NOT USED (CS ERROR CODE) 410 006040 000000 0 1NOT USED (CS ERROR CODE) 410 006040 000000 0 1NOT USED (CS ERROR CODE) 410 006050 000000 0 1NOT USED (CS ERROR CODE) 410 006050 000000 0 1NOT USED (CS ERROR CODE) 411 006050 000000 0 1NOT USED (CS ERROR CODE) 412 006050 000000 0 1NOT USED (CS ERROR CODE) 413 006072 000000 0 1NOT USED (CS ERROR CODE) 414 006104 006100 0 1NOT USED (CS ERROR CODE) 415 006072 000000 0 1NOT USED (CS ERROR CODE) 416 006104 006100 0 1NOT USED (CS ERROR CODE) 417 006104 006100 0 1NOT USED (CS ERROR CODE) 418 006104 006100 0 1NOT USED (CS ERROR CODE) 419 006104 006100 0 1NOT USED (CS ERROR CODE) 410 006104 006100 0 1NOT USED (CS ERROR CODE) 410 006104 006100 0 1NOT USED (CS ERROR CODE) 411 006102 000000 0 1NOT USED (CS ERROR CODE) 412 0060600 0 1NOT USED (CS ERROR CODE) 413 006104 006100 0 1NOT USED (CS ERROR CODE) 414 006104 006100 0 1NOT USED (CS ERROR CODE) 415 006104 006100 0 1NOT USED (CS ERROR CODE) 416 006104 006100 0 1NOT USED (CS ERROR CODE) 417 006112 000000 0 1NOT USED (CS ERROR CODE) 418 006104 006100 0 1NOT USE			0	:NO CALLOUT
408 006022 000000 0	404 006010 (	000000	0	NOT USED (C7 ERROR CODE)
408 006022 000000 0	405 006012	000000	0	
408 006022 000000 0			ň	
408 006022 000000 0			0	
409 006022 000000 410 006024 000000 411 006024 000000 411 006026 000000 412 006030 000000 413 006032 000000 414 006036 000000 415 006036 000000 416 006036 000000 417 006040 000000 418 006036 000000 419 006040 000000 419 006040 000000 419 006040 000000 410 00602 000000 410 00602 000000 410 00602 000000 410 00602 000000 410 00602 000000 411 006024 000000 412 006036 000000 413 006036 000000 414 006036 000000 415 006036 000000 416 006036 000000 417 006040 000000 418 006036 000000 419 006040 000000 410 006030 000000 410 006030 000000 410 006030 000000 410 006030 000000 410 006030 000000 410 006030 000000 410 006030 000000 410 006030 000000 410 006030 000000 410 006030 000000 411 006036 000000 412 006030 000000 412 006030 000000 413 006030 000000 414 006030 000000 415 006030 000000 417 006040 000000 418 006030 000000 419 006040 000000 419 006040 000000 422 006030 000000 434 006030 000000 435 006040 000000 436 006040 000000 437 006040 000000 438 006040 000000 439 006010 000000 430 006040 000000 431 006040 000000 432 006040 000000 433 006102 000000 434 0061040 061000 435 006104 061000 436 006104 061000 437 006102 000000 438 006104 061000 439 006110 000000 440 006134 060000 441 006134 000000 442 006124 000000 443 006134 061000 444 006134 000000 445 006134 000000 447 006134 000000 448 006134 000000 449 006134 000000 440 006134 000000 441 006134 000000 442 006134 000000 443 006134 000000 444 006134 000000 445 006134 000000 447 006134 000000 448 006134 000000 449 006134 000000 440 006134 000000 441 006134 000000 442 006134 000000 443 006134 000000 444 006134 000000 445 006134 000000 447 006136 000000 448 006134 000000 449 006134 000000 440 006134 000000 441 006134 000000 442 006134 000000 443 006134 000000 444 006130 000000 445 006134 000000 447 006134 000000 448 006134 000000 449 006134 000000 440 006134 000000 441 006134 000000 442 006134 000000 443 006134 000000 444 006135 000000 445 006134 000000 447 006134 000000 448 006134 000000 449 006134 000000 440 006134 0000000 441 006134 0000000 442 006134 0000000 443 006134 00				
409 006022 000000				:NOT USED (C9 ERROR CODE)
410 006024 000000	409 006022 (	000000	0	
411 006026 000000 0	410 006024 (	000000	0	NOT USED (CA EPPOP CODE)
412 006030 000000 0				NOT LICED
413 006034 000000 0			0	
415 006036 000000 0				
415 006036 000000 0				;NOT USED
415 006040 00000 0				:NOT USED (CC ERROR CODE)
416 006040 000000 0 000000 0 1000000 0 10000000 0 1000000	415 006036 (	000000	0	
417 006042 000000 0			0	
418 006044 000000 419 006046 000000 420 006050 000000 421 006052 000000 422 006052 001400 423 006056 001400 424 006056 000000 425 006056 000000 426 006060 021400 427 006062 000000 426 006060 001000 427 006066 000000 428 006070 005400 429 006072 000000 430 006072 000000 431 006076 00000 432 006070 005400 433 006074 021000 432 006076 000000 433 006076 000000 434 006100 025400 435 006100 025400 435 006100 061000 435 006100 00000 436 00610 000000 437 00612 000000 438 006110 000000 437 00612 000000 438 006110 000000 437 00612 000000 438 006110 000000 437 00612 000000 438 006110 000000 439 00616 000000 400 00000 400 000000 400 000000 400 000000 400 000000 400 000000 400 000000 400 000000 400 00000000			^	
419 006046 000000 0		00000	•	INUT USED
422 006054 001400		000000	0	NOT USED (CE ERROR CODE)
422 006054 001400		000000	0	;NOT USED
422 006054 001400		000000	0	:NOT USED (CF ERROR CODE)
422 006054 001400	421 006052 (	000000	0	
424 006060 021400 425 006060 000000 426 006060 001000 427 006066 001000 428 006070 005400 429 006072 000000 429 006072 000000 429 006072 000000 420 006072 000000 420 006072 000000 420 006072 000000 420 006073 000000 420 006074 021000 431 006076 000000 432 006100 025400 433 006102 000000 434 006104 061000 435 006102 000000 436 006100 000000 437 006106 000000 438 006104 001000 439 006110 000000 439 006110 000000 439 006112 000000 439 006114 001000 439 006114 001000 430 006120 000000 440 006120 000000 441 006120 000000 440 006120 000000 441 006120 000000 442 006124 004400 443 006126 000000 444 006127 000000 445 006128 000000 447 006129 000000 448 006140 001000 449 006120 000000 440 006120 000000 441 006120 000000 442 006120 000000 443 006140 000000 444 006120 000000 445 006120 000000 446 006120 000000 447 006120 000000 448 006130 000000 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		001400	RTTRIRTTO	AQ ALO MODINE (DO EDDOD CODE)
424 006060 021400 425 006062 000000 426 006064 001000 427 006066 000000 428 006070 005400 429 006072 000000 429 006072 000000 420 006072 000000 421 006074 021000 421 006076 000000 422 006076 000000 423 006076 000000 424 006076 000000 425 006076 000000 427 006076 000000 428 006070 005400 429 006072 000000 420 006072 000000 420 006074 021000 421 006076 000000 422 006076 000000 423 006076 000000 424 006100 025400 425 006000 025400 427 006000 00000 428 006076 000000 429 006076 000000 420 000000 420 000000 420 000000 420 000000 421 006000 00000 422 000000 423 006100 000000 424 006120 000000 425 006160 000000 426 006120 000000 427 006120 000000 428 0060160 000000 429 006160 000000 429 006160 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 000000 420 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 006120 0061		000000	0110:0119	INS, NIO HODOLE (DO ERROR CODE)
425 006062 000000 426 006064 001000 427 006066 000000 428 006070 005400 429 006072 000000 430 006074 021000 431 006076 000000 432 006100 025400 432 006100 025400 433 006100 025400 434 006100 025400 435 006100 025400 436 006100 025400 437 006106 00000 436 006100 00000 437 006106 00000 438 006110 000000 439 006110 000000 439 006110 000000 439 006110 000000 409 006110 000000 400 000000 401 006120 000000 402 000000 403 006110 000000 404 006120 000000 405 006110 000000 406 006120 000000 407 006110 000000 408 006110 000000 409 006110 000000 400 006120 000000 400 006120 000000 400 006120 000000 400 006120 000000 400 006120 000000 400 006120 000000 400 006120 000000 400 006120 000000 401 006120 000000 402 006120 000000 403 006110 000000 404 006120 000000 405 006130 000000 407 006130 000000 408 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006130 000000 409 006140 061000 409 006140 061000 409 006140 061000 409 006140 061000 409 006140 061000 409 006140 061000 409 006140 061000 409 006140 061000 409 006140 061000 409 006140 061000 409 006140 061000 409 006140 061000 409 006140 061000 409 006140 061000 409 006140 061000 409 006140 061000 409 006140 061000 409 006140 061000 409 006140 061000 409 006140 061000 409 006140 061000 409 006140 061000 409 006140 061000 409 006140 061000 409 006140 061000 409 006140 061000 409 006140 061000 409 006140 061000 409 006140 0610000 409 006140 0610000 409 006140 0610000 409 006140 0610000 409 006140 0610000 409 006140 06100000000 409 006140 06100000			0	INU CALLUUT
10			BIIS:BIIA:BIII2	; A9, A10, A14 MODULES (D1 ERROR CODE)
10			0	;NO CALLOUT
10			BIT9	:A10 MODULE (D2 ERROR CODE)
428 006070 005400	427 006066 (	000000	0	NO CALLOUT
429 006072 000000 430 006074 021000 431 006076 000000 432 006100 025400 433 006102 000000 434 006104 061000 435 006106 000001 436 006101 000000 437 006106 000000 438 006114 001000 438 006114 001000 439 006116 000000 439 006116 000000 439 006116 000000 430 006120 000000 430 006120 000000 430 006120 000000 430 006130 000000 431 006120 000000 432 006130 000000 433 006140 001000 434 006120 000000 435 006114 001000 437 006120 000000 438 006114 001000 439 006116 000000 439 006116 000000 440 006120 000000 440 006120 000000 441 006122 000000 442 006124 004400 443 006126 000000 444 006126 000000 445 006126 000000 446 006136 000000 447 006132 000000 448 006134 060000 449 006132 000000 440 006132 000000 440 006132 000000 440 006132 000000 441 006132 000000 442 006134 060000 443 006136 000000 444 006136 000000 445 006136 000000 446 006136 000000 447 006136 000000 448 006140 061000 449 006142 000000 440 006132 000000 441 006132 000000 442 006132 000000 443 006134 060000 444 006135 000000 445 006136 000000 446 006137 060000 447 006138 060000 448 006140 061000 449 006142 000000 440 006144 000000 441 006136 000000 442 006136 000000 443 006140 061000 444 006136 000000 445 006136 000000 446 006137 060000 447 006138 060000 448 006140 061000 449 006140 061000 449 006140 061000 440 006140 061000 441 006120 000000 442 006140 061000 443 006140 061000 444 006130 061000 445 006130 061000 446 006130 061000 447 006136 000000 448 006140 061000 449 006140 061000 449 006140 061000 440 006140 061000 441 006120 061000 442 006140 061000 443 006140 061000 444 006130 061000 445 006130 061000 446 006130 061000 447 006130 061000 448 006140 061000 449 006140 061000 440 06130 061000 441 06120 061000 442 006130 061000 443 061000000000 444 006130 06100000000000000000000000000000			RTTRIRTTOIRTT11	.AQ A10 A12 MODULES (DE EDDOD CODE)
430 006076 021000 0			0110.0117.01111	MO CALLOUT
431 006100 025400 433 006102 000000 434 006104 061000 BIT9!BIT13!BIT13 435 006106 000001 436 006101 000000 437 006112 000000 438 006114 001000 439 006116 000000 439 006116 000000 439 006116 000000 439 006116 000000 430 006110 000000 431 006122 000000 431 006122 000000 431 006122 000000 431 006122 000000 432 006124 004000 433 006126 000000 434 006130 000000 435 006130 000000 437 006130 000000 438 006140 006100 439 006160 000000 440 006120 000000 441 006122 000000 442 006124 004000 443 006126 000000 444 006130 000000 445 006130 000000 446 006130 000000 447 006136 000000 448 006130 000000 449 006142 000000 440 006142 000000 441 006164 000000 442 006165 000000 443 006165 000000 444 006160 000000 445 006160 000000 446 006160 000000 447 006160 000000 448 006160 000000 449 006160 000000 450 006164 000000 460 006164 000000 475 006165 000000 475 006165 000000 475 006156 000000 475 006156 000000 475 006156 000000 475 006156 000000 475 006156 000000 475 006156 000000 475 006156 000000 475 006156 000000 475 006156 000000 475 006156 000000 475 006156 000000 475 006156 000000 475 006156 000000 475 006156 000000 475 006156 000000 475 006156 000000			0	INO CALLOUT
431 006100 025400 433 006102 000000 434 006104 061000 BIT9!BIT13!BIT13 435 006106 000001 436 006101 000000 437 006112 000000 438 006114 001000 439 006116 000000 439 006116 000000 439 006116 000000 439 006116 000000 430 006110 000000 431 006122 000000 431 006122 000000 431 006122 000000 431 006122 000000 432 006124 004000 433 006126 000000 434 006130 000000 435 006130 000000 437 006130 000000 438 006140 006100 439 006160 000000 440 006120 000000 441 006122 000000 442 006124 004000 443 006126 000000 444 006130 000000 445 006130 000000 446 006130 000000 447 006136 000000 448 006130 000000 449 006142 000000 440 006142 000000 441 006164 000000 442 006165 000000 443 006165 000000 444 006160 000000 445 006160 000000 446 006160 000000 447 006160 000000 448 006160 000000 449 006160 000000 450 006164 000000 460 006164 000000 475 006165 000000 475 006165 000000 475 006156 000000 475 006156 000000 475 006156 000000 475 006156 000000 475 006156 000000 475 006156 000000 475 006156 000000 475 006156 000000 475 006156 000000 475 006156 000000 475 006156 000000 475 006156 000000 475 006156 000000 475 006156 000000 475 006156 000000 475 006156 000000			BIIA:BIII2	;A10, A14 MODULES (D4 ERROR CODE)
#32 006100 025400 #33 006102 000000 #34 006104 061000 #35 006105 000001 #36 006106 000001 #37 006112 000000 #37 006112 000000 #38 006114 001000 #39 006116 000000 #39 006116 000000 #39 006116 000000 #39 006116 000000 #39 006116 000000 #39 006116 000000 #30 006110 000000 #31 006110 000000 #32 006110 000000 #33 006110 000000 #34 006120 000000 #35 006150 000000 #36 006120 000000 #37 006120 000000 #38 006120 000000 #39 006116 000000 #39 006116 000000 #30 006120 000000 #31 006120 000000 #32 006120 000000 #33 006120 000000 #34 006120 000000 #35 006120 000000 #35 006130 000000 #36 006130 000000 #37 006130 000000 #38 006130 000000 #39 006130 000000 #30 06130 000000 #31 06130 000000 #31 06130 000000 #32 000000 #33 006130 000000 #34 006130 000000 #35 006130 000000 #36 006140 000000 #37 006140 000000 #38 006140 000000 #38 006140 000000 #38 006140 000000 #38 006140 000000 #38 006140 000000 #38 006140 000000 #39 006140 000000 #30 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 0000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 00000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 000000 #31 006140 0000000 #31 006140 000000 #31 006140 000000 #32 006140 000000 #33 006140 000000 #34 006140 000000 #35 006150 000000 #36 006150 0000000				;NO CALLOUT
435 006102 000000			BIT8:BIT9:BIT11:BIT13	:A9. A10. A12. A14 MODULES (D5 ERROR CODE)
434 006104 061000	433 006102 (	000000	0	NO CALLOUT
435 006106 000001			RTT9:RTT13:RTT14	ALO ALA ALS MODILLES (DE EPPOP CODE)
436 006110 000000 0				A17 MODINE
438 006114 001000		000000	0110	NOT HEED (DZ EDDOD CODE)
438 006114 001000		000000	0	INUT USED (DT ERROR CODE)
439 006116 000000 0	437 006112	000000	0	; NOT USED
449 006120 000000 0			BIT9	;A10 MODULE (D8 ERROR CODE)
440 006120 000000 0	439 006116	000000	0	INO CALLOUT
441 006122 000000 442 006124 004400 BIT8!BIT11 A9, A12 MODULE (DA ERROR CODE) A45 006136 000000 A46 006134 060000 A47 006136 000000 BIT13!BIT14 A47 006136 000000 A48 006140 061000 BIT9!BIT13!BIT14 A9, A12 MODULE (DA ERROR CODE) A14, A15 MODULES (DC ERROR CODE) A14, A15 MODULES (DC ERROR CODE) A14, A15 MODULES (DC ERROR CODE) A15 006140 061000 BIT13 BIT13 A14 MODULE (DE ERROR CODE) A50 006144 020000 BIT13 BIT13 A14 MODULE (DE ERROR CODE) A51 006150 020000 BIT13 BIT13 A14 MODULE (DF ERROR CODE) A52 006154 020000 BIT13 A14 MODULE (DF ERROR CODE) A53 006154 020000 BIT13 BIT13 A14 MODULE (DF ERROR CODE) A55 006156 000000 BIT13 A14 MODULE (EO ERROR CODE) A55 006156 000000 BIT13 A14 MODULE (EO ERROR CODE) A55 006156 000000 BIT13 A14 MODULE (EO ERROR CODE) A55 006156 000000	440 006120 (	000000	0	NOT USED (D9 FRROR CODE)
442 006124 004400 443 006126 000000 444 006130 000000 45 006132 000000 46 006134 060000 47 006136 000000 48 006140 061000 48 006140 061000 49 006142 000000 45 006144 020000 45 006140 000000 45 006150 020000 45 006150 020000 45 006150 020000 46 006150 020000 47 006150 020000 48 006150 020000 49 006150 020000 40 006150 020000 40 006150 020000 40 006150 020000 41 006150 020000 42 006150 020000 43 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000 45 006150 020000	441 006122 (	000000		NOT LICED
443 006126 000000 0	442 006124	004400		AO A12 MODINE (DA EDDOD CODE)
444 006130 000000 0 iNOT USED (DB ERROR CODE) 445 006132 000000 0 iNOT USED 446 006134 060000 BIT13!BIT14 iA14, A15 MODULES (DC ERROR CODE) 447 006136 000000 0 iNO CALLOUT 448 006140 061000 0 BIT13!BIT14 iA14, A15 MODULES (DD ERROR CODE) 450 006144 020000 BIT13 iA14 MODULE (DE ERROR CODE) 451 006146 000000 0 iNO CALLOUT 452 006150 020000 BIT13 iA14 MODULE (DF ERROR CODE) 453 006152 000000 0 iNO CALLOUT 454 006154 020000 BIT13 iA14 MODULE (DF ERROR CODE) 455 006156 000000 0 iNO CALLOUT 455 006156 000000 0 iNO CALLOUT 457 006156 000000 0 iNO CALLOUT 458 006156 000000 0 iNO CALLOUT 459 006156 000000 0 iNO CALLOUT 459 006156 000000 0 iNO CALLOUT	443 006126	000000	DI 10:DI III	MY, MIS HODOLE (DM ERROR CODE)
445 006152 000000 446 006134 060000 447 006136 000000 448 006140 061000 449 006142 000000 450 006144 020000 451 006146 000000 452 006150 020000 453 006152 000000 454 006154 020000 455 006154 020000 456 006156 000000  457 006156 000000  458 006156 000000  459 006156 000000  450 006156 000000  451 006156 000000  452 006150 020000  453 006152 000000  454 006154 020000  455 006156 0000000  455 006156 0000000  457 006156 0000000  458 006156 0000000  459 006156 0000000  450 006156 0000000  450 006156 0000000  450 006156 0000000  450 006156 0000000  450 006156 0000000  450 006156 0000000  450 006156 0000000  450 006156 000000000000000000000000000000	444 000120	000000	0	; NO CALLOUT
445 006152 000000 446 006134 060000 447 006136 000000 448 006140 061000 449 006142 000000 450 006144 020000 451 006146 000000 452 006150 020000 453 006152 000000 454 006154 020000 455 006154 020000 456 006156 000000  457 006156 000000  458 006156 000000  459 006156 000000  450 006156 000000  451 006156 000000  452 006150 020000  453 006152 000000  454 006154 020000  455 006156 0000000  455 006156 0000000  457 006156 0000000  458 006156 0000000  459 006156 0000000  450 006156 0000000  450 006156 0000000  450 006156 0000000  450 006156 0000000  450 006156 0000000  450 006156 0000000  450 006156 0000000  450 006156 000000000000000000000000000000	444 006130 (	000000	0	;NOT USED (DB ERROR CODE)
### 006134 060000 BIT13!BIT14 A15 MODULES (DC ERROR CODE) #### 006136 000000 0 NO CALLOUT ### 006140 061000 BIT9!BIT13!BIT14 A10, A14, A15 MODULES (DD ERROR CODE) ### 006142 000000 0 NO CALLOUT ### MODULE (DE ERROR CODE) ### MODULE (ED ERROR CODE)	445 006132 (	000000	0	:NOT USED
447 006136 000000 0	446 006134	060000	BIT13!BIT14	:A14. A15 MODULES (DC ERROR CODE)
448 006140 061000 BIT9!BIT13!BIT14 ;A10, A14, A15 MODULES (DD ERROR CODE) 449 006142 000000 BIT13 ;A14 MODULE (DE ERROR CODE) 450 006144 020000 BIT13 ;A14 MODULE (DF ERROR CODE) 452 006150 020000 BIT13 ;A14 MODULE (DF ERROR CODE) 453 006152 000000 0 ;NO CALLOUT 454 006154 020000 BIT13 ;A14 MODULE (E0 ERROR CODE) 455 006156 000000 0 ;NO CALLOUT	447 006136	000000		-NO CALLOUT
449 006142 000000 0 ;NO CALLOUT 450 006144 020000 BIT13 ;A14 MODULE (DE ERROR CODE) 451 006146 000000 BIT13 ;A14 MODULE (DF ERROR CODE) 452 006150 020000 0 ;NO CALLOUT 453 006152 000000 0 0 ;NO CALLOUT 454 006154 020000 BIT13 ;A14 MODULE (E0 ERROR CODE) 455 006156 000000 0 ;NO CALLOUT	448 006140	061000	*	ALA ALA ALE MODITIES (DE CODE)
450 006144 020000 BIT13 ;A14 MODULE (DE ERROR CODE) 451 006146 000000 BIT13 ;A14 MODULE (DF ERROR CODE) 452 006150 020000 BIT13 ;A14 MODULE (DF ERROR CODE) 453 006152 000000 BIT13 ;A14 MODULE (E0 ERROR CODE) 454 006154 020000 BIT13 ;A14 MODULE (E0 ERROR CODE) 455 006156 000000 0 ;NO CALLOUT	449 006143	000000		INTO, WIA' WID HODOLES (OD EKKOK CODE)
451 006146 000000 0 INO CALLOUT 452 006150 020000 BIT13 IA14 MODULE (DF ERROR CODE) 453 006152 000000 BIT13 IA14 MODULE (E0 ERROR CODE) 454 006154 020000 BIT13 IA14 MODULE (E0 ERROR CODE) 455 006156 000000 0 INO CALLOUT	450 000142	020000	0	INU CALLUUT
451 006146 000000 0 INO CALLOUT 452 006150 020000 BIT13 IA14 MODULE (DF ERROR CODE) 453 006152 000000 BIT13 IA14 MODULE (E0 ERROR CODE) 454 006154 020000 BIT13 IA14 MODULE (E0 ERROR CODE) 455 006156 000000 0 INO CALLOUT	450 006144 (	020000	B1113	;A14 MODULE (DE ERROR CODE)
452 006150 020000 BIT13 ;A14 MODULE (DF ERROR CODE) 453 006152 000000 0 ;NO CALLOUT 454 006154 020000 BIT13 ;A14 MODULE (E0 ERROR CODE) 455 006156 000000 0 ;NO CALLOUT	451 006146 (	000000	0	NO CALLOUT
454 006154 020000 BIT13 ; A14 MODULE (E0 ERROR CODE) 455 006156 000000 0 ; NO CALLOUT	452 006150 (	020000	BIT13	A14 MODULE (DE ERROR CODE)
454 006154 020000 BIT13 ;A14 MODULE (E0 ERROR CODE) 455 006156 000000 0 ;NO CALLOUT	453 006152	000000		NO CALLOUT
455 006156 000000 0 ;NO CALLOUT	454 006154	020000	•	ALA MODILE (EA EDDOD CODE)
APZ AAZZZA AAAAA	455 006156	00000		INTA HODOLE (EO EKKOK CODE)
#36 UU016U U2UUUU BIT13 ;A14 MODULE (E1 ERROR CODE)	455 000130	00000		
	420 000100 (	020000	R1112	;A14 MODULE (E1 ERROR CODE)

457 006162 000000	0	;NOT USED
	BIT13	
458 006164 020000	BI113	;A14 MODULE (E2 ERROR CODE)
459 006166 000000	0	;NO CALLOUT ;A14 MODULE (E3 ERROR CODE) ;NO CALLOUT ;A14 MODULE (E4 ERROR CODE) ;NO CALLOUT ;NOT USED (E5 ERROR CODE) ;NOT USED ;A14, A15, A16 MODULE (E6 ERROR CODE) ;OPEN
460 006170 020000	DTT17	ALA MODULE (EZ EDDOD CODE)
	01113	ATA HODOLE (ES ERROR CODE)
461 006172 000000	0	; NO CALLOUT
462 006174 020000	BIT13	:A14 MODULE (F4 FRROR CODE)
463 006176 000000	^	MO CALLOUT
403 000170 000000	V ·	IND CALLOUT
464 006200 000000	0	:NOT USED (E5 ERROR CODE)
465 006202 000000	0	NOT USED
466 006204 160000	DITIZIDITIAIDITIE	ALL ALE ALC MODILE (EC EDOOR CODE)
	81119:81114:81115	: A14, A15, A16 MUDULE (E6 ERRUR CUDE)
467 006206 000000	0	OPEN
468 006210 040000	BIT14	;A15 MODULE (E7 ERROR CODE)
		INTO HODOLE (ET ENNON CODE)
469 006212 000000	0	OPEN
470 006214 141000	BIT9!BIT14!BIT15	;A10, A14, A15 MODULES (E8 ERROR CODE)
471 006216 000000		;NO CALLOUT
	BIT9	IND CALCUT
472 006220 001000	BIIA	;A10 MODULE (E9 ERROR CODE)
473 006222 000000	0	;NO CALLOUT
474 006224 000600	DITTIDITE	; A8, A9 MODULES (EA ERROR CODE)
475 000000	O BIT7!BIT8	(AO, AY HUDULES (EA ERROR CODE)
475 006226 000000	0	; NO CALLOUT
476 006230 000000	0 0 0 0 0	;NO CALLOUT (EB ERROR CODE)
477 006232 000000	ž.	THE CALLOUT (ED ERROR CODE)
	· ·	;NO CALLOUT
478 006234 000000	0	;NO CALLOUT (EC ERROR CODE)
479 006236 000000	0	;NO CALLOUT
480 006240 000100	BIT6	AZ MODIA E (ED EDDOD CODE)
481 006242 000000	0 0 0 0 0 0 8IT15	;NO CALLOUT
482 006244 000000	0	;NO CALLOUT (EE ERROR CODE)
	ž .	THE CALLOUT (EE ERROR CODE)
483 006246 000000	0	:NO CALLOUT
484 006250 000000	0	;NO CALLOUT (EF ERROR CODE)
485 006252 000000	0	-NO CALLOUT
	0	:NO CALLOUT :A16 MODULE (FO ERROR CODE)
486 006254 100000	81112	;A16 MODULE (FO ERROR CODE)
487 006256 000000	0	;NO CALLOUT
488 006260 100200	RTT71RTT15	AR ALE MODINE (EL EDDOD CODE)
480 006262 000204	0117:01113	THE HID PODULE (FI ERROR CODE)
489 006262 000201	BIIO:BII/	;A17, HDA CALLOUT
490 006264 100000	BIT15	:A16 MODULE (F2 ERROR CODE)
491 006266 000200	RTT7	:NO CALLOUT :A8, A16 MODULE (F1 ERROR CODE) :A17, MDA CALLOUT :A16 MODULE (F2 ERROR CODE) :HDA CALLOUT :A16 MODULE (F3 ERROR CODE) :HDA CALLOUT :A16 MODULE (F4 ERROR CODE) :HDA CALLOUT :A16 MODULE (F5 ERROR CODE) :HDA CALLOUT :A16 MODULE (F5 ERROR CODE) :NOT USED
	DITTE	THE CALLED SEE SEE SEE SEE SEE SEE SEE SEE SEE S
	87.172	;A16 HODULE (F3 ERROR CODE)
493 006272 000200	BIT7	:HDA CALLOUT
494 006274 100000	RTT15	A16 MODINE (FA EDDOD CODE)
	01113	THIS PRODUCE (F4 ERROR CODE)
	BIII	HDA CALLOUT
496 006300 100000	BIT15	:A16 MODULE (F5 ERROR CODE)
497 006302 000000	0	NOT USED
408 006704 141000	0770107714107715	THE COLD AND MODIFIES AND COLD COLD
498 006304 141000	RIIGIRIIIAIRIIIS	ATO ATS ATE MUDITE (FE EDUCE CODE)
499 006306 000201	BITO!BIT7 BIT15 BIT0!BIT7 BIT15	;A17, HDA CALLOUT
500 006310 100000	PTT15	;A16 MODULE (F7 ERROR CODE)
501 006712 000001	01113	TAIS HODOLE (F) ERROR CODE)
501 006312 000201	BITO:BIT7	;A17, HDA CALLOUT
502 006314 100000	BIT15	:A16 MODULE (F8 ERROR CODE)
503 006316 000000		
E04 00/300 400000	0	NO CALLOUT
504 006320 100000	BIT15	;A16 MODULE (F9 ERROR CODE)
505 006322 000000	0	NO CALLOUT
506 006324 000000		NOT LICED (EA EDDOD CODE)
E07 0003E4 000000	0	NOT USED (FA ERROR CODE)
507 006326 000000	0	;NOT USED
508 006330 000000	Ō	NOT USED (FB ERROR CODE)
	· ·	
509 006332 000000	0	NOT USED
510 006334 000000	0	NOT USED (FC ERROR CODE)
511 006336 000000	0	NOT USED
512 006340 000000	X	
	O	NOT USED (FD ERROR CODE)
513 006342 000000	0	; NOT USED
		[마음·기타양 화장 1886] 전 12 12 12 12 12 12 12 12 12 12 12 12 12

514 006344	000000	0	;NOT USED (FE ERROR CODE)
515 006346	000000	0	NOT USED
	000000	0	NOT USED (FF ERROR CODE)
	000000	0	NOT USED
518			1.10. 0520

```
.SBTTL GLOBAL TEXT SECTION
                                       : THE GLOBAL TEXT SECTION CONTAINS FORMAT STATEMENTS.
                                       : MESSAGES. AND ASCII INFORMATION THAT ARE USED IN
                                       : MORE THAN ONE TEST.
 8
15
                                       : NAMES OF DEVICES SUPPORTED BY PROGRAM
16
   006354
                                       L$DVTYP::
17
                                                .ASCIZ /RP07/
   006354
               122
                         120
                                 060
                                                .EVEN
18
24
25
26
27
                                       : TEST DESCRIPTION
   006362
                                       L DESC ::
                122
                         120
   006362
                                  060
                                                 .ASCIZ /RP07 FRONT END-HOST ISOLATOR/
                                                .EVEN
28
35
36
37
                                       : FORMAT STATEMENTS USED IN PRINT CALLS
39 006420
                                       CRLF:: .ASCIZ /WN/
               045
40 006423
                                  045
                                       DSNMSG:: .ASCIZ /#NWADRIVE #01#A, PG/
                         116
41 006447
               045
                                  000
                         124
                                       SNDIGT:: . ASCIZ /#T/
               045
045
045
45 006452
                         101
                                  124
                                       MSGMOL:: .ASCIZ /#ATEST #D2#A. BYPASSED, DRIVE OFFLINE#N/
46 006522
                         101
                                  124
                                       MSGMLO:: .ASCIZ /#ATEST #D2#A. BYPASSED, DRIVE WRITE LOCKED#N/
47 006577
                                       MESG10::.ASCIZ
                                  045
                                                         /*NMADRIVE MOIMA, WAITING FOR 'MOL' TO SET (DRIVE OFFLINE)/
                         116
48 006671
                045
                                                         /#NMADRIVE MOIMA, WAITING FOR 'DRY' TO SET (DRY NOT READY)/
/#NMATO REFORMAT FE CYLINDER, TRACK 40 UPON PROGRAM COMPLETION./
                                 045
                                       MESG11::. ASCIZ
                         116
49 006763
                045
                                  045
                                       MESG12::. ASCIZ
                         116
50 007062
                                                         /MNMAREFORMATTING FE CYLINDER, TRACK 40. USE THE FORMAT PROGRAM/
                045
                                  045
                                       MESG15::. ASCIZ
                         116
51
52 007161
                045
                                                         /#AREGISTER UNDER TEST: #06/
                         101
                                  122
                                       FRMTOO::.ASCIZ
               045
045
53 007214
                                  045
                                       FRMT01::.ASCIZ
                                                         /#NMAEXPECTED DATA: #06#A
                         116
                                                                                         RECEIVED DATA: #06/
54 007273
                                                         /MAFAULT LIST: /
                         101
                                  106
                                       FLSTOO::. ASCIZ
55 007312
                045
                         124
                                  000
                                       FLST01::. ASCIZ
                                                         /ST/
56 007315
57 007404
               045
045
045
                         101
                                  052
                                       FRMT02::.ASCIZ
                                                         /MA44 THERE IS ALSO A POSSIBILITY OF A HOA FAILURE 44MN/
                                  045
                                                         /#N#ADRIVE #01#A. /
                         116
                                       FRMT03::.ASCIZ
58 007426
59 007474
                         101
                                 115
                                       FRMT04::. ASCIZ
                                                         /#AMICRO-CODE TEST 4: #T#T#T#A (HEX)/
               045
                         101
                                       FRMTOS: : . ASCIZ
                                  040
                                                         /SA
                                                                     ERROR CODE: STSTSTSTSA (HEX)SN/
60 007545
                                  106
                         101
                                       FRMTO6::.ASCIZ
                                                         /#AFAILING FUNCTION: #T/
61 007574
                045
                                       FRMTO7::. ASCIZ
                                                         /#NMASEEKS TOO LONG: #03/
63 007624
                                 045
                                       FRMT10::.ASCIZ
                                                         /#N#ASEEK OVERSHOOTS: #D3/
                         116
                                                         /#NMASOFT SEEK OVERSHOOTS: #03/
/#NMAGUARD-BAND DETECTED SKI'S: #03/
/#NMAINDEX ERRORS: #03/
64 007655
                045
                                  045
                                       FRMT11::.ASCIZ
                         116
65 007713
                045
                                       FRMT12::. ASCIZ
                         116
                                  045
66 007756
                045
                                 045
                                       FRMT13:: . ASCIZ
                         116
67 010004
                045
                                 045
                                       FRMT14::.ASCIZ
                                                         /#N#APLO UNSAFES: #03/
                         116
                045
68 010031
                         116
                                  045
                                       FRMT15::. ASCIZ
                                                         /#NMAFAILED RECAL ATTEMPTS: #D3/
69 010070
                045
                                       FRMT16::. ASCIZ
                         116
                                  045
                                                         /MNMA(HEX) ERROR LOG ENTRIES, IF PRESENT, ARE AS FOLLOWS:/
                045
70 010161
                                       FRMT17::. ASCIZ
                         124
                                  045
                                                         /STSTSTSTSA
71
72 010202
                                  045
                         116
                                       FRMT20::.ASCIZ
                                                         /#N#A8080 REV. LEVEL IS: #D3#N#A2901 REV. LEVEL IS: #D3/
73 010271
                045
                         116
                                  045 FRMT23::. ASCIZ /#N#AROUTINE NO. (2 CHAR "HEX" INPUT) /
```

74												
75	010337	045	116	045	FRMT40::.ASCIZ	/#N#ADRIVE	RPCS1	RPWC	RPBA	RPDA	RPCS2	RPDS/
76	010430	045	116	045							≠06/	
77											-00	
78	010510	045	116	045	FRMT50::.ASCIZ	/#N#ARPER1	RPAS	RPLA	RPDB	RPMR1	RPDT	RPSN/
	010601	045	116									111 3147
	010001	045	110	045	FRMT51::.ASCIZ	AMBOOMA	BOOM BOO!	M MOM	A ≥06≤A	<b>≤</b> 06 <b>≤</b> A	<b>#</b> 06/	
80												
	010661	045	116	045	FRMT60::.ASCIZ	/#N#ARPOF	RPDC	RPCC	RPER2	RPER3	RPEC1	RPEC2/
											The second secon	HLECE!
02	010753	045	116	045	FRMT61::.ASCIZ	/#N#O6#A	<b>\$06\$A \$06</b> €	BA \$065	4 \$06\$A	<b>≤</b> 06 <b>≤</b> A	#06#N/	
83												
	011035	045	101	122	FRMT70::.ASCIZ	/#ARPBAE	RPCS3/					
85	011055	045	116	045	FRMT71::.ASCIZ	/#N#06#A	#06#N/					
86												
97												
91												

*

1				.SBTTL	GLOBAL A	ASCII MESSAGE SECTION
3 011074 4 011121 5 011132 6 011151 7 011161 8 011166 9 011173 10 011200 11 011205 12 011212 13 011217 14 011224 15 011231 16 011236 17 011243 18 011250 19 011255 20 011262 21 011267 22 011274 23 011301 24 011306 25 011313	104 101 122 103 101 101 101 101 101 101 101 101 101	125 061 110 101 060 060 060 060 060 060 060	101 062 040 102 061 062 063 064 065 066 067 060 061 062 063 064 065 066 067	AD:: DS:: RH:: CA:: J1:: J2:: J3:: J4:: J5:: J6:: J7:: J6:: J11:: J12:: J12:: J13:: J14:: J15:: J17:: J15:: J17:: J15:: J17::	ASCIZ	/DUAL DRIVE RESPONSE / /A12-S01 / ;MASSBUS DISABLE SWITCH /CABLES / /A01 / /A02 / /A03 / /A04 / /A05 / /A06 / /A07 / /A08 / /A09 / /A10 / /A11 / /A12 / /A13 / /A14 / /A15 / /A16 / /A17 / /A20 / /A21 /
26 27 011320 28 011325 29 011341 30 011361 31 011376 32 011421 33 011443 34 011455 35 011477	110 124 063 102 120 115 122 117	104 105 040 114 117 117 105 120 117	101 122 120 117 127 124 114 105 124	BLOMER: PTRANS: MTRBRK: K1RELA: OPRPNL:	ASCIZ ASCIZ ASCIZ ASCIZ	/HOA / /TERMINATOR / /3 PHASE SENSOR / /BLOWER ASSY / /POWER TRANSFORMER / /MOTOR-BRAKE ASSY / /RELAY-K1 / /OPERATOR'S PANEL / /MOTOR BELT, MOTOR SPRING /
37 011531 38 011543 39 011566	122 127 127	105 122 122	101 124 111	WTCKHD:		/READ TD'S/ /MRT CHK HDR & DATA/ /MRITE CHECK DATA/
41 011607 42 011667 43	120 120	114 114	101 101	MESG13:		/PLACE INTERFACE SWITCH A12-SO1 IN DOWN POSITION/ /PLACE INTERFACE SWITCH A12-SO1 IN UP POSITION/
44 011747 45 012015 46 012055 47 012100 48 012116 49 012155 50 012217	103 104 104 104 122 122 104	117 122 122 122 120 120 120	115 111 111 111 103 103 111	EM1:: EM2:: EM3:: EM4:: EM5:: EM6:: EM7::	.ASCIZ .ASCIZ .ASCIZ .ASCIZ .ASCIZ .ASCIZ	/COMPOSITE ERROR SET WHEN NOT EXPECTED/ /DRIVE HUNG, DRY NOT SET IN TIME/ /DRIVE WRITE LOCKED/ /DRIVE OFFLINE/ /RPCS2:OR FAILED TO SET IN TIME/ /RPCS2:OR FAILED TO CLEAR IN TIME/ /DRIVE SHOULD BE WRITE ENABLED AND ON LINE!/
51 52 012272 53 012342 54 012410 55 012454 56 012523 57 012562	122 102 122 122 122 123	110 111 120 105 105 103	040 124 103 107 107 040	EM11:: EM12:: EM13:: EM14:: EM15:: EM16::	.ASCIZ .ASCIZ .ASCIZ .ASCIZ .ASCIZ	/RH CONTROLLER DIDN'T RESPOND (NO SSYNC)/ /BIT(S) UNDER TEST DIDN'T CHANGE STATE/ /RPCS2: CLR DIDN'T FUNCTION PROPERLY/ /REG CONTENTS DON'T MATCH EXPECTED DATA/ /REG DIDN'T CLEAR WHEN EXPECTED/ /SC OR TRE SET WHEN NOT EXPECTED/

```
58 012622
                                103 EM17:: .ASCIZ /RPCS2: IR FAILED TO SET IN TIME/
               122
                        120
59
60 012661
                                     EM20::
                                                      /RPCS1:MCPE DIDN'T SET WHEN EXPECTED/
                                103
                                             . ASCIZ
61 012725
               122
                        120
                                103
                                     EM21::
                                                       /RPCS1:SC OR TRE DIDN'T SET WHEN EXPECTED/
                                             . ASCIZ
62 012776
               102
                                124
                                                       /BIT(S) UNDER TEST DIDN'T SET WHEN EXPECTED/
                        111
                                     EM22::
                                             . ASCIZ
               102
                                124
63 013051
                                     EM23:: .ASCIZ
                                                       /BIT(S) UNDER TEST DIDN'T CLEAR WHEN EXPECTED/
                        111
64 013126
               122
                        110
                                040
                                     EM24:: .ASCIZ
                                                       /RH INTERRUPTED AT WRONG PRIORITY/
65 013167
               122
                        110
                                040
                                     EM25:: .ASCIZ
                                                       /RH GENERATED FALSE INTERRUPT/
                                     EM26:: .ASCIZ
EM27:: .ASCIZ
66 013224
               122
                                040
                                                      /RH DIDN'T INTERRUPT WHEN EXPECTED/
                        110
                                                       /DRIVE NOT PRESENT, TEST INVALID/
67 013266
               104
                        122
               103
                                      EM30::
69 013326
                                              . ASCIZ
                                                      /COMMAND EXECUTION INCORRECT/
                        117
70 013362
                                     EM31::
               104
                        101
                                124
                                              . ASCIZ
                                                       /DATA LINE(S) STUCK LOW/
                                     EM32::
71 013411
               106
                        101
                                111
                                              . ASCIZ
                                                       /FAILED TO SEEK PROPERLY/
72 013441
               104
                        105
                                124
                                     EM33::
                                              . ASCIZ
                                                       /DETECTED ERROR DURING DATA TRANSFER/
73 013505
               106
                        101
                                111
                                      EM34::
                                              . ASCIZ
                                                       /FAILED TO CORRECTLY DETECT A WRITE CHECK ERROR/
74 013564
               106
                        101
                                     EM35::
                                              . ASCIZ
                                                       /FAILED AN RPO7, INTERNAL MICRODIAGNOSTIC TEST/
                                111
75 013641
               122
                        110
                                130
                                     EM36::
                                              . ASCIZ
                                                       /RHXX REGISTER SELECTION FAILURE/
                                124
                                     EM37::
 76 013701
               104
                        101
                                              . ASCIZ
                                                       /DATA RECEIVED DOESN'T MATCH EXPECTED DATA/
78 013753
               104
                        105
                                      EM40::
                                              . ASCIZ
                                124
                                                       /DETECTED ERROR DURING WRITE DATA OPERATION/
79 014026
                        105
               104
                                124
                                              . ASCIZ
                                                       /DETECTED ERROR DURING FORMAT OPERATION/
                                      EM41::
               104
                                124
80 014075
                                              . ASCIZ
                                      EM42::
                                                       /DETECTED A PERMANENT ERROR/
81 014130
                                      EM43::
                                              . ASCIZ
               111
                        116
                                                       /INTERNAL RP07 DIAGNOSTIC TIME-OUT/
83
                                              .EVEN
87
88
                                      .SBTTL GLOBAL ERROR REPORT SECTION
89
90
91
92
                                      ; THE GLOBAL ERROR REPORT SECTION CONTAINS THE PRINTB AND PRINTX CALLS
                                      ; THAT ARE USED IN MORE THAN ONE TEST. IT ALSO INCLUDES THE ASCII MESSAGES
 93
                                      ; THAT ARE USED BY THE PRINTB AND PRINTX CALLS ...
 96 014172
                                      ERRO::
 97 014172
            004737
                    017326
                                              JSR
                                                       PC. SAVRPR
                                                                        GET THE REGISTER SNAPSHOT NOW
 98 014176
            004737
                     020532
                                               JSR
                                                       PC, DECODE
                                                                        DECODE THE BIT MASK FOR THE ERROR!
 99 014202
                                                       TESTRG, -(SP)
            013746
                     002456
                                              MOY
    014206
            012746
                                                       OFRMTOO, -(SP)
                     007161
                                              MOV
    014212
            012746
                     000002
                                              MOV
                                                       #2,-(SP)
    014216
            010600
                                                       SP.RO
                                              MOV
    014220
            104414
                                                       C$PNTB
                                              TRAP
    014222
            062706
                                                       46.SP
                     000006
                                              ADD
100 014226
            013746
                                                       RCVED, -(SP)
                     002452
                                              MOV
    014232
            013746
                     002454
                                              MOV
                                                       EXPTED, -(SP)
    014236
            012746
                     007214
                                              MOV
                                                       #FRMTO1.-(SP)
    014242
            012746
                                              MOV
                     000003
                                                       #3.-(SP)
    014246
            010600
                                                       SP.RO
                                              MOV
    014250
            104414
                                                       CIPNTB
                                              TRAP
    014252
            062706
                     000010
                                              ADD
                                                       #10.SP
101 014256
            004737
                                                       PC . DMPREG
                     016212
                                              JSR
                                                                        DO THE REGISTER DUMP NOW
102 014262
            004737
                     016556
                                              JSR
                                                       PC, FAULTS
                                                                        REPORT THE FAULT LIST
103
                                                                        : CR-LF
104 014266
            012746
                     006420
                                              MOV
                                                       #CRLF, -(SP)
    014272
            012746
                     000001
                                              MOV
                                                       #1,-(SP)
    014276
            010600
                                                       SP.RO
```

	014300 014302	104414 062706	000004		TRAP	C\$PNTB	
	05 014306 014306	104423		L10002:	TRAP	C\$MSG	
1	07 014310 08 014310 09 014314 10 014316	004737 010446 004737	017326 015416	ERR1::	JSR MOV JSR	PC.SAVRPR R4(SP) PC.OCTHEX	GET THE REGISTER SNAPSHOT NOW :PUT THE ROUTINE NUMBER ON THE STACK :AND CONVERT TO HEX
1 1 1 1 1	12 014322 014326 014332 014336 014342 014346 014352 014354 014356 13 014362 14 014366 15 014372	012746 012746 012746 012746 012746 012746 010600 104414 062706 017746 042716 004737	002660 002656 002654 002652 007426 000005 000014 166164 177400 015416		MOV MOV MOV MOV MOV TRAP ADD MOV BIC JSR	#PSTACK+6,-(SP) #PSTACK+4,-(SP) #PSTACK+2,-(SP) #PSTACK,-(SP) #PSTACK,-(SP) #FRMTO4,-(SP) #5,-(SP) SP,RO C*PNTB #14,SP #RPER2,-(SP) #177400,(SP) PC,OCTHEX	GET THE CONTENTS OF RPER2 ON THE STACK AND ELIMINATE THE HIGH ORDER BITS NOW CONVERT TO HEX
1 1 1 1 1 1	16 014402 014406 014412 014416 014422 014426 014430 014432 18 014436 19 014442 20 014446 21 014452	012746 012746 012746 012746 012746 012746 010600 104414 062706 004737 004737	002660 002656 002654 002652 007474 000005 000014 016212 016132 020532 016556		MOV MOV MOV MOV MOV TRAP ADD JSR JSR JSR JSR	#PSTACK+6,-(SP) #PSTACK+4,-(SP) #PSTACK+2,-(SP) #PSTACK,-(SP) #FRMTO5,-(SP) #5,-(SP) SP,RO C*PNTB #14,SP PC,DMPREG PC,CALMOD PC,DECODE PC,FAULTS	DUMP THE REGISTERS NOW REPORT THE MODULE LIST DECODE THE MASK BITS FOR A MODULE CALLOUT AND REPORT THE FIND CR-LF
1	23 014456 014462 014466 014470 014472 24 014476 014476	012746 012746 010600 104414 062706	006420 000001 000004	L10003:	MOV MOV TRAP ADD	#CRLF,-(SP) #1,-(SP) SP,RO C*PNTB #4,SP	
1 1	25 26 014500 27 014500 28 014504 014510 014514 014520 014522 014524 29 014530 014534 014540	004737 013746 012746 012746 010600 104414 062706 013746 012746 012746 010600	020532 002506 007404 000002 000006 002470 007545 000002	ERR2::	JSR MOV MOV MOV TRAP ADD MOV MOV MOV	PC.DECODE DRVNO,-(SP) #FRMTO3,-(SP) #2,-(SP) SP,RO C#PNTB #6,SP FATOF,-(SP) #FRMTO6,-(SP) #2,-(SP) SP,RO	DECODE THE MESSAGE

	014546	104414			TRAP	C\$PNTB	
	014550	062706	000006		ADD	46.SP	
130	014554	013746	002452		MOV	RCVED, -(SP)	
100	014560	013746	002454		MOV	EVETED (CD)	
	014564	012746				EXPTED, -(SP)	
			007214		MOV	#FRMTO1, -(SP)	
	014570	012746	000003		MOV	#3,-(SP)	
	014574	010600			MOV	SP.RO	
	014576	104414			TRAP	C\$PNTB	
	014600	062706	000010		ADD	#10.SP	
131							:CR-LF
132	014604	012746	006420		MOV	#CRLF,-(SP)	
	014610	012746	000001		MOV	#1,-(SP)	
	014614	010600			MOV	SP.RO	
	014616	104414			TRAP	CSPNTB	
	014620	062706	000004		ADD	44.SP	
133	014624	004737	016556		JSR	PC.FAULTS	REPORT THE FAULT LIST
134	014054	004131	010330		Jak	PC, PHOLIS	
	014670	010746	006400		MOV	*CO! 5 (CO)	:CR-LF
135	014630	012746	006420		MOV	OCRLF, -(SP)	
	014634	012746	000001		MOV	#1,-(SP)	
	014640	010600			MOV	SP.RO	
	014642	104414			TRAP	C\$PNTB	
	014644	062706	000004		ADD	44.SP	
136	014650			L10004:			
	014650	104423			TRAP	C\$MSG	
137							
138	014652			ERR3::			
	014652	004737	016212		JSR	PC.DMPREG	JUST DUMP THE REGISTERS
140			020222		0311		:CR-L.F
	014656	012746	006420		MOV	#CRLF, -(SP)	1 CH - L.
	014662	012746	000001		MOV	#1,-(SP)	
	014666	010600	000001				
	014670				MOV	SP,RO	
		104414	000000		TRAP	C\$PNTB	
143	014672	062706	000004		ADD	44,SP	
145	014676			L10005:			
	014675	104423			TRAP	C\$MSG	
143							

	.SBT1	L GLOBAL	SUBROUTINES SECT	ION
	;32 F	EGISTERS	RH70 CONTROLLER	AND DETERMINE IF IT IS JUMPERED FOR 22 OR
	i chec	JSR	PC.SIZE70	CALL ROUTINE
	R5 P	UST CONTA	IN POINTER TO NEW	RPCS1 BASE ADDRESS
005720 005302 001375 012737 000074	000004	CLR MOV MOV ADD MOV TST TST MOV TST DEC BNE MOV	RHEXT RHTYPE ERRVEC,-(SP) #2\$,ERRVEC (R5),R0 #50,R0 #10.,R2 (R0)+ (R0)+ #50,RHEXT (R0)+ R2 1\$	CLEAR RPBAE OFFSET CLEAR RHXX TYPE REGISTER (RH11) SAVE CONTENTS OF ERROR VECTOR SETUP 'TRAP' RETURN ADDRESS GET RPCS1 ADDRESS GET REGISTER OFFSET FOR RH70 GET NUMBER OF REGISTERS TO CHECK TRAP IF NOT A VALID RPBAE TRAP IF NOT A VALID RPCS3 LOAD OFFSET FOR RPBAE (22 REGISTER RH) TRAP IF NOT A VALID REGISTER DONE WITH ALL 32 REGISTER? BR IF NO LOAD OFFSET FOR RPBAE (32 REGISTER RH)
012716 014772 000002	2\$:	MOV RTI	3\$ #3\$,(SP)	SETUP RETURN ADDRESS
011500 013702 001415 060002 052710 001400 022712 000003 001007 005012 011046 042726 042726 01002 005237 002504 012637 000004	3\$: 4\$:	MOV MOV BEQ ADD BIS CMP BNE CLR MOV BIC BNE INC MOV	(R5),R0 RHEXT,R2 4\$ R0,R2 ØA17!A16,(R0) Ø3,(R2) 4\$ (R2) (R0),-(SP) ؆C <a17!a16>,(SA) RHTYPE (SP)+,ERRVEC</a17!a16>	GET RPCS1 REGISTER GET RPBAE REGISTER OFFSET BR IF NONE GET RPBAE REGISTER SET EXTENDED ADDRESS BITS IN RPCS1 ARE THE EXTENDED BITS SET IN RPBAE? BR IF NO CLEAR EXTENDED ADDRESS BITS IN RPBAE SAVE RPCS1 REG CONTENTS P) ARE THE EXTEND BITS CLEAR IN RPCS1? BR IF NO SET RHXX TYPE REGISTER (RH70) RESTORE CONTENTS OF ERROR VECTOR
	05037 002504 13746 000004 12737 014764 11500 000050 12702 000012 105720 000050 12737 000050 12737 000050 12737 000074 100403 12716 014772 11500 014772 11500 014772 11500 00002 11500 00003 12716 014772 11500 00003 12716 014772 11500 000003 12716 014772 11500 00003 12716 014772 11500 00003 12716 014772 11500 00003	## ## ## ## ## ## ## ## ## ## ## ## ##	AUTO SIZE FOR   32 REGISTERS   CALL	;32 REGISTERS ;CALL ; JSR PC,SIZE70 ;R5 MUST CONTAIN POINTER TO NEW  05037 002502 05037 002504 13746 000004 13736 000004 12737 014764 000004 62700 000050 62700 000050 62700 000050 12702 000012 005720 005720 005720 012737 000050 002502 005720 012737 000074 002502 001375 12737 000074 002502 001375 12737 000074 002502 001375 12737 000074 002502 001375 12737 000074 002502 001375 12737 000074 002502 001375 12737 000074 002502 001375 12737 000074 002502 001375 12737 000074 002502 001375 12737 000074 002502 001375 12737 000074 002502 001375 12737 000074 002502 001375 12737 000074 002502 001375 12737 000074 002502 001375 12737 000074 002502 001375 12737 000074 002502 001375 12737 000074 002502 001375 12737 000074 002502 00403 1272 000003 00403 1272 000004 00403 1272 000004 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005

```
.SBTTL DISK DRIVER AND SUPPORT ROUTINES
                                   THIS MODULE IS USED ANYTIME A DIAGNOSTIC COMMAND HAS JUST BEEN ISSUED BY THE MODULE "DRIVER". IT POLLS THE CORRECT ATTENTION BIT IN THE PSEUDO REGISTER AND USES A 'WATCHDOG TIMER' TO VERIFY THAT THE BIT DOES EVENTUALLY
                                   SET. IF IT DOES NOT, AN ERROR MESSAGE IS PRODUCED REPORTING A MICRO-
                                   :DIAGNOSTIC TIMEOUT.
                                  015042
          010146
                                  RPARDY: MOV
                                                  R1,-(SP)
                                                                  : SAVE R1
12 015044
          010446
                                                  R4,-(SP)
                                                                  : SAVE R4
                                          MOV
13 015046
          012701
                  000062
                                          MOV
                                                  450..R1
                                                                   GET AN OVERALL ITERATION COUNT
14 015052
          033777
                  002400
                          165450
                                          BIT
                                                  BITPOS. BRPAS
                                 1$:
                                                                   :DONE ??
15 015060
           001012
                                          BNE
                                                                   : IF SET, YES
16 015062
           004737
                  017000
                                           JSR
                                                  PC. WAIT
                                                                   USE THE WATCHDOG TIMER
           005301
17 015066
                                           DEC
                                                  R1
                                                                   ONE LESS CYCLE TO-GO
18 015070
                                                                  ; IF NOT ZERO, KEEP WATCHING ;GET CONTENTS OF RPMR1
           003370
                                           BGT
19 015072
          017704
                  165440
                                                  SRPMR1.R4
                                          MOV
20 015076
           104456
                                           TRAP
                                                  C$ERHRD
           000621
   015100
                                           . WORD
                                                  401
   015102
          014130
                                           . WORD
                                                  EM43
   015104
          014310
                                           . WORD
                                                  ERR1
21 015106
          013777
                  002400 165414 28:
                                           MOV
                                                  BITPOS, SRPAS
                                                                   RESET THE ATTENTION BIT TO O
22 015114
          012604
                                           VOM
                                                  (SP)+,R4
                                                                   :RESTORE R4
23 015116
24 015120
                                                   (SP)+,R1
          012601
                                           MOV
                                                                   :RESTORE R1
          000207
                                          RTS
                                                                   : TAKE THE RETURN
25
26
27
28
29
30
                                   THIS MODULE IS CALLED BY THE DRIVER WHEN EVER A NON-DATA COMMAND HAS
                                   JUST BEEN ISSUED. (EXCEPT A DIAGNOSTIC COMMAND.) IT POLLS FOR RPDS: DRY. THE FUNCTION IS NOT TIMED USING A WATCHDOG TIMER, BUT SUPERVISOR
                                   " BREAKS' ARE SUPPORTED.
31
                                   ___
32
33
  015122
                                  READY:
   015122
                                           TRAP
           104422
                                                  C#BRK
  015124
           105777
                   165374
                                                   BRPDS
                                                                   : READY TRUE?
                                           TSTB
  015130
           100374
                                                  READY
                                                                   :NO. SO WAIT SOME MORE
                                           BPL
  015132
           000207
                                                                   TAKE THE RETURN
37
38
39
                                   ITHIS MODULE IS CALLED BY THE DRIVER ANYTIME A DATA COMMAND HAS JUST BEEN ISSUED. IT POLLS FOR CONTROLLER READY. THE FUNCTION IS NOT TIMED USING A WATCHDOG TIMER, BUT SUPERVISOR 'BREAKS' ARE SUPPORTED.
40
41
42
                                   ___
43
44 015134
                                  CREADY:
   015134
                                           TRAP
           104422
                                                  C#BRK
45 015136
           105777
                   165350
                                           TSTB
                                                   BRPCS1
                                                                   CONTROLLER READY?
46 015142
           100374
                                                   CREADY
                                                                   ; IF O. NO... WAIT SOME MORE
                                           BPL
47 015144
           000207
                                           RTS
                                                   PC
                                                                   :IT'S 1. RETURN
```

```
:THIS MODULE DOES THE ACTUAL DISK 'DRIVING'. INPUTS TO THE MODULE :INCLUDE THE FOLLOWING TAGS: NEGWRD, DESCYL, DESTRE, TABADD, FUNCTN. :NEGWRD = THE BYTE COUNT TO BE NEGATED, DESCYL = THE DESIRED CYLINDER
                                   ADDRESS, DESTRK = THE DESIRED TRACK / SECTOR ADDRESS, TABADD = THE STARTING ADDRESS OF THE TRANSFER BUFFER, FUNCTN = THE COMMAND TO BE EXECUTED.
                                   ; CALL TO THE MODULE IS: JSR PC, DRIVER
                                   BUFFERS ARE LOADED/UNLOADED VIA LINKAGE PROVIDED BY TABADD.
10
                                   11
  015146
          005437
                   002412
12
                                   DRIVER: NEG
                                                   NEGWRD
                                                                    : NEGATE THE WORD COUNT ONLY ONCE!
13 015152
          004737
                   015122
                                            JSR
                                                   PC.READY
                                                                    :POLL FOR DRIVE READY!
14 015156
           022737
                   000035
                           002420
                                           CMP
                                                                    DIAGNOSTIC COMMAND??
                                                   #DIAG, FUNCTN
           001414
                                                                    ; IF EQUAL, SKIP NEXT CODE
; WORD COUNT ---> RP REGISTER
15
  015164
                                           BEQ
                                                   1$
16 015166
                   002412
                                                   NEGWRD, BRPWC
           013777
                           165320
                                           MOV
17 015174
                   002416
                           165344
           013777
                                                   DESCYL, SRPDC
                                           MOV
                                                                    GET THE CYLINDER ADDRESS TO THE DEVICE REGISTER
18 015202
           013777
                   002414
                           165310
                                                   DESTRK, BRPDA
                                           MOV
                                                                    :TRACK/SEC ---> RP REGISTER
                                                                    LOAD THE TRANSFER ADDRESS
19 015210
           013777
                   002366
                           165300
                                           MOV
                                                    TABADD, SRPBA
                                                                    GET THE COMMAND TO EXECUTE IS THIS A DATA COMMAND?
20 015216
           013777
                   002420
                           165266
                                           MOV
                                                   FUNCTN, SRPCS1
                                   1$:
  015224
           023727
                   002420
                           000035
                                           CMP
                                                   FUNCTN, ODIAG
22
  015232
           101004
                                           BHI
                                                                    ; IF > THAN A DIAGNOSTIC COMMAND, YES
                                                   21
23 015234
           001406
                                           BEQ
                                                                    ; IF ., IT GETS HANDLED UNIQUELY
24 015236
                                            JSR
           004737
                   015122
                                                   PC.READY
                                                                    POLL FOR DRIVE READY
  015242
           000405
                                            BR
                                                                    : AND SKIP NEXT POLL OPERATION
26
  015244
           004737
                   015134
                                            JSR
                                                   PC. CREADY
                                   21:
                                                                    POLL FOR CONTROLLER READY
27
  015250
           000402
                                           BR
                                                   45
                                                                    : NOW RETURN
  015252
           004737
                   015042
                                   34:
                                            JSR
                                                   PC.RPARDY
                                                                    LOOK FOR ATTENTION NOW
  015256
29
           000207
                                   41:
                                            RTS
                                                                    : NOW RETURN
30
31
32
33
                                   THIS MODULE IS USED TO INITIATE THE DIAGNOSTIC MONITOR IN THE RP-07.
                                   IT IS DEPENDENT UPON 'DRIVER' FOR COMPLETION.
34
35
                                   SIDE AFFECTS INCLUDE THE FACT THAT THE DRIVE WILL BE IN 'DIAGNOSTIC
                                   MODE' WHEN THIS MODULE COMPLETES. THE DRIVE WILL BE UNABLE TO ACCEPT
36
37
                                   COMMANDS OTHER THAN DRIVE CLEAR, AND DIAGNOSTIC COMMANDS.
                                   39 015260
          004737
                                   DIAGST:: JSR
                   016662
                                                   PC.SEIZE
                                                                    GET THE DRIVE'S ATTENTION!
40 015264
           012777
                   177000
                           165244
                                           MOV
                                                   #177000, SRPMR1
                                                                    SET UP THE "HANDSHAKE"
           012737
41 015272
                   000035
                           002420
                                           MOV
                                                    #DIAG, FUNCTN
                                                                    CREATE THE DIAGNOSTIC COMMAND
42 015300
           004737
                   015146
                                            JSR
                                                   PC.DRIVER
                                                                    ISSUE THE COMMAND
RESET COMPOSITE ERROR (SETS WHEN FE IS WRITTEN INTO RMPR1)
43 015304
           004737
                                            JSR
                   016662
                                                   PC. SEIZE
44 015310
           000207
                                           RTS
                                                   PC
                                                                    AND RETURN TO MAIN
```

1							
2 3 4 5 6 7				:DEPENDO :WHICH :NO OTH	ENT UPON SET AS A ER SIDE-I	'DRIVER' FOR ITS	THE RPO7 DIAGNOSTIC MONITOR. IT IS S COMPLETION. IT WILL CLEAR ANY ERRORS GNOSTIC ROUTINE EXECUTION. THERE ARE
9 015312 10 015320 11 015324 12 015332 13 015340 14 015344 15 015350	012737 004737 012777 012737 004737 005077 000207	040011 015146 177400 000035 015146 165166	002420 165204 002420	DIAGEN:	MOV JSR MOV MOV JSR CLR RTS	#TRE!DRCLR,FUNCT PC,DRIVER #177400,@RPMR1 #DIAG,FUNCTN PC,DRIVER @RPMR1 PC	TN:SET UP FOR A CONTROLLER-DRIVE CLEAR COMMAND:ISSUE THE COMMAND:TERMINATE THE SESSION WITH HI BYTE AS "FF" AND SET UP THE COMMAND:ISSUE THE COMMAND NOW!! RESET THE DIAGNOSTIC MODE BIT RETURN TO MAIN
17 18 19 20 21 22				: DEPEND : BE EXE : THE EX	ENT UPON CUTED UN ECUTION (	'DRIVER' FOR COM	M R4. OUTPUT GOES TO RPMR1. IT IS MPLETION. THIS ROUTINE SHOULD NOT IC MONITOR HAS BEEN TURNED ON THROUGH
24 015352 25 015356 26 015364 27 015372 28 015376	010477 052777 012737 004737 000207	165160 100000 000035 015146	165152 002420	DIAGLD:	BIS MOV JSR RTS	R4.aRPMR1 #BIT15.aRPMR1 #DIAG.FUNCTN PC.DRIVER PC	:NOW SET THE DIAGNOSTIC NUMBER :AND SET DMD = 1 :AND SET UP FOR A DIAGNOSTIC COMMAND :ISSUE THE COMMAND NOW! :RETURN TO CALLER!
30 31 32 33 34 35 36 37				: THIS M :IT SAV :IT WHE	ODULE CLI ES THE S N THE RE	TATUS OF THE MAIN SET PROCESS IS CO	RROR STATUS THROUGH A CONTROLLER CLEAR. NTENANCE REGISTER (RPMR1), AND RESTORES OMPLETE.
38 015400 39 015404 40 015410 41 015414 42	017746 004737 012677 000207	165132 016662 165122		DRVCLR:	MOV JSR MOV RTS	BRPMR1,-(SP) PC.SEIZE (SP)+,BRPMR1 PC	SAVE CONTENTS OF RPMR1 NOW RESET THE DRIVE RESTORE THE MAINTENANCE REGISTER AND RETURN TO CALLER
43 44 45 46 47				HEX.	IT RECEI	PART OF THE I/O VES ITS INPUT FR STACK - PSTACK +	SUPPORT. IT CONVERTS OCTAL TO ASCII OM THE TOP OF THE STACK. IT'S OUTPUT 6.
48 49 015416 50 015420 51 015422 52 015426	010146 010246 012700 012702	002652 000004		OCTHEX:	MOV MOV	R1(SP) R2(SP) #PSTACK.RO	SAVE R1 SAVE R2 SET UP THE BUFFER ADDRESS GET THE ITERATION VALUES
53 015432 54 015436 55 015440 56 015442 57 015444	012701 005010 006310 000241 006366	000004		26:	MOV CLR ASL CLC ASL	6(SP)	AND DUPLICATE FOR TWO LOOPS INITIALIZE THE BUFFER MOVE THE PREVIOUS BIT(S) OVER CARRY = 0 ROTATE A BIT FROM THE TEST VALUE

58 015450	103002				BCC	3\$	; IF ZERO, SKIP NEXT INSTRUCTION
59 015452	052710	000001			BIS	#BITO,(RO)	MARK THE BIT AS BEING SET
60 015456	005301			3\$:	DEC	R1 2\$	ONE LESS ITERATION TO GO
61 015460	003367				BGT	2\$	BUT NOT DONE UNTIL = 0!
62 015462	005720				TST	(RO)+	NEXT BUFFER LOCATION
63 015464	005302				DEC	R2	ONE LESS ITERATION TO-GO
64 015466	003361				BGT	1\$	; IF NOT ZERO, KEEP GOING!
65 015470		000004			MOV	44,R2	GET THE NEW ITERATION COUNT
66 015474	012700	002652			MOV	MPSTACK, RO	AND GET THE BUFFER ADDRESS AGAIN
67 015500	005710			4\$:	TST	(RO)	CONTENTS ZERO?
68 015502	003004				BGT	5\$	;BUT NOT DONE UNTIL = 0! ;NEXT BUFFER LOCATION ;ONE LESS ITERATION TO-GO ;IF NOT ZERO, KEEP GOING! ;GET THE NEW ITERATION COUNT ;AND GET THE BUFFER ADDRESS AGAIN ;CONTENTS ZERO? ;IF NOT, SKIP NEXT
69 015504	005020				CLR	(RO)+	SET THIS CHARACTER - NULL
70 015506	005302 003373				DEC	K2	;IF NOT, SKIP NEXT ;SET THIS CHARACTER = NULL ;ONE LESS CHARACTER TO GO ;IF NOT ZERO, KEEP GOING ;DONE, RETURN! ;ALPHA OR NUMERIC CHARACTER?
71 015510					BGT	45	; IF NOT ZERO, KEEP GOING
72 015512 73 015514	000412	000011		E4.	BR	(00) 411	DUNE, RETURN!
74 015520	101003	000011		5\$:	CMP BHI	(RO), WII	ALPHA OR NUMERIC CHARACTER?
75 015522	062720	000060			ADD	#60,(RO)+	:IF > 11, ALPHA! :MAKE NUMERIC ASCII
76 015526	000402	000000			BR	76 (RU)*	THAVE MOMENTE WORTT
77 015530	062720	000067		6\$:	ADD	455 (PO).	MAKE HEY ACCTT
78 015534	005302	000001		7\$:	DEC	P2	ONE LESS TTERATION TO GO
79 015536	003366				BGT	54	ONE LESS TIERATION TE NOT ZEDO
80 015540	012602			8\$:	MOV	(SP)+ R2	PESTORE BS
81 015542	012601				MOV	(SP)+.R1	AND GO-ON  MAKE HEX ASCII  ONE LESS ITERATION TO-GO  ONE LESS ITERATION, IF NOT ZERO  RESTORE R2  AND R1  MOVE STACK OVER INPUT VALUE
82 015544	012616				MOV	(SP)+.(SP)	MOVE STACK OVER INPUT VALUE
83 015546					RTS	PC	: AND RETURN
84							
85							********************************
86				DETERM	TAIR TE T		
				: DE LEKIT	THE THE	HERE IS A CLOCK	ON SYSTEM. START THE CLOCK. "CLKSTA" WILL
87				INDICA	TE THE C	LOCK TYPE.	ON SYSTEM. START THE CLOCK. "CLKSTA" WILL
87 88				INDICA	O= NO	CLOCK TYPE.	ON SYSTEM. START THE CLOCK. "CLKSTA" WILL
87 88 89				INDICA	0= NO +1= KW1	CLOCK TYPE. CLOCK 11-P	ON SYSTEM. START THE CLOCK. "CLKSTA" WILL
87 88 89 90				INDICA	7E THE 0 0= NO +1= KW1 -1= KW1	CLOCK TYPE. CLOCK 11-P	
87 88 89 90 91				INDICA	TE THE C 0= NO +1= KW1 -1= KW1 OUTINE W	CLOCK TYPE. CLOCK 11-P 11-L VILL ALSO SETUP	"TICKMS" (TIME PER CLOCK TICK IN MILLISECONDS)
87 88 89 90 91				THIS REAND "T	TE THE C 0= NO +1= KW1 -1= KW1 OUTINE W	CLOCK TYPE. CLOCK 11-P 11-L VILL ALSO SETUP	
87 88 89 90 91 92 93				INDICA	TE THE C 0= NO +1= KW1 -1= KW1 OUTINE W ICKUS" (	CLOCK TYPE. CLOCK 11-P 11-L VILL ALSO SETUP TIME PER CLOCK	"TICKMS" (TIME PER CLOCK TICK IN MILLISECONDS) TICK IN MICROSECONDS) AS PER LINE FREQUENCY.
87 88 89 90 91 92 93				THIS REAND "T	TE THE CO O = NO +1 = KW1 -1 = KW1 OUTINE WICKUS" (	CLOCK TYPE. CLOCK 11-P 11-L VILL ALSO SETUP TIME PER CLOCK	"TICKMS" (TIME PER CLOCK TICK IN MILLISECONDS)
87 88 89 90 91 92 93				THIS REAND "T	TE THE CO O = NO +1 = KW1 -1 = KW1 OUTINE WICKUS" ()  JSR RETURN	CLOCK TYPE. CLOCK 11-P 11-L VILL ALSO SETUP TIME PER CLOCK	"TICKMS" (TIME PER CLOCK TICK IN MILLISECONDS) TICK IN MICROSECONDS) AS PER LINE FREQUENCY.
87 88 89 90 91 92 93				THIS REAND "T	TE THE CO O = NO +1 = KW1 -1 = KW1 OUTINE WICKUS" ()  JSR RETURN	CLOCK TYPE. CLOCK 11-P 11-L VILL ALSO SETUP TIME PER CLOCK	"TICKMS" (TIME PER CLOCK TICK IN MILLISECONDS) TICK IN MICROSECONDS) AS PER LINE FREQUENCY.
87 88 89 90 91 92 93 94 95 96 97 98 015550	005037	002426		THIS REAND "T	TE THE CO O = NO +1 = KW1 -1 = KW1 OUTINE WILL CKUS" (CO USR RETURN	CLOCK TYPE. CLOCK 11-P 11-L VILL ALSO SETUP TIME PER CLOCK PC,ST.CLK	"TICKMS" (TIME PER CLOCK TICK IN MILLISECONDS) TICK IN MICROSECONDS) AS PER LINE FREQUENCY. ;START THE CLOCK
87 88 89 90 91 92 93 94 95 96	005037 005037	002426 015750		THIS REAND "T	TE THE CO O = NO +1 = KW1 -1 = KW1 OUTINE WICKUS" (CO JSR RETURN ************************************	CLOCK TYPE. CLOCK 1-P 11-L VILL ALSO SETUP TIME PER CLOCK PC,ST.CLK CLKSTA	"TICKMS" (TIME PER CLOCK TICK IN MILLISECONDS) TICK IN MICROSECONDS) AS PER LINE FREQUENCY.  ;START THE CLOCK  ;ASSUME "NO CLOCK"
87 88 89 90 91 92 93 94 95 96 97 98 015550 99 015554	005037	002426 015750		THIS REAND "T	TE THE CO O = NO +1 = KW1 -1 = KW1 OUTINE WILL CKUS" (CO USR RETURN	CLOCK TYPE. CLOCK 11-P 11-L VILL ALSO SETUP TIME PER CLOCK PC,ST.CLK	"TICKMS" (TIME PER CLOCK TICK IN MILLISECONDS) TICK IN MICROSECONDS) AS PER LINE FREQUENCY.  ;START THE CLOCK  :ASSUME "NO CLOCK" ;ASSUME "UNKNOWN" HERTZ
87 88 89 90 91 92 93 94 95 96 97 98 015550 99 015554 100 101 015560				THIS REAND "T	TE THE CO O = NO +1 = KW1 -1 = KW1 OUTINE WICKUS" (CO JSR RETURN ************************************	CLOCK TYPE. CLOCK 1-P 11-L VILL ALSO SETUP TIME PER CLOCK PC.ST.CLK CLKSTA HERTZ	"TICKMS" (TIME PER CLOCK TICK IN MILLISECONDS) TICK IN MICROSECONDS) AS PER LINE FREQUENCY.  ;START THE CLOCK  ;ASSUME "NO CLOCK"
87 88 89 90 91 92 93 94 95 96 97 98 015550 99 015554 100 101 015560 015564	005037 012700 104462	015750		THIS REAND "T	TE THE CONTROL OF NO 11 KW1 -1 KW1 OUTINE WILLIAM CONTROL OUTINE WIL	CLOCK TYPE. CLOCK 1-P 11-L VILL ALSO SETUP TIME PER CLOCK PC.ST.CLK CLKSTA HERTZ #'P.RO	"TICKMS" (TIME PER CLOCK TICK IN MILLISECONDS) TICK IN MICROSECONDS) AS PER LINE FREQUENCY.  ;START THE CLOCK  :ASSUME "NO CLOCK" ;ASSUME "UNKNOWN" HERTZ
87 88 89 90 91 92 93 94 95 96 97 98 015550 99 015554 100 101 015560 015564 015566	005037 012700	015750		THIS REAND "T	TE THE CONTROL OF NO 11 KW1 -1 KW1 OUTINE WILLIAM CKUS" (CONTROL CKUS" (CONTROL CKUS")  JSR RETURN  CLR CLR CLR	CLOCK TYPE. CLOCK 1-P 11-L VILL ALSO SETUP TIME PER CLOCK PC.ST.CLK CLKSTA HERTZ	"TICKMS" (TIME PER CLOCK TICK IN MILLISECONDS) TICK IN MICROSECONDS) AS PER LINE FREQUENCY.  ;START THE CLOCK  ;ASSUME "NO CLOCK" ;ASSUME "UNKNOWN" HERTZ ;IS THERE A P-CLOCK PRESENT ?
87 88 89 90 91 92 93 94 95 96 97 98 015550 99 015554 100 101 015560 015564 015566	005037 012700 104462 010005	015750		THIS REAND "T	TE THE CONTROL NO. 1 - 1 -	CLOCK TYPE. CLOCK 1-P 1-L IIL ALSO SETUP TIME PER CLOCK PC.ST.CLK CLKSTA HERTZ #'P.RO C\$CLCK RO.R5	"TICKMS" (TIME PER CLOCK TICK IN MILLISECONDS) TICK IN MICROSECONDS) AS PER LINE FREQUENCY.  ;START THE CLOCK  :ASSUME "NO CLOCK" ;ASSUME "UNKNOWN" HERTZ
87 88 89 90 91 92 93 94 95 96 97 98 015550 99 015554 100 101 015560 015564 015566	005037 012700 104462 010005	015750		THIS REAND "T	TE THE CO O = NO +1 = KW1 -1 = KW1 OUTINE WICKUS" (CO JSR RETURN CLR CLR CLR MOV TRAP	CLOCK TYPE. CLOCK 1-P 11-L VILL ALSO SETUP TIME PER CLOCK PC.ST.CLK CLKSTA HERTZ #'P.RO C*CLCK	"TICKMS" (TIME PER CLOCK TICK IN MILLISECONDS) TICK IN MICROSECONDS) AS PER LINE FREQUENCY.  ;START THE CLOCK  ;ASSUME "NO CLOCK" ;ASSUME "UNKNOWN" HERTZ ;IS THERE A P-CLOCK PRESENT ?
87 88 89 90 91 92 93 94 95 96 97 98 015550 99 015554 100 101 015560 015564 015566	005037 012700 104462 010005	015750		THIS REAND "T	TE THE CO O = NO +1 = KW1 -1 = KW1 OUTINE WICKUS" CO USR RETURN ************************************	CLOCK TYPE. CLOCK 11-P 11-L IILL ALSO SETUP TIME PER CLOCK PC.ST.CLK CLKSTA HERTZ  #'P.RO C#CLCK RO.RS	"TICKMS" (TIME PER CLOCK TICK IN MILLISECONDS) TICK IN MICROSECONDS) AS PER LINE FREQUENCY.  ;START THE CLOCK  ;ASSUME "NO CLOCK" ;ASSUME "UNKNOWN" HERTZ ;IS THERE A P-CLOCK PRESENT ?  ;GO TO 1\$ IF NO
87 88 89 90 91 92 93 94 95 96 97 98 015550 99 015554 100 101 015560 015564 015566 102 103 015570 104	005037 012700 104462 010005	015750		THIS REAND "T	TE THE CO O = NO +1 = KW1 -1 = KW1 OUTINE WICKUS" CO USR RETURN ************************************	CLOCK TYPE. CLOCK 11-P 11-L IILL ALSO SETUP TIME PER CLOCK PC.ST.CLK CLKSTA HERTZ  #'P.RO C#CLCK RO.RS	"TICKMS" (TIME PER CLOCK TICK IN MILLISECONDS) TICK IN MICROSECONDS) AS PER LINE FREQUENCY.  ;START THE CLOCK  ;ASSUME "NO CLOCK" ;ASSUME "UNKNOWN" HERTZ ;IS THERE A P-CLOCK PRESENT ?
87 88 89 90 91 92 93 94 95 96 97 98 015550 99 015554 100 101 015560 015564 015566 102 103 015570 104 105	005037 012700 104462 010005 103031	015750		THIS REAND "T	TE THE CO O = NO	CLOCK TYPE. CLOCK 1-P 11-L VILL ALSO SETUP TIME PER CLOCK PC,ST.CLK CLKSTA HERTZ #'P,RO C\$CLCK RO,R5 1\$	"TICKMS" (TIME PER CLOCK TICK IN MILLISECONDS) TICK IN MICROSECONDS) AS PER LINE FREQUENCY.  ;START THE CLOCK  ;ASSUME "NO CLOCK" ;ASSUME "UNKNOWN" HERTZ ;IS THERE A P-CLOCK PRESENT ?  ;GO TO 1\$ IF NO  6 START P-CLOCK
87 88 89 90 91 92 93 94 95 96 97 98 015550 99 015554 100 101 015560 015564 015566 102 103 015570 104	005037 012700 104462 010005 103031	015750 000120 015724		THIS REAND "T	TE THE CO O = NO	CLOCK TYPE. CLOCK 1-P 11-L IILL ALSO SETUP TIME PER CLOCK PC,ST.CLK CLKSTA HERTZ #'P,RO C\$CLCK RO,R5 1\$ CLOCK P-TABLE & R5,PCLKTB	"TICKMS" (TIME PER CLOCK TICK IN MILLISECONDS) TICK IN MICROSECONDS) AS PER LINE FREQUENCY.  ;START THE CLOCK  :ASSUME "NO CLOCK" :ASSUME "UNKNOWN" HERTZ :IS THERE A P-CLOCK PRESENT ?  ;GO TO 1\$ IF NO  START P-CLOCK :SAVE P-CLOCK TABLE ADDRESS
87 88 89 90 91 92 93 94 95 96 97 98 015550 99 015554 100 101 015564 015566 102 103 015570 104 105 106	005037 012700 104462 010005 103031 010537 011537 011537	015750		THIS REAND "T	TE THE CO O = NO +1 = KW1 O +1 =	CLOCK TYPE. CLOCK 1-P 11-L IILL ALSO SETUP TIME PER CLOCK PC.ST.CLK CLKSTA HERTZ #'P.RO C\$CLCK RO.R5 1\$ CLOCK P-TABLE & R5.PCLKTB (R5).PKCS	"TICKMS" (TIME PER CLOCK TICK IN MILLISECONDS) TICK IN MICROSECONDS) AS PER LINE FREQUENCY.  ¡START THE CLOCK  ¡ASSUME "NO CLOCK" ¡ASSUME "UNKNOWN" HERTZ ¡IS THERE A P-CLOCK PRESENT ?  ¡GO TO 1\$ IF NO  START P-CLOCK ¡SAVE P-CLOCK TABLE ADDRESS ¡GET 'CSR' ADDRESS
87 88 89 90 91 92 93 94 95 96 97 98 015550 99 015554 100 101 015560 015564 015566 102 103 015570 104 105 106 107 015572 108 015576 109 015602 110 015606	005037 012700 104462 010005 103031 010537 011537 011537 062737	015750 000120 015724 015726 015730 000002	015730	THIS REAND "T	TE THE CO O = NO	CLOCK TYPE. CLOCK 1-P 11-L IILL ALSO SETUP TIME PER CLOCK PC.ST.CLK  CLKSTA HERTZ  #'P.RO C\$CLCK RO.R5  1\$  CLOCK P-TABLE 6 R5.PCLKTB (R5).PKCS (R5).PKB	"TICKMS" (TIME PER CLOCK TICK IN MILLISECONDS) TICK IN MICROSECONDS) AS PER LINE FREQUENCY.  ¡START THE CLOCK  ¡ASSUME "NO CLOCK" ¡ASSUME "UNKNOWN" HERTZ ¡IS THERE A P-CLOCK PRESENT ?  ¡GO TO 1‡ IF NO  E START P-CLOCK ¡SAVE P-CLOCK TABLE ADDRESS ¡GET 'CSR' ADDRESS ¡MAKE PKB ADDRESS BY
87 88 89 90 91 92 93 94 95 96 97 98 015550 99 015554 100 101 015560 015564 015566 102 103 015570 104 105 106 107 015572 108 015576 109 015602 110 015606 111 015614	005037 012700 104462 010005 103031 010537 011537 062737 012537	015750 000120 015724 015726 015730 000002 015732		THIS REAND "T	TE THE CO O = NO +1 = KW1 -1 = KW1 OUTINE WILL OUT WIL	CLOCK TYPE. CLOCK 1-P 11-L VILL ALSO SETUP TIME PER CLOCK PC.ST.CLK  CLKSTA HERTZ  O'P.RO CCCLCK RO.RS  1\$ CLOCK P-TABLE (RS).PKCS (RS).PKB (RS)+.PKC	"TICKMS" (TIME PER CLOCK TICK IN MILLISECONDS) TICK IN MICROSECONDS) AS PER LINE FREQUENCY.  ¡START THE CLOCK  ¡ASSUME "NO CLOCK" ¡ASSUME "UNKNOWN" HERTZ ¡IS THERE A P-CLOCK PRESENT ?  ¡GO TO 1\$ IF NO  START P-CLOCK ¡SAVE P-CLOCK TABLE ADDRESS ¡GET 'CSR' ADDRESS
87 88 89 90 91 92 93 94 95 96 97 98 015550 99 015554 100 101 015560 015564 015566 102 103 015570 104 105 106 107 015572 108 015576 109 015602 110 015606	005037 012700 104462 010005 103031 010537 011537 011537 062737	015750 000120 015724 015726 015730 000002	015730 015732	THIS REAND "T	TE THE CO O = NO +1 = KW1 -1 = KW1 OUTINE WILL OUT WIL	CLOCK TYPE. CLOCK 1-P 11-L VILL ALSO SETUP TIME PER CLOCK PC.ST.CLK  CLKSTA HERTZ  #'P.RO C\$CLCK RO.R5  1\$ CLOCK P-TABLE 6 R5.PCLKTB (R5).PKCS (R5).PKB #2.PKB	"TICKMS" (TIME PER CLOCK TICK IN MILLISECONDS) TICK IN MICROSECONDS) AS PER LINE FREQUENCY.  ;START THE CLOCK  ;ASSUME "NO CLOCK" ;ASSUME "UNKNOWN" HERTZ ;IS THERE A P-CLOCK PRESENT ?  ;GO TO 1\$ IF NO  START P-CLOCK ;SAVE P-CLOCK TABLE ADDRESS ;GET 'CSR' ADDRESS ;MAKE PKB ADDRESS BY ;ADDING 2

114 115 116 117 118	015626 015630 015634 015640 015646 015652 015654	005725 012537 012537 012737 004737 000207	015734 015750 000001 015752	002426	18:	MOV MOV MOV JSR RTS	(R5)+ (R5)+,PKV (R5)+,HERTZ #1,CLKSTA PC,ST.PCLK PC	;SKIP OVER 'BR LEVEL' ;GET 'VECTOR' ADDRESS ;GET 'HERTZ' LINE FREQUENCY ;SET P-CLOCK FLAG ;START P-CLOCK AS A WATCH DOG TIMER ;IS THERE A L-CLOCK PRESENT ?
120	015654 015660 015662	012700 104462 010005	000114		•••	MOV TRAP MOV	#'L.RO C\$CLCK RO.R5	
121	015664	103016				всс	2\$	;GO TO 2\$ IF NO
123 124 125						;SET L-	CLOCK P-TABLE,	START L-CLOCK
126 127 128 129 130 131 132	015666 015672 015676 015700 015704 015710 015716 015722	010537 012537 005725 012537 012537 012737 004737 000207	015740 015742 015744 015750 177777 016016	002426	21:	MOV TST MOV MOV MOV JSR RTS	R5,LCLKTB (R5)+,LKS (R5)+ (R5)+,LKV (R5)+,HERTZ #-1,CLKSTA PC,ST.LCLK PC	SAVE L-CLOCK TABLE ADDRESS GET 'CSR' ADDRESS SKIP OVER 'BR LEVEL' GET 'VECTOR' ADDRESS GET 'HERTZ' LINE FREQUENCY L-CLOCK FLAG START L-CLOCK AS A WATCH DOG TIMER
135					;KW11-P	CLOCK 1	ABLE, CSR REG.	PKB REG, PKC REG & VEC ADR
136 137	015724	000000			PCLKTB:	. WORD	0	P-CLK TBL ADR
140	015726 015730 015732 015734	172540 172542 172544 000104	000106		PKCS: PKB: PKC: PKV:	. WORD . WORD . WORD	172540 172542 172544 104,106	CONTROL & STATUS COUNT SET BFR COUNTER VECTOR
144					;KW11-L	CLOCK 1	ABLE. CSR REG &	VEC ADR
145 146 147	015740	000000			LCLKTB:	. WORD	0	:L-CLK TBL ADR
148	015742 015744	177546 000100	000102		LKS: LKV:	. WORD	177546 100,102	CONTROL & STATUS
150		000000			HERTZ:	. WORD	0	:60 HZ. OR 50 HZ. LINE FREQUENCY
154 155 156	015752 015752 015756 015762 015766 015772 015774 016000 016006	012746 012746 013746 012746 104437 062706 012777	000300 016104 015734 000003 000010 000001 000115	177722 177712	ST.PCLK	MOV MOV MOV MOV TRAP ADD MOV MOV	#PRIO6,-(SP) #KWSRV,-(SP) PKV,-(SP) #3,-(SP) C#SVEC #10,SP #1,@PKB #115,@PKCS	SETUP VECTOR FOR P-CLOCK  COUNT ONE TICK "INT.EN.".COUNT DOWN". "MODE 1 (REPEAT)".
	016014	000207			14:	RTS	PC	"LINE FREQ", AND "RUN"
	016016 016016 016022	012746 012746	000300 016104		ST.LCLK		#PRIO6,-(SP)	SETUP VECTOR FOR L-CLOCK

```
016026 013746 015744
                                          MOV
                                                  LKV, -(SP)
   016032 012746
                   000003
                                          MOV
                                                  43. - (SP)
   016036
           104437
                                          TRAP
                                                  C$SVEC
   016040
                                                  410, SP
           062706
                   000010
                                          ADD
162 016044
           012777
                   000100 177670
                                          MOV
                                                  #100, BLKS
                                                                  START THE KW11-L
163 016052
           000207
                                   18:
                                          RIS
                                                                  RETURN
164
165
                                   ITHIS ROUTINE IS USED TO STOP THE SYSTEM CLOCK
166
                                   : CALL
167
                                           JSR
                                                  PC.STOPCK
                                                                  :CALL ROUTINE
168
                                   STOPCK: TST
169 016054
           005737
                                                                  IS THERE A CLOCK AVAILABLE ?
                   002426
                                                  CLKSTA
170 016060
           001410
                                          BEQ
                                                  2$
                                                                  BR IF NO
                                                                  BR IF L-CLOCK
171 016062
           100404
                                          BMI
172 016064
           042777
                   000101 177634
                                          BIC
                                                  #101, 8PKCS
                                                                  STOP THE P-CLOCK
           000403
173 016072
                                          BR
                                                  2$
174 016074
           042777
                   000100 177640
                                          BIC
                                                  4100. BLKS
                                   1$:
                                                                  :STOP THE L-CLOCK
175 016102
           000207
                                          RTS
                                   21:
176
177
                                   KW11 CLOCK INTERRUPT SERVICE ROUTINE
178
180 016104
           012746
                   000024
                                                  #20.,-(SP)
HERTZ,#50.
                                   KWSRV:
                                          MOV
                                                                  : ASSUME 20.0 MSEC
           023727
181 016110
                   015750
                           000062
                                                                  IS IT 50 HERTZ LINE FREQUENCY ?
                                          CMP
182 016116
           001402
                                           BEQ
                                                                  BR IF YES
           012716
                                                  #16.,(SP)
183 016120
                   000020
                                          MOV
                                                                  MUST BE 60HZ, 16.667 MSEC
184 016124
           162637
                   016776
                                           SUB
                                                  (SP) . WATIME
                                                                  SUBTRACT TIME PER TICK IN MILLISECONDS
185 016130
                                   L10006:
    016130
           000002
                                          RTI
187
                                   188
                                   THIS MODULE IS USED TO DECODE THE CONTENTS OF RPER2 AND PRODUCE A MODULE
189
                                   FAULT LIST BASED ON THE CONTENTS OF RPER2. INPUT IS FROM RPER2 (LOW BYTE)
190
                                   OUTPUT IS TO ERRIDI AND ERRIDE. TABLE LOOKUP IS DONE STARTING AT EC.OO.
191
                                   ::
192
193 016132 010146
                                                  R1,-(SP)
                                   CALMOD: MOV
                                                                  SAVE R1
194 016134
           010246
                                                  R2, -(SP)
                                           MOV
                                                                  : SAVE R2
195 016136
                                                  BRPER2,R2
           017702
                   164410
                                           MOV
                                                                  GET THE CONTENTS OF RPER2
196 016142
                                                  €C.00,R1
                                                                  IGET THE TOP OF THE CALLOUT LIST
           012701
                   004354
                                           MOV
197 016146
           042702
                   177400
                                                                  ISTRIP THE HIGH BYTE INFORMATION
                                           BIC
                                                  #177400.R2
198 016152
           001005
                                           BNE
                                                                  : IF NOT ZERO, IT'S VALID
199 016154
           005037
                   002404
                                           CLR
                                                  ERRWD1
                                                                  ISET THE CALLOUT LIST TO O
200 016160
           005037
                   002406
                                           CLR
                                                  ERRWD2
                                                                  FOR BOTH (THIS ERROR CODE IS BAD)
201 016164
           000407
                                                                  NOW TAKE THE RETURN
202 016166
           022121
                                   18:
                                           CMP
                                                  (R1)+,(R1)+
                                                                  MOVE THROUGH THE LIST
203 016170
           005302
                                           DEC
                                                                  ONE LESS ENTRY TO GO
                                                  R2
204 016172
           003375
                                                                  DO UNTIL R2 = 0 LOAD THE MODULE CALLOUT FOR THIS CODE
                                           BGT
           012137
205 016174
                                           MOV
                                                   (R1)+, ERRWD1
                   002404
206 016200
           011137
                   002406
                                           MOV
                                                  (R1), ERRWD2
                                                                  FOR BOTH MASKS
207 016204
           012602
                                   26:
                                           MOV
                                                  (SP) . R2
                                                                  RESTORE R2
208 016206
                                                                  RESTORE RI
                                                  (SP)+,R1
           012601
                                           MOV
209 016210
           000207
                                           RTS
                                                                  AND RETURN TO CALLER
210
211
                                   212
                                   THIS MODULE IS PART OF THE I/O SUPPORT. IT IS USED TO DUMP THE RP-07 REGISTERS AS PART OF AN ERROR MESSAGE. INPUT TO THIS MODULE IS FROM
213
                                   REG - REG+52. OUTPUT IS TO THE USED SPECIFIED PRINTING DEVICE.
```

215 216	::	******	• • • • • • • •	*****	*****	• • • • • • • •	*****	*****	
217 016212	DMPREG:	PRINT	DRIVE	RPCS1	RPWC	RPBA	RPDA	RPCS2	RPDS'
218 016212 012746 010337	MOV #FRMT40,-(SP)								
016216 012746 000001	MOV #1(SP)								
016222 010600 016224 104415	MOV SP.RO TRAP CIPNTX								
016226 062706 000004	ADD #4.SP								
219 016232 013746 002610	MOV REG+12,-(SP)								
016236 013746 002606	MOV REG+10,-(SP)								
016242 013746 002604 016246 013746 002602	MOV REG+6,-(SP) MOV REG+4,-(SP)								
016252 013746 002600	MOV REG-2,-(SP)								
016256 013746 002576	MOV REG (SP)								
016262 013746 002506	MOV DRVNO, -(SP)								
016266 012746 010430 016272 012746 000010	MOV #FRMT41,-(SP) MOV #10,-(SP)								
016276 010600	MOV SP.RO								
016300 104415	TRAP CSPNTX								
016302 062706 000022	ADD #22,SP								
220 221 016306 012746 010510	MOV #FRMT50, -(SP)	PRINT	'RPER1	RPAS	RPLA	RPDB	RPMR1	RPDT	RPSN'
016312 012746 000001	MOV #1,-(SP)								
016316 010600	MOV SP,RO								
016320 104415	TRAP CIPNTX								
016322 062706 000004 222 016326 013746 002626	ADD #4.SP MOV REG+30,-(SP)								
016332 013746 002624	MOV REG+26(SP)								
016336 013746 002622	MOV REG+24,-(SP)								
016342 013746 002620 016346 013746 002616	MOV REG+22, -(SP)								
016346 013746 002616 016352 013746 002614	MOV REG+20,-(SP) MOV REG+16,-(SP)								
016356 013746 002612	MOV REG+14(SP)								
016362 012746 010601	MOV #FRMT51,-(SP)								
016366 012746 000010 016372 010600	MOV #10,-(SP) MOV SP,RO								
016374 104415	TRAP CSPNTX								
016376 062706 000022	ADD #22,SP								
223	MOU AFRICA (CO.)	PRINT	'RPOF	RPDC	RPCC	RPER2	RPER3	RPEC1	RPEC2'
224 016402 012746 010661 016406 012746 000001	MOV #FRMT60,-(SP) MOV #1,-(SP)								
016412 010600	MOV SP, RO								
016414 104415	TRAP CIPNTX								
016416 062706 000004 225 016422 013746 002644	ADD 44,SP								
225 016422 013746 002644 016426 013746 002642	MOV REG+46,-(SP)								
016432 013746 002640	MOV REG+42,-(SP)								
016436 013746 002636	MOV REG+40,-(SP)								
016442 013746 002634 016446 013746 002632	MOV REG+36,-(SP)								
016452 013746 002630	MOV REG+34,-(SP) MOV REG+32,-(SP)								
016456 012746 010753	MOV #FRMT61, -(SP)								
016462 012746 000010	MOV #10,-(SP)								
016466 010600 016470 104415	MOV SP.RO TRAP CIPNTX			77					
016472 062706 000022	ADD #22.SP								
226 016476 005737 002504	TST RHTYPE	IS IT	RH70 C	ONTROLLE	ER ?				

227	016502	001424				BEQ	1\$		NO RPBAE	RPCS3
229	016504 016510 016514	012746 012746 010600	011035 000001			MOV MOV MOV	#FRMT70(SP) #1(SP) SP.RO	TENTINI	REBRE	RFC33
230	016516 016520 016524	104415 062706 013746	000004 002650			ADD MOV	C\$PNTX #4.SP REG+52(SP)			
	016530 016534 016540	013746 012746 012746	002646 011055 000003			MOV MOV MOV	REG+50,-(SP) #FRMT71,-(SP) #3,-(SP)			
	016544	010600				TRAP	SP.RO C#PNTX			
231	016550 016554	062706	000010	1	\$:	ADD RTS	PC PC			

.

```
THIS MODULE IS USED TO PRINT THE MODULE FAULT LIST TO THE USER. IT
                                  IS PART OF THE I/O SUPPORT USED WHEN AN ERROR MESSAGE IS PRODUCED.
                                  INPUT IS SET UP BY 'DECODE' SO THAT R2 IS THE LIST POINTER. OUTPUT IS
                                  ; TO THE USER SPECIFIED PRINTING DEVICE.
                                  9 016556
                                  FAULTS:
                                          MOV
  016556
          012746 007273
                                                  OFLSTOO, -(SP)
  016562
          012746
                  000001
                                          MOV
                                                  #1,-(SP)
  016566
          010600
                                          MOV
                                                  SP.RO
                                                  C$PNTB
   016570
          104414
                                          TRAP
   016572
          062706
                  000004
                                          ADD
                                                  44.SP
                                                  R1,-(SP)
                                                                  : PUSH R1 ON STACK
10 016576
          010146
                                          MOV
          012701
                  000015
11 016600
                                          MOV
                                                  #13.,R1
                                                                  GET THE ITERATION COUNT
12 016604
                                  1$:
   016604
          012246
                                          MOV
                                                  (R2)+,-(SP)
                                                  #FLSTO1.-(SP)
#2.-(SP)
SP.RO
C#PNTB
   016606
          012746
                  007312
                                          MOV
  016612
          012746
                  000002
                                          MOV
  016616
          010600
                                          MOV
  016620
          104414
                                          TRAP
          062706
  016622
                  000006
                                          ADD
                                                  46.SP
13 016626
          005712
                                          TST
                                                  (R2)
                                                                  : MORE DATA?
14 016630
          001402
                                                                  :IF ZERO, NO! :ONE LESS ITERATION TO-GO
                                          BEQ
                                                  2$
15 016632
          005301
                                          DEC
                                                  R1
16 016634
          003363
                                          BGT
                                                                  :DO UNTIL = 0, OR (R2) = 0
                                                  1$
17 016636
                                                                  : CR-LF
                                  21:
18 016636
                                                  #CRLF, -(SP)
          012746 006420
                                          MOV
  016642
          012746
                  000001
                                                  #1.-(SP)
                                          MOV
   016646
          010600
                                          MOV
                                                  SP.RO
                                                  C$PNTB
   016650
          104414
                                          TRAP
  016652
          062706
                                                  44.SP
(SP).R1
                  000004
                                          ADD
          012601
19 016656
                                          MOV
                                                                  ::POP STACK INTO R1
20 016660
          000207
                                          RTS
                                                                  AND RETURN TO CALLER
```

```
:THIS MODULE DOES THE SEIZE OPERATION IN THE EVENT THAT
                              A GIVEN DRIVE IS DUAL PORTED.
                              THERE ARE NO SIDE EFFECTS
                              016662
         052777
                000040
                       163632
                             SEIZE: BIS
                                            OCLR. ORPCS2
                                                          START OUT WITH A CLEARED CONTROLLER
10 016670
         013777
                002506
                       163624
                                     MOV
                                           DRVNO, BRPCS2
                                                          RELOAD THE DRIVE NUMBER
                163622
11 016676
         105777
                                     TSTB
                                            BRPDS
                                                         IS THIS DRIVE SEIZED BY ANOTHER PORT?
12 016702
         100424
                                            3$
                                                          INO. JUST TAKE RETURN
                                     BMI
13 016704
                163614
                                            BRPDS
         005077
                                     CLR
                                                          ISSUE A DRIVE REQUEST
14 016710
         010246
                                     MOV
                                           R2, -(SP)
                                                          : SAVE R2
15 016712
         012702
                000012
                                     MOV
                                                          :LOAD R2 WITH AN OVERALL ITERATION COUNT
                                            #10.,R2
         105777
16 016716
                163602
                              18:
                                     TSTB
                                            BRPDS
                                                          NOW WAIT FOR THE OTHER PORT TO RELEASE
  016722
         100410
                                                          :NOT YET IF RPDS:DRY = 0
                                     BMI
         004737
18 016724
                017000
                                            PC.WAIT
                                     JSR
19 016730
         005302
                                     DEC
                                            R2
                                                          : AND REDUCE THE ITERATION COUNT
20 016732
         001371
                                     BNE
                                                          :LOOK AGAIN FOR DRIVE PRESENT
21 016734
         104455
                                     TRAP
                                            C$ERDF
  016736
         000001
                                     . WORD
                                     . WORD
  016740
         013266
                                            EM27
  016742
         000000
                                     . WORD
                                            4377, 8RPAS
22 016744
         112777
                000377 163556
                                                          :CLEAR ANY UNWANTED ATTENTION BITS
                              21:
                                     MOVB
23 016752
         012602
                                     MOV
                                            (SP)+.R2
                                                          RESTORE R2
24 016754
         000207
                                     RTS
                              31:
                                                          AND TAKE RETURN
25
26
27
                              THIS MODULE IS USED TO WAIT FOR THE SPECIFIED TIME IN MILLISECONDS
28
                              : CALL
29
                                     MOV
                                            MUMBER, -(SP)
                                                         INUMBER IN MILLISECONDS TO WAIT
                                     JSR
                                            PC. WAITMS
                                                          :CALL WAIT ROUTINE
31
32
                              NOTE: THE SHORTEST WAIT CANNOT BE LESS THAN 16.66MS
33
34
                              35
  016756
                000002 016776
                              WAITHS: MOV
         016637
                                            2(SP), WATIME
                                                          GET WAIT TIME IN MILLISECONDS
37 016764
         005737
                016776
                              14:
                                     TST
                                            WATIME
                                                          DONE WITH WAIT YET ?
38 016770
         003375
                                     BGT
                                                          BR IF NO
39 016772
         012616
                                            (SP)+,(SP)
                                     MOV
                                                          ADJUST RETURN ADDRESS ON STACK
40 016774
         000207
                                     RTS
                                                          NOW RETURN TO MAIN
42 016776 000000
                              WATIME: . WORD
                                                          WAIT TIME GOES HERE
43
44
45
                              THIS MODULE IS USED TO STALL IN LOOPS WHICH MUST WAIT FOR THE
46
                              RPO7 MICROPROCESSORS. THE WAIT IS A FIXED TIME PERIOD. AND
47
                              CANNOT BE CHANGED DYNAMICALLY. THERE ARE NO SIDE EFFECTS.
48
                              50 017000
                              WAIT:
  017000
         012727
                000372
                                     MOV
                                            #250.,(PC)+
  017004
         000000
                                     . WORD
  017006
         013727
                002116
                                            L#DLY.(PC)+
                                     MOV
  017012
         000000
                                     . WORD
```

```
017014 005367
                   177772
                                           DEC
                                                   -6(PC)
           001375
   017020
                                           BNE
                                                   . -4
   017022
           005367
                   177756
                                           DEC
                                                   -22(PC)
   017026
           001367
                                           BNE
                                                   -20
51 017030
           000207
                                           RTS
                                                                   NOW RETURN TO MAIN
53
54
55
56
57
                                   THIS MODULE DOES SOME OF THE ERROR CHECKING WHICH MUST OCCUR AS A
                                   RESULT OF ANY DATA TRANSFER. THE MODULE CHECKS SC. TRE, AND MCPE IN
                                   RPCS1, AND CHECKS ERR IN RPDS. IF ERRORS ARE DETECTED, "ERSTAT" IS
                                   :SET TO -1, OTHERWISE "ERSTAT" = 0. THERE ARE NO OTHER SIDE EFFECTS.
58
59
60 017032
           005037
                   002466
                                   ERRCK:
                                                   ERSTAT
                                                                   START OUT WITHOUT ERRORS!
                                           CLR
61 017036
           032777
                   040000
                           163460
                                           BIT
                                                   <del>ØERR. BRPDS</u></del>
                                                                   COMPOSITE ERROR?
62 017044
           001415
                                           BEQ
                                                                   :NOT IF O!
                   002524
63 017046
           013737
                           002456
                                                   RPDS, TESTRG
                                           MOV
                                                                   GET THE FAILING REGISTER
                   163444
002452
64 017054
                           002452
                                                                   AND THE FAILING DATA
           017737
                                                   BRPDS, RCVED
                                           MOV
                           002454
65 017062
           013737
                                           MOV
                                                   RCVED. EXPTED
                                                                   NOW FORM THE EXPECTED DATA
66 017070
                   040000
           042737
                           002454
                                                                   BY CLEARING THE CORRECT BIT
                                           BIC
                                                   #ERR.EXPTED
67 017076
           000420
                                                                   NOW, GO-ON
68 017100
           032777
                   160000
                           163404 14:
                                                   #SC!TRE!MCPE, @RPCS1;DID WE GET ANY ERRORS?
                                           BIT
69 017106
           001417
                                           BEQ
                                                                   ; IF ZERO, NO!
70 017110
           013737
                   002512
                           002456
                                                   RPCS1. TESTRG
                                                                   GET THE FAILING REGISTER
                                           MOV
71 017116
                   163370
                           002452
                                                                   AND THE FAILING DATA
           017737
                                           MOV
                                                   SRPCS1.RCVED
                   002452
72 017124
           013737
                           002454
                                           MOV
                                                   RCVED. EXPTED
                                                                   NOW FORM THE EXPECTED DATA
73 017132
           042737
                   160000
                           002454
                                                   #SC!TRE!MCPE.EXPTED:BY CLEARING THE CORRECT BITS!
                                           BIC
74 017140
           012737
                   177777
                           002466
                                   24:
                                                   #-1.ERSTAT
                                           MOV
                                                                   SHOW THE ERROR STATUS
75 017146
           000207
                                           RTS
                                                                   RETURN TO MAIN
 76
77
                                   THIS MODULE DOES THE DATA LOGGING IN THE EVENT OF A DATA BUFFER MISCOMPARE. THE ADDRESS "RPDB" IS LOADED INTO "TESTRG", THE
78
79
                                   CORRECTED CONTENTS OF "RPBA" ARE USED TO POINT TO THE EXPECTED DATA IN "EXPTED".
81
                                   AND THE CONTENTS OF "RPDB" ARE LOADED INTO THE RECEIVED DATA "RCVED".
82
                                   THERE ARE NO OTHER SIDE EFFECTS.
83
                                   85 017150
          010246
                                                   R2,-(SP)
                                   LOCATE: MOV
                                                                   SAVE R2
 86 017152
           017702
                   163340
                                                                   GET THE ADDRESS OF THE EXPECTED DATA
                                           MOV
                                                   SRPBA, R2
87 017156
           162702
                   000002
                                                   #2,R2
                                                                   : AND CORRECT IT
                                           SUB
88 017162
           005737
                   002504
                                           TST
                                                   RHTYPE
                                                                   WHICH CONTROLLER??
89 017166
           001422
                                                                   IT'S AN RH11 IF O!
                                           BEQ
90 017170
           032777
                   004000
                           163366
                                                   #BIT11.BRPCS3
                                           BIT
                                                                   IS IT AN EVEN WORD TRANSFER?
91 017176
           001402
                                                                   INO. IT IS NOT. IF O!
                                           BEQ
92 017200
           162702
                   000004
                                                                   : CORRECT IT!
93 017204
                           163352 14:
                                                   MBIT10, BRPCS3
           032777
                   002000
                                           BIT
                                                                   IS IT A DOUBLE WORD TRANSFER?
94 017212
           001402
                                           BEQ
                                                                   :IF ZERO, NO!!
95 017214
                                                                   CORRECT FOR A DOUBLE WORD TRANSFER
           162702
                   000002
                                                   #2.R2
96 017220
           032777
                                                   #BIT12, BRPCS3
                   010000
                           163336
                                   21:
                                           BIT
                                                                   IS IT AN ODD WORD TRANSFER?
97 017226
           001402
                                                                   IF ZERO, NO!
                                           BEQ
                                                   3$
98 017230
           162702
                   200000
                                           SUB
                                                   #2,R2
                                                                   CORRECT FOR ODD WORD
99 017234
                   002454
           011237
                                   34:
                                           MOV
                                                   (R2), EXPTED
                                                                   GET THE ACTUAL DATA
100 017240
           017737
                   163270
                           002452
                                           MOV
                                                   SRPDB, RCVED
                                                                   AND FAILING DATA
101 017246
           012602
                                           MOV
                                                                   NOW RESTORE R2
                                                   (SP)+,R2
102 017250
           000207
                                           RTS
                                                                   AND RETURN TO MAIN
103
```

104 105 106 107 108 109 110	; INITIALLY IS ; THE DUMP ROU ; LOW BYTE ARC ; DUMPS THE RO	IS USED FOR AN S N - 1 FOR THE UTINE, AND R1, GUMENT IN R4, PO7 ERROR LOG.	ERROR LOG DUMP. IT IS FED BY R1, WHICH E ROUTINE TO BE SELECTED. R4 IS USED FOR AFTER BEING INCREMENTED IS USED AS THE THIS MODULE IS CALLED BY THE TEST WHICH
112 017252 040104 113 017254 005201 114 017256 050104 115 017260 004737 015352 116 017264 000207	NEXLOC: BIC INC BIS JSR RTS	R1.R4 R1.R4 PC.DIAGLD PC	:TAKE THE PREVIOUS ARGUMENT FROM R4 :GET THE NEXT RAM ADDRESS :NOW LOAD THE ARGUMENT INTO R4 :R4 IS USED TO LOAD THE DIAGNOSTIC ROUTINE :NOW TAKE THE RETURN

```
THIS MODULE CONTROLS SPIRAL READS OR WRITES. IT INCREMENTS THE DESIRED TRACK ADDRESS UNTIL IT IS READY TO OVERFLOW INTO AN ILLEGAL ADDRESS. WHEN THIS IS READY TO HAPPEN, THE DESIRED TRACK IS SET TO ZERO, AND THE DESIRED CYLINDER ADDRESS IS INCREMENTED. THE TERMINAL STATE IS REACHED WHEN THE DESIRED CYLINDER IS ABOUT TO OVERFLOW, AND THE DESIRED TRACK IS ALSO ABOUT TO OVERFLOW. WHEN THIS HAPPENS, THE DESIRED TRACK ADDRESS
 23
 5
 6
                                   IS RESET TO O. THE CALLING MODULE MUST DETECT WHEN THIS CONDITION
 9
                                    OCCURS. VARIABLES: DESCYL, AND DESTRK ARE AFFECTED BY THIS MODULE.
10
                                   THIS MODULE IS AFFECTED BY THE VALUE IN "LASTRK", WHICH REPRESENTS
11
12
13
14
                                    THE LAST USER TRACK, AND BY LASCYL, WHICH REPRESENTS THE LAST USER
                                    CYLINDER ADDRESS ON THE DRIVE. LASCYL DOES NOT INCLUDE ANY DIAGNOSTIC
                                    FE CYLINDER ADDRESSING.
                                    15
16 017266
                   002415 002372 SPIRAL: CMPB
                                                    DESTRK+1, LASTRK ; TRACK COUNT AT MAX?
           123737
17 017274
           103003
                                            BHIS
                                                                    IF HIGHER OR SAME, YES!
           105237
18 017276
                   002415
                                            INCB
                                                    DESTRK+1
                                                                    NEXT TRACK PLEASE ...
           000410
19 017302
                                            BR
                                                                    : AND RETURN
20 017304
           023737
                   002416 002376
                                            CMP
                                                    DESCYL, LASCYL
                                   18:
                                                                    :LAST CYLINDER ADDRESS?
21 017312
           101002
                                            BHI
                                                                    YES, WE ARE ABOUT TO OVERFLOW!!
21 017312
22 017314
23 017320
24 017324
25
26
27
28
29
30
31
           005237
                                                                    NEXT CYLINDER ADDRESS PLEASE ....
                   002416
                                            INC
                                                    DESCYL
           105037
                   002415
                                   21:
                                            CLRB
                                                                    RESET THE TRACK ADDRESS TO O
                                                    DESTRK+1
           000207
                                    34:
                                            RTS
                                                                    :NAD TAKE THE RETURN
                                    THIS MODULE CREATES AN IMAGE OF THE RP REGISTERS.
                                    IT IS USED TO SAVE THE REGISTERS FOR AN ERROR DUMP AFTER
                                    AN ERROR IS DETECTED. CALL IS JSR PC. SAVRPR
                                    THE OUTPUT OF THIS MODULE LOADS A BUFFER CALLED "REG"
                                    32
33 017326 010046
                                   SAVRPR: MOV
                                                    RO, -(SP)
34 017330
           010146
                                                    R1,-(SP)
                                            MOV
35 017332
           012700
                   002512
                                            MOV
                                                    ORPCS1.RO
                                                                    AND THE TRANSFER ADDRESSES
36 017336
           012701
                   002576
                                            MOV
                                                    MREG,R1
                                                                    OF THE SOURCE AND REG BUFFERS
37 017342
           013021
                                   18:
                                            MOV
                                                    a(RO)+,(R1)+
                                                                    NOW LOG THE DATA
38 017344
           022700
                   002562
                                                    ORPBAE . RO
                                                                    ARE WE AT THE LIMIT?
                                            CMP
39 017350
           101374
                                            BHI
                                                                    DO UNTIL ALL RHXX REGISTERS ARE LOGGED
40 017352
           005737
                   002504
                                                    RHTYPE
                                            TST
41 017356
           001402
                                            BEQ
42 017360
           013021
                                            MOV
                                                    8(R0)+,(R1)+
                                                                    GET THE CONTENTS OF RPBAE
43 017362
           013021
                                            MOV
                                                    8(RO)+,(R1)+
                                                                    GET THE CONTENTS OF RPCS3
44 017364
           012601
                                   21:
                                            MOV
                                                    (SP)+,R1
                                                    (SP)+,R0
45 017366
           012600
                                            MOV
46 017370
           000207
                                           RTS
                                                                    RETURN TO MAIN FOR ERROR REPORT
47
48
                                   49
                                   THE FOLLOWING THREE MODULES ARE USED TO FORM UP EXPECTED VS RECEIVED DATA
50
51
52
53
54
55
56
57
                                   FOR TWO TYPES OF CASES. THE FIRST IS WHEN THE PROGRAM TRIES TO SET A BIT
                                    AND THE BIT FAILS TO SET, AND THE SECOND IS WHEN THE BIT FAILS TO CLEAR.
                                    THE FORMER CASE IS HANDLED BY "BISEXP" AND THE LATTER BY "BICEXP"
                                    BOTH "BISEXP" AND "BICEXP" CALL "REGSET" TO PERFORM SOME PRELIMINARY
                                   DATA SETUP. BOTH MODULES "BISEXP" AND "BICEXP" AFFECT THE FOLLOWING: "TESTRG", "EXPTED", "RCVED".
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58 017372 59 017376 60 017402 61 017406 62 017414 63 017420	017602 004737 062716 057637 062716 000207	000000 017452 000002 000000 000002	002454	BISEXP:	:MOV JSR ADD BIS ADD RTS	a(SP),R2 PC,REGSET #2,(SP) a(SP),EXPTED #2,(SP) PC	GET THE POINTER TO THE FAILING REG. GO LOAD RESULTS MOVE THE POINTER TO GET THE BIT MASK SET EXPECTED BIT WHICH FAILED MOVE THE POINTER FOR A RETURN RETURN
65 017422 66 017426 67 017432 68 017436 69 017444 70 017450	004737 062716 047637 062716	000000 017452 000002 000000 000002	002454	BICEXP:	MOV JSR ADD BIC ADD RTS	a(SP),R2 PC,REGSET #2,(SP) a(SP),EXPTED #2,(SP) PC	GET THE POINTER TO THE FAILING REG. GO LOAD RESULTS MOVE THE POINTER TO GET THE MASK CLEAR EXPECTED BIT WHICH FAILED MOVE THE POINTER TO TAKE A RETURN NOW TAKE THE RETURN
72 017452 73 017456 74 017460 75 017464 76 017472	011202 011237 013737 000207	002452 002452	002454		MOV MOV MOV MOV RTS	(R2), TESTRG (R2), R2 (R2), RCVED RCVED, EXPTED PC	GET THE FAILING REGISTER
78 79 80 81 82 83 84 85 86 87 88				: THIS M : TO BY : IS CHE : WHICH : DID NO : THE FA : ADDRES : PASSED : "RCVED	THE STAC CKED AGA SHOULD H T CLEAR, ILING RE S IS MOV TO THE	K WHEN THE MODULINST LOCATION "MINST LOCATION "MINOR CLEARED AFTE AN ERROR MESSAGISTER, FAILING ED OVER THE REGICALLING MODULE.	R CLEAR AND CHECKS THE REGISTER POINTED  E WAS ORIGINALLY CALLED. THE REGISTER  ISK". THE BITS IN MSK = 0 FOR THOSE BITS  IR A CONTROLLER CLEAR. IF THE BITS UNDER TEST  IE IS DISPATCHED BY THIS MODULE, REPORTING  DATA, AND EXPECTED DATA. THE RETURN  ISTER UNDER TEST, AND CONTROLL IS AGAIN  THIS MODULE AFFECTS: "TESTRG", "EXPTED",
90 017474 91 017500 92 017502 93 017506 94 017510 95 017516	005137 010246 017602 011202 052777 033712	002450 000002 000040 002450	163004	RESET:	COM MOV MOV BIS	MSK R2,-(SP) 82(SP),R2 (R2),R2 #CLR,8RPCS2	:SAVE R2 :FORM ADDRESS OF REGISTER UNDER TEST :GOT IT NOW! :SET RPCS2:CLR=1
96 017522 97 017524 98 017530 99 017534 100 017540 101 017546	001415 010237 011237 011237 043737 104456	002456 002454 002452 002450	002454		BIT BEQ MOV MOV MOV BIC TRAP	MSK,(R2) 1\$ R2,TESTRG (R2),EXPTED (R2),RCVED MSK,EXPTED C\$ERHRD	LOOK FOR BIT(S) UNTER TEST TO CLEAR IF OK, SKIP ERROR DISPATCH LOAD THE FAILING ADDRESS AND GET THE FAILING DATA AND SAVE IT NOW FORM THE EXPECTED DATA
017550 017552 017554 102 017556 103 017562 104 017564 105 017570	062716	002450		1#:	. WORD . WORD . WORD COM MOV ADD RTS	5 EM15 ERRO MSK (SP)+,R2 #2,(SP) PC	BITS TO TEST=0 RESTORE R2 MOVE RETURN ADDRESS OVER DATA FIELD RETURN

1 2 3 4 5 6 7 8 9 10 11				:TEST TO :ERROR I :"ILOCK := 1 AN :MODULE	O A ZERO MESSAGE ": WHICH D "MSK" IS CALL TPUT OF	IF THE BITS U IS DISPATCHED IN DETERMINES IF T WHICH CONTAINS T LED, "SNK" SHOULD THIS MODULE IS I	SET-UP LINKAGE, WRITES THE REGISTER-UNDER NOER TEST DO NOT CLEAR AS EXPECTED, AN I THIS MODULE. CONTROL IS DETERMINED BY: THE DEVICE MUST BE POLLED, IE "IR" OR "OR" THE BITS-UNDER-TEST = 0. WHEN THE DEQUAL THE ADDRESS OF THE REGISTER UNDER TEST. IN THREE VARIABLES: "TESTRG", "EXPTED", AND
13 017572 14 017576	005737	002460		LDZERO:	TST BEQ	ILOCK	:POLLED MODE?
15 017600 16 017604 17 017610 18 017614	004737 005077 005737 001402	017672 162630 002460		14:	JSR CLR TST BEQ	PC, IRLOCK asnk ILOCK 2\$	POLL AND WAIT FOR IR TO SET WRITE O'S TO THE REGISTER UNDER TEST POLLED MODE? NOT IF ZERO
19 017616 20 017622 21 017630 22 017636 23 017644 24 017650 25 017656 26 017660 017662 017664	004737 017737 043737 013737 005137 033737 001404 104456 000006 012523	017706 162612 002450 002450 002454 002454	002452 002452 002454 002452	2\$:	JSR MOV BIC MOV COM BIT BEQ TRAP . WORD	PC.ORLOCK  BSNK.RCVED  MSK.RCVED  MSK.EXPTED  EXPTED  EXPTED,RCVED  4\$  C\$ERHRD  6  EM15	OK, POLL FOR OR TO SET GET THE TEST RESULTS STRIP OUT THE UNMANTED BITS GET THE BIT MASK BITS-TO-TEST = 1
017666	014172 000207			46:	.WORD	ERRO PC	RETURN TO MAIN
28 29 30 31 32 33 34				:OF "IR :IS ISS :WILL R	" AGAINS UED IN C ESPOND 1	OLLS "IR" TO EQUA ST A WATCHDOG TIM CASE "IR" NEVER S TO A CONTROL C WH	AL A ONE AT SOME TIME. THE ACTUAL TESTING MER IS NOT DONE HERE, BUT A SUPERVISOR CALL SETS, AND THE DIAGNOSTIC HANGS. THE DIAGNOSTIC MILE IN THIS MODULE.
36 017672 017672 37 017674 38 017702 39 017704	104422 032777 001773 000207	000100	162620	IRLOCK:	TRAP BIT BEQ RTS	C#BRK #IR. BRPCS2 IRLOCK PC	POLL IR IN RPCS2 AND WAIT FOR IT! NOW RETURN TO CALLING SUBROUTINE
41 42 43 44 45 46 47				:OF "OR :IS ISS :WILL R	ODULE PO " AGAINS UED IN O ESPOND 1	ST A WATCHDOG TIN CASE "OR NEVER SE TO A CONTROL C W	TTS FOR IT TO SET. THE ACTUAL TESTING MER IS NOT DONE HERE, BUT A SUPERVISOR CALL ETS, AND THE DIAGNOSTIC HANGS. THE DIAGNOSTIC MILE IN THIS MODULE.
48 017706 017706 49 017710 50 017716 51 017720	104422 032777 001773 000207	000200	162604	ORLOCK:	TRAP BIT BEQ RTS	C#BRK #OR. BRPCS2 ORLOCK PC	POLL OR IN RPCS2 AND WAIT FOR IT! NOW RETURN TO CALLING SUBROUTINE

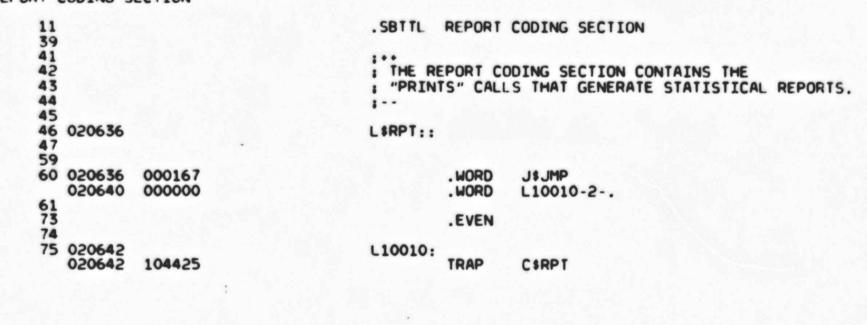
1								
345					A PREL	OAD IS A	N OPERATION WHERE	S BEEN SEIZED, DOES A PRELOAD OF THE DRIVE. EIN THE DRIVE IS SET UP THROUGH USE OF A READ FORMAT 16 = 1. THERE ARE NO SIDE EFFECTS.
10	017722 017726 017734 017742	004737 012777 052777 000207	010000		PRELOD:	JSR MOV BIS RTS	PC.SEIZE #RIP.@RPCS1 #FMT.@RPOF PC	GET THE DRIVE'S ATTENTION SISSUE A READ IN PRESET COMMAND SIGHT THE DRIVE'S ATTENTION SISSUE A READ IN PRESET COMMAND SISSUE A
13 14 15 16 17 18 19 20 21 22 23 24 25 26 26 27 28 28 28 28 28 28 28 28 28 28 28 28 28					IT GET MODULE USED B THE FO THE DA THE OU FORM O TO USE CONTAI THE AD POSSIB	S ITS IN IS INIT Y SOME T LLOWING: ITA PATTE ITPUT OF IF THE BI "MASK" INS THE A DORESS OF ILE ERROR	PUT FROM A TABLE IALLY CALLED. TO ESTS. CONTAINED  1) THE REGISTED RNS TO USE, 4) TO THIS MODULE IS IN THIS MODULE IS IN THIS MODULE IS IN THE CONTAINS DDRESS OF THE DAT THE REGISTER TO CONDITION, "CSTO	SETUP FOR "FLOAT", "LDZERO" AND "CONSET".  POINTED TO BY THE STACK WHEN THE HIS TABLE CONTAINS THE DATA STRUCTURE WITHIN THE DATA STRUCTURES ARE R UNDER TEST, 2) THE BITS UNDER TEST, 3) HE NUMBER OF PATTERNS TO USE. N: "MSK"; WHICH CONTAINS THE COMPLIMENTED PATCNT" WHICH CONTAINS THE NUMBER OF PATTERNS THE NUMBER OF BITS TO TEST, "SRC"; WHICH TA PATTERN TO USE, "SNK"; WHICH CONTAINS TEST, "SCRTMP": WHICH IS LOADED FOR A ORE" WHICH CONTAINS THE CARRY BIT FROM THE TO O, INDICATING THE FIRST OPERATION).
31 32 33 34 35 36 36 36 40 41	017744 017746 017752 017756 017762 017766 017774 020000 020004 020012 020020 020024 020026 020032	010246 005037 017602 012237 013237 013737 012237 011237 017737 013737 005137 012602 062716 000207	002432 000002 002434 002440 002446 002442 162432 002446 002450	002456 002444 002450	SETUP:	MOV CLR MOV MOV MOV MOV MOV MOV COM MOV ADD RTS	R2,-(SP) CSTORE  82(SP),R2 (R2)+,PATCNT 8(R2)+,SNK SNK,TESTRG (R2)+,MASK (R2),SRC 8SRC,SRCTMP MASK,MSK MSK (SP)+,R2 42,(SP) PC	SAVE R2 CLEAN CARRY STORE GET TABLE ADDRESS GET THE # OF PATTERNS TO RUN ADDRESS:REGISTER TO TEST ADDRESS = REGISTER UNDER TEST BITS TO TEST TEST PATTERN BUFFER TO DIDDLE THE BITS GET THE BITS TO STRIP OUT DON'T CARE BITS = 1 RESTORE R2 HODIFY RETURN OVER DATA FIELD RETURN
44 45 46 47 48 49					:UNDER :IT WIL	IODULE GE TEST. I L DISPAT	T IS SETUP THROU CH AN APPROPRIATI ABLES: "MASK".	ICH IS FLOATED THROUGH A SELECTED REGISTER GH THE MODULE "SETUP". IF ERRORS ARE DETECTED. E ERROR MESSAGE. THIS MODULE EFFECTS THE "CSTORE". "SRCTMP", "RCVED". "EXPTED".
51 52 54 55 56	020034 020040 020044 020050 020054 020060	013746 063716 043716 011637 005737 001402	002444 002432 002450 002454 002460		FLOAT:	MOV ADD BIC MOV TST BEQ	SRCTMP,-(SP) CSTORE,(SP) MSK,(SP) (SP),EXPTED ILOCK 1\$	PUT PATTERN ON STACK ADD CARRY FROM LAST ROTATE CLEAR OUT UNWANTED BITS GET THE EXPECTED DATA SHOULD WE POLL IR/OR?? NO. JUST DO THE LOAD FUNCTION
2	020062	004737	017672			JSR	PC.IRLOCK	GO-AHEAD AND POLL FOR IR = 1

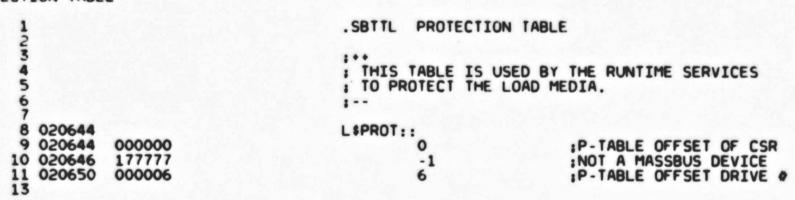
58 0200 59 0200							
59 0200	66 011677	162346		1\$:	MOV	(SP), aSNK	; WRITE DATA TO REG UNDER TEST
		002460			TST	ILOCK	SHOULD WE POLL FOR OR = 1?
60 0200					BEQ	2\$	INO, JUST GET RESULTS
61 0201		017706			JSR	PC.ORLOCK	;OK, POLL FOR OR = 1
62 0201	04 017746	162330		2\$:	MOV	asnk, -(SP)	GET THE RESULTS
63 0201		002450			BIC	MSK,(SP)	STRIP UNWANTED DATA
64 0201		002452			MOV	(SP).RCVED (SP).(SP).	AND SAVE FOR POSSIBLE ERROR REPORT
65 0201					CMP		LOOK FOR MATCH
66 0201					BEQ	5\$	; IF MATCH, SKIP ERROR DISPATCH
67 0201		000002			ADD	#2,(SP)	ERROR, MODIFY RETURN FOR ERROR LOOP
68 0201 69 0201		002446			CLR	MASK	:MASK = 0 FOR PREMATURE EXIT
0201	36 000007				. WORD	C\$ERHRD	
0201	40 012454				WORD	EM14	
0201					WORD	ERRO	
70 0201				45:	RTS	PC	RETURN
71 0201				5\$:	CLC		CARRY = 0
72 0201	50 006137	002446			ROL	MASK	REDUCE THE ITERATION COUNT BY ONE
73 0201	54 000241				CLC		;CARRY = 0
74 0201		002444			ROL	SRCTMP	ROTATE PATTERN
75 0201					BCS	6\$	OBSERVE & SAVE CARRY
76 0201	64 005037	002432			CLR	CSTORE	;CARRY=0
77 0201 78 0201		000001	002472		BR	4\$	RETURN
79 0202		000001	002432	0.	MOV BR	#1.CSTORE	:CARRY = 1 :RETURN
80	000101				DR		INCIONN
81					*****	************	**********************************
82 83 84 85				:THIS M	ODULE DO	DES SOME DATA CO	MPARISON. IF THE DATA DOES NOT MATCH.
83				AN ERR	OR MESSA	AGE AND APPROPRI	ATE DATA ARE REPORTED. VARIABLES AFFECTED ARE:
84				: "PSTAC	K", "TES	STRG", "RCVED",	"EXPTED".
86				;;****	******	**********	*******************************
87 0202	02 010246						
88 0202	04 012702			COMPAD.	MOV	P2 -(CP)	SAVE BO
		002652		COMPAR:	***	R2,-(SP)	SAVE R2
89 0202		002652			***	R2,-(SP) #PSTACK,R2 82(SP),(R2)	SAVE R2 GET THE SOFTWARE PSTACK ADDRESS GET THE ADDRESS OF THE DATA PATTERN TO RUN
89 0202 90 0202	10 017612 14 013242	000002			***	R2,-(SP) #PSTACK,R2 82(SP),(R2) 8(R2)+,-(R2)	SAVE R2 GET THE SOFTWARE PSTACK ADDRESS GET THE ADDRESS OF THE DATA PATTERN TO RUN NOW GET THE DATA PATTERN TO USE
90 0202 91 0202	10 017612 14 013242 16 043712	002652 000002 002450			***	a(R2)+,-(R2) MSK,(R2)	: NOW GET THE DATA PATTERN TO USE : THROW OUT UNUSED DATA
90 0202 91 0202 92 0202	10 017612 14 013242 16 043712 22 011237	002652 000002 002450 002454			***	@(R2)+,-(R2) MSK,(R2) (R2),EXPTED	:NOW GET THE DATA PATTERN TO USE :THROW OUT UNUSED DATA :AND SAVE EXPECTED RESULTS FOR POSSIBLE ERROR
90 0202 91 0202 92 0202 93 0202	10 017612 14 013242 16 043712 22 011237 26 005737	002652 000002 002450 002454 002460			MOV MOV BIC MOV TST	MSK,(R2) (R2),EXPTED ILOCK	; NOW GET THE DATA PATTERN TO USE ; THROW OUT UNUSED DATA ; AND SAVE EXPECTED RESULTS FOR POSSIBLE ERROR ; POLL IR/OR MODE?
90 0202 91 0202 92 0202 93 0202 94 0202	10 017612 14 013242 16 043712 22 011237 26 005737 32 001402	000002 002450 002454 002460			MOV MOV BIC MOV TST BEQ	8(R2)+,-(R2) MSK,(R2) (R2),EXPTED ILOCK 1\$	:NOW GET THE DATA PATTERN TO USE :THROW OUT UNUSED DATA :AND SAVE EXPECTED RESULTS FOR POSSIBLE ERROR :POLL IR/OR MODE? :NO. JUST GO-ON
90 0202 91 0202 92 0202 93 0202 94 0202 95 0202	10 017612 14 013242 16 043712 22 011237 26 005737 32 001402 34 004737	000002 002450 002454 002460 017672			MOV MOV BIC MOV TST BEQ JSR	MSK,(R2) (R2),EXPTED ILOCK 1\$ PC,IRLOCK	; NOW GET THE DATA PATTERN TO USE ; THROW OUT UNUSED DATA ; AND SAVE EXPECTED RESULTS FOR POSSIBLE ERROR ; POLL IR/OR MODE? ; NO. JUST GO-ON ; WAIT FOR IR TO SET, IT REALLY WILL!
90 0202 91 0202 92 0202 93 0202 94 0202 95 0202 96 0202	10 017612 14 013242 16 043712 22 011237 26 005737 32 001402 34 004737 40 012277	000002 002450 002454 002460 017672 162174			MOV MOV BIC MOV TST BEQ JSR MOV	a(R2)+,-(R2) MSK,(R2) (R2),EXPTED ILOCK 1\$ PC,IRLOCK (R2)+,aSNK	; NOW GET THE DATA PATTERN TO USE ; THROW OUT UNUSED DATA ; AND SAVE EXPECTED RESULTS FOR POSSIBLE ERROR ; POLL IR/OR MODE? ; NO. JUST GO-ON ; WAIT FOR IR TO SET, IT REALLY WILL! ; WRITE DATA TO THE REGISTER
90 0202 91 0202 92 0202 93 0202 94 0202 95 0202 96 0202 97 0202	10 017612 14 013242 16 043712 22 011237 26 005737 32 001402 34 004737 40 012277 44 005737	000002 002450 002454 002460 017672			MOV MOV BIC MOV TST BEQ JSR MOV TST	MSK,(R2) MSK,(R2) (R2),EXPTED ILOCK 1\$ PC,IRLOCK (R2)+,BSNK ILOCK	; NOW GET THE DATA PATTERN TO USE ; THROW OUT UNUSED DATA ; AND SAVE EXPECTED RESULTS FOR POSSIBLE ERROR ; POLL IR/OR MODE? ; NO. JUST GO-ON ; WAIT FOR IR TO SET. IT REALLY WILL! ; WRITE DATA TO THE REGISTER ; POLL IR/OR MODE?
90 0202 91 0202 92 0202 93 0202 94 0202 95 0202 96 0202 97 0202 98 0202	10 017612 14 013242 16 043712 22 011237 26 005737 32 001402 34 004737 40 012277 44 005737 50 001402	000002 002450 002454 002460 017672 162174 002460			MOV MOV BIC MOV TST BEQ JSR MOV TST BEQ	a(R2)+,-(R2) MSK,(R2) (R2),EXPTED ILOCK 1\$ PC.IRLOCK (R2)+,aSNK ILOCK 2\$	; NOW GET THE DATA PATTERN TO USE ; THROW OUT UNUSED DATA ; AND SAVE EXPECTED RESULTS FOR POSSIBLE ERROR ; POLL IR/OR MODE? ; NO. JUST GO-ON ; WAIT FOR IR TO SET, IT REALLY WILL! ; WRITE DATA TO THE REGISTER ; POLL IR/OR MODE? ; NOT IF ZERO
90 0202 91 0202 92 0202 93 0202 94 0202 95 0202 96 0202 97 0202 98 0202 99 0202	10 017612 14 013242 16 043712 22 011237 26 005737 32 001402 34 004737 40 012277 44 005737 50 001402 52 004737	000002 002450 002454 002460 017672 162174 002460 017706		16:	MOV MOV BIC MOV TST BEQ JSR MOV TST BEQ JSR	a(R2)+,-(R2) MSK,(R2) (R2),EXPTED ILOCK 1\$ PC.IRLOCK (R2)+,aSNK ILOCK 2\$ PC.ORLOCK	; NOW GET THE DATA PATTERN TO USE ; THROW OUT UNUSED DATA ; AND SAVE EXPECTED RESULTS FOR POSSIBLE ERROR ; POLL IR/OR MODE? ; NO. JUST GO-ON ; WAIT FOR IR TO SET. IT REALLY WILL! ; WRITE DATA TO THE REGISTER ; POLL IR/OR MODE? ; NOT IF ZERO ; WAIT FOR OR TO SET. IT REALLY WILL!
90 0202 91 0202 92 0202 93 0202 94 0202 95 0202 96 0202 97 0202 98 0202 99 0202 100 0202 101 0202	10 017612 14 013242 16 043712 22 011237 26 005737 32 001402 34 004737 40 012277 44 005737 50 001402 52 004737 56 017712 62 043712	000002 002450 002454 002460 017672 162174 002460 017706 162156			MOV MOV BIC MOV TST BEQ JSR MOV TST BEQ JSR MOV	a(R2)+,-(R2) MSK,(R2) (R2),EXPTED ILOCK 1\$ PC.IRLOCK (R2)+,BSNK ILOCK 2\$ PC.ORLOCK BSNK,(R2)	; NOW GET THE DATA PATTERN TO USE ; THROW OUT UNUSED DATA ; AND SAVE EXPECTED RESULTS FOR POSSIBLE ERROR ; POLL IR/OR MODE? ; NO. JUST GO-ON ; WAIT FOR IR TO SET. IT REALLY WILL! ; WRITE DATA TO THE REGISTER ; POLL IR/OR MODE? ; NOT IF ZERO ; WAIT FOR OR TO SET. IT REALLY WILL! ; GET THE RESULTS
90 0202 91 0202 92 0202 93 0202 94 0202 95 0202 96 0202 97 0202 98 0202 99 0202 100 0202 101 0202 102 0202	10 017612 14 013242 16 043712 22 011237 26 005737 32 001402 34 004737 40 012277 44 005737 50 001402 52 004737 56 017712 62 043712 66 013737	000002 002450 002454 002460 017672 162174 002460 017706 162156 002450 002440	002456	16:	MOV MOV BIC MOV TST BEQ JSR MOV TST BEQ JSR	MSK,(R2) (R2),EXPTED ILOCK 1\$ PC,IRLOCK (R2)+,BSNK ILOCK 2\$ PC,ORLOCK BSNK,(R2) MSK,(R2)	; NOW GET THE DATA PATTERN TO USE ; THROW OUT UNUSED DATA ; AND SAVE EXPECTED RESULTS FOR POSSIBLE ERROR ; POLL IR/OR MODE? ; NO, JUST GO-ON ; WAIT FOR IR TO SET, IT REALLY WILL! ; WRITE DATA TO THE REGISTER ; POLL IR/OR MODE? ; NOT IF ZERO ; WAIT FOR OR TO SET, IT REALLY WILL! ; GET THE RESULTS ; IGNORE UNUSED DATA
90 0202 91 0202 92 0202 93 0202 94 0202 95 0202 96 0202 97 0202 98 0202 99 0202 100 0202 101 0202 102 0202 103 0202	10 017612 14 013242 16 043712 22 011237 26 005737 32 001402 34 004737 40 012277 44 005737 50 001402 52 004737 56 017712 62 043712 66 013737 74 011237	000002 002450 002454 002460 017672 162174 002460 017706 162156 002450		16:	MOV MOV BIC MOV TST BEQ JSR MOV TST BEQ JSR MOV BIC MOV	a(R2)+,-(R2) MSK,(R2) (R2),EXPTED ILOCK 1\$ PC,IRLOCK (R2)+,aSNK ILOCK 2\$ PC,ORLOCK aSNK,(R2) MSK,(R2) SNK,TESTRG (R2),RCVED	; NOW GET THE DATA PATTERN TO USE ; THROW OUT UNUSED DATA ; AND SAVE EXPECTED RESULTS FOR POSSIBLE ERROR ; POLL IR/OR MODE? ; NO. JUST GO-ON ; WAIT FOR IR TO SET, IT REALLY WILL! ; WRITE DATA TO THE REGISTER ; POLL IR/OR MODE? ; NOT IF ZERO ; WAIT FOR OR TO SET, IT REALLY WILL! ; GET THE RESULTS ; IGNORE UNUSED DATA ; SAVE REGISTER UNDER TEST ; AND THE REGISTER DATA
90 0202 91 0202 92 0202 93 0202 94 0202 95 0202 96 0202 97 0202 98 0202 99 0202 100 0202 101 0202 102 0202 103 0202 104 0203	10 017612 14 013242 16 043712 22 011237 26 005737 32 001402 34 004737 40 012277 44 005737 50 001402 52 004737 56 017712 66 013737 74 011237 00 021242	000002 002450 002454 002460 017672 162174 002460 017706 162156 002450 002440		16:	MOV MOV BIC MOV TST BEQ JSR MOV TST BEQ JSR MOV BIC MOV MOV CMP	a(R2)+,-(R2) MSK,(R2) (R2),EXPTED ILOCK 1\$ PC,IRLOCK (R2)+,BSNK ILOCK 2\$ PC,ORLOCK BSNK,(R2) MSK,(R2) SNK,TESTRG (R2),-(R2)	; NOW GET THE DATA PATTERN TO USE ; THROW OUT UNUSED DATA ; AND SAVE EXPECTED RESULTS FOR POSSIBLE ERROR ; POLL IR/OR MODE? ; NO. JUST GO-ON ; WAIT FOR IR TO SET, IT REALLY WILL! ; WRITE DATA TO THE REGISTER ; POLL IR/OR MODE? ; NOT IF ZERO ; WAIT FOR OR TO SET, IT REALLY WILL! ; GET THE RESULTS ; IGNORE UNUSED DATA ; SAVE REGISTER UNDER TEST ; AND THE REGISTER DATA ; CHECK RESULTS
90 0202 91 0202 92 0202 93 0202 94 0202 95 0202 96 0202 97 0202 98 0202 100 0202 101 0202 101 0202 102 0202 103 0202 104 0203 105 0203	10 017612 14 013242 16 043712 22 011237 26 005737 32 001402 34 004737 40 012277 44 005737 50 001402 52 004737 56 017712 62 043712 66 013737 74 011237 00 021242 02 001406	000002 002450 002454 002460 017672 162174 002460 017706 162156 002450 002440		16:	MOV MOV BIC MOV TST BEQ JSR MOV BIC MOV MOV CMP BEQ	a(R2)+,-(R2) MSK,(R2) (R2),EXPTED ILOCK 1\$ PC,IRLOCK (R2)+,BSNK ILOCK 2\$ PC,ORLOCK BSNK,(R2) MSK,(R2) SNK,TESTRG (R2),RCVED (R2),-(R2) 4\$	; NOW GET THE DATA PATTERN TO USE ; THROW OUT UNUSED DATA ; AND SAVE EXPECTED RESULTS FOR POSSIBLE ERROR ; POLL IR/OR MODE? ; NO. JUST GO-ON ; WAIT FOR IR TO SET, IT REALLY WILL! ; WRITE DATA TO THE REGISTER ; POLL IR/OR MODE? ; NOT IF ZERO ; WAIT FOR OR TO SET, IT REALLY WILL! ; GET THE RESULTS ; IGNORE UNUSED DATA ; SAVE REGISTER UNDER TEST ; AND THE REGISTER DATA
90 0202 91 0202 92 0202 93 0202 94 0202 95 0202 96 0202 97 0202 98 0202 100 0202 101 0202 101 0202 102 0202 103 0202 104 0203 105 0203	10 017612 14 013242 16 043712 22 011237 26 005737 32 001402 34 004737 40 012277 44 005737 50 001402 52 004737 56 017712 62 043712 66 013737 74 011237 00 021242 02 001406 04 104456	000002 002450 002454 002460 017672 162174 002460 017706 162156 002450 002440		16:	MOV MOV BIC MOV TST BEQ JSR MOV BEQ JSR MOV BIC MOV CMP BEQ TRAP	MCR2)+,-(R2) MSK,(R2) (R2),EXPTED ILOCK 1\$ PC.IRLOCK (R2)+,BSNK ILOCK 2\$ PC.ORLOCK BSNK,(R2) MSK,(R2) SNK,TESTRG (R2),RCVED (R2),-(R2) 4\$ C\$ERHRD	; NOW GET THE DATA PATTERN TO USE ; THROW OUT UNUSED DATA ; AND SAVE EXPECTED RESULTS FOR POSSIBLE ERROR ; POLL IR/OR MODE? ; NO. JUST GO-ON ; WAIT FOR IR TO SET, IT REALLY WILL! ; WRITE DATA TO THE REGISTER ; POLL IR/OR MODE? ; NOT IF ZERO ; WAIT FOR OR TO SET, IT REALLY WILL! ; GET THE RESULTS ; IGNORE UNUSED DATA ; SAVE REGISTER UNDER TEST ; AND THE REGISTER DATA ; CHECK RESULTS
90 0202 91 0202 92 0202 93 0202 94 0202 95 0202 96 0202 97 0202 98 0202 100 0202 101 0202 102 0202 103 0202 104 0203 105 0203 106 0203	10 017612 14 013242 16 043712 22 011237 26 005737 32 001402 34 004737 40 012277 44 005737 50 001402 52 004737 56 017712 66 013737 74 011237 00 021242 02 001406 04 104456 06 000004	000002 002450 002454 002460 017672 162174 002460 017706 162156 002450 002440		16:	MOV MOV BIC MOV TST BEQ JSR MOV TST BEQ JSR MOV BIC MOV CMP BEQ TRAP . WORD	MCR2)+,-(R2) MSK,(R2) (R2),EXPTED ILOCK 1\$ PC,IRLOCK (R2)+,BSNK ILOCK 2\$ PC,ORLOCK BSNK,(R2) MSK,(R2) SNK,TESTRG (R2),RCVED (R2),-(R2) 4\$ C\$ERHRD	; NOW GET THE DATA PATTERN TO USE ; THROW OUT UNUSED DATA ; AND SAVE EXPECTED RESULTS FOR POSSIBLE ERROR ; POLL IR/OR MODE? ; NO. JUST GO-ON ; WAIT FOR IR TO SET, IT REALLY WILL! ; WRITE DATA TO THE REGISTER ; POLL IR/OR MODE? ; NOT IF ZERO ; WAIT FOR OR TO SET, IT REALLY WILL! ; GET THE RESULTS ; IGNORE UNUSED DATA ; SAVE REGISTER UNDER TEST ; AND THE REGISTER DATA ; CHECK RESULTS
90 0202 91 0202 92 0202 93 0202 94 0202 95 0202 96 0202 97 0202 98 0202 99 0202 100 0202 101 0202 102 0202 103 0202 104 0203 105 0203 106 0203 0203	10 017612 14 013242 16 043712 22 011237 26 005737 32 001402 34 004737 40 012277 44 005737 50 001402 52 004737 56 017712 62 043712 66 013737 74 011237 00 021242 02 001406 04 104456 06 000004 10 012454	000002 002450 002454 002460 017672 162174 002460 017706 162156 002450 002440		16:	MOV MOV BIC MOV TST BEQ JSR MOV TST BEQ JSR MOV BIC MOV CMP BEQ TRAP . WORD	MCR2)+,-(R2) MSK,(R2) (R2),EXPTED ILOCK 1\$ PC.IRLOCK (R2)+,BSNK ILOCK 2\$ PC.ORLOCK BSNK,(R2) MSK,(R2) SNK,TESTRG (R2),RCVED (R2),-(R2) 4\$ C\$ERHRD 4 EM14	; NOW GET THE DATA PATTERN TO USE ; THROW OUT UNUSED DATA ; AND SAVE EXPECTED RESULTS FOR POSSIBLE ERROR ; POLL IR/OR MODE? ; NO. JUST GO-ON ; WAIT FOR IR TO SET, IT REALLY WILL! ; WRITE DATA TO THE REGISTER ; POLL IR/OR MODE? ; NOT IF ZERO ; WAIT FOR OR TO SET, IT REALLY WILL! ; GET THE RESULTS ; IGNORE UNUSED DATA ; SAVE REGISTER UNDER TEST ; AND THE REGISTER DATA ; CHECK RESULTS
90 0202 91 0202 92 0202 93 0202 94 0202 95 0202 96 0202 97 0202 98 0202 99 0202 100 0202 101 0202 102 0203 104 0203 105 0203 0203 0203 0203	10 017612 14 013242 16 043712 22 011237 26 005737 32 001402 34 004737 40 012277 44 005737 50 001402 52 004737 56 017712 62 043712 66 013737 74 011237 00 021242 02 001406 04 104456 06 000004 10 012454 12 014172	000002 002450 002454 002460 017672 162174 002460 017706 162156 002450 002440 002452		16:	MOV MOV BIC MOV TST BEQ JSR MOV TST BEQ JSR MOV BIC MOV CMP BEQ TRAP . WORD . WORD	MCR2)+,-(R2) MSK,(R2) (R2),EXPTED ILOCK 1\$ PC.IRLOCK (R2)+,BSNK ILOCK 2\$ PC.ORLOCK BSNK,(R2) MSK,(R2) SNK,TESTRG (R2),RCVED (R2),-(R2) 4\$ C\$ERHRD 4 EM14 ERRO	; NOW GET THE DATA PATTERN TO USE ; THROW OUT UNUSED DATA ; AND SAVE EXPECTED RESULTS FOR POSSIBLE ERROR ; POLL IR/OR MODE? ; NO. JUST GO-ON ; WAIT FOR IR TO SET, IT REALLY WILL! ; WRITE DATA TO THE REGISTER ; POLL IR/OR MODE? ; NOT IF ZERO ; WAIT FOR OR TO SET, IT REALLY WILL! ; GET THE RESULTS ; IGNORE UNUSED DATA ; SAVE REGISTER UNDER TEST ; AND THE REGISTER DATA ; CHECK RESULTS ; OK, SKIP ERROR REPORT
90 0202 91 0202 92 0202 93 0202 94 0202 95 0202 96 0202 97 0202 98 0202 99 0202 100 0202 101 0202 102 0202 103 0202 104 0203 105 0203 106 0203 0203	10 017612 14 013242 16 043712 22 011237 26 005737 32 001402 34 004737 40 012277 44 005737 50 001402 52 004737 56 017712 62 043712 66 013737 74 011237 74 011237 70 021242 02 001406 04 104456 06 000004 10 012454 12 014172 14 005037	000002 002450 002454 002460 017672 162174 002460 017706 162156 002450 002440		16:	MOV MOV BIC MOV TST BEQ JSR MOV TST BEQ JSR MOV BIC MOV CMP BEQ TRAP . WORD	MCR2)+,-(R2) MSK,(R2) (R2),EXPTED ILOCK 1\$ PC.IRLOCK (R2)+,BSNK ILOCK 2\$ PC.ORLOCK BSNK,(R2) MSK,(R2) SNK,TESTRG (R2),RCVED (R2),-(R2) 4\$ C\$ERHRD 4 EM14	; NOW GET THE DATA PATTERN TO USE ; THROW OUT UNUSED DATA ; AND SAVE EXPECTED RESULTS FOR POSSIBLE ERROR ; POLL IR/OR MODE? ; NO. JUST GO-ON ; WAIT FOR IR TO SET, IT REALLY WILL! ; WRITE DATA TO THE REGISTER ; POLL IR/OR MODE? ; NOT IF ZERO ; WAIT FOR OR TO SET, IT REALLY WILL! ; GET THE RESULTS ; IGNORE UNUSED DATA ; SAVE REGISTER UNDER TEST ; AND THE REGISTER DATA ; CHECK RESULTS

109 020322 110 020326 111	062716 000207	000002			ADD RTS	#2,(SP) PC	MOVE RETURN OVER DATA INPUT
112 113 114 115 116 117				:WITHIN	A DIAGN	USED TO CONT	INUE A SETUP PROCEDURE BETWEEN SUBTESTS IT AFFECTS THE FOLLOWING VARIABLES: "PATCNT", "SRC".
118 020330 119 020334 120 020336 121 020342	005337 100415 005037 062737	002434 002432 000002	002442	CONSET:	DEC BMI CLR ADD	PATCNT 1\$ CSTORE #2.SRC	ONE LESS PATTERN TO GO UNDERFLOW, WE'RE FINISHED! CLEAR CARRY STORE GET NEXT PATTERN
122 020350 123 020356 124 020362 125 020370	013737 005137 017737 000207	002450 002446 162054	002446	1\$:	MOV COM MOV RTS	MSK, MASK MASK SRC, SRCTMP PC	RELOAD # OF BITS TO TEST CORRECT THE INVERSION (BITS TESTED=1) LOAD THE BUFFER FOR BIT MANIPULATION RETURN

1 2 3 4 5 6 7 8	020372	010146			READY	TO SET B PERIODIC DGRAM IS	EFORE RETURNING ALLY INFORMS THE WAITING FOR IT	NT OF A POWER FAIL. IT WAITS FOR DRIVE TO THE MAIN CODE. IT MAINTAINS A TIMER USER THAT DRIVE READY HAS NOT YET SET, AND TO SET BEFORE CONTINUING THE TESTS.  ;SAVE R1
	020374	012701	000062		18:	MOV	450.,R1	GET AN ITERATION COUNT
11		013777	002506	162114		MOV	DRVNO, aRPCS2	LOAD THE UNIT UNDER TEST
	020406	032777	010000	162110	2\$:	BIT	eMOL, aRPDS	:MEDIUM ON LINE?
	020416	004737	017000			JSR	PC.WAIT	STALL FOR A WHILE
	020422	005301				DEC	R1	ONE LESS ITERATION TO-GO
	020424	003370 013746	002506			BGT MOV	DRVNO(SP)	;DO UNTIL R1 - O
•	020432	012746	006577			MOV	OMESGIO, -(SP)	
	020436	012746	000002			MOV	02(SP)	
	020442	010600 104417				MOV TRAP	SP.RO C\$PNTF	
	020446	062706	000006			ADD	06.SP	
18	020452	000750				BR	16	; AND LOOP
20	020454	012701	000062		34:	MOV	#50.,R1	GET AN ITERATION COUNT
	020460	032777	000200	162036	45:	BNE	#DRY, BRPDS	; IS DRIVE READY SET? ; YES, GO-ON
	020470	004737	017000			JSR	PC.WAIT	STALL FOR A WHILE
	020474	005301				DEC	R1	ONE LESS ITERATION TO-GO
	020476	003370	002506			BGT MOV	A\$ DRVNO,-(SP)	DO UNTIL R1 - 0
	020504	012746	006671			MOV	OMESG11, -(SP)	
	020510 020514	012746	000002			MOV	#2,-(SP) SP.RO	
	020516	104417				MOV TRAP	CSPNTF	
27	020520	062706	000006			ADD	06.SP	440 4 400
28	020524	000753				BR	31	; AND LOOP
	020526 020530	012601 000207			5#:	MOV	(SP)+,R1 PC	RESTORE R1

123456789				:WITHIN :WHICH :DECODI	THESE TO B	TWO VARIABLES ARE BE CALLED OUT FOO ONE. THE MODULE (	BLES: "ERRWD1" AND "ERRWD2". CONTAINED E BITS WHICH REPRESENT THE VARIOUS MODULES R DIAGNOSTIC TEST FAILURES. AFTER THE CREATED AN ASCII DISPATCH TABLE WHICH ESSAGES REPRESENTING THE ACTUAL MODULE CALLOUT.
10	020532 020536	012700	002404 004060	DECODE:	MOV	#ERRWD1,RO	GET THE FIRST ERROR WORD STATUS GET THE MODULE CALL OUT INDEX FILE
12	020542	012703	002676		MOV	OMCUTXT,R3	NOW GET THE OUTPUT POINTER FILE
	020546	012705	000002		MOV	#2.R5	WE'RE DOING 2 ERROR WORD MASKS!
	020552	012704	000015		MOV	013.,R4	AND WE'RE CREATING 13. MESSAGE FILES!
	020556 020562	012701	000001	15:	MOV	eBITO.R1 R1.(RO)	FORM THE INITIAL BIT MASK IS THIS BIT "ON"??
17	020564	001402		24:	BEQ	3\$	INO. DON'T DO ANYTHING NOW!
	020566	011223			MOV	(R2),(R3).	GET THIS MESSAGE!
19	020570	005304			DEC	R4	ONE LESS MESSAGE TO GET!
	020572	005722		34:	TST	(R2)+	NEXT INPUT MESSAGE PLEASE
	020574	006301			ASL	R1	MOV MASK OVER FOR NEXT FIND
	020576 020600	001371			BNE DEC	21 R5	*KEEP GOING IF NOT ZERO *NEXT ERROR WORD STATUS ?
	020602	001402			BEQ	46	IF ZERO, DONE WITH SEARCH
	020604	005720			TST	(RO)+	NEXT ERROR WORD PLEASE
26	020606	000763			BR	18	NOW SCAN THIS WORD!
	020610	005704		48:	TST	R4	IDID WE LOAD 7 MESSAGES?
28	020612 020614	001403			BEQ	61	YES, JUST LOAD POINTER AND RETURN
	020614	005023		5\$:	DEC	(R3)+ R4	CREATE THE NULL MESSAGE FILE
	020620	003375			BGT	54	NOT IF > 0!
	020622	012702	002676	61:	MOV	MCUTXT,R2	LOAD THE OUTPUT POINTER NOW, WE'RE DONE!
33	020626	000207			RTS	PC	TAKE THE RETURN
34							
35				THIC	C A CTM	*************	**************************************
35 36 37						ANY SELECTED OPE	UTINE WHICH TALLYS THE NUMBER OF INTERRUPTS
38				;;****		*********	*************
	020630			INTSRV:	:		
	020630	005237	002462		INC	INTFLG	COUNT THIS INTERRUPT
41	020634 020634	000000		L10007:			
42		000002			RTI		
-							

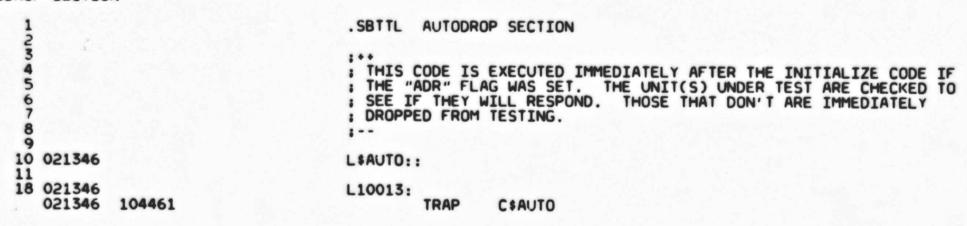




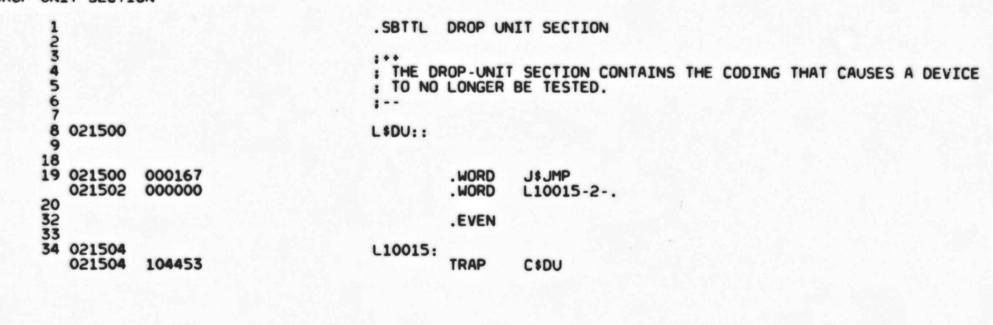
```
.SBTTL INITIALIZE SECTION
 23
                                     : THE INITIALIZE SECTION CONTAINS THE CODING THAT IS PERFORMED
 5
                                     : AT THE BEGINNING OF EACH PASS.
                                     L$INIT::
   020652
                                                                       RESET THE WORLD
   020652
10
          104433
                                             TRAP
                                                      C*RESET
                                                                       POWER UP SEQUENCE ?
   020654
                                                      WEF . PWR . RO
           012700
                    000034
                                             MOV
12
           104447
                                             TRAP
   020660
                                                      C$REFG
                                                                       :GO TO 5$ IF YES
   020662
           103504
14
                                             BCS
                                                      54
15
                                                                       CONTINUE COMMAND ?
16 020664 012700
                                                      ØEF.CON.RO
                    000036
           104447
   020670
                                              TRAP
                                                      C$REFG
                                                                       GO TO 1$ IF NO. ELSE
18 020672 103002
                                             BCC
                                                      1$
19
                                                                       EXIT INIT
   020674
20
           104432
                                              TRAP
                                                      C$EXIT
   020676
           000446
                                              . WORD
                                                      L10012-.
   020700
                                     18:
                                                                       ; 'STA', 'RES' OR 'NEW PASS' ?
22 020700
           012700
                    000035
                                                      DEF. NEW. RO
                                             MOV
   020704
           104447
                                             TRAP
                                                      C$REFG
                                                                       GO TO 24 IF NO. MUST BE NEW 'SUB-PASS'
   020706
           103015
                                             BCC
25
                                                      ROUTDO
   020710
           005037
                    002422
                                             CLR
                                                                       :ALLOW A NEW USER SELECTED MICRO DIAGNOSTIC SELECTION
                                                                       :CR-LF
   020714
           012746
                                             MOV
                                                      #CRLF.-(SP)
                    006420
   020720
           012746
                    000001
                                                      #1.-(SP)
                                             MOV
   020724
           010600
                                                      SP,RO
                                              MOV
   020726
           104417
                                                      CSPNTF
                                              TRAP
   020730
           062706
                    000004
                                              ADD
                                                      44.SP
   020734
           012737
                            002472
                    177777
                                              MOV
                                                      #-1,UNIT
                                                                       RESET UNIT COUNT
   020742
           005237
                    002472
                                     21:
                                                                       GET NEXT UNIT NUMBER FOR TESTING
                                              INC
                                                      UNIT
   020746
           012702
                    000024
                                              MOV
                                                      #20. R2
                                                                       RH/RP REGISTER COUNT
35
   020752
           012703
                    002512
                                             MOV
                                                      #RPCS1,R3
                                                                       DATA SINK
                                                                       GET UNIT FROM HARDWARE P-TABLE
37 020756
           013700
                    002472
                                              MOV
                                                      UNIT.RO
   020762
           104442
                                              TRAP
                                                      C & GPHRD
   020764
           010005
                                                      RO.RS
                                              MOV
38 020766
            103365
                                              BCC
39 020770
           011346
                                              MOV
                                                      (R3),-(SP)
                                                                       SAVE R3
40 020772
                                                      (R5),-(SP)
2(SP),(SP)
           011546
                                              MOV
                                                                       AND THE BASE ADDRESS
41 020774
            166616
                    000002
                                              SUB
                                                                       DERIVE NEW ADDRESS
42 021000
            061623
                                     34:
                                              ADD
                                                      (SP),(R3)+
                                                                       :LOG IT IN NEW TABLE
43 021002
            005302
                                              DEC
                                                      R2
                                                                       COUNT LOGGING
                                                                       R2 NOT ZERO, CONTINUE LOGGING SEE IF RH70 IS PRESENT
44 021004
            001375
                                              BNE
45 021006
           004737
                    014700
                                              JSR
                                                      PC.SIZE70
46 021012
                                                                        IS IT AN RH70 ?
            005737
                    002504
                                              TST
                                                      RHTYPE
47 021016
                                                                       BR IF NO
            001406
                                              BEQ
48 021020
           013702
                    002502
                                                                       GET RPBAE OFFSET
                                                      RHEXT, R2
                                              MOV
49 021024
           061502
                                                                       ADD BASE ADDRESS TO OFFSET
                                              ADD
                                                      (R5),R2
50 021026
           010223
                                              MOV
                                                      R2.(R3)+
                                                                       SAVE NEW RPBAE
51 021030
           005722
                                              TST
                                                      (R2)+
                                                                        ADD 2
```

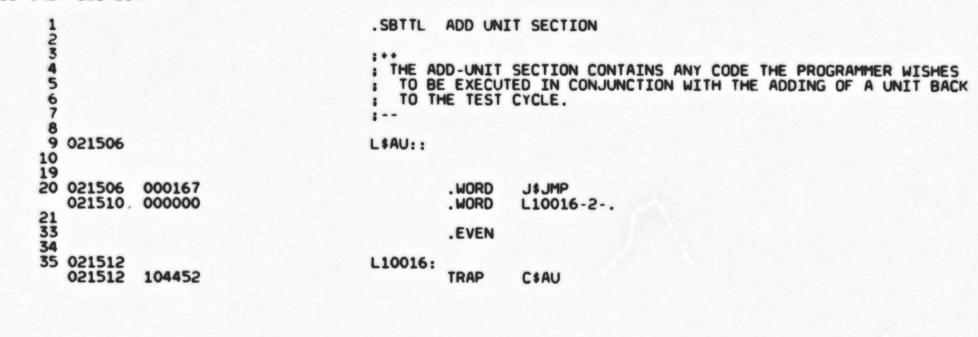
	20.4						
52 021032	010213				MOV	R2,(R3)	SAVE NEW RPCS3
	022626 012537 012537 012537 011537 013737 013737 000402	002474 002476 002500 002506 002370 002374	002372 002376	4\$:	CMP MOV MOV MOV MOV MOV BR	(R5)+,RPVEC+2 (R5)+,RPVEC+2 (R5),DRVNO	RESTORE STACK SAVE RPCS1 BASE ADDRESS SAVE INTERUPT VECTOR ADDRESS SAVE INTERUPT PRIORITY SETUP DRIVE NUMBER FOR UNIT N SET UP THE LAST USABLE TRACK AND THE LAST USABLE CYLINDER
63 021074 64 021100 65 021104 66 021110 67 021114 68 021120 69 021124 70 021130 71 021134 72 021142 73 021146 74 021152 75 021156 76 021164 77 021170 021174	005037 005037 005037 005037 005037 005037 012777 013701 010177 005037 116137 004737 012746	020372 002404 002406 002460 002464 002466 002420 000040 002506 161350 002400 002566 015550 003720 016756	161360 002400	5\$:	JSR CLR CLR CLR CLR CLR CLR MOV MOV CLR MOV JSR MOV JSR	#CLR, @RPCS2 DRVNO,R1 R1, @RPCS2 BITPOS ATABIT(R1),BITPO PC,ST.CLK #2000.,-(SP) PC,WAITMS	;SELECT DRIVE ;SELECT DRIVE ;CLEAR ATTENTION BIT POSITION WORD )S ;GET ATA BIT POSITION FOR THIS DRIVE ;START THE CLOCK ;WAIT 2000. MS
79					:PRINT	DRIVE SERIAL NUMB	BER
80 81 021200 82 021204 021210 021214 021220 021222 021224	012701 013746 012746 012746 010600 104417 062706	002506 006423 000002			MOV MOV MOV MOV TRAP ADD	04,R1 DRVNO,-(SP) 0DSNMSG(SP) 02,-(SP) SP.RO C*PNTF	:4 DIGITS
83 021230 84 021234 85 021236 86 021240 87 021242 88 021244 89 021246 90 021250 91 021252 92 021254	017746 005002 006116 006102 006116 006102 006116 006102	161306		78:	MOV CLR ROL ROL ROL ROL ROL ROL ROL	8RPSN, -(SP) R2 (SP) R2 (SP) R2 (SP) R2 (SP) R2 (SP) R2	:FETCH S/N :ZERO OUTPUT :PUT NEXT DIGIT INTO R2
93 021256 94 021262 95 021266 021272 021276 021302 021304 021306	062702 010237 012746 012746 012746 010600 104417 062706	000060 002510 002510 006447 000002			ADD MOV MOV MOV MOV TRAP ADD	#'O,R2 R2,DRVSN #DRVSN,-(SP) #SNDIGT,-(SP) #2,-(SP) SP,RO C#PNTF	:MAKE RESULT ASCII :SAVE R2 FOR PRINT
96 021312 97 021314	005301 003347				DEC BGT	R1 76	:COUNT DOWN DIGIT

98 99	021316	005726			TST	(SP)+	RESTORE	STACK
100	021320 021324 021330 021332 021334	012746 012746 010600 104417 062706	006420 000001		MOV MOV TRAP ADD	#CRLF,-(SP) #1,-(SP) SP,RO C\$PNTF #4.SP	tou. E.	
101	021334	002100	000004		AUU	94,5P		
126	021340	104432			TRAP . WORD	C\$EXIT		
127 139 140					.EVEN			
141	021344	104411		L10012:	TRAP	CSINIT		



1					.SBTTL	CLEANUP	CODING SECTION	
2 3								
4					: THE CI	EANUP C	CODING SECTION CO	NTAINS THE CODING THAT IS PERFORMED
6					I AFTER	INE HAN	DWARE TESTS MAVE	BEEN PERFORMED.
8	021350							
9	021350	005037	002404		L\$CLEAN	CLR	ERRWD1	AND ANY LEFT-OVER ERROR STATUS
10	021354	005037	002406			CLR	ERRWD2	FOR BOTH MASKS!
12	021360 021364	005037 005037	002466			CLR	ERSTAT FASTAT	SET FOR PASS STATUS ENSURE THAT 'INTERNAL' FAILED STATUS = 0
13	021370	005037	002464			CLR	UNABLE	INSURE THAT UNIT IS ENABLED
	021374	022737	000035	002420		CMP BNE	#DIAG, FUNCTN	:WAS LAST COMMAND A DIAGNOSTIC COMMAND?
16	021404	004737	015312			JSR	PC.DIAGEN	:AND ENSURE THAT THE UNIT ISN'T IN DIAGNOSTIC MODE
17	021410	012700	000740		1\$:	MOV		SET PRIORITY TO 7
10	021414	012700	000340			MOV	#PRIO7.RO C#SPRI	
	021416	004737	016054			JSR	PC.STOPCK	STOP CLOCK
20	021422 021430	012777 013777	000040	161072 161064		MOV	PCLR, BRPCS2 DRVNO, BRPCS2	:MASSBUS INIT TO CLEAR IMPENDING INTERRUPTS :GET DRIVE NUMBER
22	021436	005737	002426	20200		TST	CLKSTA	RELEASE APPROPRIATE CLOCK VECTOR
23	021442	100404				BEQ	3 6 2 6	:NO CLOCK, SKIP
25								P-CLK VECTOR RELEASE
26	021446 021452	013700 104436	015734			MOV TRAP	PKV.RO C\$CVEC	
	021454	000403				BR	3\$	
28	021456				24.			:L-CLK VECTOR RELEASE
-	021456	013700	015744		2\$:	MOV	LKV.RO	
30	021462	104436			74.	TRAP	C\$CVEC	, DD07 VECTOR OF FACE
	021464	013700	002476		34:	MOV	RPVEC,RO	RP07 VECTOR RELEASE
32	021470	104436				TRAP	C\$CVEC	
41								
42	021472	104432				TRAP	CSEXIT	
43	021474	000002				. WORD	L10014	
55 56						.EVEN		에 마음하는 사람들이 생각하는 것이 되었다. 이번 생각이 되었다. 이번 사람들이 되었다. 
57	021476				L10014:			
	021476	104412				TRAP	C\$CLEAN	





2

.SBTTL HARDWARE TESTS

1 2 37 39					.SBTTL	TEST 1	UNIT UNDER TES	iT
40 41 42 43 44 45 46 47					: # : # : # : #	: GET	DEVICE DOESN'T R THEN OUTPUT ERROR MES	ACCESS THE CONTROLLER
54	021514				T1::			
61	021514	012737	000012	002402	12	MOV	#10.,ITCOUN	:LOAD THE OVERALL ITERATION COUNTER
62	021522	010746	*****		1\$:			
	021522	012746	000240 021564			MOV	#240,-(SP)	
	021532	012746	000004			MOV	#2\$,-(SP)	
	021536	012746	000003			MOV	#3,-(SP)	
	021542	104437				TRAP	C\$SVEC	
	021544	062706	000010			ADD	#10.SP	
63	021550	005777	160736			TST	aRPCS1	ACCESS THE CONTROLLER
64	0215 <b>54</b> 0215 <b>6</b> 0	012700 104436	000004			MOV	44,R0	
	021562	000407				TRAP BR	C\$CVEC	
66	021564	022626			2\$:	CMP	(SP)+,(SP)+	RESTORE THE STACK, DEVICE DIDN'T RESPOND
67	021566	104456				TRAP	C\$ERHRD	THE STORE THE STRONG DEVICE DEDICT RESPOND
	021570	000001				. WORD	1	
	021572	012272				. WORD	EM11	
	021574	000000	002402			. WORD	OITCOUN	CET TTERATIONS TO A
	021602	005337	002402		34:	DEC	ITCOUN	SET ITERATIONS TO O OCIONE LESS ITERATION TO GO
70	021606	003345	302402		57.	BGT	1\$	KEEP GOING UNTIL = 0!
71	021610				L10017:			
	021610	104401				TRAP	C\$ETST	

```
SBITL TEST 2 RP CLEAR TEST
                                    : 5
                                             TEST 02 RPCLEAR TEST
                                                WRITE RPBA . 0-2
                                    : 5
                                             :
                                                GET CONTENTS OF RPBA AND STORE THEM
                                    : 5
                                             :
                                                   RPBA = 0
                                    : 5
                                             :
                                    : 5
                                                   THEN
 89
                                                   OUTPUT ERROR MESSAGE (RPBA DIDN'T SET)
                                                   ELSE
                                             :
                                                :
10
                                                   SET RPCS2: CLR (BIT 05) . 1
                                             :
                                                ENDIF
                                             :
12
                                    : 5
                                                COMPARE RPBA WITH STORED VALUE
13
                                                IF RPBA DID NOT CHANGE
14
                                                   THEN
15
                                                   OUTPUT ERROR MESSAGE (DEVICE CLEAR DID NOT FUNCTION)
                                     : 5
16
                                     : 5
                                                ENDIF
                                             END TEST 02
19 021612
                                    12::
20 021612
           012737 000012 002402
                                             MOV
                                                     #10..ITCOUN
                                                                      :LOAD THE OVERALL ITERATION COUNT
21 021620
                                    18:
   021620
           104404
                                             TRAP
                                                     C#BSEG
22 021622
           013777
                   002346
                            160666
                                             MOV
                                                                      :LOAD UP RPBA WITH ALL ONES
                                                     PATT2, SRPBA
23 021630
           005777
                   160662
                                             TST
                                                     BRPBA
                                                                      SEE IF ANY BIT SET
24 021634
           001024
                                             BNE
                                                                      ; IF ANY BITS SET, TAKE BRANCH
25 021636
           013737
                   002516
                            002456
                                             MOV
                                                     RPBA, TESTRG
                                                                      SAVE THE ADDRESS OF THE REGISTER UNDER TEST
26 021644
           017737
                    160646
                            002452
                                             MOV
                                                     SRPBA, RCVED
                                                                      AND ITS CONTENTS
27 021652
                    002346
           013737
                            002454
                                             MOV
                                                     PATT2, EXPTED
                                                                      NOW GET THE EXPECTED RESULTS
28 021660
                                                     ERRWD1
                                                                      NO RPO7 MODULE CALLOUT
           005037
                    002404
                                             CLR
           012737
29 021664
                    000002
                            002406
                                             MOV
                                                      #BIT1, ERRWD2
                                                                      JUST CALLOUT THE CONTROLLER
30 021672
           104456
                                             TRAP
                                                      CSERHRD
           000002
   021674
                                             . WORD
           012776
   021676
                                             . WORD
                                                     EM22
   021700
           014172
                                              WORD
                                                     ERRO
31 021702
           005037
                   002402
                                             CLR
                                                     ITCOUN
                                                                      :ITERATIONS - 0
32 021706
                                    21:
   021706
                                    10000$:
   021706
           104405
                                             TRAP
                                                     C$ESEG
33 021710
           104404
                                             TRAP
                                                     C*BSEG
34 021712
           017746
                    160600
                                             MOV
                                                      BRPBA, -(SP)
                                                                      SAVE RPBA FOR COMPARISON
35 021716
           052777
                    000040
                            160576
                                             BIS
                                                     OCLR, SRPCS2
                                                                      ISSUE DEVICE CLEAR
36 021724
           027726
                    160566
                                                                      COMPARE PRESENT RPBA STATE WITH RPBA LAST STATE
                                             CMP
                                                      SRPBA, (SP).
37 021730
           001016
                                                                      ITAKE BRANCH IF A CHANGE OCCURRED
38 021732
           005037
                    002454
                                             CLR
                                                     EXPTED
                                                                      FORM THE EXPECTED DATA
39 021736
           013737
                   002516
                                                     RPBA, TESTRG
                            002456
                                             MOV
                                                                      GET ADDRESS OF FAILING REGISTER
40 021744
           017737
                    160546
                            002452
                                                      SRPBA, RCVED
                                             MOV
                                                                      AND THE CONTENTS OF RPBA
41 021752
           104456
                                             TRAP
                                                      CSERHRD
   021754
           000003
                                             . WORD
   021756
           012410
                                             . WORD
                                                     EM13
   021760
           014172
                                              WORD
                                                     ERRO
42 021762
           005037
                   002402
                                             CLR
                                                     ITCOUN
                                                                       :ITERATIONS - O
43 021766
                                    31:
   021766
                                     100018:
                                             TRAP
   021766
           104405
                                                     C$ESEG
44 021770
           005337
                    002402
                                             DEC
                                                     ITCOUN
                                                                       ONE LESS ITERATION TO-GO
45 021774
           003311
                                             BGT
                                                     18
                                                                       ; IF NOT O, KEEP GOING!
46 021776
                                    L10020:
```

SEQ 0093

021776 104401

TRAP CSETST

1				.SBTTL	TEST 3	RPCS2 READ WRI	TE TEST
2 3 4 5 6 7 8 9 10 11 12 13 14 15				***	: WRI	S TO TEST = 02 RPCS2 DOES NOT MATTHEN DUTPUT ERROR MESS ELSE SET RPCS2: CLR RPCS2 BIT UNDER THEN OUTPUT ERROR IF	TA PATTERNS 1-4, ONE AT A TIME ATCH PATTERN SAGE (BIT UNDER TEST DID-NOT SET)
16 17 0220				T3::			
18 0220			002406		MOV	#BIT1,ERRWD2	SET UP THE MODULE CALLOUT (JUST-IN-CASE)
19 0220			002402		CLR	#10.,ITCOUN	INO MODULE CALLOUT FOR THE DRIVE LOAD THE OVERALL ITERATION COUNT
21 022	020		002.02	1::		*201,1210001	TEOR THE OVERNEE TIENNIZON COON
0220	020 00473				JSR	PC, SETUP	:LOAD I/O POINTERS
0220	024 004160 026 01373		002436	641:	TSTO3 MOV	SRCTMP, TEMP	FROM THIS TABLE SET UP FOR POSSIBLE LOOP
022	034 10440		002430	040:	TRAP	C\$BSEG	ISET OF FOR POSSIBLE LOOP
0220	036 00473	7 020034			JSR	PC.FLOAT	FLOAT THE PATTERN
0220	042 00040				BR	65#	PATTERN FLOATED OK, SKIP ERROR DSPATCH
0220	044 01373	/ 002436	002444	65#:	MOV	TEMP, SRCTMP	RESTORE THE OLD DATA PATTERN FOR ERROR LOOP
022	052			100004:			
0220	052 10440				TRAP	C\$ESEG	
0220	054 00573				TST	MASK	; IF MASK = O, WE'RE DONE
022	060 00136 062 00473				<b>BNE</b> JSR	PC.CONSET	CET NEVT DATTEDN
022	065 00573				TST	PATCHT	GET NEXT PATTERN  FIF PATTERN COUNT UNDERFLOWED. DONE!
022	072 00235				BGE	641	NOT DONE YET, GO-ON
022					TRAP	C#BSEG	
022					JSR	PC, COMPAR	WRITE THE NEXT PATTERN
022		2		10001#:	PATT4		WHICH IS PATTERN 04
022	104 10440	5		100014:	TRAP	C#ESEG	
022	106 10440	4			TRAP	C#BSEG	
022	110 10440				TRAP	C#BSEG	
022					JSR	PC, COMPAR	DO ANOTHER DATA COMPARISON
022	116 00235	0		10003#:	PATT3		USING PATTERN 43
022	120 10440	5		100034:	TRAP	C#ESEG	
022	122 00473				JSR	PC.RESET	RESET THE DEVICE
022	126 00252				RPCS2		CLEAR RPCS2 BY SETTING MASSBUS CLEAR
022	130			10002#:			
22 022					TRAP	C#ESEG	OUE LECC TERRATION TO CO
23 022					DEC BGT	ITCOUNT 16	ONE LESS ITERATION TO-GO REP GOING IF NOT ZERO
24 022				L10021:			INCER GOTING TE HOL SENO
022		1			TRAP	C\$ETST	

1				.SBTTL	TEST 4	RPWC READ WRITE	E TEST
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16				***	: WRITE	THEN DUTPUT ERROR MESS ELSE WRITE RPWC = 0 IF RPWC BIT(S) UNDER THEN DUTPUT ERROR MESS IF	A PATTERNS 14
18 022142				T4::			
19 022142 20 022146 21 022154	012737	200000	002406 002402		CLR MOV MOV	#BIT1,ERRWD2	#MODULE CALLOUT #FOR THIS TEST #LOAD THE OVERALL ITERATION COUNT
22 022162				18:			
022162	004737 004172	017744			JSR TST04	PC, SETUP	;LOAD I/O POINTERS ;FROM THIS TABLE
022170	013737	002444	002436	641:	MOV	SRCTMP, TEMP	SET UP FOR POSSIBLE LOOP
022176	104404	020034			TRAP JSR	C#BSEG PC.FLOAT	FLOAT THE PATTERN
022204	000403				BR	65#	PATTERN FLOATED OK, SKIP ERROR DSPATCH
022206 022214	013737	002436	002444	65#:	MOV	TEMP, SRCTMP	RESTORE THE OLD DATA PATTERN FOR ERROR LOOP
022214				10000\$:			
022214 022216	104405	002446			TRAP	C\$ESEG	TE MACK - A LIELDE DONE
022222	001362	002446			TST	MASK 64 \$	; IF MASK = O. WE'RE DONE
022224	004737	020330			JSR	PC, CONSET	GET NEXT PATTERN
022230 022234	005737 002355	002434			TST BGE	PATCNT 648	:IF PATTERN COUNT UNDERFLOWED, DONE!
022236	104404				TRAP	C#BSEG	INOT DONE TET, GO-ON
022240		020202			JSR PATT4	PC.COMPAR	WRITE THE NEXT PATTERN
022246				10001#:	PAIIA		WHICH IS PATTERN 04
022246	104405				TRAP	C#ESEG	
022250 022252					TRAP	C#BSEG C#BSEG	
022254	004737	020202			JSR	PC, COMPAR	DO ANOTHER DATA COMPARISON
022262	002350			100074	PATT3		:USING PATTERN #3
022262	104405			10003#:	TRAP	C#ESEG	
022264	004737	017572			JSR	PC.LDZERO	;WRITE RPWC TO O TO CLEAR IT!
022270				10002#:	TRAP	C#ESEG	
23 022272	005337	002402			DEC	ITCOUN	ONE LESS ITERATION TO-GO
24 022276 25 022300	003331			1.10000	BGT	14	IF NOT ZERO, KEEP GOING
022300	104401			L10022:	TRAP	CIETST	

1					.SBTTL	TEST 5	RPBA READ WRITE	TEST
234567					: 4	: WRIT	S TO TEST = 015 RPBA BIT(S) UNDER	PATTERNS 14, ONE AT A TIME
89						: : 0	LSE	AGE (BIT(S) UNDER TEST DON'T MATCH TEST DATA)
10						: ENDI		
12							RPBA BIT(S) UNDER THEN	TEST DIDN'T CLEAR
14 15 16	022302				: 15		OUTPUT ERROR MESS	AGE (BIT(S) UNDER TEST DIDN'T CLEAR)
18	022302	005037			T5::	CLR	ERRWD1	MODULE CALLOUT
20	022306	012737 012737	000002 000012	002406 002402		MOV	#BIT1.ERRWD2	FOR THIS TEST LOAD THE ITERATION COUNTER
21	022322 022322 022326	004737	017744		18:	JSR TST05	PC, SETUP	:LOAD I/O POINTERS :FROM THIS TABLE
	022330 022336	013737	002444	002436	641:	MOV TRAP	SRCTMP, TEMP C&BSEG	SET UP FOR POSSIBLE LOOP
	022340	004737	020034			JSR BR	PC.FLOAT	FLOAT THE PATTERN PATTERN SKIP ERROR DSPATCH
	022346 022354 022354	013737	002436	002444	65#:	MOV	TEMP, SRCTMP	RESTORE THE OLD DATA PATTERN FOR ERROR LOOP
	022354	104405 005737	002446		10000\$:	TRAP TST	C\$ESEG MASK	; IF MASK = O, WE'RE DONE
	022362 022364 022370 022374	001362 004737 005737	020330 002434			JSR TST	PC.CONSET PATCHT	GET NEXT PATTERN :IF PATTERN COUNT UNDERFLOWED, DONE!
	022376	002355 104404				BGE	64 \$ C\$BSEG	NOT DONE YET, GO-ON
	022400 022404 022406	004737 002352	020202		100014.	JSR PATT4	PC.COMPAR	:WRITE THE NEXT PATTERN :WHICH IS PATTERN #4
	022406 022410 022412	104405 104404 104404			10001\$:	TRAP TRAP	C\$ESEG C\$BSEG C\$BSEG	
	022414 022420 022422	004737 002350	020202		10003#:	JSR PATT3	PC.COMPAR	DO ANOTHER DATA COMPARISON USING PATTERN #3
	022422 022424 022430	104405 004737 002516	017474			TRAP JSR RPBA	C#ESEG PC.RESET	RESET THE DEVICE
	022432 022432 022434 022440	104405 005337 003330	002402		10002\$:	TRAP DEC BGT	C#ESEG ITCOUN 1#	ONE LESS TO GO IF => O. KEEP GOING!
	022442	104401			L10023:	TRAP	C#ETST	

```
.SBTTL TEST 6 SC & TRE TEST 1 (RH11)
                                             TEST 06 SPECIAL CONDITION AND TRANSFER ERROR TEST (RH11 TEST ONLY!)
                                     : 5
                                             : SET RPCS2: CLR = 1
: IF RPCS1: SC OR RPCS1: TRE = 1
 5
 67
                                                    THEN
                                                 :
                                             :
                                                    OUTPUT ERROR MESSAGE (BIT STUCK AT 1, AND SHOULDN'T BE)
                                     : 5
                                             .
                                                .
 8
                                                    ELSE
                                             :
                                                :
                                                    SET RPCS2: MXF (BIT 09) = 1
                                             :
                                                :
10
                                                    IF RPCS2: MXF <> 1
                                                :
11
                                                       THEN
                                                 :
12
                                                       OUTPUT ERROR MESSAGE (BIT FAILED TO SET WHEN EXPECTED)
                                             :
                                                 :
                                                    :
13
                                                       ELSE
                                             :
                                                 :
                                                    :
14
                                                       IF RPCS1: TRE <> 1
                                                 :
                                                    :
15
                                                          THEN
                                                 :
16
                                                          OUTPUT ERROR MESSAGE (BIT FAILED TO SET WHEN EXPECTED)
                                                 :
17
                                                       ENDIF
                                                 :
18
                                                       IF RPCS1: SC <> 1
19
                                                          THEN
                                     : 5
                                                :
                                     : 5
                                                          OUTPUT ERROR MESSAGE (BIT FAILED TO SET WHEN EXPECTED)
                                             : : :
21
                                     : 5
                                                       ENDIF
                                                : :
                                                       SET RPCS2: CLR = 1
                                     : 5
                                                :
                                                   :
23
24
25
26
27
                                     : 5
                                                       IF RPCS1: TRE OR SC = 1
                                     : 5
                                                       : THEN
                                     : 5
                                                          OUTPUT ERROR MESSAGE (BITS FAILED TO CLEAR)
                                     : 5
                                                       ENDIF
                                                 :
                                     : 15
                                                    ENDIF
                                             :
                                                 .
28
                                                ENDIF
                                     : 5
29
                                             END TEST 06
                                     : 5
30
31
   022444
                                     T6::
   022444
           005737
                   002504
                                              TST
                                                      RHTYPE
                                                                        ; WHICH CONTROLLER??
33 022450
           001402
                                              BEQ
                                                                        : IF O. IT'S AN RH11
34 022452
           104432
000316
                                              TRAP
                                                      C$EXIT
   022454
                                              . WORD
                                                      L10024 - .
35 022456
           005037
                    002404
                                              CLR
                                                      ERRWD1
                                                                        MODULE CALLOUT FOR THIS TEST
                                     18:
36 022462
           012737
                    000002 002406
                                                      #BIT1, ERRWD2
                                                                       ONLY THE CONTROLLER
                                              MOV
37 022470
                                                                       LOAD THE ITERATION COUNTER
           012737
                    000012
                            002402
                                              MOV
                                                      #10..ITCOUN
38 022476
                                     21:
   022476
           104404
                                              TRAP
                                                      C#BSEG
   022500
           104404
                                              TRAP
                                                      C#BSEG
40 022502
           052777
                                                      CLR, SRPCS2
                    000040
                            160012
                                                                        INITIALIZE THE DEVICE
                                              BIS
41 022510
           013777
                    002506
                             160004
                                              MOV
                                                      DRVNO, BRPCS2
                                                                        AND LOAD THE DRIVE NUMBER
42 022516
           032777
                    140000
                             157766
                                              BIT
                                                      #SC!TRE, BRPCS1
                                                                        SPECIAL CONDITION OR TRANSFER ERROR?
43 022524
           001412
                                              BEQ
44 022526
           004737
                                              JSR
                                                      PC.BICEXP
                    017422
                                                                        :LOAD FAILING DATA
45 022532
           002512
                                              RPCS1
                                                                        FAILING REGISTER
46 022534
           140000
                                                                        BIT UNDER TEST
                                              SC! TRE
   022536
           104456
                                              TRAP
                                                      C#ERHRD
   022540
                                              . WORD
           000010
   022542
           012562
                                              . WORD
                                                      EM16
   022544
           014172
                                              . WORD
                                                      ERRO
48 022546
           005037
                   002402
                                              CLR
                                                      ITCOUN
                                                                        :ITERATIONS = 0
   022552
   022552
                                     10001#:
   022552
           104405
                                              TRAP
                                                      C$ESEG
50 022554
           104404
                                              TRAP
                                                      C#BSEG
```

51 022556	052777	001000	157736		BIS	MXF. DRPCS2	;SET MISSED TRANSFER = 1
52 022564	032777	001000	157730		BIT	MXF , aRPCS2	DID IT SET?
53 022572	001012	001000	131130		BNE	4\$	
	001012	A1 7772					YES IT DID, SKIP ERROR DISPATCH
54 022574	004737	017372			JSR	PC.BISEXP	LOAD FAILING DATA
55 022600	002522				RPCS2		FAILING REGISTER
56 022602	001000				MXF		BIT UNDER TEST
57 022604	104456				TRAP	C\$ERHRD	
022606	000011				. WORD	9	
022610	012776				. WORD	EM22	
022612	014172				. WORD	ERRO	
58 022614	005037	002402			CLR	ITCOUN	;ITERATIONS = 0
59 022620	003001	005405		45:	CLIN	2100014	121ENN12013 - 0
022620				10002\$:			
022620	104405			100054:	TDAD	CAECEC	
		040000	157660		TRAP	C\$ESEG	070 UE 057507 A 70445550 5000044
60 022622	032777	040000	157662		BIT	#TRE, @RPCS1	DID WE DETECT A TRANSFER ERROR??
61 022630	001012				BNE	5\$	; YES, GO-ON
62 022632	004737	017372			JSR	PC.BISEXP	LOAD FAILING DATA
63 022636	002512				RPCS1		FAILING REGISTER
64 022640	040000				TRE		BIT UNDER TEST
65 022642	104456				TRAP	C\$ERHRD	
022644	000012				. WORD	10	
022646	012776				. WORD	EM22	
022650	014172				. WORD	ERRO	
66 022652	005037	002402			CLR	ITCOUN	:ITERATIONS = 0
67 022656	032777	100000	157626	54.	BIT	#SC, BRPCS1	DID WE GET SPECIAL CONDITION?
68 022664	001012	100000	13/020	34.	BNE	6\$	
69 022666	004737	017372					YES, SKIP ERROR DISPATCH
70 022672		011312			JSR	PC.BISEXP	LOAD FAILING DATA
70 022672	002512				RPCS1		FAILING REGISTER
71 022674	100000				SC		BIT UNDER TEST
72 022676	104456				TRAP	C\$ERHRD	
022700	000013				. WORD	11	
022702	012776				. WORD	EM22	
022704	014172				. WORD	ERRO	
73 022706	005037	002402			CLR	ITCOUN	:ITERATIONS = 0
74 022712	052777	000040	157602	61:	BIS	<b>♦CLR, 8RPCS2</b>	CLEAR OUT THE CONTROLLER
75 022720	013777	002506	157574		MOV	DRVNO, BRPCS2	RELOAD THE DRIVE NUMBER
76 022726	032777	140000	157556		BIT	#SC! TRE, BRPCS1	DID SC AND TRE CLEAR OUT?
77 022734	001412				BEQ	78	YES, TEST OK!
78 022736	004737	017422			JSR	PC.BICEXP	LOAD FAILING DATA
79 022742	002512				RPCS1	. 0,0202	FAILING REGISTER
80 022744	140000				SC! TRE		BIT UNDER TEST
81 022746	104456				TRAP	C\$ERHRD	IDII ONDER IESI
022750	000014						
022752					. WORD	12	
022754	013051				. WORD	EM23	
022754	014172				. WORD	ERRO	
82 022756	005037	002402			CLR	ITCOUN	:ITERATIONS = 0
83 022762				78:			
022762				10000\$:			
022762	104405				TRAP	C\$ESEG	
84 022764	005337	002402			DEC	ITCOUN	ONE LESS ITERATION TO GO
85 022770	003242				BGT	21	KEEP GOING IF => 0!
86 022772				L10024:			
022772	104401				TRAP	C\$ETST	

```
.SBTTL TEST 7 IR AND OR TEST
                                                TEST 07 IR AND OR TEST #1
                                                   TEST RPCS2: IR = 1
                                       : 15
 5
                                                   IF RPCS2: IR <> 1
                                       : 5
                                       : 5
                                                       THEN
                                                :
                                                   :
                                                       WAIT USING A TIMING LOOP
                                       : 15
                                                :
 8
                                       : 15
                                                       IF TIMING LOOP HAS EXPIRED AND IR <> 1
                                       : 15
                                                          THEN
10
                                       : 5
                                                          OUTPUT ERROR MESSAGE (BIT FAILED TO SET WHEN EXPECTED)
                                                :
                                                   :
                                                       :
11
                                       : 5
                                                          ELSE
                                                :
                                                  :
                                                      :
12
                                       : 15
                                                          WRITE RPDB = 0, ONCE
                                                :
                                                  :
                                       : 5
                                                      ENDIF
                                                :
                                                  :
14
                                       : 5
                                                       IF RPCS2: OR <> 1
                                                : :
15
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
022774
32
022774
                                       : 15
                                                          THEN
                                       : 15
                                                          WAIT, USING A TIMING LOOP
                                                     :
                                       : 5
                                                          IF TIMING LOOP HAS EXPIRED AND RPCS2: OR <> 1
                                                : :
                                                     :
                                       : 5
                                                :
                                                  : :
                                                             THEN
                                                             OUTPUT ERROR MESSAGE (RPCS2: OR DIDN'T SET IN TIME)
                                       : 5
                                                :
                                                  :
                                                     :
                                       : 5
                                                :
                                                   :
                                                      :
                                       : 5
                                                :
                                                   :
                                                      :
                                       : 5
                                                          READ RPDB ONCE
                                       : 5
                                                       ENDIF
                                                :
                                                   :
                                       : 5
                                                       IF RPCS2: OR <> 0
                                                :
                                                   :
                                       : 15
                                                          THEN
                                                :
                                       : 5
                                                          OUTPUT ERROR MESSAGE (BIT FAILED TO CLEAR WHEN EXPECTED)
                                       : 5
                                                       ENDIF
                                                :
                                       : 5
                                                   ENDIF
                                       : 5
                                                END TEST 07
                                       T7::
32 022774
            005037
                     002404
                                                CLR
                                                         ERRWD1
                                                                           MODULE CALLOUT FOR THIS TEST
                                                         MBIT1, ERRWD2
33 023000
            012737
                     000002
                                                                           ONLY THE CONTROLLER COULD FAIL!
                              002406
                                                MOV
34 023006
            012737
                                                         #10. ITCOUNT
                     000012
                              002402
                                                MOV
35 023014
                                       14:
   023014
            104404
                                                TRAP
                                                         C$BSEG
   023016
            104404
                                                TRAP
                                                         C#BSEG
37 023020
            032777
                     000100 157474
                                                         #IR, BRPCS2
                                                BIT
                                                                           :LOOK FOR IR TO SET IN RPCS2
38 023026
39 023030
            001032
                                                                           :SET. GO-ON
                                                BNE
            012727
                     000002
                                                         #2.(PC)+
                                                MOV
   023034
            000000
                                                 . WORD
   023036
            013727
                     002116
                                                MOV
                                                         L$DLY,(PC)+
   023042
023044
            005367
                     177772
                                                         -6(PC)
                                                DEC
   023050
            001375
   023052
            005367
                     177756
                                                DEC
                                                         -22(PC)
   023056
            001367
                                                BNE
                                                          . -20
40 023060
            032777
                     000100 157434
                                                BIT
                                                         #IR, BRPCS2
                                                                           :LOOK FOR IR TO BE SET NOW!
41 023066
            001012
                                                BNE
                                                                           IT SET IN TIME
42 023070
            004737
                                                         PC.BISEXP
                     017372
                                                JSR
                                                                           LOAD FAILING DATA
43 023074
            002522
                                                RPCS2
                                                                           FAILING REGISTER
44 023076
            000100
                                                IR
                                                                           BIT UNDER TEST
45 023100
            104456
                                                TRAP
                                                         C$ERHRD
   023102
                                                . WORD
            000015
                                                         13
   023104
            012622
                                                 . WORD
                                                         EM17
   023106
            014172
                                                         ERRO
                                                 WORD
46 023110
            005037
                     002402
                                                CLR
                                                                           :ITERATIONS = 0
                                                         ITCOUN
```

47 023114		2\$:			
023114		10001\$:			
023114 104405			TRAP	C\$ESEG	
48 023116 005077	157412		CLR	<b>BRPDB</b>	WRITE RPDB ONCE WITH DATA
49 023122 032777	000200 15737	2	BIT	#OR, @RPCS2	NOW LOOK FOR OUTPUT READY
50 023130 001032	*****		BNE	3\$	GOT IT, GO ON
51 023132 012727	000020		MOV	#20,(PC)+	
023136 000000	******		. WORD	0	
023140 013727	002116		MOV	L\$DLY,(PC)+	
023144 000000 023146 005367	177770		. WORD	0	
	177772		DEC	-6(PC)	
023152 001375	177756		BNE	4	
023154 005367 023160 001367	177756		DEC	-22(PC)	
52 023162 032777	000200 15733		BNE	20	1 00K 500 00 TO 05 CET NOW
53 023170 001012	000200 13733		BNE	#OR, @RPCS2	LOOK FOR OR TO BE SET NOW
54 023172 004737	017372		JSR	PC.BISEXP	IT SET IN TIME
55 023176 002522	OITSTE		RPCS2	PC, BISEAP	:LOAD FAILING DATA :FAILING REGISTER
56 023200 000200			OR		BIT UNDER TEST
57 023202 104456			TRAP	C\$ERHRD	IBII ONDER 1531
57 023202 104456 023204 000016			. WORD	14	
023206 012116			WORD	EMS	
023210 014172			. WORD	ERRO	
58 023212 005037	002402		CLR	ITCOUN	:ITERATTIONS = 0
59 023216 005777	157312	34:	TST	8RPDB	READ THE BUFFER NOW
60 023222 032777	000200 15727		BIT	#OR. BRPCS2	OR SHOULD NOW = 0
61 023230 001412			BEQ	48	IT CLEARED, TEST OK
62 023232 004737 63 023236 002522	017422		JSR	PC.BICEXP	LOAD FAILING DATA
63 023236 002522			RPCS2	. 0,0200	FAILING REGISTER
64 023240 000200			OR		BIT UNDER TEST
65 023242 104456			TRAP	C\$ERHRD	
023244 000017			. WORD	15	
023246 012155			. WORD	EM6	
023250 014172			. WORD	ERRO	
66 023252 005037	002402		CLR	ITCOUN	:ITERATIONS = 0
67 023256		4\$:			
023256		10000\$:			
023256 104405			TRAP	C\$ESEG	
68 023260 005337	002402		DEC	ITCOUN	ONE LESS ITERATION TO-GO
69 023264 003253			BGT	1\$	KEEP GOING UNTIL <= 0
70 023266		L10025:			
023266 104401			TRAP	C\$ETST	

```
.SBTTL TEST 8 RPDB READ WRITE TEST #1
 23
                                               TEST OB RPDB READ WRITE TEST #1
                                                  WRITE RPDB WITH DATA PATTERNS 1,2,5, ONE AT A TIME
                                       : 5
                                       : 5
                                                  BITS TO TEST=0..15
                                               :
                                       : 15
                                                   IF RPCS2: IR<>1
                                               :
                                       : 15
                                                      THEN
 8
                                       : 15
                                                      POLL BIT UNTIL IT SETS
 9
                                       : 15
                                                     ELSE
10
                                                      WRITE DATA TO RPDB
                                       : 5
                                       : 5
                                                  ENDIF
                                               :
12
                                                  IF RPCS2: OR<>1
                                       : 5
                                               :
13
                                       : 15
                                                      THEN
                                                  :
                                               :
14
                                       : 5
                                                      POLL BIT UNTIL IT SETS
                                               :
                                                  :
15
                                       : 5
                                                      ELSE
                                               :
                                                  :
16
                                       : 5
                                                      READ RPDB
                                               :
17
                                       : 5
                                                  ENDIF
                                               :
18
                                       : 15
                                                  IF RPDB RECEIVED DATA DOESN'T MATCH EXPECTED DATA
                                               :
19
                                       : 5
                                                      THEN
                                                  :
                                      : 15
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
                                                      OUTPUT ERROR MESSAGE (BITS RECEIVED DON'T MATCH EXPECTED DATA)
                                               :
                                       : 15
                                                  ENDIF
                                               :
                                       : 5
                                                  IF RPCS2: IR<>1
                                               :
                                       : 5
                                                      THEN
                                               :
                                                  :
                                       : 15
                                                      POLL RPCS2: IR UNTIL IT SETS
                                               :
                                                   :
                                       : 5
                                               :
                                                   WRITE RPDB WITH O'S
                                       : 5
                                               :
                                       : 5
                                                      RPCS2: OR<>1
                                                   IF
                                               :
                                       : 5
                                       : 5
                                                      POLL RPCS2: OR UNTIL IT SETS
                                       : 5
                                                   ENDIF
                                               :
                                      : 15
                                                   IF RPDB<>0
                                               :
                                       : 5
                                                      THEN
                                                   :
                                       : 5
                                                      OUTPUT ERROR MESSAGE (BITS FAILED TO CLEAR)
                                       : 5
                                                  ENDIF
                                       : 5
                                               END TEST 08
36
37
   023270
                                       T8::
38 023270
            012737
                     177777
                              002460
                                               MOV
                                                        #-1.ILOCK
                                                                          MARK THE RPDB POLL MODE
39 023276
            005037
                     002404
                                                        ERRWD1
                                               CLR
                                                                          CREATE THE MODULE CALLOUT
40 023302
            012737
                     200000
                              002406
                                               MOV
                                                        #BIT1.ERRWD2
                                                                          FOR THIS TEST
41 023310
            012737
                     000012
                              002402
                                               MOV
                                                        #10. . ITCOUN
                                                                          LOAD THE ITERATION COUNTER
42 023316
                                      18:
   023316
            004737
                     017744
                                                        PC, SETUP
                                                                          :LOAD I/O POINTERS
   023322
            004216
                                               TST08
                                                                          FROM THIS TABLE
   023324
            013737
                     002444
                                                        SRCTMP, TEMP
                              002436
                                      644:
                                               MOV
                                                                          SET UP FOR POSSIBLE LOOP
   023332
            104404
                                               TRAP
                                                        C$BSEG
   023334
            004737
                     020034
                                               JSR
                                                        PC.FLOAT
                                                                          FLOAT THE PATTERN
            000403
   023340
                                               BR
                                                        65$
                                                                          PATTERN FLOATED OK, SKIP ERROR DSPATCH
   023342
            013737
                     002436
                             002444
                                               MOV
                                                        TEMP, SRCTMP
                                                                          RESTORE THE OLD DATA PATTERN FOR ERROR LOOP
   023350
                                       65#:
   023350
                                       10000$:
   023350
            104405
                                               TRAP
                                                        C$ESEG
   023352
            005737
                     002446
                                               TST
                                                        MASK
                                                                          ; IF MASK = O, WE'RE DONE
   023356
            001362
                                               BNE
                                                        64$
   023360
            004737
                                                JSR
                                                        PC.CONSET
                                                                          GET NEXT PATTERN
   023364
            005737
                                               TST
                     002434
                                                        PATCHT
                                                                          ; IF PATTERN COUNT UNDERFLOWED, DONE!
   023370
            002355
                                               BGE
                                                        64$
                                                                          NOT DONE YET, GO-ON
```

023372 023374 023400	104404 004737 002352	050505		TRAP JSR PATT4	C\$BSEG PC,COMPAR	WRITE THE NEXT PATTERN
023402 023402 023404 023406	104405 104404 104404		10001\$:	TRAP TRAP	C\$ESEG C\$BSEG C\$BSEG	
023410 023414 023416	004737 002350	020202	10003\$:	JSR PATT3	PC.COMPAR	DO ANOTHER DATA COMPARISON USING PATTERN #3
023416 023420 023424	104405 004737	017572	10002\$:	TRAP JSR	C\$ESEG PC.LDZERO	WRITE RPDB TO O TO CLEAR IT!
023424 43 023426 44 023432	104405 005337 003331	002402		TRAP DEC BGT	C\$ESEG ITCOUN 1\$	ONE LESS ITERATION TO-GO KEEP GOING UNTIL <= 0!
45 023434 46 023440 023440	104401	002460	L10026:	TRAP	ILOCK C\$ETST	CLEAR THE POLLED MODE OF OPERATION

```
.SBTTL TEST 09 RPDB READ WRITE TEST #2
                                      : %
                                               TEST 09 RPDB READ WRITE TEST #2
                                      : 96
                                               : FOR 2 ITERATIONS DO
                                                        RPCS2: IR <> 1
                                      : 5
                                                     IF
                                                  :
                                               :
                                      : 5
                                               :
                                                  :
                                                     :
                                      : 5
                                                         POLL BIT UNTIL IT SETS
                                               :
                                                  :
                                                     :
                                      : 15
                                                         ELSE
                                                  :
                                      : 15
                                                         WRITE RPDB WITH PATTERN #5
                                      : 15
                                                     ENDIF
                                               :
11
12
13
                                      : 5
                                                  END DO
                                               :
                                                  FOR 2 ITERATIONS DO
                                               :
                                      : 15
                                                     IF RPCS2: OR <> 1
                                                  :
                                               :
14
                                      : 5
                                                         THEN
                                               :
                                                  :
                                      : 5
                                                         POLL BIT UNTIL IT SETS
                                                  :
16
                                      : 5
                                                  :
                                                         ELSE
                                      : 5
                                                         READ RPDB
                                                  :
18
19
20
21
22
23
24
25
26
27
                                      : 5
                                                     ENDIF
                                               : :
                                      : 5
                                                     IF RPDB <> PATTERN #5
                                               : :
                                      : 5
                                                         THEN
                                                 :
                                                     :
                                               :
                                      : 5
                                                         OUTPUT ERROR MESSAGE (BITS RECEIVED DON'T MATCH EXPECTED DATA)
                                               :
                                                  :
                                      : 5
                                                     ENDIF
                                               :
                                                  END DO
                                      : 5
                                      : 15
                                               END TEST 09
   023442
                                      T9::
   023442
           012737
                             002454
                    002354
                                                        OPATTS, EXPTED
                                               MOV
                                                                         GET THE TESTING DATA PATTERN
28 023450
            005037
                     002404
                                               CLR
                                                        ERRWD1
                                                                         CREATE THE MODULE CALLOUT
29 023454
30 023462
            012737
                                                        #BIT1, ERRWD2
                     000002
                             002406
                                               MOV
                                                                         FOR THIS TEST
            012737
                     000012
                             002402
                                               MOV
                                                        #10.,ITCOUN
                                                                          :LOAD THE ITERATION COUNT
31 023470
                                      1$:
   023470
            104404
                                               TRAP
                                                        C$BSEG
32 023472
            012703
                     000001
                                                       #1.R3
PC, IRLOCK
                                               MOV
                                                                         SET UP TO DO TWO WRITE OPERATIONS
   023476
            004737
                     017672
                                                                         :WAIT FOR IR TO SET!
                                               JSR
                                      2#:
34 023502
            013777
                     002454
                             157024
                                               MOV
                                                        EXPTED, SRPDB
                                                                          NOW LOAD RPDB ONCE
35 023510
            005303
                                               DEC
                                                        R3
                                                                          ONE LESS ITERATION TO GO
36 023512
            002371
                                               BGE
                                                                          ; IF NOT MINUS, LOAD RPDB AGAIN!
37 023514
            012703
                     000001
                                                                          NOW SET-UP TO DO TWO READ OPERATIONS
                                               MOV
                                                        #1,R3
38 023520
            004737
                     017706
                                      34:
                                               JSR
                                                        PC, ORLOCK
                                                                          WAIT FOR OR TO SET
39 023524
            023777
                     002454
                             157002
                                               CMP
                                                                          DOES THE DATA MATCH?
                                                        EXPTED, SRPDB
40 023532
            001414
                                                                         : IF EQUAL, YES IT'S OK
                                               BEQ
41 023534
            013737
                     002534
                                               MOV
                                                                          GET THE FAILING REGISTER
                             002456
                                                        RPDB, TESTRG
42 023542
43 023550
            017737
                     156766
                             002452
                                               MOV
                                                        SRPDB, RCVED
                                                                          NOW GET THE FAILING DATA
            104456
                                               TRAP
                                                        C$ERHRD
            000020
   023552
                                               . WORD
   023554
            012454
                                               . WORD
                                                        EM14
   023556
            014172
                                                WORD
                                                        ERRO
44 023560
            005037
                     002402
                                               CLR
                                                        ITCOUN
                                                                          RESET FURTHER ITERATORS
45 023564
            005303
                                      41:
                                               DEC
                                                        R3
                                                                          ONE LESS ITERATION TO-DO
46 023566
            002354
                                               BGE
                                                                         : IF NOT MINUS, DO-AGAIN
47 023570
                                      10000$:
   023570
            104405
                                               TRAP
                                                        C$ESEG
48 023572
            005337
                     002402
                                               DEC
                                                        ITCOUN
                                                                          ONE LESS ITERATION TO GO
49 023576
            003334
                                               BGT
                                                                          :KEEP GOING UNTIL <= 0
50 023600
                                      L10027:
   023600
           104401
                                               TRAP
                                                        C$ETST
```

```
.SBTTL TEST 10 RPDB READ WRITE TEST #3
                                        : 15
                                                 TEST 10 RPDB READ WRITE TEST #3
                                        : 5
                                                 : FOR 8 ITERATIONS DO
                                        : 5
                                                        IF RRPCS2: IR <> 1
                                                 :
                                                    :
                                        : 15
                                                           THEN
                                                   :
                                                 :
                                                        :
                                        : 5
                                                           POLL BIT UNTIL IT SETS
                                                 : :
                                                       :
                                        : 15
                                                           ELSE
                                                   :
                                        : 5
                                                           WRITE RPDB WITH A DATA PATTERN (SEQUENTIALLY USING PATTERNS 1 THRU 8)
10
                                        : 5
                                                       ENDIF
                                                    END DO
                                        : 15
                                                 :
12
                                                    FOR 8 ITERATIONS DO : IF RPCS2: OR <> 1
                                        : 15
                                                 .
13
13
14
15
16
17
18
19
20
21
22
23
24
25
26 023602
27 023602
28 023610
                                        : 5
                                                 :
                                        : 15
                                                 :
                                                     :
                                        : 15
                                                           POLL BIT UNTIL IT SETS
                                                     :
                                        : 56
                                        : 15
                                                           READ RPDB
                                                     :
                                        : 15
                                                        ENDIF
                                                 :
                                                    :
                                        : 5
                                                        IF RPDB DOESN'T MATCH EXPECTED DATA
                                                    :
                                                 :
                                        : 5
                                                           THEN
                                                   :
                                                 :
                                        : 15
                                                            OUTPUT ERROR MESSAGE (BITS RECEIVED DON'T MATCH EXPECTED DATA)
                                        : 15
                                                        ENDIF
                                         : 5
                                                    END DO
                                                 END TEST 10
                                        T10::
                      002534
                               002456
            013737
                                                 MOV
                                                           RPDB. TESTRG
                                                                             GET THE ADDRESS OF THE REGISTER UNDER TEST
28 023610
            005037
                      002404
                                                          ERRWD1
                                                 CLR
                                                                             :MODULE CALLOUT, THIS TEST
29 023614
            012737
                      200000
                               002406
                                                 MOV
                                                           #BIT1.ERRWD2
                                                                             ONLY THE CONTROLLER
30 023622
            012737
                      000012
                               002402
                                                                             :LOAD THE ITERATION COUNT
                                                 MOV
                                                           #10.,ITCOUN
31 023630
                                        1$:
   023630
             104404
                                                 TRAP
                                                          C$BSEG
   023632
            012704
                      000001
                                                                             OVERALL LOOP COUNTER
                                                 MOV
                                                           #1.R4
   023636
023642
            012702
                      002344
                                                           OPATT1.R2
                                                 MOV
                                                                             :INPUT POINTER
                                        21:
   023642
             104404
                                                 TRAP
                                                           C*BSEG
   023644
023646
                                                          R2,-(SP)
#8.,R3
PC,IRLOCK
             010246
                                                 MOV
                                                                             ; SAVE THE INPUT START ADDRESS
36 023646
37 023652
                                                                             SET UP TO WRITE 8 TIMES POLL IR AND WAIT FOR IT LOAD THE BUFFER
            012703
                      000010
                                                 MOV
             004737
                      017672
                                        34:
                                                  JSR
38 023656
             012277
                      156652
                                                 MOV
                                                          (R2)+, SRPDB
39 023662
             005303
                                                 DEC
                                                                             REDUCE THE # OF ITERATIONS
40 023664
             001372
                                                 BNE
                                                                             AND CONTINUE
41 023666
            012602
                                                          (SP)+,R2
                                                 MOV
                                                                             RESTORE THE ORIGINAL POINTER
42 023670
            012703
                      000010
                                                 MOV
                                                           #8.,R3
                                                                             AND THE ITERATION COUNTERS
43 023674
             004737
                      017706
                                        41:
                                                  JSR
                                                          PC, ORLOCK
                                                                             POLL OR AND WAIT FOR IT
44 023700
             022277
                      156630
                                                 CMP
                                                          (R2)+, aRPDB
                                                                             DOES THE DATA MATCH
45 023704
             001414
                                                 BEQ
                                                                             ; IF IT DOES, SKIP ERROR DISPATCH
46 023706
             017737
                      156622
                               002452
                                                 MOV
                                                           SRPDB, RCVED
                                                                             GET THE BAD DATA
47 023714
            016237
                      177776
                               002454
                                                 MOV
                                                           -2(R2), EXPTED
                                                                             AND THE EXPECTED DATA
48 023722
             104456
                                                 TRAP
                                                           C$ERHRD
             000021
   023724
                                                  . WORD
   023726
            012454
                                                  . WORD
                                                           EM14
   023730
            014172
                                                  WORD
                                                           ERRO
49 023732
             005037
                      002402
                                                 CLR
                                                           ITCOUN
                                                                             RESET FURTHER ITERATIONS
50 023736
             005303
                                        5#:
                                                 DEC
                                                          R3
                                                                             ONE LESS ITERATION TO GO
51 023740
            001355
                                                 BNE
                                                           4$
                                                                             NOT FINISHED, CHECK NEXT PATTERN
52 023742
                                        10001$:
```

54 55 56 57	023742 023744 023746 023750 023754 023756 023760	104405 005704 001404 012702 005004 000731	002346	6\$:	TRAP TST BEQ MOV CLR BR	C#ESEG R4 6\$ @PATT2,R2 R4 2\$	DONE? IF O. YES GET NEXT PATTERN AND INDICATE 2ND HALF OF TEST NOW DO IT!
60	023760 023760 023762 023766	104405 005337 003320	002402	10000\$:	TRAP DEC BGT	CSESEG ITCOUN 15	ONE LESS ITERATION TO GO
0,	023770	104401		L10030:	TRAP	CSETST	

```
.SBTTL TEST 11 MOPE. SC & TRE TEST (RH70 TEST)
                                             TEST 11 MDPE, SC & TRE TEST (RH70 TEST)
SET RPCS2: CLR = 1
                                     : 5
 5
                                             LOAD THE UNIT-UNDER-TEST # INTO RPCS2
                                     : 5
                                             SET RPCS2: PAT = 1
                                             IF RPCS2: IR <> 1
                                                    THEN
                                     : 15
                                                    WAIT UNTIL RPCS2: : IR - 1
10
                                     : 15
                                                    ELSE
                                                :
11
                                                    WRITE RPDB ONCE. WITH PATTERN #3
                                     : 5
12
                                                 ENDIF
13
                                                 IF RPCS2: MDPE (> 1
14
                                                    THEN
15
                                     : 15
                                                    OUTPUT ERROR MESSAGE (MOPE DIDN'T SET WHEN EXPECTED)
                                             :
                                                :
16
                                     : 5
                                                    ELSE
                                             :
                                               :
                                                : IF (RPCS1: SC & RPCS1: TRE (> 1)
                                     : 5
                                             :
18
                                     : 5
                                                       THEN
                                             .
                                                .
                                                    .
19
                                                       OUTPUT ERROR MESSAGE (FAILED TO DETECT RPCS1: SC OR TRE)
                                     : 5
20
                                                    ENDIF
                                     : 5
21
                                                 ENDIF
                                     : 15
22
                                             END TEST 11
24 023772
                                     T11::
25 023772
           005737
                    002504
                                              TST
                                                      RHTYPE
                                                                       : WHICH CONTROLLER TYPE?
26 023776
           003002
                                             BGT
                                                                       :IF > 0. RH70...
27 024000
           104432
                                              TRAP
                                                      C$EXIT
   024002
           000146
                                              WORD
                                                      L10031 - .
   024004
           005037
                                              CLR
                    002404
                                     1:
                                                      ERRWD1
                                                                       CREATE THE MODULE CALLOUT
                                                      MBIT1, ERRMD2
29 024010
                    000002
                                                                       FOR THIS TEST
           012737
                            002406
                                              MOV
30 024016
                    000012
           012737
                            002402
                                                      #10. . ITCOUN
                                              MOV
                                                                       LOAD THE ITERATION COUNT
   024024
                                     21:
   024024
           104404
                                              TRAP
                                                      C#BSEG
   024026
                                                      OCLR, SRPCS2
           052777
                    000040
                            156466
                                             BIS
                                                                       START OUT WITHOUT ERRORS!
33 024034
           013777
                    002506
                            156460
                                              MOV
                                                      DRVNO. 8RPCS2
                                                                       LOAD THE DRIVE NUMBER
34 024042
                                                      PAT, SRPCS2
           052777
                    000020
                            156452
                                                                       NOW INVERT PARITY
                                              BIS
  024050
35
           004737
                    017672
                                                                       WAIT FOR IR TO SET!
                                              JSR
                                                      PC. IRLOCK
   024054
           013777
                    002350.
                                                      PATT3, SRPDB
                                              MOV
                                                                       WRITE THIS DATA
37
   024062
           032777
                    000400
                            156432
                                                      MOPE, BRPCS2
                                              BIT
                                                                       DID WE FORCE A MASSBUS PARITY ERROR?
38 024070
           001005
                                                                       IF SET, YES!!
                                              BNE
39 024072
           004737
                    017372
                                              JSR
                                                      PC.BISEXP
                                                                       FORM THE REPORT DATA
40 024076
           002522
                                              RPCS2
                                                                       THIS REGISTER
41 024100
           000400
                                              MOPE
                                                                       THIS BIT FAILED TO SET
42 024102
           000410
                                              BR
                                                                       NOW TAKE THE CALL!
43 024104
           032777
                    140000
                            156400
                                    38:
                                              BIT
                                                      #SC!TRE. BRPCS1
                                                                       DID WE GET TRANSFER ERROR AND SPECIAL CONDITION?
44 024112
           001012
                                              BNE
                                                                       YES, TEST PASSES!
45 024114
           004737
                                                                      GET THE FAILING DATA
                    017372
                                              JSR
                                                      PC.BISEXP
46 024120
           002512
                                                                       THIS REGISTER
                                              RPCS1
47 024122
           140000
                                              SC! TRE
                                                                       THESE BITS FAILED TO SET!
48 024124
                                     48:
   024124
           104456
                                              TRAP
                                                      C$ERHRD
   024126
           000022
                                              . WORD
                                                      18
   024130
           013441
                                              . WORD
                                                      EM33
   024132
           014172
                                              WORD
                                                      ERRO
49 024134
           005037
                    002402
                                              CLR
                                                      ITCOUN
                                                                       INO FURTHER ITERATIONS
50
   024140
   024140
                                     10000$:
```

CZRJMBO RPO7 FE/HOST ISOLATOR MACRO VO4.00 1-DEC-83 10:39:09 PAGE 46-1 TEST 11 MDPE, SC & TRE TEST (RH70 TEST)

SEQ 0107

52	024140 024142 024146 024150	104405 005337 003326	002402	L10031:	TRAP DEC BGT	C\$ESEG ITCOUN 2\$	ONE LESS ITERATION TO GO
,,,		104401		L10031:	TRAP	C\$ETST	

1				.SBTTL	TEST 12	2 RPCS3 READ/WRI	TE TEST
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16				**	: WRITE	TE RPCS3 WITH DAS TO TEST = 03 RPCS3 BIT(S) UND THEN OUTPUT ERROR MES ELSE SET RPCS2: CLR IF RPCS3 BIT(S) UND THEN OUTPUT ERROR MES	SAGE (BIT(S) DIDN'T SET)
18 024152 19 024152 20 024150 21 024160	005737	002504		T12::	TST BGT TRAP	RHTYPE 18 CSEXIT	; IF RHTYPE=+1 CONTROLLER IS AN RH70
024164 22 024164 23 024170 24 024170	000150 005037 012737 012737	002404 000002 000012	002406 002402	16:	. WORD CLR MOV MOV	L10032 ERRWD1 #BIT1,ERRWD2 #10.,ITCOUN	:MODULE CALLOUT :FOR THIS TEST :SET UP THE ITERATION COUNTER
25 024204 26 024204 024210 27 024212	012700	000340 017744		24:	MOV TRAP JSR	#PRIO7.RO C#SPRI PC.SETUP	SET PRIORITY TO 7
024210 024220 024220	004232 013737 104404	002444	002436	641:	TST11 MOV TRAP	SRCTMP, TEMP C&BSEG	FROM THIS TABLE SET UP FOR POSSIBLE LOOP
024234 024234 024234 024244	000403	020034	002444	65#:	JSR BR MOV	PC.FLOAT 65\$ TEMP.SRCTMP	FLOAT THE PATTERN PATTERN FLOATED OK, SKIP ERROR DSPATCH RESTORE THE OLD DATA PATTERN FOR ERROR LOOP
024244 024244 02424	104405	002446		10000\$:	TRAP	C\$ESEG MASK	; IF MASK = O. WE'RE DONE
024256 024266 024266 024266	004737 005737 002355	020330 002434			BNE JSR TST BGE	PC.CONSET PATCHT 641	GET NEXT PATTERN IF PATTERN COUNT UNDERFLOWED, DONE! NOT DONE YET, GO-ON
024270 024270 024270	004737	020202		10001#:	TRAP JSR PATT4	C#BSEG PC, COMPAR	:WRITE THE NEXT PATTERN :WHICH IS PATTERN #4
024270 024300 024300 024300	104405 104404 104404 004737	020202			TRAP TRAP TRAP JSR	C#ESEG C#BSEG C#BSEG PC.COMPAR	DO ANOTHER DATA COMPARISON
02431 02431 02431 02431	104405	017474		10003\$:	TRAP JSR	C#ESEG PC.RESET	RESET THE DEVICE
02432 02432	002564			100028:	RPCS3		CLEAR RPCS3 BY SETTING MASSBUS CLEAR

CZRJMBO RPO7 FE/HOST ISOLATOR MACRO VO4.00 1-DEC-83 10:39:09 PAGE 47-1 TEST 12 RPCS3 READ/WRITE TEST

SEQ 0109

024322 28 024324 29 024330 30 024332		002402	L10032:	TRAP DEC BGT	C\$ESEG ITCOUN 2\$	ONE LESS ITERATION TO GO KEEP GOING IF NOT <- 0!
	104401		L10032:	TRAP	CSETST	

1					.SBTTL	TEST 13	RPBAE READ/WRIT	TE TEST
4					: 4	: WRIT	RH70 TEST ONLY E RPBAE WITH DAT TO TEST = 05	RPBAE READ-WRITE TEST TA PATTERNS 14, ONE AT A TIME
•						: IF F	RPBAE BIT(S) UNDE	ER TEST DIDN'T MATCH EXPECTED DATA
					: 15		HEN HERE	ACE (BIT(C) BIDWIT CET)
5					: 15		LSE	SAGE (BIT(S) DIDN'T SET)
10	)				: 15	: : 5	SET RPCS2: CLR .	1
11						: ENDI		D TECT DIDN'T CLEAD
11							HEN	ER TEST DIDN'T CLEAR
14					: 15	: : 0	OUTPUT ERROR MESS	SAGE (BIT(S) UNDER TEST DIDN'T CLEAR)
15					15	END TES		
1	7				:4	END IES	11 13	
16	024334				T13::			
	024334	005737	002504			TST BGT 1\$	RHTYPE	TEST CONTROLLER TYPE
	024342	104432				TRAP	C\$EXIT	; IF > 0, IT IS AN RH70
	024344	000142				. WORD	L10033	
	024346	005037 012737	002404	002406	18:	CLR	ERRWD1	MODULE CALLOUT
	024360	012737	000002	002402		MOV	#BIT1,ERRWD2	FOR THIS TEST LOAD THE ITERATION COUNTER
25	024366				24:			
	024366	004737	017744			JSR TST12	PC.SETUP	LOAD I/O POINTERS
	024374	013737	002444	002436	641:	MOV	SRCTMP, TEMP	FROM THIS TABLE SET UP FOR POSSIBLE LOOP
	024402	104404				TRAP	C\$BSEG	
	024404	004737	020034			JSR BR	PC.FLOAT	:FLOAT THE PATTERN :PATTERN FLOATED OK, SKIP ERROR DSPATCH
	024412		002436	002444		MOV	TEMP, SRCTMP	RESTORE THE OLD DATA PATTERN FOR ERROR LOOP
	024420				65#:			
	024420	104405			10000\$:	TRAP	C#ESEG	
	024422	005737	002446			TST	MASK	; IF MASK = O. WE'RE DONE
	024426	001362 004737	000770			BNE	64#	CET MENT BATTERN
	024434	005737	020330 002434			JSR TST	PC.CONSET PATCNT	GET NEXT PATTERN ; IF PATTERN COUNT UNDERFLOWED, DONE!
	024440	002355				BGE	641	NOT DONE YET, GO-ON
	024442 024444	104404	020202			TRAP	C\$BSEG	LIGHTE THE MENT DATTEDLY
	024450	002352	020202			JSR PATT4	PC.COMPAR	; WRITE THE NEXT PATTERN ; WHICH IS PATTERN #4
	024452				10001#:			, milet 25 Thi lent 14
	024452 024454	104405				TRAP	C\$ESEG	
	024456	104404				TRAP	C#BSEG C#BSEG	
	024460	004737	020202			JSR	PC, COMPAR	DO ANOTHER DATA COMPARISON
	024464	002350			10003#:	PATT3		USING PATTERN #3
	024466	104405			100034;	TRAP	C#ESEG	
	024470	004737	017474			JSR	PC.RESET	RESET THE DEVICE
	024474	002562			10002\$:	RPBAE		CLEAR RPBAE BY SETTING MASSBUS CLEAR
	024476	104405			100054:	TRAP	C#ESEG	
26	024500	005337	002402			DEC	ITCOUN	ONE LESS ITERATION

SEQ 0111

27 024504 003330 28 024506 104401

BGT L10033:

2\$

; IF NOT <= 0, KEEP GOING

TRAP C\$ETST

```
.SBTTL TEST 14 RPBAE DUPLICATED A16 TEST
 23
                                              TEST 14 (RM70 TEST ONLY) RPBAE DUPLICATED A16 TEST
                                     : 5
                                     : 5
                                                 WRITE RPCS1: A16 (BIT 08) - 1
                                                    RPCS1: A16 <> 1
                                     : 5
                                                 IF
                                              :
                                     : 5
                                                    THEN
                                              :
                                                 :
                                     : 5
                                                    OUTPUT ERROR MESSAGE (BIT DIDN'T SET AS EXPECTED)
                                              :
                                                :
                                     : 15
                                              :
                                                 :
                                                    IF RPCS1: A17 - 1
                                     : 5
                                                 :
10
                                      : 15
                                                       THEN
11
                                      : 5
                                                       OUTPUT ERROR MESSAGE (BIT SET WHEN NOT EXPECTED)
                                              :
                                                 :
12
                                     : 5
                                                    ENDIF
                                              :
                                                 :
                                     : 5
                                                       RPBAE: BIT 0 <> 1
                                              :
                                                 :
14
                                     : 5
                                                        THEN OUTPUT ERROR MESSAGE (BIT STUCK AT 0)
                                              :
                                                 :
                                                    :
15
                                     : 5
                                                       ELSE
                                                 :
16
                                      : 5
                                                       SET RPCS2: CLR = 1
                                      : 5
                                                    ENDIF
18
                                      : 5
                                                 ENDIF
19
                                      : 5
                                                 IF ((RPCS1: A16) AND (RPBAE: BIT 0)) <> 0
                                              :
                                      : 5
                                                    THEN OUTPUT ERROR MESSAGE (BIT(S) STUCK AT 1)
                                              :
21
                                      : 5
22
                                              END TEST 14
                                     : 5
23
24 024510
                                     T14::
25 024510
           012737
                    000002
                            002406
                                              MOV
                                                                        MODULE CALLOUT, THIS TEST
                                                       #BIT1.ERRWD2
26 024516
           005037
                                                                        NO RPO7 BOARDS
                    002404
                                              CLR
                                                      ERRWD1
27 024522
           012737
                    000012
                            002402
                                              MOV
                                                      #10..ITCOUN
                                                                        :LOAD THE ITERATION COUNTER
28 024530
                                     14:
   024530
            104404
                                              TRAP
                                                      C#BSEG
29 024532
           012777
                                                       #A16, BRPCS1
                    000400
                             155752
                                              MOV
                                                                        :SET RPCS1:A16=1
30 024540
            032777
                    000400
                            155744
                                              BIT
                                                       #A16, BRPCS1
                                                                        : TEST RPCS1:A16
31 024546
            001012
                                              BNE
                                                                        : IF =2, GO ON
32 024550
            004737
                                              JSR
                                                       PC.BISEXP
                    017372
                                                                        LOAD FAILING DATA
33 024554
            002512
                                              RPCS1
                                                                        :FAILING REGISTER
34 024556
            000400
                                              A16
                                                                        BIT UNDER TEST
35 024560
            104456
                                              TRAP
                                                      C$ERHRD
   024562
           000022
                                              . WORD
                                                      18
   024564
024566
           012776
                                               WORD
                                                      EM22
           014172
                                               MORD
                                                      ERRO
36 024570
           005037
                                              CLR
                    002402
                                                       ITCOUN
                                                                        INO FURTHER ITERATIONS
37 024574
                                              BIT #A17, @RPCS1
            032777
                    001000
                            155710 24:
                                                                        DID A17 ALSO SET?
38 024602
            001412
                                                                        IF ZERO, IT'S OK!
                                              BEQ
39 024604
            004737
                    017422
                                              JSR
                                                       PC.BICEXP
           002512
40 024610
                                              RPCS1
                                                                        FOR THIS REGISTER
41 024612
           001000
                                              A17
                                                                        THIS BIT!
42 024614
            104456
                                                      C$ERHRD
                                              TRAP
   024616
            000023
                                              . WORD
                                                       19
   024620
           012454
                                               WORD
                                                      EM14
   024622
           014172
                                               WORD
                                                      ERRO
43 024624
           005037
                    002402
                                              CLR
                                                       ITCOUN
                                                                        :ITERATIONS = 0
44 024630
45 024630
                                     10000#:
   024630
            104405
                                              TRAP
                                                      C#ESEG
46 024632
            104404
                                              TRAP
                                                       C#BSEG
            005737
47 024634
                    002504
                                                       RHTYPE
                                              TST
                                                                        : TEST CONTROLLER TYPE
48 024640
           003002
                                              BGT
                                                                        ; IF > O. IT IS AN RH70
49 024642
           104432
                                                       CSEXIT
                                              TRAP
```

		******						
	024644	000036				. WORD	10001\$	
	024646	032777	000001	155706	45:	BIT	#BITO, DRPBAE	:TEST RPBA4:BITO.(PARALLELS RPCS1=A16)
	024654	001012				BNE	5\$	; IF SET, GO ON
	024656	004737	017372			JSR	PC.BISEXP	:LOAD FAILING DATA
53	024662	002562				RPBAE		FAILING REGISTER
54	024664	000001				BITO		BIT UNDER TEST
55	024666	104456				TRAP	C\$ERHRD	102. 0.02. 123.
	024670	000024				. WORD	20	
	024672	012776				WORD	EM22	
	024674	014172				WORD		
54			000400				ERRO	TTERATION COUNT - A
	024676	005037	002402			CLR	ITCOUN	;ITERATION COUNT = 0
	024702				51:			
28	024702				10001\$:			
	024702	104405				TRAP	C\$ESEG	
	024704	104404				TRAP	C\$BSEG	
	024706	052777	000040	155606		BIS	#CLR. @RPCS2	CLEAR OUT THE DEVICE
	024714	032777	000400	155570		BIT	#A16. BRPCS1	:TEST RPCS1:A16
62	024722	001412				BEQ	6\$	; IF ZERO, GO ON
	024724	004737	017422			JSR	PC.BICEXP	LOAD FAILING DATA
	024730	002512				RPCS1		FAILING REGISTER
	024732	000400				A16		BIT UNDER TEST
66	024734	104456				TRAP	C\$ERHRD	TOTA ONDER TEST
00	024736	000025				. WORD	21	
	024740	013051						
						. WORD	EM23	
47	024742	014172	000400			. WORD	ERRO	
	024744	005037	002402			CLR	ITCOUN	; NO FURTHER ITERATIONS
68	024750				68:			
64	024750				10002\$:			
	024750	104405				TRAP	C\$ESEG	
	024752	104404				TRAP	C#BSEG	
	024754	005737	002504			TST	RHTYPE	; TEST CONTROLLER TYPE
72	024760	003002				BGT	78	; IF > O, IT IS AN RH70
73	024762	104432				TRAP	C*EXIT	
	024764	000036				. WORD	10003#	
74	024766	032777	000001	155566	78:	BIT	4BITO, BRPBAE	:TEST RPBAE:BITO
75	024774	001412				BEQ	81	: TF 0. GO ON
76	024776	004737	017422			JSR	PC.BICEXP	:IF O, GO ON :LOAD FAILING DATA
77	025002	002562				RPBAE	. C.O.C.C.	FAILING REGISTER
78	025004	000001				BITO		BIT UNDER TEST
79	025006	104456				TRAP	C\$ERHRD	IDII ONDER IESI
	025010	000026						
	025012					. WORD	55	
	025012	013051				. WORD	EM23	
90		014172				. WORD	ERRO	
	025016	005037	002402			CLR	ITCOUN	RESET THE ITERATION COUNTER
01	025022				84:			
95	925022				10003\$:			
	025022	104405				TRAP	C\$ESEG	
	025024	005337	002402			DEC	ITCOUN	ONE LESS ITERATION TO GO
	025030	003237				BGT	16	DO UNTIL <= 0
85	025032				L10034:			
	025032	104401				TRAP	C\$ETST	

```
SBTTL TEST 15 RPBAE DUPLICATED A17 TEST
                                               TEST 15 (RH70 TEST ONLY) RPBAE DUPLICATED A17 TEST
                                      : 15
                                                  WRITE RPCS1: A17 (BIT 09) = 1
                                      : 5
                                                  IF RPCS1: A17 <> 1
                                               :
                                      : 15
                                                  :
                                                      THEN
                                               :
                                      : 15
                                                      OUTPUT ERROR MESSAGE (BIT FAILED TO SET)
                                                  :
                                               :
                                       : 15
                                               : :
                                                      ELSE
                                       : 15
                                                      IF RPCS1: A16 = 1
                                                 :
10
                                       : 5
                                                         THEN
                                                 :
11
                                                         OUTPUT ERROR MESSAGE (BIT SET WHEN NOT EXPECTED)
                                       : 5
                                               : :
12
                                      : 5
                                                      ENDIF
                                               :
                                                 :
                                                      IF RPBAE: BITO1 DIDN'T SET
                                       : 95
                                               :
                                                 :
14
                                       : 5
                                                         THEN
                                               :
                                                  : .
                                                      :
15
                                       : 15
                                                         OUTPUT ERROR MESSAGE (BIT FAILED TO SET)
                                                  :
                                                      :
16
                                       : 5
17
                                                         SET RPCS2: CLR = 1
                                       : 5
                                               :
                                                  :
18
                                                      ENDIF
                                       : 5
                                               :
                                                  :
                                       : 15
                                                      IF ((RPCS1: A17) AND (RPBAE: BITO1)) <> 0
                                               :
                                                  :
20
21
22
23
24
25
26
27
                                       : 5
                                                         THEN
                                                  :
                                               :
                                       : 5
                                                         OUTPUT ERROR MESSAGE (BIT(S) DIDN'T CLEAR)
                                               :
                                                  :
                                       : 5
                                                      ENDIF
                                               :
                                       : 5
                                                  ENDIF
                                      : 5
                                               END TEST 15
   025034
                                       T15::
   025034
            005037
                     002404
                                               CLR
                                                        ERRWD1
                                                                          MODULE CALLOUT FOR THIS TEST
28 025040
            012737
                                                        #BIT1, ERRWD2
                     200000
                             002406
                                               MOV
                                                                          : CONTROLLER ONLY
29 025046
30 025054
                     000012
            012737
                             002402
                                               MOV
                                                        #10. . ITCOUN
                                                                          :LOAD THE ITERATION COUNT
                                      1$:
   025054
            104404
                                               TRAP
                                                        C$BSEG
31 025056
            012777
                     001000
                             155426
                                                                          ;SET RPCS1:A17=1
                                               MOV
                                                        #A17, @RPCS1
32 025064
            032777
                     001000
                              155420
                                                        #A17, BRPCS1
                                               BIT
                                                                          :TEST RPCS1:A17
   025072
            001012
                                               BNE
                                                                          : IF =2. OK
34 025074
            004737
                                                        PC.BISEXP
                     017372
                                                JSR
                                                                          LOAD FAILING DATA
35 025100
            002512
                                               RPCS1
                                                                          FAILING REGISTER
36 025102
            001000
                                               A17
                                                                          BIT UNDER TEST
            104456 000027
   025104
                                               TRAP
                                                        C$ERHRD
   025106
                                                . WORD
                                                        23
   025110
            012776
                                                . WORD
                                                        EM22
   025112
            014172
                                                WORD
                                                        ERRO
38 025114
                                                        ITCOUN
            005037
                     002402
                                               CLR
                                                                          :NO ITERATIONS
39 025120
            032777
                             155364
                     000400
                                     21:
                                               BIT
                                                        #A16, BRPCS1
                                                                          DID A16 ALSO SET?
40 025126
            001412
                                                                          : IF ZERO, NO-IT'S OK!
                                               BEQ
41 025130
            004737
                     017422
                                                JSR
                                                        PC.BICEXP
                                                                          LOAD THE FAILING DATA
42 025134
43 025136
            002512
                                               RPCS1
                                                                          THIS REGISTER
            000400
                                               A16
                                                                          THIS BIT FAILED TO REMAIN CLEAR!
44 025140
            104456 000030
                                               TRAP
                                                        C&ERHRD
   025142
                                                . WORD
                                                        24
   025144
            012454
                                                        EM14
                                                . WORD
   025146
            014172
                                                        ERRO
                                                . WORD
45 025150
            005037
                     002402
                                               CLR
                                                        ITCOUN
                                                                          :ITERATIONS = 0
46 025154
47
   025154
                                       10000$:
   025154
            104405
                                               TRAP
                                                        C$ESEG
48 025156
            104404
                                               TRAP
                                                        C$BSEG
49 025160
            005737
                     002504
                                               TST
                                                        RHTYPE
                                                                          : TEST CONTROLLER TYPE
```

50 025164	Contract of the Contract of th						
50 025164	003002				BGT	4\$	:IF > 0. = RH70
51 025166	104432				TRAP	C\$EXIT	
025170					. WORD	10001\$	
E2 025170	000030	000000	155760				**** *****
52 025172		000002	155362	45:	BIT	#BIT1, GRPBAE	; TEST RPBAE:BIT1
53 025200	001012				BNE	5\$	:IF =1. OK
54 025202	004737	017372			JSR	PC, BISEXP	LOAD FAILING DATA
55 025206	002562				RPBAE	. 0,013EA	FATI THE DECTETED
33 023200	206200						FAILING REGISTER
56 025210	000002				BIT1		BIT UNDER TEST
57 025212 025214	104456				TRAP	C\$ERHRD	
025214	000031				. WORD	25	
025216	012776				WORD		
053510						EM22	
025220	014172				. WORD	ERRO	
58 025222	005037	002402			CLR	ITCOUN	:ITERATIONS = 0
59 025226				54:			
60 025226				100018:			
00 023220				100011:			
025226					TRAP	C\$ESEG	
61 025230	104404				TRAP	C\$BSEG	
62 025232	052777	000040	155262		BIS	#CLR, BRPCS2	;SET RPCS2:CLR=1
63 025240		001000	155244				TECT DOCCL ALZ
		001000	122544		BIT	#A17, BRPCS1	: TEST RPCS1:A17
64 025246	001412				BEQ	6\$	; IF 0, OK
65 025250	004737	017422			JSR	PC.BICEXP	LOAD FAILING DATA
66 025254	002512				RPCS1		FAILING REGISTER
66 025254 67 025256	001000				A17		
60 005060	001000						BIT UNDER TEST
68 025260	104456				TRAP	C\$ERHRD	
025262	000032				. WORD	26	
025264	013051				. WORD	EM23	
025266	014172				WORD	ERRO	
60 025270	014115	000400					
69 025270	005037	002402		-	CLR	ITCOUN	;ITERATIONS = 0
70 025274				6\$:			
71 025274				10002\$:			
				TOOME 4:			
025274	104405			100024:	TRAP	CAESEG	
025274				100024:	TRAP	C\$ESEG	
72 025276	104404			100024:	TRAP	C\$BSEG	
72 025276 73 025300	104404	002504		100024:	TRAP	C \$BSEG RHTYPE	:TEST CONTROLLER TYPE
72 025276 73 025300	104404	002504		100024:	TRAP	C\$BSEG	
72 025276 73 025300	104404	002504		1000241	TRAP TST BGT	C\$BSEG RHTYPE 7\$	:TEST CONTROLLER TYPE :IF =+1, IS RH70
72 025276 73 025300	104404	002504		100024:	TRAP TST BGT TRAP	C\$BSEG RHTYPE 7\$ C\$EXIT	
025274 72 025276 73 025300 74 025304 75 025306 025310	104404 005737 003002 104432 000036		155242		TRAP TST BGT TRAP . WORD	C\$BSEG RHTYPE 7\$ C\$EXIT 10003\$	;IF =+1, IS RH70
72 025274 72 025276 73 025300 74 025304 75 025306 025310 76 025312	104404 005737 003002 104432 000036 032777	002504	155242		TRAP TST BGT TRAP . WORD BIT	C\$BSEG RHTYPE 7\$ C\$EXIT 10003\$	:IF =+1, IS RH70 :TEST RPBAE:BIT1
72 025274 72 025276 73 025300 74 025304 75 025306 025310 76 025312 77 025320	104404 005737 003002 104432 000036 032777 001412	000002	155242		TRAP TST BGT TRAP .WORD BIT BEQ	C\$BSEG RHTYPE 7\$ C\$EXIT 10003\$ #BIT1,@RPBAE 8\$	:IF =+1, IS RM70 :TEST RPBAE:BIT1 :IF =0, OK
72 025274 72 025276 73 025300 74 025304 75 025306 025310 76 025312 77 025320 78 025322	104404 005737 003002 104432 000036 032777	000002	155242		TRAP TST BGT TRAP .WORD BIT BEQ	C\$BSEG RHTYPE 7\$ C\$EXIT 10003\$ #BIT1,@RPBAE 8\$	:IF =+1, IS RM70 :TEST RPBAE:BIT1 :IF =0, OK
72 025274 72 025276 73 025300 74 025304 75 025306 025310 76 025312 77 025320 78 025322	104404 005737 003002 104432 000036 032777 001412 004737		155242		TRAP TST BGT TRAP .WORD BIT BEQ JSR	C\$BSEG RHTYPE 7\$ C\$EXIT 10003\$	:IF =+1, IS RH70  :TEST RPBAE:BIT1 :IF =0, OK :LOAD FAILING DATA
72 025274 72 025276 73 025300 74 025304 75 025306 025310 76 025312 77 025320 78 025322 79 025326	104404 005737 003002 104432 000036 032777 001412 004737 002562	000002	155242		TRAP TST BGT TRAP .WORD BIT BEG JSR RPBAE	C\$BSEG RHTYPE 7\$ C\$EXIT 10003\$ #BIT1,@RPBAE 8\$	:IF =+1, IS RM70  :TEST RPBAE:BIT1 :IF =0, OK :LOAD FAILING DATA :FAILING REGISTER
025274 72 025276 73 025300 74 025304 75 025306 025310 76 025312 77 025320 78 025322 79 025326 80 025330	104404 005737 003002 104432 000036 032777 001412 004737 002562 001000	000002	155242		TRAP TST BGT TRAP .WORD BIT BEQ JSR RPBAE A17	C\$BSEG RHTYPE 7\$ C\$EXIT 10003\$ #BIT1.@RPBAE 8\$ PC.BICEXP	:IF =+1, IS RH70  :TEST RPBAE:BIT1 :IF =0, OK :LOAD FAILING DATA
025274 72 025276 73 025300 74 025304 75 025306 025310 76 025312 77 025320 78 025322 79 025326 80 025330 81 025332	104404 005737 003002 104432 000036 032777 001412 004737 002562 001000 104456	000002	155242		TRAP TST BGT TRAP .WORD BIT BEQ JSR RPBAE A17 TRAP	C#BSEG RHTYPE 7\$ C#EXIT 10003\$ #BIT1.@RPBAE 8\$ PC.BICEXP	:IF =+1, IS RM70  :TEST RPBAE:BIT1 :IF =0, OK :LOAD FAILING DATA :FAILING REGISTER
025274 72 025276 73 025300 74 025304 75 025310 76 025312 77 025320 78 025322 79 025326 80 025330 81 025332	104404 005737 003002 104432 000036 032777 001412 004737 002562 001000	000002	155242		TRAP TST BGT TRAP .WORD BIT BEQ JSR RPBAE A17 TRAP	C#BSEG RHTYPE 7\$ C#EXIT 10003\$ #BIT1.@RPBAE 8\$ PC.BICEXP	:IF =+1, IS RM70  :TEST RPBAE:BIT1 :IF =0, OK :LOAD FAILING DATA :FAILING REGISTER
025274 72 025276 73 025300 74 025304 75 025310 76 025312 77 025320 78 025322 79 025326 80 025330 81 025332	104404 005737 003002 104432 000036 032777 001412 004737 002562 001000 104456 000033	000002	155242		TRAP TST BGT TRAP .WORD BIT BEQ JSR RPBAE A17 TRAP .WORD	C#BSEG RHTYPE 7\$ C#EXIT 100038 #BIT1.@RPBAE 8\$ PC.BICEXP	:IF =+1, IS RM70  :TEST RPBAE:BIT1 :IF =0, OK :LOAD FAILING DATA :FAILING REGISTER
025274 72 025276 73 025300 74 025304 75 025310 76 025312 77 025320 78 025322 79 025326 80 025330 81 025332 025334 025336	104404 005737 003002 104432 000036 032777 001412 004737 002562 001000 104456 000033 013051	000002	155242		TRAP TST BGT TRAP .WORD BIT BEQ JSR RPBAE A17 TRAP .WORD .WORD	C#BSEG RHTYPE 7# C#EXIT 10003# #BIT1, BRPBAE 8# PC.BICEXP C#ERHRD 27 EM23	:IF =+1, IS RM70  :TEST RPBAE:BIT1 :IF =0, OK :LOAD FAILING DATA :FAILING REGISTER
025274 72 025276 73 025300 74 025304 75 025310 76 025312 77 025320 78 025322 79 025326 80 025330 81 025332 025334 025336	104404 005737 003002 104432 000036 032777 001412 004737 002562 001000 104456 000033 013051 014172	000002 017422	155242		TRAP TST BGT TRAP .WORD BIT BEQ JSR RPBAE A17 TRAP .WORD .WORD	C#BSEG RHTYPE 7# C#EXIT 10003# #BIT1, BRPBAE 8# PC.BICEXP C#ERHRD 27 EM23 ERRO	:IF =+1, IS RH70  :TEST RPBAE:BIT1 :IF =0, OK :LOAD FAILING DATA :FAILING REGISTER :BIT UNDER TEST
025274 72 025276 73 025300 74 025304 75 025306 025310 76 025312 77 025320 78 025322 79 025326 80 025330 81 025332 025334 025336 025340 82 025342	104404 005737 003002 104432 000036 032777 001412 004737 002562 001000 104456 000033 013051	000002	155242	78:	TRAP TST BGT TRAP .WORD BIT BEQ JSR RPBAE A17 TRAP .WORD .WORD	C#BSEG RHTYPE 7# C#EXIT 10003# #BIT1, BRPBAE 8# PC.BICEXP C#ERHRD 27 EM23	:IF =+1, IS RM70  :TEST RPBAE:BIT1 :IF =0, OK :LOAD FAILING DATA :FAILING REGISTER
025274 72 025276 73 025300 74 025304 75 025310 76 025312 77 025320 78 025322 79 025326 80 025330 81 025332 025334 025340 82 025342 83 025346	104404 005737 003002 104432 000036 032777 001412 004737 002562 001000 104456 000033 013051 014172	000002 017422	155242	7\$: 8\$:	TRAP TST BGT TRAP .WORD BIT BEQ JSR RPBAE A17 TRAP .WORD .WORD	C#BSEG RHTYPE 7# C#EXIT 10003# #BIT1, BRPBAE 8# PC.BICEXP C#ERHRD 27 EM23 ERRO	:IF =+1, IS RH70  :TEST RPBAE:BIT1 :IF =0, OK :LOAD FAILING DATA :FAILING REGISTER :BIT UNDER TEST
025274 72 025276 73 025300 74 025304 75 025310 76 025312 77 025320 78 025322 79 025326 80 025330 81 025332 025334 025340 82 025342 83 025346	104404 005737 003002 104432 000036 032777 001412 004737 002562 001000 104456 000033 013051 014172	000002 017422	155242	7\$: 8\$:	TRAP TST BGT TRAP .WORD BIT BEQ JSR RPBAE A17 TRAP .WORD .WORD	C#BSEG RHTYPE 7# C#EXIT 10003# #BIT1, BRPBAE 8# PC.BICEXP C#ERHRD 27 EM23 ERRO	:IF =+1, IS RH70  :TEST RPBAE:BIT1 :IF =0, OK :LOAD FAILING DATA :FAILING REGISTER :BIT UNDER TEST
025274 72 025276 73 025300 74 025304 75 025310 76 025312 77 025320 78 025322 79 025326 80 025330 81 025332 025334 025340 82 025342 83 025346 84 025346	104404 005737 003002 104432 000036 032777 001412 004737 002562 001000 104456 000033 013051 014172 005037	000002 017422	155242	78:	TRAP TST BGT TRAP .WORD BIT BEQ JSR RPBAE A17 TRAP .WORD .WORD .WORD	C#BSEG RHTYPE 7\$ C#EXIT 10003\$ #BIT1, @RPBAE 8\$ PC.BICEXP C#ERHRD 27 EM23 ERRO ITCOUN	:IF =+1, IS RH70  :TEST RPBAE:BIT1 :IF =0, OK :LOAD FAILING DATA :FAILING REGISTER :BIT UNDER TEST
025274 72 025276 73 025300 74 025304 75 025306 025310 76 025312 77 025320 78 025322 79 025326 80 025330 81 025332 025334 025340 82 025340 82 025346 84 025346	104404 005737 003002 104432 000036 032777 001412 004737 002562 001000 104456 000033 013051 014172 005037	000002 017422 002402	155242	7\$: 8\$:	TRAP TST BGT TRAP .WORD BIT BEG JSR RPBAE A17 TRAP .WORD .WORD .WORD CLR	C#BSEG RHTYPE 7\$ C#EXIT 10003\$ #BIT1, BRPBAE 8\$ PC.BICEXP C#ERHRD 27 EM23 ERRO ITCOUN	:IF =+1, IS RH70  :TEST RPBAE:BIT1 :IF =0, OK :LOAD FAILING DATA :FAILING REGISTER :BIT UNDER TEST  :ITERATIONS = 0
025274 72 025276 73 025300 74 025304 75 025306 025310 76 025312 77 025320 78 025322 79 025326 80 025330 81 025332 025334 025340 82 025340 82 025346 84 025346 85 025350	104404 005737 003002 104432 000036 032777 001412 004737 002562 001000 104456 000033 013051 014172 005037	000002 017422	155242	7\$: 8\$:	TRAP TST BGT TRAP .WORD BIT BEG JSR RPBAE A17 TRAP .WORD .WORD .WORD CLR	C#BSEG RHTYPE 7\$ C#EXIT 10003# #BIT1. ARPBAE 8\$ PC.BICEXP C#ERHRD 27 EM23 ERRO ITCOUN	:IF =+1, IS RH70  :TEST RPBAE:BIT1 :IF =0, OK :LOAD FAILING DATA :FAILING REGISTER :BIT UNDER TEST  :ITERATIONS = 0  :ONE LESS ITERATION
025274 72 025276 73 025300 74 025304 75 025310 76 025312 77 025320 78 025322 79 025326 80 025330 81 025332 025334 025334 025346 82 025342 83 025346 84 025346 85 025350 86 025354	104404 005737 003002 104432 000036 032777 001412 004737 002562 001000 104456 000033 013051 014172 005037	000002 017422 002402	155242	7\$: 8\$: 10003\$:	TRAP TST BGT TRAP .WORD BIT BEG JSR RPBAE A17 TRAP .WORD .WORD .WORD CLR	C#BSEG RHTYPE 7\$ C#EXIT 10003\$ #BIT1, BRPBAE 8\$ PC.BICEXP C#ERHRD 27 EM23 ERRO ITCOUN	:IF =+1, IS RH70  :TEST RPBAE:BIT1 :IF =0, OK :LOAD FAILING DATA :FAILING REGISTER :BIT UNDER TEST  :ITERATIONS = 0
025274 72 025276 73 025300 74 025304 75 025306 025310 76 025312 77 025320 78 025322 79 025326 80 025330 81 025332 025334 025340 82 025342 83 025346 84 025346 85 025350 86 025354 87 025356	104404 005737 003002 104432 000036 032777 001412 004737 002562 001000 104456 000033 013051 014172 005037	000002 017422 002402	155242	7\$: 8\$:	TRAP TST BGT TRAP .WORD BIT BEG JSR RPBAE A17 TRAP .WORD .WORD .WORD CLR	C#BSEG RHTYPE 7\$ C#EXIT 10003# #BIT1. ARPBAE 8\$ PC.BICEXP C#ERHRD 27 EM23 ERRO ITCOUN	:IF =+1, IS RH70  :TEST RPBAE:BIT1 :IF =0, OK :LOAD FAILING DATA :FAILING REGISTER :BIT UNDER TEST  :ITERATIONS = 0  :ONE LESS ITERATION
025274 72 025276 73 025300 74 025304 75 025310 76 025312 77 025320 78 025322 79 025326 80 025330 81 025332 025334 025334 025346 82 025342 83 025346 84 025346 85 025350 86 025354	104404 005737 003002 104432 000036 032777 001412 004737 002562 001000 104456 000033 013051 014172 005037	000002 017422 002402	155242	7\$: 8\$: 10003\$:	TRAP TST BGT TRAP .WORD BIT BEG JSR RPBAE A17 TRAP .WORD .WORD .WORD CLR	C#BSEG RHTYPE 7\$ C#EXIT 10003# #BIT1. ARPBAE 8\$ PC.BICEXP C#ERHRD 27 EM23 ERRO ITCOUN	:IF =+1, IS RH70  :TEST RPBAE:BIT1 :IF =0, OK :LOAD FAILING DATA :FAILING REGISTER :BIT UNDER TEST  :ITERATIONS = 0  :ONE LESS ITERATION

```
.SBTTL TEST 16 INTERRUPT ENABLE - BIT TEST
                                                TEST 16 INTERRUPT ENABLE BIT SET-CLEAR TEST
                                                   SET PROCESSOR PRIORITY = 7 (LOCK OUT ALL INTERRUPTS)
                                       : 15
                                                  SET RPCS1: IE (BIT 06) = 1
IF RPCS1: IE <> 1
                                       : 5
                                                      THEN
                                               :
                                                  :
                                       : 15
                                                      OUTPUT ERROR MESSAGE (BIT DIDN'T SET)
                                               :
                                                  :
                                       : 5
                                                      ELSE
                                               :
                                                  :
10
                                       : 5
                                                      SET RPCS2: CLR = 1
                                               :
11
                                                   ENDIF
                                       : 5
                                               :
12
                                       : 5
                                                   IF RPCS1: IE <> 0
                                       : 5
                                                      THEN
14
                                       : 5
                                                      OUTPUT ERROR MESSAGE (BIT DIDN'T CLEAR)
                                                :
15
                                      : 15
                                                   ENDIF
                                       : 15
16
                                               END TEST 16
   025360
18
                                       T16::
19
   025360
            005037
                     002404
                                               CLR
                                                        ERRWD1
                                                                          : MODULE CALLOUT
   025364
            012737
                     000002
                             002406
                                               MOV
                                                        #BIT1, ERRWD2
                                                                          FOR THIS TEST
21
   025372
            012737
                     000012
                             002402
                                               MOV
                                                        #10., ITCOUN
                                                                          :LOAD THE ITERATION COUNT
   025400
22
                                       1$:
                                                                          :SET PRIORITY TO 7
23
   025400
            012700
                     000340
                                                        OPRIO7.RO
   025404
            104441
                                                TRAP
                                                        C#SPRI
            104404
   025406
                                                TRAP
                                                        C#BSEG
   025410
            052777
                     000100
                             155074
                                                BIS
                                                        #IE. @RPCS1
                                                                          :WRITE RPCS1:INTERRUPT ENABLE=1
   025416
            032777
                                                        #IE, BRPCS1
                     000100
                             155066
                                                BIT
                                                                          : TEST RPCS1: IE
27
   025424
                                                                          : IF 2. GO ON :LOAD FAILING DATA
            001012
                                                BNE
28
   025426
            004737
                     017372
                                                JSR
                                                        PC.BISEXP
   025432
            002512
                                                RPCS1
                                                                          FAILING REGISTER
   025434
            000100
                                                IE
                                                                          BIT UNDER TEST
  025436
025440
025442
            104456
                                                TRAP
                                                        C$ERHRD
            000034
                                                . WORD
                                                        28
            012776
                                                . WORD
                                                        EM22
   025444
            014172
                                                , WORD
                                                        ERRO
   025446
            005037
                     002402
                                                CLR
                                                        ITCOUN
                                                                          :ITERATIONS = 0
   025452
025452
                                       10000$:
   025452
            104405
                                                TRAP
                                                        C$ESEG
   025454
            104404
                                                TRAP
                                                        C#BSEG
   025456
            052777
                     000040
                              155036
                                                BIS
                                                         #CLR, @RPCS2
                                                                          :SET RPCS2:CLR=1
   025464
37
            032777
                     000100
                              155020
                                                        #IE, BRPCS1
                                                BIT
                                                                          : TEST RPCS1: IE
   025472
025474
            001412
                                                BEQ
                                                                          :IF O. TEST PASSES
39
            004737
                                                        PC.BICEXP
                     017422
                                                JSR
                                                                          LOAD FAILING DATA
40 025500
            002512
                                                RPCS1
                                                                           FAILING REGISTER
   025502
            000100
                                                IE
                                                                          BIT UNDER TEST
            104456
000035
   025504
                                                TRAP
                                                        C#ERHRD
   025506
                                                . WORD
            013051
   025510
                                                . WORD
                                                        EM23
   025512
            014172
                                                . WORD
                                                        ERRO
43 025514
            005037
                     002402
                                                CLR
                                                        ITCOUN
                                                                          RESET FURTHER ITERATIONS
44 025520
45
   025520
                                       10001$:
   025520
            104405
                                                TRAP
                                                        C$ESEG
46 025522
            005337
                     002402
                                                DEC
                                                        ITCOUN
                                                                          ONE LESS ITERATION TO-GO
   025526
            003324
                                                BGT
                                                                          ; IF NOT <= O, WE'RE NOT DONE
48 025530
            012700
                     000000
                                                MOV
                                                         40.RO
```

CZRJMBO RPO7 FE/HOST ISOLATOR MACRO VO4.00 1-DEC-83 10:39:09 PAGE 51-1 TEST 16 INTERRUPT ENABLE - BIT TEST

SEQ 0117

025534 104441 49 025536 104401

TRAP C\$SPRI

TRAP CSETST

```
.SBTTL TEST 17 RH70 DUPLICATE INTERRUPT ENABLE TEST
 2
                                     : 5
                                              TEST 17 (RM70 TEST ONLY) RPCS3 DUPLICATE INTERRUPT ENABLE TEST
                                     : 5
                                                 SET PROCESSOR PRIORITY - 7
                                              :
 5
                                                 SET RPCS1: IE (BIT 06) . 1
                                     : 5
                                              :
 6
                                     : 15
                                                 IF RPCS3: IE (BIT 06) (> 1
                                                    THEN
                                     : 5
                                              : :
 8
                                                    OUTPUT ERROR MESSAGE
                                     : 5
                                              1 1
                                     : 5
                                                    ELSE SET RPCS2: CLR - 1
                                             :
                                                :
10
                                     : 5
                                                 ENDIF
                                             :
11
                                                    ((RPCS1: IE) AND (RPCS3: IE)) <> 0
                                     : 5
                                              :
                                                 IF
12
                                     : 5
                                              :
                                                 :
                                                    THEN
13
                                                    OUTPUT ERROR MESSAGE (BIT(S) DIDN'T CLEAR)
                                     : 5
                                             :
14
                                     : 5
                                                 ENDIF
15
                                     : 5
                                              END TEST 17
17 025540
                                     T17::
18 025540
           005737
                    002504
                                              TST
                                                      RHTYPE
                                                                        CAN WE DO THIS TEST
19 025544
           003002
                                              BGT
                                                                       : IF RH TYPE -+1. CONTROLLER IS RH70
20 025546
           104432
                                              TRAP
                                                      C$EXIT
   025550
           000160
                                              . WORD
                                                      L10037-.
21. 025552
           005037
                    002404
                                              CLR
                                     18:
                                                      ERRWD1
                                                                        : MODULE CALLOUT
           012737
22 025556
                    200000
                                                      #BIT1, ERRWD2
                            002466
                                              MOV
                                                                        FOR THIS TEST
23 025564
           012737
                    000012
                            002402
                                                      #10.,ITCOUN
                                              MOV
                                                                       :LOAD THE ITERATION COUNT
24 025572
                                     21:
           104404
   025572
                                              TRAP
                                                      C#BSEG
                                                                        SET PRIORITY TO 7
26 025574
           012700
                    000340
                                              MOV
                                                      OPRIO7.RO
   025600
           104441
                                              TRAP
                                                      C#SPRI
27 025602
           012777
                    000100 154702
                                              VOM
                                                      #IE. BRPCS1
                                                                       :SET RPCS1:IE-1
28 025610
           032777
                    000100 154746
                                                      DIE, BRPCS3
                                              BIT
                                                                       : TEST RPCS3: IE
29 025616
           001012
                                              BNE
                                                      34
                                                                        : IF SET. GO ON
30 025620
                                                      PC.BISEXP
           004737
                    017372
                                              JSR
                                                                        :LOAD FAILING DATA
31 025624
           002564
                                              RPCS3
                                                                        FAILING REGISTER
32 025626
           000100
                                              IE
                                                                        BIT UNDER TEST
33 025630
           104456
                                              TRAP
                                                      C$ERHRD
   025632
           000036
                                              . WORD
                                                       30
   025634 012776
025636 014172
                                                      EM22
                                              . WORD
                                              . WORD
                                                      ERRO
34 025640
                                              CLR
           005037
                    002402
                                                      ITCOUN
                                                                        INO ITERATIONS NECESSARY
35 025644
                                     31:
36 025644
                                     10000$:
   025644
           104405
                                              TRAP
                                                      C*ESEG
37 025646
38 025650
           104404
                                              TRAP
                                                      C#BSEG
           052777
                    000040 154644
                                              BIS
                                                       OCLR . BRPCS2
                                                                       :CLEAR OUT THE DEVICE
39 025656
           032777
                            154700
                    000100
                                              BIT
                                                      DIE, BRPCS3
                                                                        : TEST RPCS3: IE
           001412
40 025664
                                              BEQ
                                                                        IF CLEAR, TEST PASSES
41 025666
           004737
                    017422
                                              JSR
                                                      PC.BICEXP
                                                                        LOAD FAILING DATA
           002564
42 025672
                                              RPCS3
                                                                        FAILING REGISTER
43 025674
           000100
                                              IE
                                                                        BIT UNDER TEST
44 025676
           104456
                                              TRAP
                                                      C$ERHRD
   025700
                                                      31
           000037
                                              . WORD
   025702
           013051
                                              . WORD
                                                      EM23
   025704
           014172
                                              WORD
                                                      ERRO
45 025706
           005037
                    002402
                                              CLR
                                                      ITCOUN
                                                                        INO ITERATIONS
46 025712
                                     48:
47 025712
                                     100018:
```

CZRJMBO RPO7 FE/HOST ISOLATOR MACRO VO4.00 1-DEC-83 10:39:09 PAGE 52-1 TEST 17 RH70 DUPLICATE INTERRUPT ENABLE TEST

5	025712 8 025714 9 025720 0 025722 025726 1 025730	104405 005337 003324 012700 104441	002402	L10037:	TRAP DEC BGT MOV TRAP	C\$ESEG ITCOUN 2\$ #0.R0 C\$SPRI	ONE LESS ITERATION TO-GO	
,	025730	104401		110037:	TRAP	CSETST		

...

.

```
SBITL TEST 18 IPCKO TEST
 3
                                            TEST 18 (RH70 TEST ONLY) MOPE TEST 1
                                               SET RPCS3: IPCKO (BIT 0) - 1
                                    : 5
                                            :
 5
                                               IF RPCS3: IPCKO (> 1
                                    : 5
                                                  OUTPUT ERROR MESSAGE (BIT DIDN'T SET)
                                    : 15
                                    : 5
                                                  ELSE
                                            :
                                               :
                                    : 15
                                                  IF RPCS2: IR <> 1
                                            : :
10
                                            : : THEN
11
                                                  : WAIT
                                            : :
12
                                            : : ENDIF
                                                  WRITE DATA TO RPDB
14
                                            : ENDIF
15
                                            : IF ((RPCS1: TRE) AND (RPCS1: SC) AND (RPCS2: MCPE)) <> 1
16
                                                  THEN
                                            : :
17
                                                  OUTPUT ERROR MESSAGE (SHOULD HAVE DETECTED A PARITY ERROR)
                                            : :
18
                                                  ELSE
                                            :
                                               :
19
                                                  SET RPCS2: CLR - 1
                                            : :
20
21
22
23
24
25
26
27
                                                  IF ((RPCS2: MCPE) OR (RPCS1: SC) OR (RPCS1: TRE)) = 1
                                                        THEN
                                            :
                                                     OUTPUT ERROR MESSAGE (ERROR STATUS DIDN'T CLEAR)
                                            : :
                                    : 5
                                                  ENDIF
                                            :
                                            : ENDIF
                                    : 5
                                               ENDIF
                                    : 5
                                            END TEST 18
                                    : 5
28 025732
                                    T18::
29 025732
           005737
                   002504
                                            TST
                                                    RHTYPE
                                                                     :IS THE CONTROLLER AN RH70?
   025736
           003002
                                            BGT
                                                    64$
                                                                     : IF > 0. YES.
   025740
           104432
                                            TRAP
                                                    CSEXIT
                                                    L10040-
   025742 000264
                                             WORD
   025744
           005037
                   002404
                                            CLR
                                                    ERRWD1
                                    641:
                                                                     SET THE MODULE CALLOUT
   025750
          012737
                   200000
                           002406
                                            MOV
                                                    #BIT1, ERRWD2
                                                                     FOR THIS TEST
   025756
          012737
                   000012 002402
                                                    #10.,ITCOUN
                                            MOV
                                                                     :LOAD THE ITERATION COUNT
   025764
                                    661:
   025764
           104404
                                            TRAP
                                                    C$BSEG
   025766 052777
025774 032777
                                                     MBITO, SRPCS3
                   000001 154570
                                            BIS
                                                                     SET THE BITO-UNDER-TEST
                                                     4BITO, BRPCS3
                   000001 154562
                                            BIT
                                                                     IDID BITO SET IN RPCS3?
   026002 001012
                                            BNE
                                                                     YES, SKIP ERROR DISPATCH
                                                    651
   026004 004737
                                                    PC.BISEXP
                   017372
                                             JSR
                                                                     LOAD FAILING DATA
   026010 002564
                                            RPCS3
                                                                     FAILING REGISTER
   026012 000001
                                            BITO
                                                                     BIT UNDER TEST
   026014 104456
                                            TRAP
                                                    C$ERHRD
   026016 000040
                                             . WORD
                                                     32
   026020 012776
                                                    EM22
                                             . WORD
   026022 014172
                                                    ERRO
                                             . WORD
   026024
           005037 002402
                                            CLR
                                                    ITCOUN
                                                                     RESET FURTHER ITERATIONS
   026030
                                    65#:
   026030
                                    10000$:
   026030
                                            TRAP
           104405
                                                    C#ESEG
   026032
           104404
                                            TRAP
                                                    C#BSEG
           004737
   026034
                   017672
                                             JSR
                                                    PC, IRLOCK
                                                                     POLL INPUT READY IN RPCS2
   026040
           005077
                   154470
                                            CLR
                                                                     : WRITE RPDB WITH O'S
           004737
   026044
                   017706
                                             JSR
                                                    PC. ORLOCK
                                                                     NOW WAIT FOR OUTPUT READY IN RPCS2
   026050
           005777
                   154460
                                            TST
                                                     BRPDB
                                                                     INOW DO A ONE WORD READ OF RPDB
   026054
           004737 017000
                                                                     WAIT FOR THE RPO7 MICROPROCESSOR
                                            JSR
                                                    PC.WAIT
```

026074 002512 017372 026076 140000 02512 026076 140000 026100 104456 026102 000041		026060	032777	140000	154424		BIT	#SC!TRE, GRPCS1	LOOK FOR SC AND TRE THEY BOTH SET, GO-ON
026076 140000 026100 104456 026104 012776 026106 014172 026112 007537 000400 026122 001012 026124 004737 017372 026130 002522 026134 104456 026136 000042 026136 000042 026136 000042 026136 000042 026136 000042 026136 000042 026136 000042 026136 000042 026136 000042 026136 000042 026136 000042 026136 000042 026136 000042 026136 000042 026136 000042 026136 000042 026136 000042 026137 000000 026136 000042 026136 000042 026137 000000 026120 000000 026120 000000 02622 000000 02622 000000 02622 000000 02622 0000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 0000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 0000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 000000 02622 0000000 02622 0000000 02622 0000000 02622 0000000 02622 0000000 02622 0000000 02622 0000000 02622 00000000 02622 0000000 02622 0000000 02622 0000000 02622 0000000000		026070	004737	017372			JSR		LOAD FAILING DATA
026100 004061 026100 000061 026100 012776 026100 012776 026100 005037 026114 032777 000400 154400 67\$: BIT			002512						
026104 012776 026106 014172 026110 005037 002402 026134 01472 026130 002522 026134 005037 002402 026134 005037 002402 026134 005037 002402 026134 005037 002402 026135 0026136 000042 026136 005037 002402 026136 005037 002402 026136 005037 002402 026136 005037 002402 026136 026136 005037 002402 026136 026136 005037 002402 026136 026136 005037 002402 026136 026136 005037 002402 026136 005037 002402 026136 026136 005037 002402 026136 026136 005037 002402 026136 026136 005037 002402 026136 026136 005037 002402 026136 026136 005037 002402 026136 026136 005037 002402 026136 026136 005037 002402 026136 026136 005037 002402 026136 026136 005037 002402 026136 026136 005037 002402 026136 005037 002402 026136 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 005037 00			140000				SC! TRE	CAEDHDD	BIT UNDER TEST
026104 012776 026110 005037 002402 026114 032777 000400 154400 67\$: BIT WORD ERRO 026124 004737 017372			000041				MUSD		
026106 014172 026110 005037 002402 026114 032777 000400 154400 67\$: BIT #MDPE, RPPCS2 BNE 68\$ 175. GO-ON 1.000 FAILING DATA 1.000 FAILING DATA 1.000 FAILING DATA 1.000 FAILING DATA 1.000 FAILING REGISTER 1.00015: TRAP 026120 000400 05037 002402 026134 00405 052777 000040 154344 68\$: BIS #CLR #RPCS2 026156 000405 052777 000040 154344 68\$: BIS #CLR #RPCS2 026156 000404 026162 032777 000040 154344 68\$: BIS #CLR #RPCS2 026156 000404 026162 032777 000040 154344 68\$: BIS #CLR #RPCS2 026160 104404 026162 032777 000001 154374 BIT #BIT #BIT #BIT #BIT #BIT #BIT #BIT		026104	012776				WORD		
026114 032777 000400 154400 678: BIT		026106	014172				. WORD		
026124 004737 017372		026110	005037				CLR	ITCOUN	RESET FURTHER ITERATIONS
026130 002522 00400 025132 000400 026132 000400 026134 104456 026136 000042 026134 005037 002402 026140 015776 026150 052777 000000 154344 68\$: BIS		026114		000400	154400	67\$:		MDPE, aRPCS2	IDID WE DETECT PARITY ERROR?
026130 002522 000400		026122							YES, GO-ON
026132 000400 026134 104456 026136 000042 026140 012776 026142 014172 026144 005037 002402 026150 052777 000040 154344 68\$: 026156 026156 026156 104405 026160 104404 026162 032777 000001 154374 BIT #BIT #BIT #BIT #BIT #BIT #BIT #BIT		026124		01/3/2			JSK	PC.BISEXP	
026134 104456 026136 000042 026140 012776 026142 014172 026144 005037 026150 052777 000040 154344 68\$: BIS		026130	000400				MUDE		PIT INDED TECT
026136 000042							TRAP	CSERHED	IBII ONDER 1E31
026140 012776 026142 014172 026144 005037 002402 026150 052777 000040 154344 68\$: 026156 026156 104405 026160 104404 026162 032777 000001 154374 026170 001412 026172 004737 017422 026176 002564 026176 002564 026200 000001 026202 104456 026204 000043 026206 013051 026216 000000 026212 005037 002402 02612 005037 002402 02612 005037 002402 02612 005037 002402 026216 005037 002402 026216 005037 002402 026216 005037 002402 026216 005037 002402 026216 005037 002402 026216 005037 002402 026216 005037 002402 026216 005037 002402 026216 005037 002402 026216 005037 002402 026216 005037 002402 026216 005037 002402 026216 005037 002402 026216 005037 002402 026216 005037 002402 026216 005037 002402 026216 005037 002402		026136					WORD		
026144 005037 002402		026140	012776				. WORD		
026150 052777 000040 154344 68\$: BIS #CLR.RRPCS2 ;CLEAR OUT THE DEVICE!  026156 104405							. WORD	ERRO	
026156 104405							CLR		RESET FURTHER ITERATIONS
026156 104405 026160 104404 026162 032777 000001 154374 026170 001412 026172 004737 017422 BEQ 69\$ ;= 0, TEST 0K!! 026176 002564 026200 000001 BITO TRAP C\$ERHRD 026202 104456 C\$ERHRD		026150	052777	000040	154344		BIS	OCLR, ORPCS2	CLEAR OUT THE DEVICE!
026160 104404 026162 032777 000001 154374 026170 001412 026172 004737 017422 026176 002564 026200 000001 026202 104456 026204 000043 026206 013051 026210 000000 026212 005037 002402 026216  TRAP C#BSEG BIT #BITO, BRPCS3 #PC,BICEXP #PO, TEST OK!! #PO, TEST OK!! #PC,BICEXP #PC,BICEXP #PO, BICEXP #PO,		026156	104405			10001\$:	7040	045050	
026162 032777 000001 154374 026170 001412 026172 004737 017422 026176 002564 026200 000001 026202 104456 026204 000043 026206 013051 026210 000000 026212 005037 002402 026216 026206 05037 002402 026216 026206 05037 002402 026216 026207 000001 026212 005037 002402 026216 026208 000001 026212 005037 002402 026216 026208 000001 026212 005037 002402 026216 03777 000001 154374 08IT		026156					TRAP		
026170 001412 026172 004737 017422		026162		000001	154374				MOU CHECK TO SEE THAT ARTTO DED CLEAR
026172 004737 017422			001412	000001	234314		REG		. O TEST OK!
026176 002564 RPCS3		026172	004737	017422					LOAD FAILING DATA
026202 104456		026176	002564				RPCS3		FAILING REGISTER
026204 000043 WORD 35 026206 013051 WORD EM23 026210 000000 WORD 0 026212 005037 002402 CLR ITCOUN ;RESET FURTHER ITERATIONS 026216 69\$:		026200					BITO		BIT UNDER TEST
026206 013051 .WORD EM23 026210 000000 .WORD 0 026212 005037 002402 CLR ITCOUN ;RESET FURTHER ITERATIONS 026216 698:		026202					TRAP		
026210 000000 .WORD 0 026212 005037 002402 CLR ITCOUN ;RESET FURTHER ITERATIONS 026216 698:		026204	000043				. WORD		
026212 005037 002402 CLR ITCOUN ;RESET FURTHER ITERATIONS 026216 698:		026206					. WORD		
026216 69\$:		026212		002402					DECET FURTHER TTERATIONS
		026216	003031	305-300		694 .	CEN	110004	THESE FORTHER TIERNITURS
100021:		026216				100024:			
026216 104405 TRAP C#ESEG		026216							
026220 005337 002402 DEC ITCOUN ; ONE LESS ITERATION TO-GO		026220		002402					ONE LESS ITERATION TO-GO
026224 003257 BGT 664 ; TAKE BRANCH IF NOT DONE	70		003257				BGT	661	; TAKE BRANCH IF NOT DONE
30 026226 026226 104401 TRAP C\$ETST	30		104401			L10040:	TRAP	CSETST	

```
.SBTTL TEST 19 IPCK1 TEST
                                     : 5
                                             TEST 19 (RH70 TEST ONLY) MOPE TEST 2
                                               SET RPCS3: BIT 01 (IPCK1) = 1
                                    : 5
                                             :
                                                   RPCS3: IPCK1 <> 1
                                     : 5
                                                IF
                                             .
                                     : 96
                                                   THEN
                                               :
                                             :
                                                   OUTPUT ERRCR MESSAGE (BIT DIDN'T SET)
                                     : 15
                                            :
                                               :
                                     : 15
                                                   ELSE
                                            :
                                               :
                                     : 5
                                                   IF RPCS2: IR <> 1
                                             :
                                               :
10
                                     : 5
                                             : : : THEN
11
                                     : 5
                                                      WAIT FOR RPCS2: IR TO SET
                                            : :
12
                                                   ENDIF
                                            : :
13
                                                   WRITE RPDB ONCE
                                            : :
14
                                            : ENDIF
15
                                            : IF ((RPCS1: TRE) AND (RPCS1: SC) AND (RPCS2: MDPE)) <> 1
16
                                                   : THEN
17
                                                   OUTPUT ERROR MESSAGE (UNDETECTED PARITY ERROR)
                                            : :
18
                                                   ELSE
                                            : :
19
                                                   SET RPCS2: CLR - 1
                                             : :
20
                                                   IF ((RPCS1: TRE) OR (RPCS1: SC) OR (RPCS2: MDPE)) = 1
                                             : :
21
22
23
24
25
                                    : 15
                                                      THEN
                                             : :
                                     : 15
                                                      OUTPUT ERROR MESSAGE (ERROR STATUS FAILED TO CLEAR)
                                               :
                                    : 5
                                                   ENDIF
                                             :
                                                ENDIF
                                     : 15
                                     : 5
                                             END TEST 19
26
27 026230
                                     T19::
28 026230
           005737
                   002504
                                             TST
                                                     RHTYPE .
                                                                      :IS THE CONTROLLER AN RH70?
   026234
           003002
                                             BGT
                                                     64$
                                                                      : IF > 0. YES.
   026236
           104432
                                             TRAP
                                                     C$EXIT
   026240
           000264
                                             . WORD
                                                     L10041-.
   026242
           005037
                    002404
                                             CLR
                                    641:
                                                     ERRWD1
                                                                      SET THE MODULE CALLOUT
   026246
           012737
                            002406
                                             MOV
                                                     4BIT1, ERRWD2
                                                                      FOR THIS TEST
                    000002
   026254
           012737
                    000012
                            002402
                                             MOV
                                                     #10.,ITCOUN
                                                                      LOAD THE ITERATION COUNT
   026262
                                    66#:
   026262
           104404
                                             TRAP
                                                     C#BSEG
   026264
           052777
                                                     #BIT1, BRPCS3
                           154272
                                                                      SET THE BIT1-UNDER-TEST
                    000002
                                             BIS
   026272
           032777
                    000002 154264
                                                     4BIT1, BRPCS3
                                             BIT
                                                                      DID BIT1 SET IN RPCS3?
   026300
           001012
                                                                      YES, SKIP ERROR DISPATCH
                                             BNE
                                                     65#
   026302
           004737
                    017372
                                             JSR
                                                     PC.BISEXP
                                                                      :LOAD FAILING DATA
   026306
           002564
                                             RPCS3
                                                                      FAILING REGISTER
   026310
           000001
                                             BITO
                                                                      BIT UNDER TEST
           104456
000044
   026312
                                                     C$ERHRD
                                             TRAP
   026314
                                             . WORD
   026316
           012776
                                                     EM22
                                             . WORD
   026320
           014172
                                              WORD
                                                     ERRO
   026322
           005037
                   002402
                                             CLR
                                                     ITCOUN
                                                                      RESET FURTHER ITERATIONS
   026326
                                    651:
   326326
                                     10000$:
   026326
           104405
                                             TRAP
                                                     C$ESEG
   026330
           104404
                                             TRAP
                                                     C#BSEG
   026332
           004737
                    017672
                                             JSR
                                                                      POLL INPUT READY IN RPCS2
                                                     PC. IRLOCK
   026336
           005077
                    154172
                                             CLR
                                                                      WRITE RPDB WITH O'S
                                                     BRPDB
   026342
           004737
                    017706
                                             JSR
                                                     PC, ORLOCK
                                                                      NOW WAIT FOR OUTPUT READY IN RPCS2
   026346
           005777
                                                     BRPDB
PC, WAIT
                    154162
                                             TST
                                                                      INOW DO A ONE WORD READ OF RPDB
   026352
           004737
                    017000
                                                                      WAIT FOR THE RPO7 MICROPROCESSOR
           032777
   026356
                    140000
                            154126
                                                     #SC! TRE. BRPCS1
                                             BIT
```

	026364 026366 026372	001012 004737 002512	017372			BNE JSR RPCS1	67\$ PC.BISEXP	;THEY BOTH SET, GO-ON ;LOAD FAILING DATA ;FAILING REGISTER
	026374	140000 104456				SC!TRE	C\$ERHRD	BIT UNDER TEST
	026400	000045				MOBD	37	
	026402	012776				. WORD	EM22	
	026404	014172				. WORD	ERRO	
	026406	005037	002402			CLR	ITCOUN	RESET FURTHER ITERATIONS
	026412	032777	000400	154102	67\$:	BIT	MDPE, BRPCS2	DID WE DETECT PARITY ERROR?
	026420	001012	017770			BNE	68\$	YES, GO-ON
	026426	004737 002522	01/3/2			JSR RPCS2	PC.BISEXP	:LOAD FAILING DATA :FAILING REGISTER
	026430	000400				MDPE		BIT UNDER TEST
	026432	104456				TRAP	C\$ERHRD	IDII ONDER 1ESI
	026434	000046				. WORD	38	
	026436 026440	012776				. WORD	EM22	
	026440	014172				. WORD	ERRO	
	026442	005037	002402			CLR	ITCOUN	RESET FURTHER ITERATIONS
	026446 026454	052777	000040	154046	68\$:	BIS	CLR, SRPCS2	CLEAR OUT THE DEVICE!
	026454	104405			10001*:	TRAP	CSESEG	
	026456	104404				TRAP	C#BSEG	
	026456 026460	032777	200000	154076		BIT	#BIT1, BRPCS3	NOW CHECK TO SEE THAT BITT DID CLEAR
	026466	001412				BEQ	69\$	;= 0, TEST OK!!
	026470	004737	017422			JSR	PC.BICEXP	;LOAD FAILING DATA
	026474	002564				RPCS3		FAILING REGISTER
	026476 026500 026502	000001 104456				BITO	CAEDUDD	BIT UNDER TEST
	026500	000047				TRAP . WORD	C\$ERHRD 39	
	026504	013051				WORD	EM23	
	026506	000000				WORD	0	
	026510	005037	002402			CLR	ITCOUN	RESET FURTHER ITERATIONS
	026514				694:			
	026514				10002\$:			
	026514 026516	104405	000400			TRAP	CSESEG	015 1500 335043701 30 60
	026522	005337 003257	002402			DEC BGT	ITCOUN 66\$	ONE LESS ITERATION TO-GO
29	026524	003231			L10041:	001	00+	TIME BUNCH IL NOT DONE
	026524	104401			210041:	TRAP	CSETST	

```
SBITL TEST 20 IPCK2 TEST
                                              TEST 20 (RH70 TEST ONLY) MDPE TEST 3
                                                SET RPCS3: IPCK2 (BIT2) = 1
                                     : 5
                                             :
 5
                                                 IF RPCS3: IPCK2 <> 1
                                     : 5
                                                    THEN
 6
                                     : 5
                                                    OUTPUT ERROR MESSAGE (BIT DIDN'T SET)
                                     : 5
                                             :
                                     : 5
                                                    ELSE
                                             :
                                                :
 9
                                                    IF RPCS2: IR <> 1
                                     : 5
                                             :
                                                :
10
                                             : : : THEN
                                     : 15
                                                       WAIT FOR RPCS2: IR TO SET
11
                                             : :
12
                                     : 5
                                                    ENDIF
                                     : 5
                                                WRITE DATA TO RPDB
14
                                     : 5
                                                ENDIF
                                             :
15
                                             : IF ((RPCS1: TRE) AND RPCS1: SC) AND (RPCS2: MCPE)) <> 1
                                     : 5
16
                                     : 5
                                                    THEN
                                             :
                                                :
17
                                                    OUTPUT ERROR MESSAGE (UNDETECTED PARITY ERROR)
                                             :
                                                :
18
                                                    ELSE
                                                :
19
                                                    SET RPCS2: CLR = 1
20
                                     : 5
                                                    IF ((RPCS1: SC) OR (RPCS1: TRE) OR (RPCS2: MCPE)) = 1
20
21
22
23
24
25
26
27 026526
                                                :
                                     : 15
                                                       THEN
                                     : 5
                                                       OUTPUT ERROR MESSAGE (ERROR STATUS FAILED TO CLEAR)
                                     : 5
                                                    ENDIF
                                             :
                                                 .
                                     : 5
                                                ENDIF
                                             END TEST 20
                                     T20::
28 026526
            005737
                    002504
                                              TST
                                                      RHTYPE
                                                                       ; IS THE CONTROLLER AN RH70?
   026532
           003002
                                              BGT
                                                      64$
                                                                       : IF > 0, YES,
                                              TRAP
   026534
            104432
                                                      C$EXIT
   026536
           000304
                                              WORD
                                                      L10042-.
   026540
           005037
                    002404
                                     644:
                                              CLR
                                                      ERRWD1
                                                                       SET THE MODULE CALLOUT
   026544
           012737
                    000002
                            002406
                                              MOV
                                                      #BIT1, ERRWD2
                                                                       FOR THIS TEST
   026552
           012737
                    000012
                            002402
                                                      #10.,ITCOUN
                                                                       LOAD THE ITERATION COUNT
                                              MOV
   026560
                                     664:
   026560
            104404
                                              TRAP
                                                      C$BSEG
   026562
            052777
                    000004
                            153774
                                                      MBIT2, SRPCS3
                                                                        SET THE BIT2-UNDER-TEST
                                              BIS
   026570
           032777
                    000004
                            153766
                                              BIT
                                                      #BIT2, BRPCS3
                                                                        DID BIT2 SET IN RPCS3?
   026576
                                                                       YES, SKIP ERROR DISPATCH
           001012
                                              BNE
                                                      65#
   026600
                                                      PC.BISEXP
           004737
                    017372
                                              JSR
                                                                       LOAD FAILING DATA
   026604
           002564
                                              RPCS3
                                                                        FAILING REGISTER
   026606
           000001
                                              BITO
                                                                        BIT UNDER TEST
   026610
           104456
                                              TRAP
                                                      C$ERHRD
   026612
           000050
                                              . WORD
                                                      40
   026614
                                              . WORD
           012776
                                                      EM22
   026616
           014172
                                              . WORD
                                                      ERRO
   026620
                    002402
           005037
                                              CLR
                                                      ITCOUN
                                                                       RESET FURTHER ITERATIONS
   026624
                                     65#:
   026624
                                     10000$:
   026624
            104405
                                              TRAP
                                                      C#ESEG
           104404
   026626
                                              TRAP
                                                      C#BSEG
   026630
                                                                       POLL INPUT READY IN RPCS2
                    017672
                                              JSR
                                                      PC, IRLOCK
   026634
            005077
                    153674
                                              CLR
                                                                       WRITE RPDB WITH O'S
   026640
            004737
                    017672
                                                      PC, IRLOCK
BRPDB
                                              JSR
                                                                       WAIT FOR IR TO SET AGAIN
   026644
            005077
                    153664
                                             CLR
                                                                        WRITE RPDB - O. AGAIN
   026650
            004737
                    017706
                                              JSR
                                                      PC, ORLOCK
                                                                        NOW WAIT FOR OUTPUT READY IN RPCS2
   026654
            005777
                    153654
                                              TST
                                                      BRPDB
                                                                        NOW DO A ONE WORD READ OF RPDB
```

026660	004737	017706			JSR	PC.ORLOCK	WAIT FOR OUTPUT READY TO SET IN RPCS2 AGAIN
026664	005777	153644			TST	aRPDB	DO A SECOND READ OF RPDB
026670	004737	017000			JSR	PC.WAIT	WAIT FOR THE RPO7 MICROPROCESSOR
026674	032777	140000	153610		BIT	#SC!TRE, BRPCS1	LOOK FOR SC AND TRE
026702	001012				BNE	678	THEY BOTH SET. GO-ON
026704	004737	017372			JSR	PC.BISEXP	:THEY BOTH SET, GO-ON :LOAD FAILING DATA
026710	002512				RPCS1		FAILING REGISTER
026712	140000				SC! TRE		BIT UNDER TEST
026714	104456				TRAP	C\$ERHRD	,02. 0.02. 120.
026716	000051				. WORD	41	
026720	012776				. WORD	EM22	
026722	014172				. WORD	ERRO	
026724	005037	002402			CLR	ITCOUN	RESET FURTHER ITERATIONS
026730	032777	000400	153564	674:	BIT	MDPE, BRPCS2	DID WE DETECT PARITY ERROR?
026736	001012				BNE	681	YES, GO-ON
026740	004737	017372			JSR	PC.BISEXP	LOAD FAILING DATA
026744	002522				RPCS2	. 0,0200	FAILING REGISTER
026746	000400				MOPE		BIT UNDER TEST
026750	104456				TRAP	C\$ERHRD	1011 SHOEK TEST
026752	000052				. WORD	42	
026754	012776				. WORD	EM22	
026756	014172				. WORD	ERRO	
026760	005037	002402			CLR	ITCOUN	RESET FURTHER ITERATIONS
026764	052777	000040	153530	68\$:	BIS	CLR, SRPCS2	CLEAR OUT THE DEVICE!
026772			230300	10001#:	010		TOCCHE OUT THE DEVICE.
026772	104405			200020.	TRAP	C\$ESEG	
026774	104404				TRAP	C\$BSEG	
026776	032777	000004	153560		BIT	#BIT2, BRPCS3	-NOW CHECK TO SEE THAT MRTTO DED CLEAR
027004	001412		230300		BEQ	69\$	:NOW CHECK TO SEE THAT #BIT2 DID CLEAR := 0, TEST OK!!
027006	004737	017422			JSR	PC.BICEXP	LOAD FAILING DATA
027012	002564				RPCS3	. 0.020271	FAILING REGISTER
027014	000001				BITO		BIT UNDER TEST
027016	104456				TRAP	C\$ERHRD	1011 GIBER TEST
027020	000053				. WORD	43	
027022	013051				. WORD	EM23	
027024	000000				WORD	0	
027026	005037	002402			CLR	ITCOUN	RESET FURTHER ITERATIONS
027032				694:		2.000.1	THESE TONTIER TIERRITONS
027032				100021:			
027032	104405			200020.	TRAP	C\$ESEG	
027034	005337	002402			DEC	ITCOUN	ONE LESS ITERATION TO-GO
027040	003247				BGT	66\$	TAKE BRANCH IF NOT DONE
29 027042				L10042:			THE SHARE IN THE SOURCE
027042	104401				TRAP	C\$ETST	

```
.SBTTL TEST 21 IPCK3 TEST
                                               TEST 21 (RH70 TEST ONLY) MDPE TEST 4
                                                  SET RPCS3: IPCK3 (BIT 03) = 1
IF RPCS3: IPCK3 <> 1
                                       : 5
 5
                                       : 5
 67
                                       : 5
                                                      THEN
                                                   :
                                               :
                                                      OUTPUT ERROR MESSAGE (BIT FAILED TO SET)
                                       : 5
                                       : 15
                                                      ELSE
                                                   :
                                       : 5
                                                      IF RPCS2: IR <> 1
                                               :
                                                   :
10
                                       : 5
                                                     : THEN
                                               :
                                                  :
                                      : 15
                                                         WAIT FOR RPCS2: IR TO SET
                                               :
                                                  :
12
13
14
15
                                      : 15
                                                     ENDIF
                                               :
                                                  :
                                       : 15
                                               : :
                                                     ELSE
                                       : 15
                                                     WRITE DATA TO RPDB
                                                      WAIT FOR RPCS2: IR TO SET AGAIN (USING A TIMER)
                                       : 15
16
                                       : 5
                                                      WRITE RPDB WITH DATA AGAIN
                                               :
                                       : 5
                                                  ENDIF
                                               :
18
19
20
21
22
23
24
25
26
27
28
29
30
                                       : 5
                                                  IF ((RPCS1: SC) AND (RPCS1: TRE) AND (RPCS2: MCPE)) <> 1
                                               :
                                       : 5
                                                      THEN
                                               :
                                                   :
                                       : 15
                                                      OUTPUT ERROR MESSAGE (UNDETECTED PARITY ERROR)
                                       : 5
                                                      ELSE
                                       : 5
                                                      SET RPCS2: CLR = 1
                                       : 5
                                                   ENDIF
                                               :
                                       : 5
                                                   IF ((RPCS1: SC) OR (RPCS1: TRE) OR (RPCS2: MCPE)) = 1
                                               :
                                       : 5
                                       : 5
                                                      OUTPUT ERROR MESSAGE (ERROR STATUS FAILED TO CLEAR)
                                       : 15
                                                   ENDIF
                                       : 5
                                               END TEST 21
   027044
                                       T21::
31 027044
            005737
                                                TST
                     002504
                                                        RHTYPE
                                                                          :IS THE CONTROLLER AN RH70?
   027050
            003002
                                               BGT
                                                        641
                                                                          : IF > 0, YES.
   027052
            104432
                                                TRAP
                                                        C*EXIT
   027054
            000304
                                                WORD
                                                        L10043-.
   027056
            005037
                     002404
                                       644:
                                               CLR
                                                        ERRWD1
                                                                          SET THE MODULE CALLOUT
   027062
                                                        #BIT1, ERRWD2
            012737
                     000002
                              002406
                                               MOV
                                                                          FOR THIS TEST
   027070
            012737
                     000012
                              002402
                                               MOV
                                                        #10.,ITCOUN
                                                                          :LOAD THE ITERATION COUNT
   027076
                                       66$:
   027076
                                                TRAP
                                                        C$BSEG
   027100
            052777
                     000010
                             153456
153450
                                                        #BIT3, BRPCS3
                                                                          SET THE BIT3-UNDER-TEST
                                               BIS
   027106
            032777
                     000010
                                               BIT
                                                        4BIT3, BRPCS3
                                                                          DID BITS SET IN RPCS3?
   027114
            001012
                                               BNE
                                                                          YES, SKIP ERROR DISPATCH
                                                        65$
   027116
            004737
                                                JSR
                     017372
                                                        PC.BISEXP
                                                                          LOAD FAILING DATA
   027122
            002564
                                               RPCS3
                                                                          FAILING REGISTER
   027124
            000001
                                               BITO
                                                                          BIT UNDER TEST
   027126
                                                        C#ERHRD
            104456
                                                TRAP
   027130
                                                . WORD
            000054
                                                        44
   027132
            012776
                                                        EM22
                                                . WORD
   027134
            014172
                                                . WORD
                                                        ERRO
   027136
            005037
                     002402
                                                        ITCOUN
                                               CLR
                                                                          RESET FURTHER ITERATIONS
   027142
   027142
                                       10000#:
   027142
            104405
                                                TRAP
                                                        C#ESEG
            104404
   027144
                                                TRAP
                                                        C#BSEG
   027146
            004737
                     017672
                                                JSR
                                                        PC, IRLOCK
                                                                          POLL INPUT READY IN RPCS2
   027152
            005077
                     153356
                                               CLR
                                                                          WRITE RPDB WITH O'S
   027156
            004737
                     017672
                                                JSR
                                                        PC, IRLOCK
                                                                          WAIT FOR IR TO SET AGAIN
```

0	27162	005077	153346			CLR	aRPDB	; WRITE RPDB = 0. AGAIN
0	27166	004737	017706			JSR	PC, ORLOCK	NOW WAIT FOR OUTPUT READY IN RPCS2
	027172 027176	005777 004737	153336 017706			TST JSR	SRPDB PC,ORLOCK	NOW DO A ONE WORD READ OF RPDB
0	27202	005777	153326			TST	<b>BRPDB</b>	WAIT FOR OUTPUT READY TO SET IN RPCS2 AGAIN!
0	27206	004737	017000 140000	153272		JSR BIT	PC.WAIT	DO A SECOND READ OF RPDB WAIT FOR THE RPO7 MICROPROCESSOR
0	27220	001012	140000	133212		BNE	#SC!TRE, BRPCS1	LOOK FOR SC AND TRE THEY BOTH SET, GO-ON
0	27222 27226	004737 002512	017372			JSR RPCS1	PC.BISEXP	;LOAD FAILING DATA
0	27230	140000				SC! TRE		FAILING REGISTER BIT UNDER TEST
0	27232 27234	104456				TRAP . WORD	C\$ERHRD 45	
0	27236	012776				. WORD	EM22	
0	)27240 )27242	014172 005037	002402			. WORD	ERRO ITCOUN	DECET EMPTHED TIEDATIONS
ŏ	27246 27254	032777	000400	153246	67\$:	BIT	MDPE, DRPCS2	RESET FURTHER ITERATIONS DID WE DETECT PARITY ERROR?
0	)272 <b>54</b> )272 <b>56</b>	001012 004737	017372			JSR	68\$ PC.BISEXP	:YES, GO-ON :LOAD FAILING DATA
0	27262	002522	VIIII			RPCS2	PC, BISEAP	FAILING REGISTER
0	027264 027266	000400 104456				MDPE TRAP	C\$ERHRD	BIT UNDER TEST
0	027270	000056				. WORD	46	
0	027272 027274	012776				. WORD	EM22 ERRO	
0	027276	005037	002402			CLR	ITCOUN	RESET FURTHER ITERATIONS
0	027 <b>3</b> 02 027 <b>3</b> 10	052777	000040	153212	68\$:	BIS	OCLR, ORPCS2	CLEAR OUT THE DEVICE!
0	027310	104405				TRAP	CSESEG	
0	027312	104404	000010	153242		TRAP BIT	C#BSEG #BIT3, BRPCS3	NOW CHECK TO SEE THAT #BIT3 DID CLEAR
0	027322 027324	001412	017422			BEQ JSR	69\$	:= 0. TEST OK!! :LOAD FAILING DATA
Ö	27330	002564	011422			RPCS3	PC.BICEXP	FAILING REGISTER
0	027330 027332 027334	000001 104456				BITO	CSERHRD	BIT UNDER TEST
0	027336	000057				. WORD	47	
	027340	013051				. WORD	EM23	
0	027344	005037	002402			CLR	•	RESET FURTHER ITERATIONS
0	027350 027350				69\$:			
0	027350 027352	104405	002402		2	TRAP	CSESEG	ONE LESS TEPRATION TO SE
0	027356	005337 003247	002402			DEC BGT	ITCOUN 66\$	ONE LESS ITERATION TO-GO TAKE BRANCH IF NOT DONE
	027360 027360	104401			L10043:	TRAP		
	200	TOTTOL				INAP	C\$ETST	

```
.SBTTL TEST 22 INTERRUPT TEST #1
                                             TEST 22 INTERRUPT TEST 1
                                     : 5
                                                 WRITE RPCS1: RDY (BIT 07) = 1
                                     : 5
                                             :
                                                 IF RPCS1: RDY <> 1
                                     : 5
                                             :
                                     : 5
                                             :
                                     : 15
                                                    OUTPUT ERROR MESSAGE (RPCS1: RDY STUCK AT 0)
                                     : 15
                                                 ENDIF
                                     : 5
                                                 SET PROCESSOR PRIORITY = 7 DOWNTO THE DEVICE PRIORITY, ONE LEVEL AT A TIME
                                             :
                                     : 5
                                                 SET RPCS1: RDY AND RPCS1: IE = 1
                                             :
                                     : 5
11
                                                 IF INTERRUPT IS RECEIVED
                                             :
12
                                     : 15
                                                    THEN
                                             :
                                     : 5
                                                    OUTPUT ERROR MESSAGE (RHXX INTERRUPTED TO WRONG PRIORITY)
                                             :
14
                                     : 5
                                                 ENDIF
15
                                     : 5
                                             END TEST 22
16
   027362
17
                                     T22::
18 027362
           005037
                    002404
                                             CLR
                                                      ERRWD1
                                                                       : CREATE THE MODULE CALLOUT
19 027366
                                                      #BIT1, ERRWD2
           012737
                    000002
                            002406
                                             MOV
                                                                       FOR THIS TEST
20 027374
           012737
                   000012
                            002402
                                                                       :LOAD THE ITERATION COUNT
                                             MOV
                                                      #10.,ITCOUN
21 027402
                                     18:
   027402
           104404
                                              TRAP
                                                      C#BSEG
                                                      INTFLG
22 027404
           005037
                    002462
                                             CLR
                                                                       RESET THE INTERRUPT STATUS FLAG
23 027410
           052777
                            153074
                    000200
                                                      ORDY, SRPCS1
                                             BIS
                                                                       :SET RDY = 1 IN RPCS1
24 027416
           032777
                    000200
                            153066
                                             BIT
                                                      #RDY, @RPCS1
                                                                       :IS IT = 1 ?
25 027424
           001012
                                             BNE
                                                                       : YES. SKIP ERROR DISPATCH
26 027426
           004737
                    017372
                                              JSR
                                                      PC.BISEXP
                                                                       LOAD UP THE ERROR POINTERS
           002512
27 027432
                                             RPCS1
                                                                       THIS REGISTER
28 027434
           000200
                                             RDY
                                                                       :THIS BIT
29 027436
           104456
                                                      C$ERHRD
                                              TRAP
           000060
   027440
                                              . WORD
                                                      48
   027442
           012776
                                                      EM22
                                              . WORD
   027444
           014172
                                              WORD
                                                      ERRO
30 027446
           005037
                    002402
                                              CLR
                                                      ITCOUN
                                                                       RESET THE ITERATION COUNTER
31 027452
                                     2$:
   027452
                                     10000$:
   027452
           104405
                                              TRAP
                                                      C#ESEG
32 027454
           012746
                    000340
                                                      #PRIO7,-(SP)
                                             MOV
                                                      #INTSRV, -(SP)
   027460
           012746
                    020630
                                             MOV
   027464
           013746
                    002476
                                             MOV
                                                      RPVEC, -(SP)
   027470
           012746
                    000003
                                             MOV
                                                      #3,-(SP)
   027474
           104437
                                             TRAP
                                                      C$SVEC
   027476
           062706
                    000010
                                              ADD
                                                      #10.SP
33 027502
           012702
                    000340
                                             MOV
                                                      #PRIO7,R2
                                                                       SET THE PRIORITY TO 7
34 027506
                                     34:
   027506
           104404
                                              TRAP
                                                      C#BSEG
35 027510
           010200
                                                      R2.RO
                                             MOV
   027512
           104441
                                              TRAP
                                                      C#SPRI
   027514
           052777
                    000300
                            152770
                                                      #RDY!IE, BRPCS1 ; FORCE AN INTERRUPT, BUT DON'T HONOR IT!
                                             BIS
  027522
           012727
                    000020
                                                      #20,(PC)+
                                             MOV
   027526
           000000
                                              . WORD
   027530
           013727
                    002116
                                             MOV
                                                      L#DLY,(PC)+
   027534
           000000
                                              . WORD
   027536
           005367
                    177772
                                              DEC
                                                      -6(PC)
   027542
027544
           001375
                                                      . -4
           005367
                                                      -22(PC)
                    177756
                                              DEC
   027550
           001367
                                             BNE
                                                      . -20
```

38 39	027556	005737 001406	002462			TST BEQ	INTFLG	:IF INTFLG > 0, WRONG PRIORITY!! :IT'S OK IF ZERO!
40	027560 027562	104456				TRAP . WORD	C\$ERHRD	
	027564	013126				. WORD	EM24	
	027566	000000				. WORD	0	
41	027570	005037	002402			CLR	ITCOUN	;NO ITERATIONS NECESSARY
42	027574				4\$:			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
	027574				10001\$:			
	027574	104405			2000211	TRAP	C\$ESEG	
43	027576	162702	000040			SUB	#40.R2	REDUCE THE PRIORITY LEVEL
	027602	020237	002500			CMP	R2.RPVEC+2	AT THE DEVICE PRIORITY YET?
45		103337	002300			BHIS	3\$	NOT IF HIGHER OR SAME
46		052777	000040	152704		BIS	#CLR. BRPCS2	NOW DISARM INTERRUPTS
47		005337	002402	132104		DEC		
48		003357	002402				ITCOUN	ONE LESS
			*****			BGT	1\$	;DO UNTIL <= 0
49		013700	002476			MOV	RPVEC,RO	
	027630	104436				TRAP	C\$CVEC	
50	027632				L10044:			
	027632	104401				TRAP	C\$ETST	

```
.SBTTL TEST 23 INTERRUPT TEST #2
                                              TEST 23 INTERRUPT TEST 2
                                      : 15
                                      : 15
                                                 WRITE RPCS2: CLR = 1
                                      : 15
                                                 SET PROCESSOR PRIORITY = 0
                                      : 15
                                                     ((RPCS1: SC) OR (RPDS: ATA)) = 1
                                              .
                                      : 15
                                                 :
                                      : 16
                                                     OUTPUT ERROR MESSAGE (PERSISTENT ATA OR SC-CANNOT PERFORM INTERRUPT TEST)
                                              :
                                                 :
                                      : 5
                                                     EXIT TEST 19
                                                 ENDIF
10
                                      : 5
                                      : 15
                                                  WRITE RPCS1: IE = 1
11
                                              :
12
                                      : 5
                                                  IF RHXX INTERRUPTS
                                              :
                                      : 15
                                                     THEN
                                                 :
                                              :
14
                                      : 15
                                                     OUTPUT ERROR MESSAGE (RECEIVED FALSE INTERRUPT)
                                              :
15
                                      : 15
                                                 ENDIF
16
                                      : 5
                                              END TEST 23
17
18 027634
                                      T23::
           012737
19
   027634
                    016000
                             002404
                                              MOV
                                                       #BIT10:BIT11:BIT12, ERRWD1; J11-J13 CALLOUT
           012737
                    000406
20 027642
                                                       #BIT1:BIT2:BIT8, ERRWD2; CONTROLLER, CABLE, TERMINATOR
                             002406
                                              MOV
21 027650
           012737
                    000012
                             002402
                                              MOV
                                                       #10..ITCOUN
                                                                         :LOAD THE ITERATION COUNT
22 027656
                                      1$:
   027656
            104404
                                              TRAP
                                                       C$BSEG
   027660
           005037
                    002462
                                              CLR
                                                       INTFLG
                                                                         RESET THE INTERRUPTS RECEIVED FLAG
24 027664
25 027672
           052777
                    000040
                             152630
                                              BIS
                                                       #CLR, @RPCS2
                                                                         CLEAR OUT THE CONTROLLER
                    002506
           013777
                             152622
                                              MOV
                                                       DRVNO, aRPCS2
                                                                         ;LOAD THE DRIVE NUMBER
  027700
           032777
                                                       #SC!TRE!MCPE, @RPCS1:DO WE HAVE A SPECIAL CONDITION, MCPE, OR TRANSFER ERROR?
                    160000
                             152604
                                              BIT
27
  027706
           001412
                                              BEQ
                                                                         :IF ZERO, NO!!
28 027710
            004737
                    017422
                                               JSR
                                                       PC.BICEXP
                                                                         :LOAD THE ERROR POINTERS
29
   027714
           002512
                                              RPCS1
                                                                         THIS REGISTER FAILED,
  027716
            160000
                                              SC!TRE!MCPE
                                                                         THIS DATA SHOULD BE CLEAR
31 027720
                                                       C$ERHRD
            104456
                                               TRAP
   027722
            000062
                                               . WORD
                                                       50
   027724
           012562
                                               . WORD
                                                       EM16
   027726
           014172
                                                       ERRO
                                               WORD
32 027730
           104432
                                               TRAP
                                                       C$EXIT
   027732
           000146
                                               . WORD
                                                       L10045-.
   027734
   027734
                                      10000$:
   027734
            104405
                                              TRAP
                                                       C*ESEG
   027736
           012746
                                                       OPRIO7, -(SP)
                    000340
                                              MOV
                                                       #INTSRV, -(SP)
RPVEC, -(SP)
   027742
                    020630
           012746
                                              MOV
   027746
           013746
                    002476
                                              MOV
   027752
           012746
                    000003
                                                       #3,-(SP)
C#SVEC
                                              MOV
   027756
            104437
                                              TRAP
   027760
            062706
                    000010
                                               ADD
                                                       #10.SP
  027764
            104404
                                               TRAP
                                                       C#BSEG
36 027766
           012700
                    000000
                                              MOV
                                                       40.RO
   027772
            104441
                                              TRAP
                                                       C#SPRI
           012777
  027774
                    000100
                             152510
                                              MOV
                                                       #IE, @RPCS1
                                                                         ; ARM THE DEVICE, BUT DON'T EXPECT AN INTERRUPT
38 030002
           012727
                    000020
                                              MOV
                                                       #20,(PC)+
   030006
            000000
                                               . WORD
   030010
            013727
                    002116
                                                       L$DLY,(PC)+
                                              MOV
   030014
            000000
                                               . WORD
                                                       0
   030016
                                                       -6(PC)
            005367
                    177772
                                              DEC
   030022
            001375
                                              BNE
   030024
           005367
                    177756
                                              DEC
                                                        -22(PC)
```

39	030030 030032 030036	001367 005737 001406	002462			BNE TST BEQ	20 INTFLG 38	:THIS SHOULD - O, FOR NO INTERRUPTS :IS ZERO, TEST OK!
	030040	104456				TRAP . WORD	C\$ERHRD 51	its zeno, lest on:
	030044	013167				. WORD	EM25 ERRO	
42	030050	005037	002402			CLR	ITCOUN	RESET FURTHER ITERATIONS
43	030054				3\$:			
	030054				10001\$:			
	030054	104405				TRAP	CIESEG	
44	030056	052777	000040	152436		BIS	OCLR . ORPCS2	DISARM INTERRUPTS
	030064			132430				
		005337	002402			DEC	ITCOUN	ONE LESS ITERATION
	030070	003272				BGT	18	; IF > O, DO AGAIN
47	030072	013700	002476			MOV	RPVEC.RO	
	030076	104436				TRAP	CSCVEC	
48	030100				L10045:			
	030100	104401				TRAP	CSETST	

```
SBITL TEST 24 INTERRUPT TEST #3
                                              TEST 24 INTERRUPT TEST 3
                                                 SET RPCS2: CLR = 1
                                     : 5
 5
                                                 SET ((RPCS1: IE) AND (RPCS1: RDY)) . 1
                                     : 5
                                     : 15
                                                 CLEAR PROCESSOR STATUS
                                                 IF INTERRUPT DOESN'T OCCUR
                                     : 15
                                     : 5
                                                    THEN
                                                    OUTPUT ERROR MESSAGE (DEVICE FAILED TO INTERRUPT)
                                     : 5
10
                                     : 5
                                                ENDIF
                                             END TEST 24
                                     : 5
12
13
   030102
                                     T24::
14 030102
           012737
                    000012
                            002402
                                              MOV
                                                      #10.,ITCOUN
                                                                       :LOAD THE ITERATION COUNTER
                    000340
15 030110
           012746
                                              MOV
                                                      OPRIO7.-(SP
   030114
           012746
                    020630
                                                      #INTSRV. - (SP)
                                              MOV
                    002476
   030120
           013746
                                              MOV
                                                      RPVEC. - (SP)
   030124
           012746
                    000003
                                                      43, -(SP)
                                              MOV
   030130
           104437
                                              TRAP
                                                      C#SVEC
   030132
           062706
                    000010
                                              ADD
                                                      #10.SP
16 030136
                                     18:
   030136
           104404
                                              TRAP
                                                      C*BSEG
17 030140
           005037
                    002462
                                              CLR
                                                      INTFLG
                                                                       RESET THE INTERRUPTS RECEIVED MARKER
18 030144
           052777
                    000040
                            152350
                                                      OCLR, ORPCS2
                                              BIS
                                                                        FLUSH OUT THE CONTROLLER
19 030152
                    002506
                            152342
           013777
                                                      DRVNO, BRPCS2
                                                                        LOAD THE DRIVE NUMBER TO AVOID A TRANSFER ERROR!
                                              MOV
20 030160
           005737
                    002500
                                              TST
                                                      RPVEC+2
                                                                        GET THE DEVICE PRIORITY
21 030164
           001002
                                                                        IT'S > ZERO, SET UP TO LOWER THE PROCESSOR STATUS
                                              BNE
                                                      2$
22 030166
                                                      -(SP)
                                                                        IT'S AT PRIORITY O!
           005046
                                              CLR
23 030170
           000404
                                              BR
                                                                        :GO NOW!
24 030172
           013746
                    002500
                                                      RPVEC+2.-(SP)
                                     21:
                                              MOV
                                                                       GET THE PRIORITY
25 030176
           162716
                    000040
                                                      #40,(SP)
                                                                       AND LOWER IT
                                              SUB
26 030202
                                     34:
   030202
           012600
                                                      (SP)+,R0
                                              MOV
   030204
           104441
                                              TRAP
                                                      C#SPRI
27 030206
           052777
                    000300
                            152276
                                                      #RDY! IE. BRPCS1
                                              BIS
                                                                       FORCE AN INTERRUPT!!
28 030214
           012727
                    000020
                                                      #20,(PC)+
                                              MOV
   030220
           000000
                                              . WORD
   030222
           013727
                    002116
                                              MOV
                                                      L#DLY,(PC)+
   030226
           000000
   030230
           005367
                                                       -6(PC)
                    177772
                                              DEC
   030234
           001375
                                                      . -4
   030236
                                                      -22(PC)
           005367
                    177756
                                              DEC
   030242
           001367
                                              BNE
                                                       -20
29 030244
           005737
                    002462
                                              TST
                                                      INTFLG
                                                                       ; IF WE RECEIVED AN INTERRUPT, THIS > 0
   030250
           003006
                                                                        GOT IT, TEST OK!
                                              BGT
   030252
            104456
                                                      CSERHRD
                                              TRAP
   030254
           000064
                                              . WORD
                                                      52
   030256
           013224
                                                      EM26
                                              . WORD
   030260
                                              . WORD
32 030262
           005037
                    002402
                                              CLR
                                                      ITCOUN
                                                                        INO ITERATIONS NECESSARY
   030266
   030266
                                     100008:
   030266
            104405
                                              TRAP
                                                      C$ESEG
   030270
           052777
                    000040
                            152224
                                                      OCLR, ORPCS2
                                              BIS
                                                                        NOW REMOVE ALL INTERRUPT STATUS
35 030276
           005337
                    002402
                                              DEC
                                                      ITCOUN
                                                                        ONE LESS ITERATION TO GO
36 030302
           003315
                                              BGT
                                                                        ; IF > O. DO AGAIN
37 030304
                                                      RPVEC , RO
           013700
                    002476
                                              MOV
```

CZRJMBO RPO7 FE/HOST ISOLATOR MACRO VO4.00 1-DEC-83 10:39:09 PAGE 59-1 TEST 24 INTERRUPT TEST #3

38	030310	104436			TRAP	CSCVEC			••	
39	030316	012700 104441	000340		MOV TRAP	#PRIO7.RO C#SPRI	; SET	PRIORITY	10	'
40	030320 030320	104401		L10046:	TRAP	CSETST				

```
.SBTTL TEST 25 BASIC DRIVE TEST
 1
 3
                                             TEST 25 (RPO7 REMOTE REGISTER TESTS)-BASIC DRIVE SELECT TEST
                                                CHECK MASSBUS INTERFACE SWITCH TEST LOCATION 'SWITST'
 5
                                                IF 'SWTTST' = 0
                                                   THEN EXIT TEST
                                     : 5
                                                ENDIF
                                             :
 8
                                     : 5
                                                PRINT MESSAGE ASKING USER TO DISCONNECT THE DRIVE-UNDER-TEST
                                                FROM THE MASSBUS BY USING THE DISABLE SWITCH
                                     : 5
                                                THIS TEST CANNOT BE RUN REMOTELY.
10
                                                SET RPCS2: CLR = 1
11
                                     : 5
12
                                     : 15
                                                LOAD THE DRIVE-UNDER-TEST DEVICE NUMBER INTO RPCS2
                                     : 5
                                                IF REGISTER 06 (RPDT) <> 0
14
                                     : 5
                                             : :
                                                   THEN
15
                                     : 5
                                                   OUTPUT ERROR MESSAGE (DUAL RESPONSE FOUND)
                                             : :
16
                                     : 5
                                                   OUTPUT FAULT LIST . ANOTHER DRIVE RESPONDING
17
                                    : 15
                                                   RHXX, CABLES, DRIVE SELECT, XMITTERS-RECEIVERS FOR DRIVE,
                                    : 15
18
                                                   J11 / J13, TERMINATOR
19
                                                ENDIF
                                     : 5
20
                                     : 5
                                             END TEST 25
21
22 030322
                                     T25::
23 030322
           005737 002332
                                             TST
                                                      SWITST
                                                                      SHOULD WE DO MASSBUS INTERFACE SWITCH TEST ?
24 030326
           001002
                                             BNE
                                                                      :BR IF = 1. YES
28 030330
           104432
                                             TRAP
                                                      C$EXIT
   030332
           000160
                                             . WORD
                                                     L10047-.
29 030334
                                     18:
   030334
           104450
                                             TRAP
                                                     C$MANI
  030336
           103402
                                             BCS
31 030340
           104432
                                             TRAP
                                                      C$EXIT
   030342
           000150
                                             . WORD
                                                     L10047-.
32 030344
                                                                      :TYPE 'PLACE INTERFACE SWITCH A12-SO1 IN DOWN POSITION (L)
                                     21:
33 030344
           104443
                                             TRAP
                                                      C#GMAN
   030346
           000404
                                                      10000$
                                             BR
   030350
                                             . WORD
           002464
                                                      UNABLE
   030352
           000120
                                             . WORD
                                                      T CODE
   030354
           011607
                                             . WORD
                                                      MESG13
   030356
           000001
                                             . WORD
   030360
                                     10000$:
34 030360
           005737
                    002464
                                                      UNABLE
                                             TST
                                                                       DID OPERATOR RESPOND YES?
35 030364
           003002
                                                      3$
                                             BGT
                                                                       :IF > O. YES
36 030366
           104432
                                             TRAP
                                                      C$EXIT
   030370
           000122
                                             . WORD
                                                     L10047-.
37 030572
                                     34:
   030372
           104404
                                             TRAP
                                                      C#BSEG
           013777
38 030374
                    002506
                            152120
                                             MOV
                                                      DRVNO, SRPCS2
                                                                       :LOAD THE DRIVE NUMBER
39 030402
           005777
                    152132
                                             TST
                                                      SRPDT
                                                                       LOOK AT THE DRIVE TYPE REGISTER '
40 030406
           001422
                                             BEQ
                                                                       SHOULD BE ALL O'S
41 030410
           013737
                    002540
                            002456
                                             MOV
                                                      RPDT, TESTRG
                                                                       FAILING REGISTER
42 030416
           017737
                    152116
                            002452
                                             MOV
                                                      SRPDT RCVED
                                                                       FAILING DATA
43 030424
           005037
                    002454
                                             CLR
                                                      EXPTED
                                                                       EXPECTED DATA
44 030430
           012737
                                                      #BIT10:BIT11:BIT12,ERRWD1
                    016000
                            002404
                                             MOV
                                                                                        MARK J11. J12 & J13 FOR CALLOUT
45 030436
                                             MOV
           012737
                    030424
                            002406
                                                      #BIT!BIT2!BIT4!BIT8,ERRWD2
                                                                                        MARK RH. CABLE, TERMINATOR, ANOTHER DRIVE
46 030444
           104456
                                             TRAP
                                                      CSERHRD
   030446
           000065
                                             . WORD
   030450
           012523
                                                      EM15
                                             . WORD
   030452
           014172
                                             . WORD
                                                      ERRO
```

?'	47 030454 030454 030454 48 030456	104405		4\$: 10001\$: 5\$:	TRAP	C\$ESEG	:TYPE 'PLACE INTERFACE SWITCH A12-SO1 IN UP POSITION (L)
	49 030456 030460 030462 030464 030466 030470 030472	104443 000404 002464 000120 011667 100000		10002\$:	TRAP BR . WORD . WORD . WORD . WORD	C#GMAN 10002# UNABLE T#CODE MESG14 100000	
	50 030472 51 030476 52 030500 53 030504 54	002403	7000		TST BLT JSR BR	UNABLE 6\$ PC.WAIT 5\$	DID OPERATOR RESPOND YES ? IF < 0. YES SPIN FOR A STALL LOOP NOW ASK THE QUESTION AGAIN!
	55 030506 56 030512	005037 00			CLR	UNABLE	;INITIALIZE THIS
	030512	104401			TRAP	CSETST	

```
.SBTTL TEST 26 DEMAND AND TRANSFER TEST
 2
                                                TEST 26 DEMAND AND TRANSFER TEST
                                        : 5
                                                   LOAD THE DRIVE-UNDER-TEST'S NUMBER INTO RPCS2
                                        : 5
                                                    READ RPDT REGISTER
                                        : 15
                                                    IGNORE DATA AND ERRORS
                                        : 5
                                                    IF REGISTER DOESN'T RESPOND
                                        : 5
                                                       THEN
                                                       OUTPUT ERROR MESSAGE (DEMAND AND TRANSFER LOGIC NOT WORKING)
                                        : 5
                                                       OUTPUT FAULT LIST: RHXX, CABLES, J11 / J13, REMOTE POSSIBILITY OF J08, CTOD, REGISTER SELECT LINES, DISABLE SWITCH, TERMINATOR.
10
                                        : 5
                                        : 5
                                                :
12
                                        : 15
13
                                       : 15
                                                END TEST 26
14
15 030514
                                        T26::
16 030514
            012737 000012 002402
                                                MOV
                                                         #10.,ITCOUN
                                                                            :LOAD THE ITERATION COUNT
17 030522
                                       1$:
   030522
            104404
                                                 TRAP
                                                         C$BSEG
   030524
            013777
                     002506
                              151770
                                                         DRVNO, SRPCS2
                                                MOV
                                                                            :LOAD THE DRIVE NUMBER
   030532
            017737
                     152002
                              002452
                                                MOV
                                                          BRPDT, RCVED
                                                                            LOOK AT RPDT
20 030540
            005737
                     002452
                                                 TST
                                                         RCVED
                                                                            ; IF IT IS > O. DRIVE IS THERE
21 030544
            001022
                                                 BNE
                                                          2$
                                                                            ; > 0, OK
22 030546
            012737
                     020042
                              002454
                                                          $20042, EXPTED
                                                 MOV
                                                                            CREATE THE CORRECT DRIVE TYPE CONTENTS
                     002540
012200
23 030554
            013737
                              002456
                                                MOV RPDT, TESTRG :GET THE FAILING REGISTER
MOV #BIT7:BIT10:BIT12.ERRWD1;SET MODULE CALLOUT MASK
24 030562
            012737
                              002404
   030570
            012737
                     000416
                              002406
                                                MOV #BIT1!BIT2!BIT3!BIT8,ERRWD2;FOR BOTH WORDS
26 030576
            104456
                                                         C$ERHRD
                                                 TRAP
   030600
                                                 . WORD
            000066
   030602
            012776
                                                 . WORD
                                                         EM22
   030604
            014172
                                                 . WORD
                                                         ERRO
27 030606
28 030612
            005037
                     002402
                                                 CLR
                                                          ITCOUN
                                                                            RESET THE ITERATION COUNT
   030612
                                       10000$:
   030612
            104405
                                                 TRAP
                                                         C#ESEG
29 030614
            005337
                     002402
                                                 DEC
                                                          ITCOUN
                                                                            ONE LESS ITERATION
30 030620
            003340
                                                 BGT
                                                          1$
                                                                            :IF >O. DO AGAIN
31 030622
                                       L10050:
   030622
            104401
                                                 TRAP
                                                         C$ETST
```

1 .SBTTI	L TEST 27 UNIQUE UNIT UNDER TEST
2	
3	TEST 27 UNIQUE UNIT UNDER TEST
4	: WRITE #46 TO RPCS1 FOR THE DRIVE UNDER TEST
5	: WRITE DATA PATTERN #4 TO RPCS1 FOR ALL OTHER DRIVES ON THE BUS
6	: IF RPCS1 FOR THE DRIVE UNDER TEST <> #46
7	: : THEN
8	: : OUTPUT ERROR MESSAGE (DRIVE SELECT LOGIC FAILURE)
9	: : OUTPUT FAULT LIST: RHXX, CABLE, J11/J13, TERMINATOR
10	: ENDIF
11 12	END TEST 27
13 030624	
14 030624 012737 000012 002402	MOV #10., ITCOUN ; LOAD THE ITERATION COUNT
15 030632 1\$:	
030632 104404	TRAP C\$BSEG
16 030634 013777 002506 151660	MOV DRVNO, &RPCS2 ; LOAD THE DRIVE UNDER TEST
17 030642 012777 000046 151642	MOV #46, BRPCS1 ; SET SOME COMMAND FUNCTION BITS
18 030650 005002	CLR R2 ;SET UP TO DO ALL DRIVES
19 030652 020237 002506 24:	CMP R2.DRVNO ;DRIVE UNDER TEST?
20 030656 001405	BEQ 3# ; IF SO, WE ALREADY WROTE IT.
21 030660 010277 151636	MOV R2, BRPCS2 ; LOAD THIS DRIVE #
22 030664 013777 002352 151620	MOV PATT4, &RPCS1 ; AND WRITE A PATTERN
23 030672 005202 3\$:	INC R2 ; NEXT DRIVE
24 030674 020227 000010	CMP R2,010 ; DONE
25 030700 103764	BLO 2# ; IF <10, NO
26 030702 013777 002506 151612	MOV DRVNO, BRPCS2 ; RELOAD ORIGINAL DRIVE UNDER TEST
27 030710 012737 000046 002454	MOV #46,EXPTED ; CREATE DATA FILE
28 030716 017737 151570 002452	MOV BRPCS1.RCVED :GET RESULTS
29 030724 012702 000046	MOV #46.R2 ; AND STRIP UNUSED DATA
30 030730 005102	COM R2 :FOR A POSSIBLE ERROR REPORT
31 030732 040237 002452	BIC R2, RCVED ; DATA SHOULD MATCH NOW
32 030736 023737 002454 002452	CMP EXPTED, RCVED ; DO THE COMPARISON
33 030744 001417	BEQ 4# ; IF EQUAL, IT'S OK
34 030746 013737 002512 002456	MOV RPCS1, TESTRG ; LOG FAILING REGISTER
35 030754 012737 012000 002404	MOV #BIT10:BIT12, ERRWD1 ; FORM MODULE CALL-OUT
36 030762 012737 000406 002406	MOV #BIT1:BIT2:BIT8, ERRWD2 ;BOTH WORDS
37 030770 104456	TRAP C#ERHRD
030772 000076	.WORD 62
030774 012454	.WORD EM14
030776 014172	. WORD ERRO
38 031000 005037 002402	CLR ITCOUN ; ITERATIONS = 0
39 031004 44:	
031004 10000	
031004 104405	TRAP C&ESEG
40 031006 005337 002402	DEC ITCOUN ; ONE LESS ITERATION
41 031012 003307	BGT 1# ;DO UNTIL <= 0
42 031014 L1005	
031014 104401	TRAP CIETST

```
.SBTTL TEST 28 RPDT REGISTER TEST
23
                                            TEST 28 TEST DRIVE TYPE REGISTER
                                    : 15
                                            : SET RPCS2: CLR = 1
                                    : 5
                                               LOAD DRIVE-UNDER-TEST'S NUMBER INTO RPCS2
                                    : 15
                                               READ RPDT
                                    : 15
                                               IF RPDT DOESN'T - ONE OF THE FOLLOWING: 20042, 24042
                                    : 15
                                                  THEN
                                    : 5
                                                  OUTPUT ERROR MESSAGE (RPO7 NOT FOUND, RPDT = (RPDT CONTENTS))
10
                                                  OUTPUT FAULT LIST: RHXX, CABLES, J11/J13, J12, CTOD, RS, MASSBUS,
                                    : 5
                                    : 5
                                                   JOS, TERMINATOR.
                                            :
                                               ENDIF
12
                                    : 5
13
                                    : 5
                                            END TEST 28
14
15 031016
                                    T28::
16 031016
           012737 000012 002402
                                            MOV
                                                     #10..ITCOUN
                                                                     :LOAD THE ITERATION COUNT
17 031024
                                    18:
   031024
           104404
                                             TRAP
                                                     C$BSEG
           052777
18 031026
                   000040
                                                     OCLR, SRPCS2
                            151466
                                                                     START OUT WITH AN INITIALIZED CONTROLLER
                                            BIS
19 031034
           053777
                   002506
                            151460
                                            BIS
                                                                     LOAD THE DRIVE #
                                                     DRVNO, BRPCS2
20 031042
           017737
                   151472
                            002452
                                            MOV
                                                     SRPDT . RCVED
21 031050
           012737
                   020042
                           002454
                                            MOV
                                                     #20042, EXPTED
                                                                     CREATE EXPECTED DATA
22 031056
           032737
                   004000
                           002452
                                            BIT
                                                                      DUAL PORTED?
                                                     ODRQ, RCVED
23 031064
                                                                     :NO. IF NOT SET!
           001403
                                            BEQ
24 031066
           052737
                   004000
                           002454
                                                     ORQ, EXPTED
                                            BIS
25 031074
           023737
                   002452
                           002454
                                            CMP
                                                     RCVED. EXPTED
                                                                     DOES DATA MATCH?
26 031102
           001417
                                            BEQ
                                                                     :YES, TEST OK!
27 031104
           013737
                   002540
                           002456
                                            MOV
                                                     RPDT, TESTRG
                                                                      AND LOAD FAILING REGISTER
28 031112
           012737
                   016200
                           002404
                                            MOV #BIT7:BIT10:BIT11:BIT12, ERRWD1; CREATE MODULE CALLOUT LIST
29 031120
           012737
                   000406
                           002406
                                             MOV #BIT1!BIT2!BIT8, ERRWD2;FOR BOTH MASK WORDS
30 031126
           104456
                                             TRAP
                                                     C$ERHRD
   031130
           000067
                                             . WORD
   031132
           012454
                                             . WORD
                                                     EM14
   031134
           014172
                                             WORD
                                                     ERRO
31 031136
           005037
                   002402
                                            CLR
                                                     ITCOUN
                                                                     RESET FURTHER ITERATIONS
32 031142
   031142
                                    10000$:
   031142
                                             TRAP
           104405
                                                     C#ESEG
33 031144
           005337
                   002402
                                            DEC
                                                     ITCOUN
                                                                     ONE LESS ITERATION
34 031150
           003325
                                             BGT
                                                                     ; IF >O. DO AGAIN
35 031152
                                    L10052:
   031152
           104401
                                             TRAP
                                                     C$ETST
```

```
SBTTL TEST 29 RPDA READ WRITE TEST
2
                                               TEST 29 RPDA READ WRITE TEST
                                                  WRITE RPDA WITH DATA PATTERNS 1-4, ONE AT A TIME
                                      : %
                                      : 15
                                                  IF RPDA DATA DOESN'T MATCH EXPECTED
                                       : 5
                                               :
                                       : 15
                                                      OUTPUT ERROR MESSAGE (RPDA BIT(S) UNDER TEST DON'T MATCH EXPECTED)
                                                      OUTPUT FAULT LIST: RHXX, CABLES, STUCK DATA BITS, J11/J13,
                                       : 15
                                       : 5
                                                      CTOD STUCK AT O. J12. J8. TERMINATOR
10
                                       : 56
                                                  ENDIF
                                               :
11
                                                  WRITE RPDA WITH DATA PATTERN #4
                                       : 15
                                               .
12
13
14
15
                                       : 15
                                                  IF RPDA DOESN'T - 0
                                               :
                                       : 5
                                                      THEN
                                               :
                                                  :
                                       : 5
                                                      OUTPUT ERROR MESSAGE (RPDA BITS STUCK AT 1)
                                                      OUTPUT FAULT LIST: RHXX, CABLES, STUCK DATA BITS, J11/J13, J12, REMOTE POSSIBILITY OF J8, TERMINATOR
                                       : 5
16
                                       : 5
                                      : 5
                                                  ENDIF
18
                                      : 15
                                               END TEST 29
19
20
21
   031154
                                      T29::
   031154
            012737
                     000012
                             002402
                                               MOV
                                                        #10., ITCOUN
                                                                          :LOAD THE ITERATION COUNT
22 031162
23 031170
24 031176
            012737
                     016200
                             002404
                                                        #BIT7:BIT10:BIT11:BIT12, ERRWD1; CREATE THE MODULE CALLOUT
                                               MOV
                                                        #BIT1!BIT2!BIT8, ERRWD2; FOR BOTH MODULES
            012737
                     000406
                              002406
                                               MOV
            004737
004737
                     016662
                                      18:
                                               JSR
                                                        PC.SEIZE
                                                                          LOAD THE DRIVE UNDER TEST
25 031202
                     017744
                                                JSR
                                                        PC. SETUP
                                                                          :LOAD I/O POINTERS
                                                                          FROM THIS TABLE
   031206
            004256
                                               TST28
   031210
            013737
                                                        SRCTMP, TEMP
                                                                          SET UP FOR POSSIBLE LOOP
                     002444
                             002436
                                               MOV
                                      644:
   031216
            104404
                                               TRAP
                                                        C#BSEG
   031220
            004737
                     020034
                                               JSR
                                                        PC.FLOAT
                                                                          :FLOAT THE PATTERN
   031224
            000403
                                               BR
                                                        65$
                                                                          PATTERN FLOATED OK, SKIP ERROR DSPATCH
   031226
            013737
                     002436
                             002444
                                                        TEMP. SRCTMP
                                               MOV
                                                                          RESTORE THE OLD DATA PATTERN FOR ERROR LOOP
   031234
                                      65#:
   031234
                                       10000$:
            104405
   031234
                                               TRAP
                                                        C$ESEG
   031236
                                                        MASK
                     002446
                                               TST
                                                                          ; IF MASK = O, WE'RE DONE
   031242
            001362
                                               BNE
                                                        641
            004737
   031244
                                                JSR
                                                        PC. CONSET
                     020330
                                                                          :GET NEXT PATTERN
   031250
            005737
                     002434
                                               TST
                                                                          : IF PATTERN COUNT UNDERFLOWED, DONE!
                                                        PATCNT
   031254
            002355
                                               BGE
                                                                          INOT DONE YET, GO-ON
   031256
            104404
                                               TRAP
                                                        C$BSEG
   031260
            004737
                     020202
                                                JSR
                                                        PC, COMPAR
                                                                          ; WRITE THE NEXT PATTERN
   031264
            002352
                                               PATT4
                                                                          : WHICH IS PATTERN 44
   031266
                                      10001$:
   031266
            104405
                                                TRAP
                                                        C$ESEG
   031270
                                               TRAP
            104404
                                                        C$BSEG
   031272
            104404
                                               TRAP
                                                        C#BSEG
   031274
            004737
                     020202
                                                JSR
                                                        PC, COMPAR
                                                                          DO ANOTHER DATA COMPARISON
   031300
            002350
                                               PATT3
                                                                          :USING PATTERN #3
   031302
                                       10003#:
   031302
            104405
                                               TRAP
                                                        C*ESEG
   031304
            004737
                     017572
                                                JSR
                                                        PC.LDZERO
                                                                          ;WRITE RPDA TO O TO CLEAR IT!
   031310
                                      10002#:
   031310
            104405
                                               TRAP
                                                        C#ESEG
26 031312
            005337
                     002402
                                                        ITCOUN
                                               DEC
                                                                          ONE LESS ITERATOR
27 031316
            003327
                                               BGT
                                                                          :DO UNTIL <= 0!
                                                        18
28 031320
                                      L10053:
   031320
            104401
                                               TRAP
                                                        C#ETST
```

```
.SBTTL TEST 30 PARITY BIT TRANSITION TEST
                                              TEST 30 PARITY BIT TRANSITION TEST
                                      : 15
                                                 WRITE RPDA USING DATA PATTERN 4
                                              :
                                                 IF ((TRE) OR (MCPE)) = 1
                                      : 5
                                              :
                                      : 5
                                                 .
                                              .
                                                     OUTPUT ERROR MESSAGE (DETECTED FALSE PARITY ERROR)
                                      : 5
                                              :
                                                 :
                                      : 15
                                                    OUTPUT FAULT LIST: RHXX, CABLES, J11/J13, J12, J08, TERMINATOR
                                              :
                                      : 5
                                                 ENDIF
10
                                      : 15
                                                 WRITE RPDA USING DATA PATTERN #1. ONCE.
11
                                      : 5
                                                 IF ((TRE) OR (MCPE)) = 1
                                              :
12
                                      : 15
                                                    THEN
                                                 :
13
                                      : 5
                                                     OUTPUT ERROR MESSAGE (DETECTED FALSE PARITY ERROR)
                                                 .
14
                                      : 15
                                                     OUTPUT FAULT LIST: RHXX, CABLES, J11/J13, J12, J08, TERMINATOR
15
                                      : 15
                                                 ENDIF
                                     : 15
16
                                              END TEST 30
17
18 031322
                                      T30::
19 031322
           012737 000012 002402
                                              MOV
                                                       #10., ITCOUN
                                                                        :LOAD THE ITERATION COUNT
20 031330
   031330
            104404
                                              TRAP
                                                       C#BSEG
21 031332
           012703
                    002352
                                                       PATT4,R3
                                              MOV
                                                                        GET THE ZEROS PATTERN
22 031336
           012702
                    000002
                                                                        DO THE OPERATION TWICE FLUSH ERRORS AND GET THE DRIVE
                                              MOV
                                                       42.R2
23 031342
            004737
                    016662
                                              JSR
                                                       PC, SEIZE
24 031346
            014377
                                                       -(R3), aRPDA
                                                                        LOAD THE PATTERN
                    151146
                                              MOV
                                      21:
25 031352
            004737
                    017000
                                              JSR
                                                       PC.WAIT
                                                                        WAIT FOR ANY ERRORS TO SET
26 031356
27 031364
           032777
                    060000
                             151126
                                              BIT
                                                       #TRE!MCPE. BRPCS1: ERRORS?
            001420
                                                                        :NOT IF =0, TEST OK!
                                              BEQ
28 031366
29 031372
                                                                        FORM DATA REPORT
            004737
                    017422
                                              JSR
                                                       PC, BICEXP
            002512
                                              RPCS1
                                                                        FORM DATA REPORT
30 031374
            060000
                                              TRE!MCPE
                                                                         THESE BITS FAILED TO BE CLEAR
31 031376
           012737
                    016200
                             002404
                                                       #BIT7:BIT10:BIT11:BIT12, ERRWD1; FORM MODULE CALLOUT MASK
                                              MOV .
32 031404
            012737
                    000406
                             002406
                                              MOV
                                                       #BIT1!BIT2!BIT8.ERRWD2:BOTH WORDS
            104456
33 031412
                                              TRAP
                                                       C$ERHRD
   031414
            000070
                                              . WORD
   031416
           013051
                                               . WORD
                                                       EM23
   031420
           014172
                                               WORD
                                                       ERRO
  031422
                    002402
            005037
                                              CLR
                                                       ITCOUN
                                                                        RESET THE ITERATON COUNT
35 031426
            005743
                                               TST
                                                       -(R3)
                                      3$:
                                                                        MOVE POINTER BACK
   031430
            005302
                                                       R2
                                              DEC
                                                                        :DO SECOND TIME
37 031432
            003345
                                              BGT
                                                       2$
                                                                        : IF R2=0, DONE
38 031434
                                      10000$:
   031434
            104405
                                                       C$ESEG
                                              TRAP
39 031436
            005337
                    002402
                                              DEC
                                                        ITCOUN
                                                                        ONE LESS ITERATION
40 031442
            003332
                                              BGT
                                                                        :IF <= 0. DONE!!
41 031444
                                     L10054:
   031444
           104401
                                              TRAP
                                                       C$ETST
```

1				.SBTTL	TEST 31	FLOATING DATA PA	RITY TEST
2 3 4 5 6 7 8 9				: # : # : # : # : # : #	TEST 31: WRIT: IF R:: T:: T:: T:: T:: T:: T:: T:: T:: T::	FLOATING ONES AN E RPDA USING DATA PER1: PAR = 1 AF HEN UTPUT ERROR MESSAUTPUT FAULT LIST:	D ZEROS PARITY TEST PATTERNS 1 TO 9, ONE AT A TIME TER ANY WRITE OR ANY READ TO RPDA  GE (DETECTED FALSE PARITY ERROR) RHXX (PARITY NETWORK), DRIVE (PARITY NETWORK), J12, J08.
11 12 031446 13 031446 14 031454	012737	000012	002402	T31::	MOV	#10.,ITCOUN	;LOAD THE ITERATION COUNT
031454 15 031456 16 031462	104404 012702 012703	000011 002344			TRAP MOV MOV	#PATT1.R3	:DO FOR 9 PATTERNS :GET FIRST PATTERN
17 031466 18 031472 19 031476 20 031504	004737 012377 032777 001006	016662 151022 000010	151022	2\$:	JSR MOV BIT	(R3)+, @RPDA #PAR, @RPER1	FLUSH ERRORS AND GET THE DRIVE WRITE PATTERN TO RPDA PARITY ERROR?
21 031506 22 031512 23 031520	005777 032777 001420	151006 000010	151006		BNE TST BIT BEQ	aRPDA *PAR, aRPER1	:IF =1, YES - IT'S NOT OK :READ THE REGISTER JUST WRITTEN :DID READ CAUSE ERRORS? :IF PAR = 0, NO!
24 031522 25 031526 26 031530	004737 002526 000010	017422		3\$:	JSR RPER1 PAR	PC.BICEXP	FORM DATA REPORT FAILING REGISTER THIS BIT FAILED TO CLEAR
27 031532 28 031540 29 031546 031550 031552 031554	012737 012737 104456 000071 013051 014172	004200 000002	002404 002406		MOV MOV TRAP . WORD . WORD	#BIT7:BIT11.ERRW #BIT1.ERRWD2 C#ERHRD 57 EM23	D1:FORM MODULE CALL OUT MASK :BOTH WORDS
30 031556 31 031562 32 031564	005037 005302 003342	002402		46:	. WORD CLR DEC BGT	R2	RESET FURTHER ITERATIONS REDUCE ITERATIONS O, DO AGAIN
33 031566 031566 34 031570 35 031574	104405 005337 003327	002402		10000\$:	TRAP DEC BGT		ONE LESS ITERATION IF <= 0, DONE
36 031576 031576	104401			L10055:	TRAP	C\$ETST	

```
.SBTTL TEST 32 REGISTER SELECT TEST #1
 23
                                              TEST 32 REGISTER SELECT TEST 1
                                     : 15
                                              : USE DATA PATTERN #7
 5
                                                 WRITE REGISTERS: RPCS1, RPDA, RPDC, RPOF, ONE AT A TIME. READ EACH REGISTER AFTER WRITING IT
                                     : 15
                                      : 15
                                      : 5
                                                 IF REGISTER UNDER TEST DOESN'T MATCH TEST DATA
 89
                                      : 15
                                     : 15
                                                    OUTPUT ERROR MESSAGE (BIT(S) FAILED TO SET)
10
                                                     OUTPUT FAULT LIST: RHXX, CABLES, J11/J13, J12, J08, TERMINATOR
                                      : 15
                                              : : OU
11
                                      : 5
12
                                              END TEST 32
                                      : 5
13
14 031600
                                     T32::
15 031600
           013737
                    002360
                            002450
                                              MOV
                                                       PATT7, MSK
                                                                        :CREAT BIT MASK
16 031606
           005137
                    002450
                                              COM
                                                       MSK
                                                                         :UNUSED BITS = 1
17 031612
           012737
                    016200
                             002404
                                              MOV
                                                       #BIT7:BIT10:BIT11:BIT12, ERRWD1; CREATE THE MODULE CALLOUT
18 031620
           012737
                    000406
                             002406
                                              MOV
                                                       #BIT1!BIT2!BIT8, ERRWD2; FOR BOTH MASKS
19 031626
           004737
                    016662
                                              JSR
                                                       PC.SEIZE
                                                                        :FLUSH ERRORS AND GET THE DRIVE
           012737
20 031632
                    000012
                             002402
                                              MOV
                                                       #10.,ITCOUN
                                                                        :LOAD THE ITERATION COUNT
21 031640
                                     1$:
   031640
           104404
                                              TRAP
                                                       C$BSEG
           013701
                    002512
   031642
                                              MOV
                                                       RPCS1,R1
                                                                        GET THE FIRST ADDRESS
   031646
           010137
                    002440
                                     21:
                                              MOV
                                                       R1, SNK
                                                                        :LOAD TEST REGISTER POINTER
   031652
           004737
                    020202
                                                       PC.COMPAR
                                                                        DO THE COMPARISON
                                               JSR
25
           002360
   031656
                                              PATT7
                                                                        :USING THIS DATA
26 031660
           020137
                    002520
                                                                        SEE CURRENT REGISTER
                                              CMP
                                                       R1, RPDA
27
  031664
           103003
                                              BHIS
                                                                        :WE ALREADY DID RPCS1 & RPDA!
                                                       3$
28 031666
           062701
                    000006
                                              AUD
                                                       46,R1
                                                                        DO RPDA NEXT
29 031672
           000765
                                              BR
                                                                        :GO!
30 031674
                                                       R1, RPOF
           020137
                    002544
                                     3$:
                                              CMP
                                                                        :DID WE DO RPOF?
31
  031700
           103003
                                                                        :YES, SKIP NEXT
                                              BHIS
                                                       4:
32
   031702
           062701
                    000024
                                              ADD
                                                       #24.R1
            000757
   031706
                                              BR
                                                                        :GO!
34 031710
           020137
                                                                        : DONE?
                    002546
                                              CMP
                                                       R1, RPDC
                                     45:
35
   031714
           001403
                                              BEQ
                                                                        : IF EQUAL, YES
                                                       5$
36 031716
           062701
                    000002
                                              ADD
                                                       42, R1
                                                                        :DO RPDC NOW!
37 031722
           000751
                                              SR
                                                                        : GO
38 031724
                                      5#:
                                     10000$:
   031724
   031724
           104405
                                              TRAP
                                                       C$ESEG
39 031726
           005337
                    002402
                                              DEC
                                                       ITCOUN
                                                                        ONE LESS ITERATION
40 031732
           003342
                                              BGT
                                                                        :IF <= 0, DONE!!
                                                       1$
41 031734
                                     L10056:
   031734
           104401
                                              TRAP
                                                       C$ETST
```

1				.SBTTL	TEST 33	REGISTER SELECT	TEST #2
2 3 4 5 6 7 8 9 10 11 12 13				**	: USE : WRIT : WRIT : IF W : : T	TE ALL OTHER REGINITING ALL OTHER THEN DUTPUT ERROR MESS DUTPUT FAULT LIST	CS1. RPDA. RPDC. RPOF. ONE AT A TIME.
14 031736 15 031736 16 031744 17 031752 18 031756 19 031762 20 031770	012737 013702 004737 012737	016200 000406 002360 016662 000012	002406	T33::	MOV MOV JSR MOV	#BIT1!BIT2!BIT8 PATT7,R2 PC.SEIZE #10.,ITCOUN	11:BIT12,ERRWD1;CREATE THE MODULE CALLOUT ,ERRWD2;FOR BOTH MASKS ;GET THE TEST PATTERN ;GET THE DRIVE, FIRST FLUSH ERRORS! ;LOAD THE ITERATION COUNT
031770 21 031772 22 031776 23 032002 24 032006 25 032014 26 032016	012701 013137 010277 023737 103770 012703	002440 150432 002440 000024	002546	2\$:	TRAP MOV MOV CMP BLO MOV	#20.,R3	GET FILE OF REGISTERS GET THE TEST REGISTER WRITE THE TEST PATTERN TO THE REGISTER DONE WRITING REGISTERS YET? NOT DONE YET, DO MORE GET THE ITERATION COUNT
27 032022 28 032026 29 032032 30 032036 31 032040 32 032042 33 032046 34 032050	001411 005024 020437	004272 002512 000000 002524		36:	MOV MOV CMP BEQ CLR CMP BNE	#TST33,R1 RPCS1,R4 R4,8(R1) 55 (R4)+ R4,RPDS	GET FILE OF REGISTERS AGAIN GET START OF REGISTER FILE SHOULD WE CLEAR THIS REGISTER? IF THEY MATCH, NO WRITE THIS REGISTER TO A O DID WE JUST WRITE RPCS2? IF <> , NO
35 032054 36 032056 37 032060 38 032062 39 032064	005303 003365 000402 022421 000773	016662		44:	JSR DEC BGT BR CMP BR	PC.SEIZE R3 36 68 (R4)+,(R1)+	GET THE DRIVE AGAIN! REDUCE THE ITERATION COUNT DO UNTIL EQUAL TO O TAKE THIS BRANCH WHEN DONE POP THE POINTERS GO ON
40 032066 41 032072 42 032076 43 032102 44 032106 45 032112	012701 010237 005137 013137 004737 002360	004272 002450 002450 002440 020202		7\$:	MOV MOV COM MOV JSR PATT7	#TST33,R1 R2,MSK MSK B(R1)+.SNK PC,COMPAR	GET FILE REGISTERS AGAIN GET THE TESTING PATTERN DON'T CARE BITS EQUAL 1 GET THE RESULTS CHECK THE DATA FOR CORRECTNESS USING THIS DATA PATTERN
46 032114 47 032122 48 032124 032124 49 032126 50 032132	023737 103767 104405 005337 003316	002440	002546	10000\$:	TRAP DEC BGT	SNK,RPDC 7\$ C\$ESEG ITCOUN 1\$	:DONE YET?? :NOT YET, IF LOWER  :ONE LESS ITERATION :IF <= 0. DONE!!
51 032134 032134	104401			L10057:	TRAP	C\$ETST	

```
.SBTTL TEST 34 RPMR1 DATA TEST
                                             TEST 34 RPMR1 DATA TEST
                                    : 5
                                    : 5
                                               USE DATA PATTERNS 1 TO 9, ONE AT A TIME
                                                BITS TO TEST . O TO 15
                                             .
                                                   RPMR1 DOESN'T MATCH TEST DATA
                                            :
                                             :
                                               :
                                                   OUTPUT ERROR MESSAGE (BIT(S) UNDER TEST FAILED TO SET)
                                             :
                                               :
                                                   OUTPUT FAULT LIST: JOB
                                               :
10
                                                   ELSE
                                             :
                                                :
11
                                                   WRITE RPMR1 - 0
                                             :
                                               :
12
                                                   IF RPMR1 (> 0
                                             :
                                               :
                                                      THEN
                                             :
                                               :
14
                                                      OUTPUT ERROR MESSAGE (BIT(S) UNDER TEST FAILED TO CLEAR)
                                             : :
15
                                    : 5
                                                      OUTPUT FAULT LIST: JOB
16
                                    : 5
                                                   ENDIF
17
                                    : 5
                                               ENDIF
18
                                    : 5
                                            END TEST 34
20 032136
                                    T34::
  032136
                                             MOV
           012737
                   000200
                           002404
                                                     #BIT7.ERRWD1
                                                                      CREATE THE MODULE CALLOUT
22 032144
           005037
                   002406
                                             CLR
                                                     ERRWD2
                                                                      FOR BOTH MASKS
23 032150
           004737
                   016662
                                             JSR
                                                     PC. SEIZE
                                                                      FLUSH ERRORS AND GET THE DRIVE
24 032154
           012737
                   000012
                            002402
                                             MOV
                                                     #10., ITCOUN
                                                                      :LOAD THE ITERATION COUNT
25 032162
                                    18:
   032162
           004737
                   017744
                                                                      :LOAD I/O POINTERS
                                                     PC. SETUP
   032166
           004302
                                             TST34
                                                                      FROM THIS TABLE
                                                     SRCTMP, TEMP
   032170
           013737
                   002444
                            002436
                                                                      SET UP FOR POSSIBLE LOOP
                                    641:
                                             MOV
   032176
           104404
                                             TRAP
                                                     C$BSEG
   032200
           004737
                   020034
                                             JSR
                                                     PC.FLOAT
                                                                      FLOAT THE PATTERN
   032204
           000403
                                                     65#
                                                                      PATTERN FLOATED OK, SKIP ERROR DSPATCH
   032206
           013737
                   002436
                                                                      RESTORE THE OLD DATA PATTERN FOR ERROR LOOP
                           002444
                                             MOV
                                                     TEMP. SRCTMP
   032214
                                    65#:
   032214
                                    10000$:
   032214 104405
                                             TRAP
                                                     C$ESEG
   032216
           005737
                   002446
                                             TST
                                                     MASK
                                                                      ; IF MASK . O. WE'RE DONE
   032222
           001362
                                             BNE
   032224
           004737
                    020330
                                             JSR
                                                     PC.CONSET
                                                                      GET NEXT PATTERN
   032230
           005737
                                             TST
                                                     PATCHT
                   002434
                                                                      IF PATTERN COUNT UNDERFLOWED, DONE!
   032234
           002355
                                             BGE
                                                                      INOT DONE YET, GO-ON
                                                     641
   032236
           104404
                                             TRAP
                                                     C#BSEG
   032240
           004737
                                                     PC, COMPAR
                    020202
                                             JSR
                                                                      WRITE THE NEXT PATTERN
   032244
           002352
                                             PATT4
                                                                      WHICH IS PATTERN 44
   032246
                                    10001#:
   032246
           104405
                                             TRAP
                                                     C#ESEG
   032250
           104404
                                             TRAP
                                                     C#BSEG
   032252
           104404
                                             TRAP
                                                     C*BSEG
   032254
           004737
                    020202
                                             JSR
                                                     PC.COMPAR
                                                                      DO ANOTHER DATA COMPARISON
   032260
           002350
                                             PATT3
                                                                      JUSING PATTERN #3
   032262
                                    10003#:
           104405
   032262
                                             TRAP
                                                     C*ESEG
   032264
           004737
                   017572
                                             JSR
                                                     PC.LDZERO
                                                                      INRITE RPMR1 TO 0 TO CLEAR IT!
   032270
                                    10002$:
   032270
           104405
                                             TRAP
                                                     C$ESEG
26 032272
           005337
                    002402
                                             DEC
                                                     ITCOUN
                                                                      ONE LESS ITERATION
27 032276
           003331
                                             BGT
                                                     18
                                                                      : IF <= O. DONE
28 032300
                                    L10060:
```

SEQ 0145

032300 104401

TRAP CSETST

```
.SBTTL TEST 35 MASSBUS INTIALIZE DRIVE CLEAR TEST
      2
                                        . : 5
                                                  TEST 35 MASSBUS INITIALIZE/DRIVE CLEAR RPMR1: DMD BIT TEST
                                         : 5
                                                     SET RPMR1: DMD = 1
                                          : 5
                                                     SET RPCS2: CLR = 1
                                                  :
                                                     IF RPMR1: DMD - 0
                                          : 5
                                                        THEN
                                                     :
                                                        MARK THE EVENT
                                          : 5
                                                     ENDIF
                                         : 5
     10
                                                     SET RPMR1: DMD - 1 AGAIN
                                                  :
     11
                                          : 5
                                                     ISSUE DRIVE CLEAR COMMAND
                                                  :
     12
                                          : 5
                                                     IF RPMR1: DMD = 0
                                                  :
     13
                                                        THEN
                                                     .
                                                  .
     14
                                                        MARK THIS EVENT
                                                  :
                                                     :
     15.
                                                     ENDIF
                                                  .
                                                     IF RPMR1: DMD DIDN'T CLEAR WITH EITHER EVENT
     16
                                                  :
     17
                                                        THEN
                                                  :
                                                     :
     18
                                                        OUTPUT ERROR MESSAGE (RPMR1: DMD NOT CLEARED BY RPCS2: CLR OR DRIVE CLEAR)
                                                  :
                                                     :
     19
                                                        OUTPUT FAULT LIST: J12, J08.
                                                  :
     20
                                                     ENDIF
                                                  :
     21
                                                     IF RPMR1: DMD IS CLEARED BY DRIVE CLEAR COMMAND, BUT NOT RPCS2: CLR
                                                  :
     22
23
24
                                                        THEN
                                                  : :
                                                        OUTPUT ERROR MESSAGE (RPMR1: CLEARED BY DRIVE CLEAR BUT NOT RPCS2: CLR)
                                                        OUTPUT FAULT LIST: J12, CABLE, RHXX.
     25
                                                     ENDIF
                                                  .
     26
                                                     IF RPMR1: DMD CLEARED BY RPCS2: CLR BUT NOT DRIVE CLEAR COMMAND
                                          : 5
                                                  :
     27
                                          15
                                                        THEN
                                                  :
                                                     :
     28
                                                        OUTPUT ERROR MESSAGE (RPMR1: CLEARED BY RPCS2: CLR BUT NOT DRIVE CLEAR COMMA
                                          : 5
ND)
                                          : 5
                                                        OUTPUT FAULT LIST: J11, J12.
                                                  :
     30
                                                     ENDIF
                                          : 5
     31
                                                  END TEST 35
                                          : 5
        032302
     33
                                          T35::
     34 032302
                005037 002466
                                                  CLR
                                                          ERSTAT
                                                                           :ERROR STATUS=0 FOR START-UP
     35 032306
                012737
                         000012 002402
                                                  MOV
                                                                           LOAD THE ITERATION COUNT
                                                          #10.,ITCOUN
     36 032314
                                          18:
        032314
                                                  TRAP
                                                          C#BSEG
     37 032316
                 013777
                         002506
                                                          DRVNO. BRPCS2
                                 150176
                                                  MOV
                                                                           :LOAD THE DRIVE-UNDER-TEST
     38 032324
                         100000
                 052777
                                 150204
                                                                           SET RPMR1-DMD=1
                                                          40MD, SRPMR1
                                                  BIS
     39 032332
                 052777
                                 150162
                                                           OCLR, BRPCS2
                                                                           TRY TO CLEAR IT USING A CONTROLLER CLR
     40 032340
                 013777
                         002506
                                 150154
                                                  MOV
                                                          DRVNO, BRPCS2
                                                                           RELOAD THE DRIVE NUMBER
     41 032346
                 032777
                         100000
                                 150162
                                                  BIT
                                                          40HD, SRPHR1
                                                                           DID IT CLEAR?
     42 032354
                 001403
                                                                           MARK THIS FAILED STATE
                                                  BEQ
     43 032356
                 152737
                         000377
                                 002466
                                                  BISB
                                                          #377.ERSTAT
     44 032364
                 013777
                         002506
                                 150130
                                         21:
                                                  MOV
                                                          DRVNO, BRPCS2
                                                                           LOAD THE DRIVE #
     45 032372
                 052777
                         100000
                                 150136
                                                          40MD, SRPMR1
                                                                           SET RPMR1-DMD=1
                                                  BIS
     46 032400
                 012777
                         000011
                                  150104
                                                          #DRCLR, @RPCS1
                                                  MOV
                                                                           ISSURE A DRIVE CLEAR COMMAND
     47 032406
                 032777
                                 150122
                         100000
                                                  BIT
                                                           #DMD, BRPMR1
                                                                            DID DMD CLEAR?
     48 032414
                 001403
                                                                           IF O. YES MARK THE FAILED STATE
                                                  BEQ
     49 032416
                 152737
                         000377
                                                          #377, ERSTAT+1
                                 002467
                                                  BISB
     50 032424
                 005737
                         002466
                                          34:
                                                  TST
                                                                           ITEST PASS?
                                                          ERSTAT
     51 032430
                 001445
                                                  BEQ
                                                                           IF O YES
     52 032432
                 012737
                         004000
                                 002404
                                                  MOV
                                                          #BIT11, ERRWD1
                                                                           LOAD PART OF THE MODULE CALL OUT
     53 032440
                 022737
                         000377
                                 002466
                                                  CMP
                                                          #377, ERSTAT
                                                                            NOW DETERMINE WHAT FAILED
     54 032446
                 001415
                                                  BEQ
                                                                           DRIVE CLEAR COMMAND WORKED, RH CLR FAILED
     55 032450
                 005037
                         002406
                                                  CLR
                                                          ERRWD2
                                                                           FORM FURTHER MODULE CALL-OUT
     56 032454
                 105737
                         002466
                                                  TSTB
                                                          ERSTAT
                                                                            FURTHER CHECK RESULTS
```

	032460	001404				BEQ	4\$	RHCLR WORKED, DRIVE CLEAR FAILED
	032462	052737	000200	002404		BIS	#BIT7.ERRWD1	NOTHING WORKED, DRIVE CLEAR OR RHCLR
59	032470	000407				BR	61	REPORT THE ERROR
	032472	052737	012000	002404	4\$:	BIS		RRWD1 ; CREATE MODULE CALL-OUT
61	032500	000403				BR	6\$	REPORT IT
62	032502	012737	000006	002406	5\$:	MOV		D2 CREATE MODULE CALL-OUT
63	032510	013737	002536	002456	68:	MOV	RPMR1, TESTAG	FORM REPORT DATA
	032516	005037	002454			CLR	EXPTED	EXPECTED DATA
	032522	012737	100000	002452		MOV	#DMD , RCVED	RECEIVED DATA
	032530	104456	200000	***************************************		TRAP	CSERHRD	INCOCTACO ONTH
-	032532	000075				. WORD	61	
	032534	013051				WORD	EM23	
	032536	014172				WORD		
67	032540	005037	002402				ERRO	NO TIPOATTONS
		003037	002402		74	CLR	ITCOUN	:NO ITERATIONS
00	032544				78:			
	032544				10000\$:			
	032544	104405				TRAP	C\$ESEG	
	032546	005037	002466			CLR	ERSTAT	;ERSTAT=0
	032552	005337	002402			DEC	ITCOUN	ONE LESS ITERATION
	032556	003256				BGT	1\$	; IF <= O, DONE!
72	032560				L10061:			
	032560	104401				TRAP	CSETST	

```
.SBTTL TEST 36 PARITY INITIALIZE TEST
                                              TEST 36 PARITY INITIALIZE TEST
                                      : 5
                                                 SET RPCS2: CLR = 1
                                              :
 5
                                      : 5
                                                 IF (RPER1: PAR) = 1
                                              :
                                      : 5
                                              .
                                                 :
                                                     OUTPUT ERROR MESSAGE (DETECTED FALSE PARITY ERROR)
                                      : 15
                                              :
                                                 :
 8
                                                     OUTPUT FAULT LIST: J12, J09, J10. (CURRENT STATE OF 2901 = ?? )
                                              :
                                                 ENDIF
                                      : 5
10
                                                 IF (RPER1: ILF) - 1
                                      : 5
                                              :
11
                                      : 5
                                                     THEN
                                              :
                                                 :
12
                                      : 5
                                                     OUTPUT ERROR MESSAGE (DETECTED FALSE ILLEGAL FUNCTION ERROR)
                                              : .:
13
                                      : 5
                                                     OUTPUT FAULT LIST: J12, J09, J10, (2901 ??)
                                                 .
                                              :
14
                                      : 15
                                                 ENDIF
15
                                      : 15
                                              END TEST 36
16
17 032562
                                      T36::
           012737 000012 002402
18 032562
                                              MOV
                                                       #10..ITCOUN
                                                                        :LOAD THE ITERATION COUNT
19 032570
                                      18:
   032570
            104404
                                              TRAP
                                                       C$BSEG
20 032572
            004737
                    016662
                                               JSR
                                                       PC.SEIZE
                                                                         :GET CONTROL OF THE DRIVE
21 032576
           013737
                    002526
                             002456
                                                       RPER1, TESTRG
                                              MOV
                                                                         FORM REPORT DATA
22 032604
           005037
                    002454
                                                                         EXPTECTED-0
                                              CLR
                                                       EXPTED
23 032610
           005037
                    002452
                                              CLR
                                                       RCVED
                                                                         :RECEIVED -?
24 032614
            032777
                             147704
                                                                        :IS PARITY ERROR-1?
                    000010
                                              BIT
                                                       OPAR, ORPER1
25 032622
           001403
                                                                         :IF 0, NO
                                              BEQ
26 032624
            052737
                    000010
                                                       MPAR, RCVED
                             002452
                                              BIS
                                                                         MARK THE ERROR
27 032632
            032777
                    000001 147712
                                     21:
                                              BIT
                                                       #ILF, @RPER2
                                                                        :IS ILLEGAL FUNCTION SET?
28 032640
29 032642
30 032650
            001403
                                              BEQ
                                                                         : IF 0, NO
            052737
                    000001
                             002452
                                              BIS
                                                       #ILF, RCVED
                                                                         MARK IT!
            005737
                    002452
                                      34:
                                               TST
                                                       RCVED
                                                                         :ERRORS??
31 032654
                                                       45 ; IF O, TEST PASSES

#BIT10!BIT12,ERRWD1 ; FORM MODULE CALLOUT LIST
            001414
                                              BEQ
32 032656
            012737
                    012000
                             002404
                                              MOV
            012737
33 032664
                    000006
                             002406
                                              MOV
                                                       BIT1:BIT2, ERRWD2 ; BOTH WORDS
34 032672
            104456
                                              TRAP
                                                       C$ERHRD
   032674
                                               . WORD
            000077
                                                       63
   032676
           013051
                                               . WORD
                                                       EM23
   032700
           014172
                                               . WORD
                                                       ERRO
35 032702
           005037
                    002402
                                              CLR
                                                       ITCOUN
                                                                         :NO ITERATIONS
36 032706
   032706
                                      10000$:
   032706
            104405
                                              TRAP
                                                       C$ESEG
37 032710
            005337
                    002402
                                                       ITCOUN
                                              DEC
                                                                         ONE LESS ITERATION
38 032714
            003325
                                              BGT
                                                                         :IF <= O, DONE
39 032716
                                      L10062:
   032716
           104401
                                              TRAP
                                                       C$ETST
```

```
.SBTTL TEST 37 PARITY ERROR DETECTION TEST
 23
                                              TEST 37 PARITY ERROR DETECTION TEST
                                     : 5
                                                 SET RPCS2: PAT = 1
 5
                                                 ISSUE A KNOWN ILLEGAL FUNCTION
                                                 IF (RPER1: ILF = 1 AND RPER1: PAR = 0)
                                      : 5
 8
                                     : 5
                                                    OUTPUT ERROR MESSAGE (PARITY ERROR NOT DETECTED)
                                                    OUTPUT FAULT LIST: J12.
                                     : 15
                                              :
10
                                     : 5
                                                 ENDIF
                                              :
11
                                                 IF ((RPER1: ILF AND RPER1: PAR) = 1 OR = 0)
                                     : 5
                                              :
12
                                     : 5
                                                    THEN
                                              :
                                                 :
13
                                                    OUTPUT ERROR MESSAGE (UNKNOWN FUNCTIONAL SEQUENCE)
                                     : 5
                                              :
14
                                     : 5
                                                    OUTPUT FAULT LIST: JO9, J10, J12, (2901 GONE ??)
15
                                     : 15
                                                 ENDIF
16
                                              END TEST 37
                                     : 5
17
18 032720
                                     T37::
19 032720
           012737 000012 002402
                                              MOV
                                                      #10..ITCOUN
                                                                        :LOAD THE ITERATION COUNT
20 032726
                                     14:
   032726
            104404
                                              TRAP
                                                      C$BSEG
21 032730
           004737
                    016662
                                              JSR
                                                      PC. SEIZE
                                                                        GET THE DRIVE UNDER TEST
22 032734
23 032742
           052777
                             147560
                                                      4PAT, 8RPCS2
                    000020
                                              BIS
                                                                        ; INVERT PARITY, FORCE ERRORS!!
                    000046
           012777
                             147542
                                                      446, SRPCS1
                                                                        LOAD AN ILLEGAL FUNCTION CODE (WITHOUT SETTING GO)
                                              MOV
24 032750
                             002452
           012737
                    000010
                                                      PAR . RCVED
                                              MOV
                                                                        FORM EXPECTED DATA
25 032756
26 032764
                    002452
                             002454
           013737
                                                      RCVED, EXPTED
                                              MOV
                                                                        : IN CASE OF AN ERROR
           005037
                                                                        RESET STATUS MARK
                    002466
                                              CLR
                                                      ERSTAT
27 032770
           004737
                    017000
                                                                        ISTALL FOR SOME SETTLE TIME
                                              JSR
                                                      PC.WAIT
28 032774
           032777
                             147524
                    000001
                                              BIT
                                                                        DID ILLEGAL FUNCTION SET?
                                                      #ILF, SRPER1
29 033002
                                                                        : IF NOT, GO ON
           001406
                                              BEQ
30 033004
                    000001
                             002452
           052737
                                                      #ILF.RCVED
                                              BIS
                                                                        :LOG THIS ERROR IN THE RECEIVED BUFFER
31 033012
           112737
                    000377
                             002466
                                              MOVB
                                                      #377, ERSTAT
                                                                        MARK THIS FAILURE
32 033020
           032777
                                     21:
                    000010
                             147500
                                                                        IDID PARITY ERROR SET?
                                              BIT
                                                       APAR, SRPER1
33 033026
           001006
                                              BNE
                                                                        IF SO, GO ON
34 033030
                                                      #PAR.RCVED
           042737
                    000010
                             002452
                                              BIC
                                                                        LOG FAILING RESULT
35 033036
            112737
                    000377
                             002466
                                              MOVB
                                                                        MARK THIS FAILURE
36 033044
           005737
                    002466
                                     34:
                                              TST
                                                      ERSTAT
                                                                        : ERRORS?
           001425
37 033050
                                                                        FO NO GET FAILING REGISTER
                                              BEQ
38 033052
           013737
                    002526
                             002456
                                              MOV
                                                      RPER1, TESTRG
39 033060
           012737
                    004000
                             002404
                                              MOV
                                                      #BIT11, ERRWD1
                                                                        AND FORM MODULE CALL-OUT
40 033066
           005037
                    002406
                                              CLR
                                                      ERRWD2
                                                                        BOTH WORDS
41 033072
           023727
                    002466
                             000377
                                              CMP
                                                      ERSTAT, #377
                                                                        :ILLEGAL FUNCTION ONLY SET?
42 033100
           001403
                                              BEQ
                                                                        : IF MATCH, THAT WAS ONLY ERROR
43 033102
           052737
                    001400
                                                       #BIT8!BIT9, ERRWD1 ; FORM REST OF CALL OUT
                             002404
                                              BIS
44 033110
                                     41:
   033110
            104456
                                              TRAP
                                                      C#ERHRD
   033112
           000100
                                              . WORD
                                                      64
EM14
   033114
           012454
                                              . WORD
   033116
           014172
                                               WORD
                                                      ERRO
45 033120
           005037
                    002402
                                              CLR
                                                       ITCOUN
                                                                        INO ITERATIONS NECESSARY
46 033124
                                      10000#:
   033124
   033124
                                              TRAP
           104405
                                                      C$ESEG
47 033126
           005037
                                                                        :ERSTAT=0
                    002466
                                              CLR
                                                      ERSTAT
48 033132
           005337
                    002402
                                              DEC
                                                       ITCOUN
                                                                        ONE LESS ITERATION
49 033136
            003273
                                              BGT
                                                       1$
                                                                        :IF <= O, WE'RE DONE!!
50 033140
                                     L10063:
```

033140 104401

C\$ETST TRAP

```
.SBTTL TEST 38 CORRECT PARITY TEST
 3
                                             TEST 38 CORRECT PARITY TEST
                                                LOAD DATA PATTERNS 1 TO 4 INTO RPDA, ONE AT A TIME
                                     : 5
                                     : 5
                                                 READ RPDA AFTER EACH WRITE FUNCTION
                                     : 5
                                                 IF ((RPCS1: MCPE) OR (RPCS1: TRE) OR (RPER1: PAR)) = 1
                                     : 15
                                                    OUTPUT ERROR MESSAGE (PARITY LOGIC MALFUNCTION)
                                     : 5
                                     : 15
                                                    OUTPUT FAULT LIST: J11, J12, J13, RHXX, CABLE, TERMINATOR
10
                                     : 15
                                                ENDIF
11
                                             END TEST 38
12
13
  033142
                                     T38::
14 033142
           012737 000012 002402
                                             VOM
                                                      #10. . ITCOUN
                                                                       :LOAD THE ITERATION COUNT
15 033150
   033150
           104404
                                              TRAP
                                                      C$BSEG
16 033152
           004737
                    016662
                                              JSR
                                                      PC. SEIZE
                                                                       GET THE DRIVE UNDER TEST
                                                      PATT1,R2
17 033156
           012702
                    002344
                                              MOV
                                                                       GET THE PATTERN ADDRESS
18 033162
           012701
                    000004
                                                                       AND THE OVERALL ITERATION COUNT
                                             MOV
                                                      04,R1
                                                      (R2)+, GRPDA
19 033166
           012277
                    147326
                                     21:
                                              MOV
                                                                       WRITE THE DATA
20 033172
                    147322
           005777
                                              TST
                                                      SRPDA
                                                                       READ THE REGISTER
21 033176
           032777
                            147306
                                                      MCPE! TRE, BRPCS1 ; ERROR?
                    060000
                                             BIT
22 033204
           001011
                                              BNE
                                                                       : IF <>0. YES!
23 033206
           004737
                                              JSR
                    017000
                                                      PC.WAIT
                                                                       STALL FOR SOME SETTLE TIME
24 033212
           032777
                    000010
                            147306
                                              BIT
                                                      OPAR, SRPER1
                                                                       PARITY ERROR?
25 033220
26 033222
           001010
                                              BNE
                                                      45
                                                                       : IF <>0, YES
           005301
                                              DEC
                                                      R1
                                                                       ONE LESS ITERATION
27 033224
           003360
                                              BGT
                                                      2$
                                                                       ; IF >O, NOT FINISHED
28 033226
           000431
                                              BR
                                                                       GET OUT NOW! FORM UP THE FAILING DATA
29 033230
           004737
                                              JSR
                                                      PC.BICEXP
                    017422
                                     3#:
30 033234
           002512
                                              RPCS1
                                                                       THIS REGISTER
31 033236
                                             MCPE! TRE
           060000
                                                                       THESE BITS FAILED TO CLEAR
32 033240
           000410
                                             BR
                                                                       REPORT THE ERROR
33 033242
           013737
                    002526
                            002456
                                                      RPER1. TESTRG
                                             MOV
                                                                       GET ADDRESS OF FAILING DATA
   033250
           017737
                    147252
                            002452
                                                                       GOT FAILED RESULTS
                                              MOV
                                                      SRPER1, RCVED
   033256
           005037
                    002454
                                              CLR
                                                      EXPTED
                                                                       FORM EXPECTED DATA
36 033262
           012737
                    016000
                            002404
                                     54:
                                              MOV
                                                      #BIT10!BIT11!BIT12, ERRWD1 ; FORM MODULE CALL-OUT
   033270
           012737
                    000406
                            002406
                                              MOV
                                                      48IT1!BIT2!BIT8.ERRWD2
                                                                                  BOTH WORDS
           104456
   033276
                                              TRAP
                                                      C$ERHRD
   033300
           000101
                                              . WORD
                                                      65
   033302
           013051
                                                      EM23
                                              . WORD
   033304
           014172
                                                      ERRO
                                              WORD
39 033306
           005037
                    002402
                                             CLR
                                                      ITCOUN
                                                                       :NO FURTHER ITERATIONS
40 033312
   033312
                                     10000#:
   033312
           104405
                                              TRAP
                                                      C$ESEG
41 033314
           005337
                    002402
                                                                       ONE LESS ITERATION
                                             DEC
                                                      ITCOUN
42 033320
           003313
                                              BGT
                                                      1$
                                                                       :IF <= 0, DONE!!
43 033322
                                     L10064:
   033322
           104401
                                              TRAP
                                                      C$ETST
```

1	.SBTTL	TEST 39	CLEAR COMPOSITE	ERROR TEST
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	**	: SET : IF R : I	THEN OUTPUT ERROR ME ELSE OUTPUT ERROR ME NDIF OUTPUT FAULT LIST	ND (RPER2 = 0) AND (RPER3 = 0)) ESSAGE (DETECTED A PERMANENT ERROR) ESSAGE (DETECTED COMPOSITE ERROR)
16 17 033324	T39::			
18 033324 012737 000012 002402		MOV	#10.,ITCOUN	;LOAD THE ITERATION COUNT
19 033332 033332 104404	14:	TRAP	C#BSEG	
20 033334 004737 016662		JSR	PC.SEIZE	GET THE DRIVE UNDER TEST
21 033340 032777 040000 147156		BIT	WERR, ORPDS	DID WE RECEIVE A COMPOSITE ERROR?
22 033346 001435		BEQ	41	; IF O, TEST OK
23 033350 004737 017422		JSR	PC.BICEXP	FORM UP ERROR REPORT
24 033354 002524		RPDS		THIS REGISTER
25 033356 040000 26 033360 005037 002406		ERR	EDDUDO	THIS BIT FAILED TO CLEAR
27 033364 012737 004000 002404		CLR	ERRWD2 #BIT11,ERRWD1	CREATE MODULE CALL OUT
28 033372 005777 147130		TST	aRPER1	BOTH WORDS DID WE HAVE A DETECTABLE HARDWARE BUG?
29 033376 001013		BNE	2\$	; IF NOT O, YES
30 033400 005777 147146		TST	SRPER2	DID WE HAVE A DETECTABLE HARDWARE BUG??
31 033404 001010		BNE	2\$	; IF NOT O, YES
32 033406 005777 147142		TST	aRPER3	DID WE HAVE A DETECTABLE HARDWARE BUG?
33 033412 001005 34 033414 104456		BNE	2\$ C\$ERHRD	; IF NOT O, YES
033416 000102		WORD	66	
033420 014075		WORD	EM42	
033422 014172		. WORD	ERRO	
35 033424 000404		BR	3#	; SKIP NEXT MESSAGE
36 033426	2\$:			
033426 104456 033430 000103		TRAP	C\$ERHRD	
033432 011747		. WORD	67 EM1	
033434 014172		WORD	ERRO	
37 033436 005037 002402	34:	CLR	ITCOUN	INO FURTHER ITERATIONS NECESSARY
38 033442	48:			
033442	10000#:			
033442 104405 39 033444 005337 002402		TRAP	C\$ESEG	AUF 1 FOR TTPDATTON TO GO
39 033444 005337 002402 40 033450 003330		DEC BGT	ITCOUN 1\$	ONE LESS ITERATION TO-GO
41 033452	L10065:	801		; IF >O. DO AGAIN
033452 104401		TRAP	C#ETST	

```
.SBTTL TEST 40 COMPOSITE ERROR SET - RESET TEST
 23
                                             TEST 40 FORCE A COMPOSITE ERROR, THEN CLEAR IT
                                                SET RPCS2: PAT = 1
                                     : 15
                                     : 15
                                                WRITE DATA PATTERN #1 TO RPDA
                                                READ RPDA AFTER PERFORMING THE WRITE OPERATION
                                     : 5
                                                IF ((RPDS: ERR) OR (RPER1: PAR)) = 0
                                             :
                                     : 5
                                                    THEN
                                             : :
                                     : 15
                                                   OUTPUT ERROR MESSAGE (COMPOSITE ERROR DIDN'T SET WHEN EXPECTED)
                                             :
                                               .
10
                                     : 5
                                                    OUTPUT FAULT LIST: JO9, J10, J12
                                             :
                                                :
                                     : 5
11
                                                    ELSE
                                                :
12
                                     : 15
                                                    SET RPCS2: CLR = 1
                                                :
13
                                     : 5
                                                    IF ((RPDS: ERR) OR (RPER1: PAR) = 1
                                                :
14
                                     : 5
                                                       THEN
                                             :
                                                :
15
                                     : 5
                                                       OUTPUT ERROR MESSAGE (ERROR STATUS FAILED TO CLEAR)
                                             :
                                                :
                                                   :
16
                                     : 15
                                                       OUTPUT FAULT LIST: J12
                                             :
                                                :
17
                                     : 5
                                                   ENDIF
                                                :
                                             :
18
                                     : 15
                                                ENDIF
19
                                     : 5
                                             END TEST 40
20
21 033454
22 033454
                                     T40::
           012737 000012 002402
                                                     #10.,ITCOUN
                                             MOV
                                                                       :LOAD THE ITERATION COUNT
23 033462
   033462
           104404
                                             TRAP
                                                      C#BSEG
24 033464
           004737
                    016662
                                              JSR
                                                      PC.SEIZE
                                                                       GET THE DRIVE UNDER TEST
25 033470
           052777
                    000020
                            147024
                                             BIS
                                                      #PAT. BRPCS2
                                                                       :INVERT PARITY - FORCE ERRORS!
26 033476
           013777
                    002344
                            147014
                                             MOV
                                                      PATTI, SRPDA
                                                                       WRITE A PATTERN
27 033504
           005777
                    147010
                                             TST
                                                      ARPDA
                                                                       READ THE REGISTER JUST WRITTEN
28 033510
           004737
                    017000
                                             JSR
                                                      PC.WAIT
                                                                       STALL FOR THE RPO7 MICROPROCESSOR
           032777
29 033514
                            147004
                                             BIT
                    000010
                                                      &PAR, &RPER1
                                                                       DID WE DETECT A PARITY ERROR?
30 033522
           001005
                                             BNE
                                                                       :IF - 1. YES
31 033524
           004737
                    017372
                                              JSR
                                                      PC.BISEXP
                                                                       FORM THE FAILING DATA
32 033530
           002526
                                             RPER1
                                                                       :THIS REGISTER FAILED
33 033532
           000010
                                             PAR
                                                                       THIS BIT FAILED TO SET
           000410
34 033534
                                             BR
                                                                       : AND REPORT IT
35 033536
           032777
                                                      WERR, BRPDS
                    040000 146760
                                             BIT
                                                                       DID WE GET COMPOSITE ERROR?
36 033544
           001017
                                             BNE
                                                                       : IF = 1. YES
37 033546
           004737
                                                                       FORM THE ERROR DATA
                    017372
                                             JSR
                                                      PC.BISEXP
38 033552
           002524
                                             RPDS
                                                                       FORM THE ERROR REPORT
39 033554
           040000
                                             ERR
                                                                       FORM THE EXPECTED DATA
40
41 033556
           012737
                    005400
                            002404
                                             MOV
                                                      #BIT8:BIT9:BIT11, ERRWD1 ; FORM MODULE CALL-OUT LIST
42 033564
           005037
                    002406
                                             CLR
                                                      ERRWD2
                                                                       BOTH WORDS
43 033570
           104456
                                             TRAP
                                                      C#ERHRD
   033572
           000104
                                              . WORD
           012776
   033574
                                              . WORD
                                                      EM22
   033576
           014172
                                              WORD
                                                      ERRO
44 033600
           005037
                    002402
                                             CLR
                                                      ITCOUN
                                                                       INO FURTHER ITERATORS NECESSARY
45 033604
           052777
                    000040
                            146710 44:
                                             BIS
                                                      CLR, SRPCS2
                                                                       RESET THE DEVICE
                    002506
46 033612
           013777
                            146702
                                                      DRVNO, BRPCS2
                                                                       RELOAD THE DRIVE - UNDER - TEST
                                             MOV
47 033620
           032777
                    000010
                            146700
                                             BIT
                                                      MPAR, SRPER1
                                                                       ERROR STATUS GONE?
48 033626
           001411
                                             BEQ
                                                                       IF - O. YES
49 033630
                                                      RPER1, TESTRG
           013737
                    002526
                            002456
                                             MOV
                                                                       FORM THE ERROR REPORT DATA
50 033636
           017737
                    146664
                            002452
                                             MOV
                                                      BRPER1, RCVED
                                                                       PAR SET AND SHOULD HAVE CLEARED
51 033644
           005037
                    002454
                                             CLR
                                                      EXPTED
                                                                       SHOW O BITS EXPECTED DATA
52 033650
           000410
                                             BR
                                                                       AND REPORT THE ERROR
53 033652
           032777
                    040000
                            146644
                                     51:
                                             BIT
                                                      WERR, DRPDS
                                                                       DID COMPOSITE ERROR CLEAR?
```

CZRJMBO RPO7 FE/HOST ISOLATOR MACRO VO4.00 1-DEC-83 10:39:09 PAGE 75-1 TEST 40 COMPOSITE ERROR SET - RESET TEST

54 03366 55 03366 56 03366 57 03367 58	2 004737 6 002524	017422			JSR RPDS ERR	7\$ PC.BICEXP	; IF O. YES ; CREATE THIS INFORMATION ; AND MAKE IT AVAILABLE FOR ; AN ERROR MESSAGE
59 03367		004000	002404	6\$:	MOV	#BIT11,ERRWD1	CREATE MODULE CALL OUT
60 03370		002406			CLR	ERRWD2	FOR BOTH WORDS
61 03370					TRAP	C\$ERHRD	
03370					. WORD	69	
03371					. WORD	EM1	
62 03371		002402			. WORD	ERRO ITCOUN	DECET THE TTERATION CONTER
63 03372		002402		7\$:	CLR	TICOON	RESET THE ITERATION COUNTER
03372				10000\$:			
03372				10000.	TRAP	C\$ESEG	
64 03372		002402			DEC	ITCOUN	ONE LESS ITERATION TO GO
65 03372					BGT	1\$	:DO UNTIL <= 0
66 03373				L10066:			
03373	0 104401				TRAP	C\$ETST	

					CDTT		ATA 01 FAD TEAT	
2					.SBTTL	1651 41	ATA CLEAR TEST	
2345678910					: # : # : # : # : # : # : # : # : # : #	: SET (	UTPUT FAULT LIST	SAGE (DETECTED FALSE ATA)
11	033732				T41::			
13	033732	012737	000012	002402		MOV	#10.,ITCOUN	:LOAD THE ITERATION COUNT
14	033740	101101			1\$:	TOAD	040000	
15	033740	104404	016662			JSR	C\$BSEG PC.SEIZE	GET THE DRIVE UNDER TEST
	033746	004737	017000			JSR	PC.WAIT	WAIT FOR THE RPO7 MICROPROCESSOR
17	033752	032777	100000	146544		BIT	#ATA, DRPDS	:DOES THE ATTENTION SUMMARY BIT = 1
18	033760	001417				BEQ	2\$	DOES THE ATTENTION SUMMARY BIT = 1 IF IT DOES, IT'S WRONG. FORM THE FAILING DATA
	033762	004737	017422			JSR	PC.BICEXP	FORM THE FAILING DATA
	033766	002524				RPDS		; THIS REGISTER FAILED
	033770	140000				ATA!ERR		THESE BITS FAILED TO CLEAR
	033772	012737	004000	002404		MOV	#BIT11, ERRWD1	FORM MODULE CALL - OUT
23	034000 034004	005037 104456	002406			CLR	ERRWD2 C\$ERHRD	BOTH WORDS
24	034006	000106				. WORD	70	
	034010	012454				WORD	EM14	
	034012	014172				. WORD	ERRO	
	034014	005037	002402			CLR	ITCOUN	RESET THE ITERATON COUNTER
26	034020				2\$:			
	034020				10000\$:			
27	034020	104405				TRAP	C\$ESEG	
	034022	005337	002402			DEC	ITCOUN	ONE LESS ITERATION
	034026 034030	003344			L10067:	BGT	1\$	;DO UNTIL <= 0
-	034030	1.04401			110067:	TRAP	C\$ETST	

```
.SBTTL TEST 42 ATA SET - RESET TEST
                                              TEST 42 SET AND CLEAR ATA BIT
                                     : 15
                                                 SET RPCS2: PAT = 1
WRITE RPDA WITH DATA PATTERN #1, ONCE
                                     : 5
                                              :
 5
                                     : 15
                                     ; %
                                                    ((RPDS: ATA) AND (RPDS: ERR)) <> 1
                                      : 15
                                     : 16
                                                     OUTPUT ERROR MESSAGE (ATA DIDN'T SET WHEN EXPECTED)
                                      : 5
                                                     OUTPUT FAULT LIST: JO9, J10
                                                 :
10
                                     : 15
                                                     ELSE
                                              :
                                                 :
11
                                      : 56
                                                     ISSUE DRIVE CLEAR COMMAND
12
                                      : 96
                                                 ENDIF
                                      : 56
                                                 IF ((RPDS: ATA) AND (RPDS: ERR)) <> 0
14
                                     : 5
                                                     THEN
                                                 :
                                      : 15
                                                     OUTPUT ERROR MESSAGE (ATA DIDN'T CLEAR WHEN EXPECTED)
                                                 :
16
                                      : 15
                                                     OUTPUT FAULT LIST:
                                              :
                                      : 5
                                                 ENDIF
                                              :
18
                                                 SET RPCS2:
                                      : 5
                                                             PAT = 1
                                              :
                                                  WRITE RPDA WITH DATA PATTERN #1, ONCE
19
                                      : 5
20
21
22
23
24
25
26
27
                                                  SET RPCS2: CLR = 1
                                      : 15
                                                      ((RPDS: ATA) OR (RPDS: ERR) (> 0)
                                      : 15
                                     : 5
                                                     THEN
                                     : 15
                                                     OUTPUT ERROR MESSAGE (RPCS2: CLR DIDN'T CLEAR ATA AS EXPECTED)
                                              :
                                                  :
                                     : 5
                                                     OUTPUT FAULT LIST: J12
                                              :
                                                 ENDIF
                                      : 5
                                              END TEST 42
                                      : 5
28
   034032
                                      T42::
29
   034032
            012737 000012 002402
                                              MOV
                                                       #10., ITCOUN
                                                                         :LOAD THE ITERATION COUNTER
   034040
                                     1$:
   034040
            104404
                                              TRAP
                                                       C$BSEG
31 034042
            004737
                                                       PC. SEIZE
                    016662
                                               JSR
                                                                         GET THE DRIVE UNDER TEST
   034046
            052777
                    000020
                             146446
                                              BIS
                                                       MPAT, BRPCS2
                                                                         : INVERT PARITY
33
   034054
                    002344
            013777
                             146436
                                              MOV
                                                       PATT1, SRPDA
                                                                         MOVE DATA TO RPDA
   034062
                                                                         FORM SOME MODULE CALL - OUT
            005037
                    002406
                                              CLR
                                                       ERRWD2
35
   034066
            004737
                                                                         WAIT FOR THE RPO7 MICROPROCESSOR TO FINISH
                    017000
                                               JSR
                                                       PC.WAIT
   034072
36
            032777
                    140000
                             146424
                                              BIT
                                                       #ATA!ERR. BRPDS
                                                                         DID WE DETECT ATTENTION AND ERROR?
   034100
            001035
                                              BNE
                                                                         : IF = 1, YES
   034102
            012737
                                                       #BIT8!BIT9, ERRWD1
                    001400
                                              MOV
                             002404
                                                                                 FORM BALANCE OF MODULE CALL OUT
39
   034110
            004737
                    017372
                                               JSR
                                                       PC.BISEXP
                                                                         SHOW DATA TO ERROR - REPORT
40 034114
                                              RPDS
                                                                         THIS REGISTER
41 034116
            140000
                                              ATA!ERR
                                                                         THESE BITS FAILED TO SET
42 034120
            012737
                    001400
                             002404
                                                       #BIT8:BIT9, ERRWD1; LOG THE MODULE CALLOUT
                                              MOV
43 034126
            000452
                                              BR
                                                                         :REPORT IT!
44 034130
            032777
                    010000
                                              BIT
                            146366
                                                       MOL, BRPDS
                                                                         IS THE DRIVE ON-LINE
45 034136
            001016
                                              BNE
                                                                         YES, IT IS ONLINE!
   034140
            004737
                    017326
                                               JSR
                                                       PC. SAVRPR
                                                                         GET THE REGISTER SNAPSHOT
   034144
            013746
                    002114
                                              MOV
                                                       L$TEST, -(SP
   034150
            012746
                    006452
                                              MOV
                                                       #MSGMOL, -(SP)
   034154
            012746
                    000002
                                              MOV
                                                       #2.-(SP)
   034160
            010600
                                                       SP.RO
                                              MOV
   034162
            104417
                                              TRAP
                                                       C$PNTF
   034164
            062706
                    000006
                                              ADD
                                                       46, SP
52 034170
            104432
                                              TRAP
                                                       C$EXIT
   034172
            000124
                                               . WORD
                                                       L10070-
53 034174
            013777
                                                       DRVNO, BRPCS2
                    002506
                             146320
                                              MOV
                                                                         :LOAD THE DRIVE #. CLEAR OUT PARITY INVERT
54 034202
           012777
                    000011
                             146302
                                              MOV
                                                       #DRCLR, @RPCS1
                                                                         : ISSUE A DRIVE CLEAR COMMAND
```

	034210	032777	140000	146306		BIT	MATA!ERR, MRPDS	CHECK ATTENTION AND ERROR
		052777	000020	146274	24.		The second secon	THET'NE SET, ENNUM;
					3\$:	BIS	MPAT, BRPCS2	INVERT PARITY
	034226	013777	002344	146264		MOV	PATT1. GRPDA	WRITE DATA AGAIN
	034234	004737	017000			JSR	PC.WAIT	WAIT FOR THE MICRO PROCESSORS
60	034240	004737	016662			JSR	PC.SEIZE	GET THE DRIVE NOW!
61	034244	032777	140000	146252		BIT	MATA!ERR. BRPDS	CHECK ATTENTION AND ERROR
62	034252	001415				BEQ	51	IF O. TEST PASSES
		004737	017422		45:	JSR	PC.BICEXP	FORM EXPECTED DATA
		002524				RPDS	· C, DICE A	THIS REGISTER
		140000				ATA!ERR		
			004000	000404				THESE BITS FAILED TO CLEAR
	034264	012737	004000	002404		MOV	OBIT11, ERRWD1	LOAD THIS MODULE CALLOUT
67	034272	104456				TRAP	CSERHRD	
	034274	000107				. WORD	71	
	034276	012454				. WORD	EM14	
	034300	014172				. WORD	ERRO	
68	034302	005037	002402			CLR	ITCOUN	NO FURTHER ITERATIONS
	034306				51:		2.000.0	1.10 . ON ITEM TIEMMITORS
	034306				100008:			
	034306	104405			100000:	TOAD	CAECEC	
70			000400			TRAP	CSESEG	
	034310	005337	002402			DEC	ITCOUN	ONE LESS TO-GO
	034314	003251				BGT	15	: IF <= 0, WE'RE DONE!
72					L10070:			
	034316	104401				TRAP	CSETST	

```
SBTTL TEST 43 RPAS CLEAR TEST
                                             TEST 43 CLEAR RPAS REGISTER TEST
                                                SET RPCS2: CLR - 1
                                     : 5
                                     : 5
                                                IF RPAS (> 0
                                             :
                                    : 15
                                                   THEN
                                             : :
                                     : 5
                                                   OUTPUT ERROR MESSAGE (RPAS DIDN'T CLEAR WHEN EXPECTED)
                                             : :
                                                   OUTPUT CONTENTS OF RPAS
                                     : 5
                                             : :
                                                   OUTPUT FAULT LIST: J11 / J13, J12, ANOTHER DRIVE
                                     : 15
                                             :
                                                :
                                                ENDIF
10
                                     : 5
                                             END TEST 43
11
                                     : 5
12
13 034320
                                    T43::
14 034320
           012737 000012 002402
                                             MOV
                                                     #10..ITCOUN
                                                                      :LOAD THE ITERATION COUNTER
15 034326
                                     18:
   034326
                                             TRAP
           104404
                                                     C$BSEG
16 034330
           004737
                   016662
                                             JSR
                                                                       GET THE DRIVE UNDER TEST
                                                     PC. SEIZE
17 034334
18 034340
           005777
                   146170
                                             TST
                                                     BRPAS
                                                                       :RPAS - 0?
           001424
                                             BEQ
                                                      2$
                                                                       : IF O. TEST OK!
19 034342
           005037
                    002454
                                             CLR
                                                     EXPTED
                                                                       FORM ERROR DATA
20 034346
           013737
                   002530
                            002456
                                                     RPAS, TESTRG
                                             MOV
                                                                       FOR AN ERROR DISPATCH
21 034354
                            002452
           017737
                    146150
                                                     BRPAS, RCVED
                                             MOV
                                                                       GET RECEIVED DATA
22 034362
                            002404
           012737
                   016000
                                                      #BIT10!BIT11!BIT12.ERRWD1
                                             MOV
                                                                                        FORM MODULE CALL OUT
23 034370
           012737
                   000020
                            002406
                                             MOV
                                                      OBIT4, ERRWD2
                                                                       BOTH WORDS
24 034376
           104456
                                             TRAP
                                                      C$ERHRD
   034400
                                             . WORD
           000110
   034402
           012523
                                             . WORD
                                                     EM15
   034404
           014172
                                             . WORD
                                                     ERRO
25 034406
           005037 002402
                                             CLR
                                                      ITCOUN
                                                                       RESET THE ITERATION COUNTER
26 034412
034412
                                     100008:
   034412
           104405 005337
                                             TRAP
                                                     C$ESEG
27 034414
                   002402
                                             DEC ITCOUN
                                                                       ONE LESS TO-GO
28 034420
           003342
                                             BGT
                                                                       : IF >0, WE'RE NOT DONE
29 034422
                                    L10071:
   034422
          104401
                                             TRAP
                                                     C$ETST
```

```
.SBTTL TEST 44 RPAS CORRECT POSITION TEST
                                             TEST 44 RPAS CORRECT POSITION DECODE TEST
                                                SET RPCS2: CLR - 1
                                             :
                                                SET RPCS2: PAT - 1
                                             :
                                                WRITE RPDA WITH DATA PATTERN #1. ONCE
                                             :
                                                IF RPAS: ATA BIT IS NOT CORRECT POSITION FOR DRIVE UNDER TEST
                                                   OUTPUT ERROR MESSAGE (RPAS DECODE LOGIC FAILURE)
                                             : :
10
                                                   OUTPUT FAULT LIST: J11 / J13
                                             : :
11
                                                   ELSE
                                             : :
12
                                                   WRITE RPAS WITH EXPECTED RESULTS
                                             : :
13
                                                ENDIF
                                     : 5
                                             :
14
                                                SET RPCS2: PAT = 0
                                     : 5
                                             :
15
                                    : 5
                                                IF RPAS: ATA BIT UNDER TEST <> 0
16
                                     : 5
                                                   THEN
                                                :
17
                                                   OUTPUT ERROR MESSAGE (RPAS DECODE LOGIC FAILURE)
                                     : 5
                                             :
                                                :
18
                                     : 5
                                                   OUTPUT FAULT LIST: J11 / J13, J12
                                             :
19
                                     : 5
                                                ENDIF
20
                                     : 5
                                             END TEST 44
22 034424
                                     T44::
23 034424
           012737 000012 002402
                                             MOV
                                                     #10.,ITCOUN
                                                                      :LOAD THE ITERATION COUNT
24 034432
                                    18:
   034432
           104404
                                             TRAP
                                                     C$BSEG
25 034434
           004737
                                                     PC.SEIZE

*PAT. &RPCS2
                                                                      GET THE DRIVE UNDER TEST INVERT PARITY (FORCE ERRORS)
                   016662
                                             JSR
26 034440
           052777
                   000020
                            146054
                                             BIS
27 034446
           013777
                   002344
                            146044
                                             MOV
                                                     PATTI, SRPDA
                                                                       :WRITE A PATTERN TO RPDA
28 034454
           004737
                   017000
                                             JSR
                                                     PC.WAIT
                                                                       WAIT FOR THE RPO7 MICROPROCESSOR TO FINISH
29 034460
           013737
                    002400
                            002454
                                             MOV
                                                     BITPOS, EXPTED
                                                                       GET THE EXPECTED DATA
30 034466
           023777
                    002454
                            146034
                                             CMP
                                                     EXPTED, SRPAS
                                                                       DID CORRECT ATM BIT SET?
31 034474
           001417
                                             BEQ
                                                                      : IF EQUAL OK!
32 034476
           013737
                    002530
                            002456
                                             MOV
                                                     RPAS, TESTRG
                                                                       FORM REGISTER DATA
33 034504
           017737
                    146020
                            002452
                                             MOV
                                                                       AND RECEIVED ERROR DATA
                                                     SRPAS, RCVED
34 034512
                    012000
           012737
                            002404
                                             MOV
                                                      #BIT10!BIT12,ERRWD1
                                                                               NOW GET MODULE CALL - OUT
35 034520
           005037
                    002406
                                             CLR
                                                                       BOTH WORDS
                                                     ERRMD2
36 034524
           104456
                                             TRAP
                                                      C$ERHRD
           000111
   034526
                                             . WORD
   034530
           012454
                                             . WORD
                                                     EM14
   034532
           014172
                                              WORD
                                                     ERRO
37 034534
                            145760 21:
           042777
                    000020
                                             BIC
                                                      PAT. SRPCS2
                                                                       INVERT PARITY AGAIN
38 034542
           013777
                    002454
                            145760
                                             MOV
                                                      EXPTED, SRPAS
                                                                       TRY TO CLEAR RPAS
39 034550
                    002454
           005037
                                             CLR
                                                      EXPTED
                                                                       SHOW EXPECTED RESULTS
40 034554
           005777
                    145750
                                             TST
                                                      BRPAS
                                                                       DID RPAS CLEAR?
41 034560
           001421
                                             BEQ
                                                      34
                                                                       IF SO, SKIP ERROR DISPATCH
42 034562
           013737
                    002530
                            002456
                                             MOV
                                                     RPAS, TESTRG
                                                                       FORM REGISTER DATA
43 034570
           017737
                                                                       FORM RECEIVED DATA
                    145734
                            002452
                                             MOV
                                                     SRPAS, RCVED
44 034576
           012737
                    016000
                            002404
                                             MOV
                                                      #BIT10:BIT11:BIT12.ERRWD1
                                                                                       : CREATE MODULE LIST
45 034604
           005037
                    002406
                                             CLR
                                                      ERRWD2
                                                                       BOTH WORDS
46 034610
           104456
                                             TRAP
                                                      C$ERHRD
   034612
           000112
                                             . WORD
   034614
                                             . WORD
           013051
                                                     EM23
   034616
                                              WORD
           014172
                                                     ERRO
47 034620
           005037
                   002402
                                             CLR
                                                      ITCOUN
                                                                      INO LOOPS NECESSARY
48 034624
   034624
                                     10000$:
   034624
           104405
                                             TRAP
                                                     C$ESEG
```

CZRJMBO RPO7 FE/HOST ISOLATOR MACRO VO4.00 1-DEC-83 10:39:09 PAGE 79-1 TEST 44 RPAS CORRECT POSITION TEST

49 034626 005337 002402 50 034632 003277 51 034634 104401

DEC ITCOUN BGT 1\$

L10072:

TRAP C\$ETST

; ONE LESS TO-GO ; IF >O, WE'RE NOT DONE

SEQ 0160

```
.SBTTL TEST 45 UNIQUE POSITION DECODE TEST
 23
                                             TEST 45 RPAS UNIQUE POSITION DECODE TEST
                                     : 5
                                                SET RPCS2: CLR = 1
 5
                                                SET RPCS2: PAT .
                                                WRITE RPDA WITH DATA PATTERN #1. ONCE
                                     : 5
                                                IF RPAS: ATA FOR THE DRIVE UNDER TEST (> 1
 8
 9
                                     : 5
                                                   OUTPUT ERROR MESSAGE (RPAS DECODE LOGIC FAILURE)
                                             :
10
                                     : 15
                                                   OUTPUT FAULT LIST: J11/J13
                                             :
11
                                     : 5
                                                ENDIF
                                             .
12
                                                IF RPDS: ATA <> 1
                                     : 5
                                             :
13
                                     : 5
                                                   THEN
                                             :
                                                :
14
                                     : 5
                                                   OUTPUT ERROR MESSAGE (RPDS: ATA DIDN'T SET)
                                             :
15
                                     : 5
                                                ENDIF
16
                                     : 5
                                                WRITE RPAS WITH THE COMPLIMENT OF THE EXPECTED DATA
                                             :
                                     : 15
                                                IF RPAS: ATA FOR THE DRIVE UNDER TEST . O
                                             :
18
                                     : 5
                                                   THEN
19
                                                   OUTPUT ERROR MESSAGE (RPAS DECODE LOGIC FAILURE)
                                     : 5
20
21
                                     : 15
                                                   OUTPUT FAULT LIST: J11 / J13
                                     : 5
                                                ENDIF
22
                                             END TEST 45
                                     : 5
24 034636
                                     T45::
25 034636
           012737 000012 002402
                                             MOV
                                                      #10. . ITCOUN
                                                                       :LOAD THE ITERATION COUNT
26 034644
                                     18:
   034644
           104404
                                             TRAP
                                                      C#BSEG
27 034646
           004737
                                                      PC. SEIZE
                    016662
                                              JSR
                                                                       GET THE DRIVE UNDER TEST
28 034652
           052777
                    000020
                            145642
                                                      PAT, SRPCS2
                                                                       INVERT PARITY (FORCE ERRORS)
                                             BIS
29 034660
           013777
                    002344
                            145632
                                                      PATT1, SRPDA
                                             MOV
                                                                       WORIT RPDA WITH PATTERN1
30 034666
                    002400
                            002454
           013737
                                                                       GET THE CORRECT ATTENTION BIT POSITION
                                             MOV
                                                      BITPOS.EXPTED
31 034674
           004737
                    017000
                                             JSR
                                                      PC.WAIT
                                                                       WAIT FOR THE RPO7 MICROPROCESSOR
32 034700
           023777
                    002454
                            145622
                                             CMP
                                                      EXPTED. BRPAS
                                                                       :MATCH?
33 034706
           001421
                                             BEQ
                                                                       : IF EQUAL, OK!
34 034710
                                                      RPAS, TESTRG
           013737
                    002530
                            002456
                                             MOV
                                                                       FORM FAILURE DATA
35 034716
                    145606
012000
           017737
                            002452
                                             MOV
                                                      SRPAS, RCVED
                                                                       AND LOG IT
36 034724
           012737
                            002404
                                                      #BIT10!BIT12.ERRWD1
                                             MOV
                                                                               CREATE MODULE CALL - OUT
37 034732
           005037
                    002406
                                                      ERRWD2
                                             CLR
                                                                       BOTH WORDS
38 034736
                                                      CSERHRD
           104456
                                             TRAP
   034740
           000113
                                             . WORD
   034742
           012454
                                              . WORD
                                                      EM14
   034744
           014172
                                              WORD
                                                      ERRO
39 034746
           005037
                    002402
                                             CLR
                                                      ITCOUN
                                                                       INO LOOPS NECESSARY
40 034752
           032777
                    100000
                                                      MATA, SRPDS
                            145544 28:
                                             BIT
                                                                       DID ATA SET?
41 034760
           001012
                                             BNE
                                                                       : IF NOT ZERO. YES!
42 034762
           004737
                    017372
                                             JSR
                                                      PC.BISEXP
                                                                       LOAD THE FAILING INFORMATION
           002524
43 034766
                                             RPDS
                                                                       THIS REGISTER FAILED
44 034770
           100000
                                                                       THIS BIT FAILED TO SET
                                             ATA
           104456
45 034772
                                                      C$ERHRD
                                             TRAP
   034774
           000114
                                             . WORD
                                                      76
   034776
           012776
                                                      EM22
                                              . WORD
   035000
           014172
                                              WORD
                                                      ERRO
46 035002
           005037
                    002402
                                             CLR
                                                      ITCOUN
                                                                       INO LOOP NECESSARY
47 035006
           005137
                    002454
                                     31:
                                             COM
                                                      EXPTED
                                                                       COMPLIMENT THE EXPECTED DATA
48 035012
           013777
                    002454
                            145510
                                             MOV
                                                      EXPTED, SRPAS
                                                                       AND WRITE TO RPDA (SHOULD DO NOTHING)
49 035020
           005137
                    002454
                                             COM
                                                      EXPTED
                                                                       RE-INVERT EXPECTED DATA
50 035024
           023777
                    002454
                                             CMP
                            145476
                                                      EXPTED. BRPAS
                                                                       AND SEE IF ATM CLEARD
```

51 0350 52 0350 53 0350 54 0350 55 0350 0350 0350 0350	34 013737 42 017737 50 012737 56 005037 62 104456 64 000115 66 012454	002530 145462 012000 002406	002456 002452 002404		BEQ MOV MOV CLR TRAP . WORD . WORD	4\$ RPAS, TESTRG @RPAS, RCVED #BIT10!BIT12, EI ERRWD2 C\$ERHRD 77 EM14 ERRO	;IF MATCH, IT DID NOT TEST OK! ;FORM FAILING REGISTER ;AND FAILING DATA RRWD1 ;CREATE MODULE CALLOUT ;BOTH WORDS
57 0350 58 0350 0350	72 005037 76	002402		4\$: 10000\$:	CLR	ITCOUN	RESET THE ITERATION COUNTER
0350 59 0351 60 0351	76 104405 00 005337 04 003257	002402			TRAP DEC BGT	C\$ESEG ITCOUN 1\$	ONE LESS ITERATION
61 0351 0351				L10073:	TRAP	C\$ETST	

1 .9	SBTTL TEST 46 MASSBUS ATTENTION	CLEAR TEST
3 4 5 6 7 8 9	SET RPCS2: CLR = 1  IF ((RPCS1: SC) OR (( IF : THEN  IF : OUTPUT ERROR MESSACE  IF : OUTPUT FAULT LIST:  IF : ENDIF	
11 12 035110 T4	46::	
13 035110 012737 000012 002402		LOAD THE ITERATION COUNT
035116 104404 15 035120 004737 016662 16 035124 032777 100000 145360 17 035132 001420 18 035134 004737 017422 19 035140 002512 20 035142 100000	TRAP C\$BSEG JSR PC.SEIZE BIT #SC.@RPCS1 BEQ 2\$ JSR PC.BICEXP RPCS1 SC	GET THE DRIVE AFTER PURGING ERRORS! TEST RPCS1 - SPECIAL CONDITION IF O. TEST OK! FORM UP FAILING DATA THIS REGISTER THIS BIT FAILED TO CLEAR
21 035144 012737 012000 002404 22 035152 012737 000426 002406 23 035160 104456 035162 000116 035164 012562 035166 014172	MOV #BIT10:BIT12,ERRI	MD1 ;FORM UP MODULE CALLOUT BIT8,ERRWD2;BOTH WORDS
24 035170 005037 002402 25 035174 29	\$:	NO ITERATIONS NECESSARY
035174 104405 26 035176 005337 002402 27 035202 003345	BGT 1\$	ONE LESS ITERATION TO GO
035204 104401	TRAP CSETST	

1					.SBTTL	TEST 47	MASSBUS ATTENTE	ON SET/CLEAR TEST
3 4 5 6 7 8 9 10 11 12 13					: 1	: SET : SET : WRIT : IF (	(RPCS1: SC) OR HEN OUTPUT ERROR MESS OUTPUT FAULT LIST	PATTERN #1, ONCE (IN RH20-"ATTN")) <> 1  GAGE (FAILED TO DETECT SPECIAL CONDITION WHEN EXPECTED) TO RHXX, CABLES, J11 / J13, TERMINATOR
	035206				T47::			
	035206	012737	000012	002402		MOV	#10.,ITCOUN	;LOAD THE ITERATION COUNT
16	035214	******			1\$:	7040	040000	
17	035214 035216	104404	016662			TRAP JSR	C#BSEG	FILIEN EDDOOR THEN CET THE DOTHE
	035222	052777	000020	145272		BIS	PC.SEIZE	FLUSH ERRORS THEN GET THE DRIVE INVERT PARITY (FORCE ERRORS)
19	035230	013777	002344	145262		MOV	PATTI, ARPDA	WRITE RPDA, ONCE
20	035236	004737	017000	213202		JSR	PC, WAIT	WAIT FOR THE RPO7 MICROPROCESSOR
21	035242	032777	100000	145242		BIT	#SC. BRPCS1	DID SPECIAL CONDITION SET?
22	035250	001020				BNE	2\$	:IF - 2, YES
23	035252	004737	017372			JSR	PC.BISEXP	FORM ERROR DATA
24	035256 035260	002512				RPCS1		FOR AN ERROR DISPATCH
26	035262	100000 012737	012000	002404		SC MOV	ARTTICIPITIES ES	THIS BIT FAILED TO SET
27	035270	012737	000406	002406		MOV	#BIT10!BIT12,ER	RRWD1 :FORM MODULE LIST B.ERRWD2 :BOTH WORDS
28	035276	104456		002.00		TRAP	CSERHRD	TENNADE 100111 MONDS
	035300	000117				. WORD	79	
	035302	012725				. WORD	EM21	
20	035304	014172				. WORD	ERRO	
	035306 035312	005037	002402		~	CLR	ITCOUN	RESET THE ITERATION COUNTER
30	035312				2\$:			
	035312	104405			100004:	TRAP	C\$ESEG	
	035314	005337	002402			DEC	ITCOUN	ONEW LESS ITERATION
32	035320	003335				BGT	16	; IF <= O, DONE
33	035322				L10075:			
	055322	104401				TRAP	C\$ETST	

```
.SBTTL TEST 48 READ-IN-PRESET COMMAND TEST
                                              TEST 48 READ-IN-PRESET BASIC COMMAND TEST
                                     : 96
                                                 SET RPCS2: CLR = 1
                                              :
                                     : 15
                                                 ISSUE READ-IN-PRESET COMMAND
                                     : 15
                                                 IF RPDS: ERR = 1
                                     : 5
                                              :
                                                 :
                                      .
                                                    OUTPUT ERROR MESSAGE (DETECTED FALSE COMPOSITE ERROR)
                                      : 5
                                                    OUTPUT FAULT LIST: J12
10
                                      : 15
                                                 ENDIF
11
                                     : 5
                                              END TEST 48
13 035324
                                     T48::
14 035324
                    000012 002402
           012737
                                              MOV
                                                       #10..ITCOUN
                                                                        :LOAD THE ITERATION COUNT
15 035332
           032777
                    010000
                            145164
                                              BIT
                                                       MOL, ORPDS
                                                                        :DRIVE ON LINE?
16 035340
           001016
                                                                        ; IF 1, YES
;GET THE REGISTER SNAPSHOT
                                              BNE
17 035342
           004737
                    017326
                                              JSR
                                                       PC. SAVRPR
18 035346
           013746
                    002114
                                              MOV
                                                      L$TEST, -(SP)
   035352
           012746
                    006452
                                                       MSGMOL, -(SP)
                                              MOV
   035356
           012746
                    000002
                                              MOV
                                                       42.-(SP)
   035362
           010600
                                                       SP.RO
                                              MOV
   035364
           104417
                                                       C$PNTF
                                              TRAP
   035366
           062706
                    000006
                                              ADD
                                                       46, SP
22 035372
           104432
                                              TRAP
                                                       CSEXIT
   035374
           000104
                                              . WORD
                                                      L10076-.
23 035376
                                     1$:
   035376
           104404
                                              TRAP
                                                       C#BSEG
24 035400
           004737
                                              JSR
                                                       PC. SEIZE
                    016662
                                                                        GET THE DRIVE UNDER TEST
                                                       WRIP, BRPCS1
25 035404
           012777
                    000021
                                                                        ISSUE THE READ-IN-PRESET
                            145100
                                              MOV
26 035412
                                                       PC, WAIT
           004737
                    017000
                                              JSR
                                                                        WAIT FOR THE RPO7 MICROPROCESSOR
27 035416
           032777
                    040000
                            145100
                                              BIT
                                                       WERR, BRPDS
                                                                        DID IT CAUSE AN ERROR?
28 035424
           001417
                                              BEQ
                                                                        : IF 0, NO!
29 035426
           004737
                                              JSR
                    017422
                                                       PC.BICEXP
                                                                        :LOAD FAILURE DATA
30 035432
31 035434
           002524
                                              RPDS
                                                                        :THIS REGISTER
            040000
                                              ERR
                                                                        THIS BIT FAILED TO STAY CLEAR
32 035436
           012737
                    004000
                             002404
                                              MOV
                                                       #BIT11, ERRWD1
                                                                        FORM MODULE CALLOUT
33 035444
           005037
                    002406
                                              CLR
                                                       ERRWD2
                                                                        FOR BOTH WORDS
           104456
34 035450
                                              TRAP
                                                       C$ERHRD
   035452
           000120
                                              . WORD
                                                       80
   035454
           013051
                                              . WORD
                                                       EM23
   035456
           014172
                                               WORD
                                                       ERRO
35 035460
           005037
                    002402
                                              CLR
                                                       ITCOUN
                                                                        INO ITERATIONS NECESSARY
36 035464
   035464
                                     10000$:
            104405
   035464
                                              TRAP
                                                       C$ESEG
37 035466
           005337
                    002402
                                              DEC
                                                       ITCOUN
                                                                        ONE LESS TO-GO
38 035472
39 035474
            003341
                                              BGT
                                                                        :UNTIL <= 0!!
           004737
                    017722
                                              JSR
                                                       PC.PRELOD
                                                                        RESET THE DRIVE TO 16 BIT MODE
40 035500
                                     L10076:
   035500
           104401
                                              TRAP
                                                       C$ETST
```

```
SBTTL TEST 49 RHXX UNIQUE REGISTER TEST
                                                SET RPCS2: CLR = 1
                                    : 5
                                                LOAD DRIVE NUMBER INTO RPCS2
                                     : 5
                                                REPEAT
                                                   WRITE A UNIQUE PATTERN INTO A SELECTED REGISTER
                                                   REGISTERS TO TEST - RPCS1, RPWC, RPBA, RPDA, RPMR1, RPOF, RPDC
                                                   OPTIONAL REGISTERS FOR AN RH70 - RPBAE, RPCS3
                                               :
                                                   UNTIL ALL REGISTERS HAVE BEEN WRITTEN
                                             .
10
                                                ENDREPEAT
                                             :
11
                                     : 5
                                                IF REGISTER UNDER TEST DOESN'T MATCH EXPECTED DATA
12
                                     : 5
                                                   THEN
13
                                     : 15
                                                   OUTPUT ERROR MESSAGE (REGISTER SELECTION FAILURE)
14
                                     : 5
                                                   OUTPUT FAULT LIST: RHXX, CABLES, J11, J12, J13, TERMINATOR
                                             :
15
                                     : 15
                                               ENDIF
16
                                     : 5
                                             END TEST 49
17
18 035502
                                    T49::
19 035502
           012737
                   000012
                            002402
                                             MOV
                                                     #10..ITCOUN
                                                                      :LOAD THE ITERATION COUNT
20 035510
           004737
                   016662
                                             JSR
                                                     PC.SEIZE
                                                                      LOAD THE DRIVE UNDER TEST
21 035514
           012737
                   000002
                            002436
                                             MOV
                                   18:
                                                     #2. TEMP
                                                                      :LOAD THE FIRST DATA PATTERN
22 035522
           012702
                   002652
                                                     MPSTACK . R2
                                             MOV
                                                                      CREATE THE CHECK BUFFER ADDRESS
23 035526
           012701
                   004330
                                                     #TST49,R1
                                             MOV
                                                                      GET THE FILE OF REGISTERS
24 035532
           012703
                   000004
                                                                      GET THE FIRST SEGMENT COUNT
                                             MOV
                                                     44.R3
25 035536
           013146
                                    2$:
                                             MOV
                                                     a(R1)+,-(SP)
                                                                      GET THE INITIAL STATE OF THE REGISTER
           017612
                                                     a(SP),(R2)
26 035540
                                                                      SAVE IT IN THE IMAGE FILE
                   000000
                                             MOV
27 035544
           053736
                   002436
                                             BIS
                                                     TEMP, a(SP)+
                                                                      WRITE THE UNIQUE TEST BIT
28 035550
                                                     TEMP, (R2)+
           053722
                   002436
                                                                      AND SET THE CORRECT MASK IN THE IMAGE FILE
                                             BIS
29 035554
           005237
                   002436
                                                                      :NEXT UNIQUE PATTERN
                                             INC
                                                     TEMP
30 035560
           005303
                                             DEC
                                                     R3
                                                                      REDUCE THE ITERATION COUNT
31 035562
32 035564
           003365
                                             BGT
                                                                      : IF > O. KEEP GOING!
           012737
                   000010
                            002436
                                             MOV
                                                     410, TEMP
                                                                      :NEXT PATTERN
33 035572
           012703
                   000004
                                             MOV
                                                     44.R3
                                                                      AND THE NEXT SEGMENT COUNT
           005737
34 035576
                   002504
                                             TST
                                                     RHTYPE
                                                                      ; WHICH CONTROLLER?
35 035602
           001402
                                                                      ; IF 0, RH11; ADD 2 TO THE SEGMENT COUNT TO INCLUDE RPBAE & RPCS3
                                             BEQ
36 035604
           062703
                   000002
                                             ADD
                                                     42.R3
37 035610
           013146
                                             MOV
                                    41:
                                                     8(R1)+,-(SP)
                                                                      SAVE THE INITIAL STATE OF THE REGISTER
38 035612
           017612
                                                     a(SP),(R2)
                                                                      NOW GET THE INITIAL CONTENTS OF THE REGSISTER
                   000000
                                             MOV
39 035616
           053736
                   002436
                                                     TEMP, a(SP)+
                                             BIS
                                                                      NOW WRITE THE TEST PATTERN
40 035622
           053722
                   002436
                                             BIS
                                                     TEMP, (R2)+
                                                                      AND UPDATE THE IMAGE FILE
41 035626
           005237
                   002436
                                                                      INEXT PATTERN
                                             INC
                                                     TEMP
42 035632
           005303
                                             DEC
                                                     R3
                                                                      ONE LESS ITERATION TO GO
43 035634
           003365
                                             BGT
                                                                      :IF > O. NOT DONE YET!!
44 035636
           012701
                   004330
                                             MOV
                                                     #TST49,R1
                                                                      GET THE REGISTER FILE AGAIN
45 035642
           012702
                   002652
                                             MOV
                                                     OPSTACK, R2
                                                                      AND THE OUTPUT FILE AGAIN
46 035646
           012703
                    000010
                                             MOV
                                                     #8.,R3
                                                                      GET THE OVERALL ITERATION COUNT
47 035652
           005737
                   002504
                                             TST
                                                     RHTYPE
                                                                      ; WHICH CONTROLLER??
48 035656
           001402
                                             BEQ
                                                                      : IF O, IT'S AN RH11!!
49 035660
           062703
                   000002
                                             ADD
                                                     42.R3
                                                                      INCLUDE THE TWO EXTRA REGISTERS: RPBAE & RPCS3
50 035664
           013146
                                                     8(R1)+,-(SP)
                                                                      GET THE ADDRESS OF THE REGISTER UNDER TEST
                                    54:
                                             MOV
51 035666
           023622
                                             CMP
                                                     8(SP)+,(R2)+
                                                                      DOES THE DATA MATCH?
52 035670
           001425
                                             BEQ
                                                                      YES, GO-ON!
53 035672
           017637
                   177776
                            002452
                                                     8-2(SP), RCVED
                                             MOV
                                                                      GET THE FAILING DATA
54 035700
           016637
                   177776
                            002456
                                             MOV
                                                     -2(SP), TESTRG
                                                                      AND THE FAILING REGISTER ADDRESS
55 035706
           016237
                   177776
                            002454
                                             MOV
                                                     -2(R2), EXPTED
                                                                      NOW GET THE EXPECTED DATA
56 035714
           012737
                   016000
                            002404
                                             MOV
                                                     #BIT10!BIT11!BIT12,ERRWD1
57 035722
           012737
                   000406
                            002406
                                                     #BIT1:BIT2:BIT8, ERRWD2; CREATE THE MODULE CALLOUT
```

	035730 035732 035734 035736	104456 000121 013641 014172			TRAP . WORD . WORD . WORD	C\$ERHRD 81 EM36 ERRO	
59	035740	005037	002402		CLR	ITCOUN	RESET THE ITERATION COUNTER
60	035744	005303		6\$:	DEC	R3	ONE LESS REGISTER TO TEST
61	035746	003346			BGT	5\$	:IF > O, KEEP GOING!
	035750	005337	002402		DEC	ITCOUN	ONE LESS ITERATION
	035754	003257	***************************************		BGT	1\$	; IF <= 0, DONE!!
	035756	OUSEST		L10077:	001	**	it (- 0, DONE::
04	035756	104401		C10077;	TRAP	C\$ETST	

```
.SBTTL TEST 50 RPLA STATIC TEST
                                                    TEST 50 RPLA STATIC TEST
                                            : 5
                                                       SET UP FOR A SECTOR MATCH IN RPLA
                                                       SET UP A WATCHDOG TIMER
                                            : 15
                                                    :
                                            : 15
                                                       REPEAT
                                                    :
                                           : 5
                                                       : IF DESIRED SECTOR DOESN'T MATCH CONTENTS OF RPLA
                                                    :
                                                    :
                                                       :
                                                          :
                                            : 15
                                                              DECREMENT THE WATCHDOG TIMER
                                                       :
     10
                                            : 15
                                                              IF WATCHDOG TIMER = 0
                                                       :
                                                          :
     11
                                                                 THEN
                                            : 5
                                                          : :
                                           : 15
     12
                                                                 OUTPUT ERROR MESSAGE (CAN'T FIND DESIRED SECTOR IN TIME)
                                                    1 1 1 1
     13
                                            : 5
                                                                 OUTPUT FAULT LIST: J8, J11, J12, J13, RHXX, CONTROLLER, CABLES, TERMINA
                                                    : : : :
TOR
     14
                                            : 5
                                                    : :
                                                          :
     15
                                                                 RE-READ RPLA LOOKING FOR A SECTOR MATCH
                                            : 5
                                                    : : :
                                                              :
     16
                                                              ENDIF
                                            : 15
                                                       :
                                                          :
     17
                                            : 5
                                                              ELSE
                                                       :
                                                           :
     18
                                            : 5
                                                              GET NEXT LEGAL SECTOR ADDRESS
                                                       :
                                                           :
     19
                                            : 5
                                                              REFRESH THE WATCHDOG TIMER
                                                       :
                                            : 5
                                                       :
                                                    :
     21
                                            : 5
                                                           UNTIL ALL LEGAL SECTOR ADDRESSES HAVE BEEN USED
                                                    :
                                                       :
     22
23
24
25
26
                                            : 5
                                                       ENDREPEAT
                                            : 15
                                                    END TEST 50
        035760
                                            T50::
                 012737
        035760
                          000012 002402
                                                             #10.,ITCOUN
                                                                               ;LOAD THE OVERALL ITERATION COUNTER
     27 035766
                 005001
                                            1$:
                                                    CLR
                                                             R1
                                                                               R1 IS USED FOR THE SECTOR ADDRESS
     28 035770
                 012703
                          000003
                                                             43.R3
                                                    MOV
                                                                               OVERALL ITERATION COUNTER
     29 035774
30 036002
                          002532
                 013737
                                                                               THIS REGISTER MIGHT FAIL
                                   002456
                                                    MOV
                                                             RPLA, TESTRG
                 012737
                          016200
                                   002404
                                                             #BIT7:BIT10:BIT11:BIT12.ERRWD1
                                                    MOV
     31 036010
                 012737
                          000406
                                   002406
                                                    MOV
                                                             #BIT1!BIT2!BIT8,ERRWD2
     32 036016
                 004737
                          016662
                                                     JSR
                                                             PC. SEIZE
                                                                               GET THE DRIVE NOW!
     33 036022
                 012737
                                   002436
                          177777
                                                    MOV
                                            2$:
                                                             4-1, TEMP
                                                                               USED FOR A WATCHDOG TIMER
     34 036030
                 027701
                                                    CMP
                          144476
                                                             SRPLA,R1
                                            34:
                                                                               NOW LOOK FOR SECTOR O
     35
        036034
                 001421
                                                    BEQ
                                                                               :MATCH, GO-ON
        036036
                 005337
                          002436
                                                    DEC
                                                             TEMP
                                                                               :1.2 LESS MICROSECONDS TO GO
     37
        036042
                                                    BNE
                 001372
                                                                               *KEEP GOING IF NOT ZERO
                                                             3$
     38 036044
                 005303
                                                             R3
                                                                               ONE LESS ITERATION TO GO
     39 036046
                 003365
                                                                               ; IF NOT ZERO, KEEP GOING
;GET THE RECEIVED DATA
;GET THE EXPECTED DATA
                                                    BGT
     40 036050
                 017737
                          144456
                                                    MOV
                                   002452
                                                             SRPLA, RCVED
     41 036056
                 010137
                          002454
                                                    MOV
                                                             R1.EXPTED
                                            5#:
     42 036062
                 104456
                                                    TRAP
                                                             C$ERHRD
         036064
                 000122
                                                     . WORD
         036066
                 012454
                                                     . WORD
                                                             EM14
         036070
                 014172
                                                     . WORD
                                                             ERRO
     43 036072
                 005037
                          002402
                                                     CLR
                                                                               RESET THE ITERATION COUNTER
                                                             ITCOUN
     44 036076
                 000454
                                                    BR
                                                             14$
                                                                               : TAKE EARLY RETURN
     45 036100
                 012703
                                                             OPSTACK.R3
                          002652
                                            6#:
                                                    MOV
                                                                               GET THE 2 OUT OF 3 BUFFER
     46 036104
                 062701
                          000100
                                                    ADD
                                                             #100,R1
                                                                               SET UP FOR THE NEXT SECTOR ADDRESS
     47 036110
                 020127
                          006200
                                                    CMP
                                                             R1,#6200
                                                                               DONE? (SECTOR 50)
     48 036114
                 001442
                                                    BEQ
                                                             13$
                                                                               : IF MATCH, YES
     49 036116
                 012702
                          000002
                                                                               WE MUST HAVE TWO MATCHES USE THIS FOR AN OVERALL ITERATION COUNT
                                                             #2,R2
                                                    MOV
     50 036122
                 012704
                          000003
                                                    MOV
                                                             43.R4
                                                                               USE THIS AS A WATCHOOG TIMER
     51 036126
                 012737
                          177777
                                                             4-1, TEMP
                                   002436
                                                    MOV
     52 036134
                 005337
                          002436
                                                             TEMP
                                                    DEC
                                                                               :1.2 MICRO SECONDS LESS WINDOW
                                            84:
     53 036140
                 001404
                                                                               ; IF ZERO, FIND OUT WHICH ITERATION
                                                    BEQ
                                                             91
     54 036142
                          144364
                 027701
                                                             SRPLA.R1
                                                                               :MATCH?
```

55 036146	001372			BNE	8\$	; IF NOT, KEEP TRYING
56 036150	001403			BEQ	10\$	:IF SO, TRY AGAIN
57 036152	005304		9\$:	DEC	R4	ONE LESS ITERATION TO GO
58 036154	003364			BGT	7\$	; IF NOT ZERO, KEEP TRYING
59 036156	001734			BEQ	45	IF ZERO, WE HAVE AN ERROR
60 036160	017723	144346	10\$:	MOV	aRPLA,(R3)+	GET THE FIRST OF THREE READINGS
61 036164	017723	144342	207.	MOV	aRPLA,(R3)+	GET THE SECOND OF THREE READINGS
62 036170	017723	144336		MOV	aRPLA,(R3)+	GET THE SECOND OF THREE READINGS
63 036174	024301	144330	11\$:	CMP		DO WE MATCH?
64 036176	001003		114:		-(R3),R1	
65 036200				BNE	12\$	IF NOT, CHECK IT FOR ERRORS
	005302			DEC	R2	OK ONCE, TRY AGAIN
66 036202	003374			BGT	115	TAKE BRANCH IF NOT O
67 036204	000406			BR	13\$	; TEST OK, SO-FAR
68 036206	020327	002650	12\$:	CMP	R3, #PSTACK-2	;DID WE RUN OUT OF BUFFER?
69 036212	101370			BHI	11\$	;NOT YET
70 036214	011337	002454		MOV	(R3), EXPTED	GET THE EXPECTED DATA FOR THE REPORT
71 036220	000716			BR	5\$	NOW REPORT THE ERROR
72 036222	005337	002402	13\$:	DEC	ITCOUN	ONE LESS ITERATION
73 036226	003257			BGT	1\$	; IF <= 0, DONE!!
74 036230			14\$:			
036230			L10100:			
036230	104401			TRAP	C\$ETST	

```
.SBTTL TEST 51 RPMR1 - RPER2 WRAP AROUND TEST
                                    : 5
                                             TEST 51 RPMR1 - RPER2 WRAP AROUND TEST
                                             : USING PATTERNS 1-4, ONE AT A TIME,
                                    : 5
                                               WRITE RPHRI, HIGH BYTE WITH 'FE' (HEX) AND LOW BITE WITH TEST PATTERN
                                               ISSUE A DIAGNOSTIC COMMAND
                                    : 5
                                               WAIT FOR THE COMMAND COMPLETION
                                    : 5
                                             : IF RPER2. LOW BYTE ONLY. DOESN'T MATCH THE TEST PATTERN
                                    : 5
                                                  THEN
                                    : 5
                                                   OUTPUT ERROR MESSAGE (REGISTER CONTENTS DON'T MATCH EXPECT DATA)
                                             : :
                                                   OUTPUT FAULT LIST: J7, J8
                                             : :
12
                                               ENDIF
13
                                    : 5
                                               WRITE RPMR1. HIGH BYTE WITH 'FF' (HEX)
14
                                               ISSUE A DIAGNOSTIC COMMAND
                                    : 5
15
                                             END TEST 51
16
17 036232
                                    T51::
18 036232
           012737 000002
                           002402
                                             MOV
                                                                      LOAD THE ITERATION COUNT
                                                     #2..ITCOUN
19 036240
           012737
                   000035
                            002420
                                             MOV
                                                     DIAG, FUNCTN
                                                                      LOAD THE DIAGNOSTIC COMMAND FUNCTION
                   000300
20 036246
           012737
                            002404
                                                     #BIT6!BIT7, ERRHD1: LOAD THE CALLOUT LIST
                                             MOV
21 036254
           005037
                   002406
                                             CLR
                                                                      INO MODULE FOR THIS MASK
                                                     ERRWD2
22 036260
           004737
                   016662
                                             JSR
                                                     PC. SEIZE
                                                                      :LOAD THE DRIVE NUMBER
23 036264
           013737
                    002552
                            002456
                                             MOV
                                                     RPER2, TESTRG
                                                                      THIS REGISTER MAY FAIL
24 036272
           012701
                   177000
                                                     #177000,R1
                                    18:
                                             MOV
                                                                      SET UP FOR A O'S WRITE WRAP TO RPERS
25 036276
           104404
                                             TRAP
                                                     C$BSEG
26 036300
           010177
                    144232
                                             MOV
                                                     R1. SRPMR1
                                                                      :LOAD THE MAINTENANCE REGISTER NOW
27 036304
           004737
                   015146
                                                     PC.DRIVER
                                             JSR
                                                                      ISSUE THE DIAGNOSTIC COMMAND
28 036310
           017746
                   144236
                                             MOV
                                                     BRPER2, -(SP)
                                                                      GET THE RESULTS
29 036314
           042716
                   177400
                                             BIC
                                                     #177400,(SP)
                                                                      AND REMOVE THE UNMANTED BITS
30 036320
           120126
                                                     R1.(SP).
                                                                      :MATCH?
                                             CMPB
31 036322
           001415
                                             BEQ
                                                                      TAKE BRANCH IF SO.
32 036324
                   002454
           005037
                                                     EXPTED
                                             CLR
                                                                      RESET THE EXPECTED DATA
33 036330
           110137
                   002454
                                             MOVB
                                                     R1, EXPTED
                                                                      LOAD THE EXPECTED STATUS
34 036334
           016637
                   177776 002452
                                                     -2(SP), RCVED
                                             MOV
                                                                      AND THE FAILING STATUS
35 036342
                                             TRAP
                                                     CSERHRD
   036344
           000123
                                             . WORD
                                                     83
   036346
           012454
                                             . WORD
                                                     EM14
   036350
           014172
                                             WORD
                                                     ERRO
36 036352
           005037
                   002402
                                             CLR
                                                     ITCOUN
                                                                      INO ITERATIONS NECESSARY
37 036356
           004737
                   015400
                                             JSR
                                                     PC.DRVCLR
                                    21:
                                                                      RESET ANY ERRORS AND
38 036362
           004737
                   015312
                                             JSR
                                                     PC.DIAGEN
                                                                      SHUT THE DIAGNOSTIC MODE OFF.
39 036366
                                    100000 :
   036366
           104405
                                             TRAP
                                                     CSESEG
41 036370
           104404
                                             TRAP
                                                     C#BSEG
42 036372
           012701
                   177377
                                             MOV
                                                     #177377,R1
                                                                      IMRITE AN ALL ONES PATTERN TO RPER2
43 036376
           010177
                    144134
                                             MOV
                                                     R1, SRPMR1
                                                                      INRITE THE MAINTENANCE REGISTER NOW
44 036402
           004737
                   015146
                                             JSR
                                                     PC.DRIVER
                                                                      ISSUE THE DIAGNOSTIC COMMAND
45 036406
           017746
                                                     #177400,(SP)
                   144140
                                             MOV
                                                                      GET THE RESULTS
46 036412
           042716
                   177400
                                             BIC
                                                                      STRIP THE HIGH BITS OUT
47 036416
                                                     R1,(SP).
           120126
                                             CMPB
                                                                      MATCH?
48 036420
           001415
                                             BEQ
                                                                      IF SO, TAKE BRANCH
49 036422
           005037
                    002454
                                                                      SET UP FOR AN ERROR MESSAGE
                                             CLR
                                                     EXPTED
50 036426
           110137
                   002454
                                             MOVB
                                                     R1.EXPTED
                                                                      SET THE EXPECTED DATA
51 036432
                           002452
                                                     -2(SP), RCVED
           016637
                   177776
                                             MOV
                                                                      SET THE RECEIVED DATA
52 036440
           104456
                                             TRAP
                                                     CSERHRD
   036442
           000124
                                             . WORD
```

036444	012454				. WORD	EM14	
036446	014172				. WORD	ERRO	
53 036450.	005037	002402			CLR	ITCOUN	INO FURTHER ITERATIONS NECESSARY
54 036454	004737	015400		34:	JSR	PC.DRVCLR	RESET ANY ERRORS AND
55 036460	004737	015312		54.	JSR	PC.DIAGEN	SHUT THE DIAGNOSTIC MODE OFF.
56 036464	004131	OLJJIE		10001\$:	Jan	PC, DIAGEN	ISHOT THE DIAGNOSTIC HODE OFF.
036464	104405			10001*:	TOAD	CAPCEC	
57	104402				TRAP	C\$ESEG	
	010701				****		
58 036466	012701	000001			MOV	#BITO,R1	LOAD THE NEXT PATTERN NOW
59 036472	052701	177000		48:	BIS	#177000,R1	AND SET THE DIAGNOSTIC START MASK
60 036476	104404				TRAP	C#BSEG	
61 036500	010177	144032			MOV	R1.SRPMR1	LOAD THE WRAP TEST NOW
62 036504	004737	015146			JSR	PC.DRIVER	: ISSUE THE COMMAND NOW!
63 036510	017746	144036			MOV	BRPER2(SP)	GET THE RESULTS
64 036514	042716	177490			BIC	#177400.(SP)	STRIP UNMANTED DATA
65 036520	120126				CMPB	R1.(SP).	MATCH??
66 036522	001415				BEQ	56	IF SO, SKIP ERROR MESSAGE
67 036524	005037	002454			CLR	EXPTED	RESET THE EXPECTED DATA
68 036530	110137	002454			MOVB	R1.EXPTED	GET THE EXPECTED DATA
69 036534	016637	177776	002452		MOV	-2(SP),RCVED	AND THE FAILED RESULTS
70 036542	104456	211110	002432		TRAP	CSERHRD	INUD THE LATTED MESOFTS
036544							
036546	000125				. WORD	85	
036546	012454				. WORD	EM14	
036550	014172				. WORD	ERRO	
71 036552	005037	002402			CLR	ITCOUN	NO ITERATIONS NECESSARY
72 036556	004737	015400		54:	JSR	PC.DRVCLR	RESET ANY ERRORS AND
73 036562	004737	015312			JSR	PC.DIAGEN	SHUT THE DIAGNOSTIC MODE OFF.
74 036566				10002\$:			
036566	104405				TRAP	C\$ESEG	
75 036570	042701	177200			BIC	#177200,R1	:DONE?
76 036574	001402				BEQ	61	IF ZERO, YES!!!
77 036576	006301				ASL	R1	NEXT BIT POSTIION, NOW!
78 036600	000734				BR	41	KEEP GOING!
79							INCEL COTIO!
80 036602	012701	000376		61:	MOV	#376,R1	LAST PATTERN
81 036606	052701	177000		78:	BIS	#177000,R1	LOAD THE DIAGNOSTIC START AGAIN
82 036612	104404	211000			TRAP	CIBSEG	Troug the productiff State would
83 036614	010177	143716			MOV	R1, SRPMR1	LOAD THE HOAD DATA HOW
84 036620	004737	015146					LOAD THE WRAP DATA NOW
85 036624	017746	143722			JSR	PC.DRIVER	EXECUTE THE DIAGNOSTIC COMMAND NOW
86 036630	042716				MOV	SRPER2,-(SP)	GET THE RESULTS
87 036634		177400			BIC	#177400,(SP)	STRIP UNMANTED DATA
88 036636	120126				CMPB	R1.(SP).	:MATCH??
	001415				BEQ	81	IF SO. SKIP ERROR REPORT
89 036640	005037	002454			CLR	EXPTED	RESET THE EXPECTED DATA
90 036644	110137	002454			MOVB	R1,EXPTED	LOG THE GOOD DATA
91 036650	016637	177776	002452		MOV	-2(SP),RCVED	LOG THE BAD DATA
92 036656	104456				TRAP	C\$ERHRD	
036660	000126				. WORD	86	
036662	012454				. WORD	EM14	
036664	014172				. WORD	ERRO	
93 036666	005037	002402			CLR	ITCOUN	RESET THE ITERATIONS COUNTER
94 036672	004737	015400		81:	JSR	PC.DRVCLR	RESET ANY ERRORS AND
95 036676	004737	015312			JSR	PC.DIAGEN	SHUT THE DIAGNOSTIC MODE OFF.
96 036702	004.01	OLUGIE		10003#:	UJK	-CIDINGEN	I SHOT THE DIMONUSTIC HODE OFF.
036702	104405			100031:	TRAP	CAECEC	
97 036704		177400				C\$ESEG	DEMOVE THE MACK
98 036710	042701	177400			BIC	#177400,R1	REMOVE THE MASK
70 030/10	000261				SEC		CARRY = 1

100 101 102 103 104 105	036712 036714 036720 036724 036726 036732 036734 036740	006101 042701 022701 001330 005337 003402 000137	177400 000377 002402 036272	98:	ROL BIC CMP BNE DEC BLE JMP	R1 #177400.R1 #377.R1 7\$ ITCOUN 9\$ 1\$	SHIFT LEFT (ONE TIME!!) CLEAR THE UNUSED BITS FOR THE FINAL DONE?? IF NOT, KEEP GOING ONE LESS ITERATION TO-GO IF <= 0, DONE DO UNTIL = 0	TEST
	036740 036740	104401		L10101:	TRAP	CSETST		

```
SBTTL TEST 52 ERROR LOG DUMP
                                              TEST 52 ERROR LOG DUMP
                                                 THIS TEST DOES NO DATA CHECKING
                                      : 5
                                                 LOAD #17(HEX) INTO RPMR1, HIGH BYTE
                                                 LOAD LOW BYTE OF RPMR1 WITH RAM LOCATION TO BE DUMPED:
                                                 71-72(HEX) FOR REVISION LEVEL
                                                 32-37(HEX) FOR THE ERROR LOG
                                                 88(HEX) FOR FAILED RECAL ATTEMPTS
10
                                                 38-4A(HEX) FOR LAST 20. UNIQUE ERROR LOG ENTRIES
                                                 REPEAT
12
                                                    LOAD A DIAGNOSTIC COMMAND
                                      : 5
                                              : :
13
                                                     WHEN COMMAND EXECUTION COMPLETES GET CONTENTS OF RPER2
                                      : 15
                                              : :
14
                                      : 5
                                                     CONVERT TO HEX OR DECIMAL (AS REQUIRED)
                                              : :
15
                                     : 5
                                                     PRINT OUTPUT TO USER
                                              : :
16
                                      : 5
                                                     UNTIL ALL CONTENTS HAVE BEEN DUMPED
                                              :
                                                 ENDREPEAT
17
                                      : 5
18
                                      : 5
                                              END TEST 52
19
20 036742
                                     T52::
21 036742
           005737 002334
                                              TST
                                                       ERROMP
                                                                         DUMP THE ERROR LOG?
22 036746
           003002
                                              BGT
                                                                         : IF >O. YES
26 036750
           104432
                                              TRAP
                                                       C$EXIT
   036752
           000736
                                               . WORD
                                                       L10102-
  036754
           004737
                    016662
                                               JSR
                                      18:
                                                       PC. SEIZE
                                                                         :LOAD THE DRIVE NUMBER
28 036760
           012702
                    002652
                                              MOV
                                                       OPSTACK, R2
                                                                         GET THE OUTPUT BUFFER
29 036764
           012737
                    000035
                             002420
                                                       #DIAG, FUNCTN
                                              MOV
                                                                         SET UP FOR A DIAGNOSTIC COMMAND
30 036772
                                                                        THIS IS THE FIRST LOW BYTE PARAMETER (71 HEX)
THIS IS THE DUMP ROUTINE NUMBER (17 HEX)
PUT THIS AS THE COMMAND NUMBER
           012701
                    000161
                                              MOV
                                                       #161,R1
31 036776
           012704
                    000027
                                              MOV
                                                       #27.R4
32 037002
           000304
                                              SWAB
33 037004
           004737
                                                                         ISTART THE DIAGNOSTIC MONITOR
                    015260
                                               JSR
                                                       PC.DIAGST
34 037010
           050104
                                                                         LOAD THE RAM ADDRESS
                                      21:
                                                       R1,R4
35 037012
                                                       PC.DRVCLR
                                                                        INO ERRORS INITIALLY
           004737
                    015400
                                               JSR
36 037016
           004737
                    015352
                                               JSR
                                                       PC, DIAGLD
37
  037022
           017712
                    143524
                                              MOV
                                                       BRPER2, (R2)
                                                                        (GET THE RESULTS (8080/2901 REV'S)
38 037026
           042722
                    177400
                                              BIC
                                                       #177400.(R2)+
                                                                         STRIP OUT UNMANTED DATA
39 037032
           040104
                                              BIC
                                                       R1,R4
                                                                         REMOVE THE LOW BYTE ARGUMENT
40 037034
           020127
                    000162
                                                                         DONE BOTH LOCATIONS? (72 HEX)
                                              CMP
                                                       R1.#162
41 037040
           001402
                                                                         IF MATCH, YES
                                              BEQ
                                                      438
42 037042
           005201
                                              INC
                                                       R1
                                                                         SET THE 2901 REV LEVEL REQUEST
43 037044
           000761
                                                       2$
                                                                         AND GO TO THE RAM AND GET IT
44 037046
                                      3#:
                                                                         PRINT 8080 AND 2901 REVISION LEVELS
45 037046
           013746
                    002654
                                              MOV
                                                       PSTACK+2.-(SP)
   037052
           013746
                    002652
                                                       PSTACK, -(SP)
                                              MOV
   037056
           012746
                    010202
                                              MOV
                                                       #FRMT20, -(SP)
   037062
           012746
                    000003
                                                       43,-(SP)
SP,RO
                                              MOV
   037066
           010600
                                              MOV
   037070
            104417
                                              TRAP
                                                       CSPNTF
   037072
            062706
                    000010
                                              ADD
                                                       #10.SP
46 037076
           012701
                    000061
                                              MOV
                                                       461,R1
                                                                         SET UP FOR THE NEXT RAM DUMP (31 HEX)
47 037102
            004737
                    015400
                                               JSR
                                                       PC, DRVCLR
                                                                         INO ERRORS NOW!
            004737
                    017252
48 037106
                                                                         NOW GET THE DATA
                                               JSR
                                                       PC, NEXLOC
                                                       @RPER2,-(SP)
#177400,(SP)+
49 037112
           017746
                    143434
                                              MOV
50 037116
                    177400
           042726
                                              BIC
                                                                         STRIP UNUSED DATA
                                                                         PRINT NUMBER OF SEEKS TOO LONG
52 037122 016646
                                                       -2(SP), -(SP)
                    177776
   037126
           012746
                    007574
                                              MOV
                                                       #FRMTO7, -(SP)
```

037132	012746	000002	MOV	42,-(SP)	
037136	010600	000002	MOV	SP.RO	
037140	104417		TRAP		
		000001		C\$PNTF	
037142	062706	000006	ADD	46.SP	
53 037146	004737	015400	JSR	PC.DRVCLR	NO RESIDUAL ERRORS
54 037152	004737	017252 !	JSR	PC.NEXLOC	GET THE NEXT RAM CONTENTS
55 037156	017746	143370	MOV	BRPER2, -(SP)	GET THE RESULTS
56 037162	042726	177400	BIC	#177400,(SP)+	STRIP UNWANTED DATA
57	045150	211400	DIC	W111400,(3F)	DOTAL MIMDED OF CEEK OVERCHOOSE
The same and the s	014444	17777/	MOU	0/60) /60)	PRINT NUMBER OF SEEK OVERSHOOTS
58 037166	016646	177776	MOV	-2(SP),-(SP)	
037172		007624	MOV	#FRMT10, -(SP)	
037176	012746	000002	MOV	#2,-(SP)	
037202	010600		MOV	SP.RO	
037204	104417		TRAP	CSPNTF	
037206	062706	000006	ADD	46,SP	
59 037212	004737	015400	JSR	DC DBVCI B	NO EDDOOC
				PC.DRVCLR	INO ERRORS
60 037216	004737	017252	JSR	PC.NEXLOC	NEXT CONTENTS, PLEASE
61 037222		143324	MOV	aRPER2, -(SP)	GET THE RESULTS
62 037226	042726	177400	BIC	#177400,(SP)+	STRIP UNUSED DATA
63					PRINT NUMBER OF SOFT SEEK OVERSHOOTS
64 037232	016646	177776	MOV	-2(SP),-(SP)	THEM NOTED OF SOLI SEEK OVERSHOOTS
037236	012746	007655	MOV	AEDMT11 (CD)	
037230				#FRMT11, -(SP)	
037242	012746	000002	MOV	#2,-(SP)	
037246	010600		MOV	SP.RO	
037250	104417		TRAP	C\$PNTF	
037252	062706	000006	ADD	46.SP	
65 037256	004737	015400	JSR	PC, DRVCLR	INO FURTHER ERRORS
66 037262	004737	017252	JSR	PC.NEXLOC	GET THE NEXT CONTENTS PLEASE
67 037266					CET THE NEXT CONTENTS PLEASE
60 037200	017746	143260	MOV	aRPER2, -(SP)	GET THE RESULTS
68 037272	042726	177400	BIC	#177400,(SP)+	STRIP THE UNUSED DATA
69					PRINT GUARD-BAND DETECTED SKI'S
70 037276	016646	177776	MOV	-2(SP),-(SP)	
037302	012746	007713	MOV	4FRMT12, -(SP)	
037306	012746	000002	MOV	42,-(SP)	
037312	010600	***************************************	MOV	SP.RO	
037314	104417		TRAP		
037316	062706	000000		CSPNTF	
	062706	000006	ADD	46,SP	
71 037322	004737	015400	JSR	PC.DRVCLR	INO FURTHER ERRORS
72 037326	004737	017252	JSR	PC.NEXLOC	NEXT RAM LOCATION
73 037332	017746	143214	MOV	BRPER2,-(SP)	GET THE RESULTS
74 037336	042726	177400	BIC	#177400,(SP)+	STRIP THE UNUSED DATA
75					PRINT NUMBER OF INDEX ERRORS
76 037342	016646	177776	MOV	-2(50) -(50)	THE THE MOUNTY OF THEFT ENGINE
				-2(SP),-(SP)	
037346	012746	007756	MOV	OFRMT13, -(SP)	
037352	012746	000002	MOV	#2,-(SP)	
037356	010600		MOV	SP.RO	
037360	104417		TRAP	CIPNTF	
037362	062706	000006	ADD	46,SP	
77 037366	004737	015400	JSR	PC.DRVCLR	INO FURTHER ERRORS
78 037372	004737	017252			
			JSR	PC, NEXLOC	INEXT RAM LOCATION
79 037376	017746	143150	MOV	BRPER2, -(SP)	GET THE RESULTS
80 037402	042726	177400	BIC	#177400,(SP)+	STRIP THE "WHO CARES" BITS
81					PRINT NUMBER OF PLO UNSAFES
82 037406	016646	177776	MOV	-2(SP),-(SP)	
037412	012746	010004	MOV	OFRMT14, -(SP)	
037416	012746	000002	MOV	#2,-(SP)	
037422		200006		CD 00	
031422	010600		MOV	SP,RO	

84 85 86	037452	104417 062706 012701 004737 004737 017746 042726	000006 000210 015400 017252 143100 177400		TRAP ADD MOV JSR JSR MOV BIC	C\$PNTF #6.SP #210.R1 PC.DRVCLR PC.NEXLOC @RPER2(SP) #177400.(SP)+	GET THE SET-UP FOR THE #OF RECAL ATTEMPTS(88 HEX) NO FURTHER ERRORS GET THE DATA NOW GET THE RESULTS STRIP THE UNMANTED DATA
	037456 037462 037466 037472 037474 037476	016646 012746 012746 010600 104417 062706	177776 010031 000002		MOV MOV MOV TRAP ADD	-2(SP),-(SP) #FRMT15,-(SP) #2,-(SP) SP,R0 C*PNTF #6,SP	PRINT THE NUMBER OF RECAL ATTEMPTS
91 92 93 94	037502 037506 037512 037514 037516 037522 037526 037532	012746 012746 010600 104417 062706 012702 012701 012703	010070 000001 000004 000004 000067 000005	41:	MOV MOV TRAP ADD MOV MOV MOV	#FRMT16,-(SP) #1,-(SP) SP,R0 C#PNTF #4.SP #4.R2 #67,R1 #5,R3	GET A 4 ITERATION COUNT GET THE FIRST RAM LOCATION-1 FOR THE LAST 20 ERRORS S ENTRIES / ROW
97 98 99 100 101 102	037536 037542 037546 037550 037552 037556 037562 037566 037572 037576 037600 037600	012746 012746 010600 104417 062706 004737 004737 017746 042716 005726 001427 005746	006420 000001 000004 015400 017252 142760 177400	5#:	MOV MOV TRAP ADD JSR JSR MOV BIC TST BEQ TST	#CRLF,-(SP) #1(SP) SP,RO C*PNTF #4.SP PC,DRVCLR PC,NEXLOC #RPER2,-(SP) #177400,(SP) (SP)+ 6*	:NO FURTHER ERRORS :GET THE RAM DATA :GET THE RESULTS :STRIP THE UNUSED RESULTS :LOOK FOR NULL DATA :TAKE BRANCH IF 0 :RESTORE THE STACK FOR OCTHEX
107	037610 037614 037620 037624 037630 037634 037640 037642 037644 7 037650 8 037652 0 037654	004737 012746 012746 012746 012746 012746 012746 010600 104417 062706 005303 003341 005302 003325			JSR MOV MOV MOV MOV MOV TRAP ADD DEC BGT DEC BGT	PC,OCTHEX  #PSTACK+6,-(SP)  #PSTACK+4,-(SP)  #PSTACK+2,-(SP)  #PSTACK,-(SP)  #FRMT17,-(SP)  #5,-(SP)  SP,RO  C*PNTF  #14,SP  R3  54  R2  44	CONVERT TO HEX DUMP THE RAM CONTENTS  ONE LESS ROW TO GO KEEP GOING ONE LESS COLUMN TO GO KEEP GOING
111	037660 037660 037664 037670 037672 037674	012746 012746 010600 104417 062706	006420 000001 000004	6\$:	MOV MOV MOV TRAP ADD	#CRLF,-(SP) #1,-(SP) SP,RO C#PNTF #4,SP	CR-LF

CZRJMBO RPO7 FE/HOST ISOLATOR MACRO VO4.00 1-DEC-83 10:39:09 PAGE 87-3 TEST 52 ERROR LOG DUMP

SEQ 0176

113 037700 004737 015400 114 037704 004737 015312 115 037710 037710 104401

JSR JSR

L10102:

PC.DRVCLR PC.DIAGEN

RESET RPER2 TO O SHUT OFF THE DIAGNOSTIC MONITOR

TRAP C\$ETST

```
.SBTTL TEST 53 COMPOSITE MICROCODE TEST
                                                TEST 53 COMPOSITE MICROCODE TEST
                                       : 5
                                                   THIS TEST RUNS TWO SEQUENCES OF MICRODIAGNOSTICS THROUGH THE
                                       : 5
                                                   RP07. THE FIRST SEQUENCE IS COMPRISED OF ROUTINES 24 - 38
                                                   THE SECOND SEQUENCE IS COMPRISED OF ROUTINES 18 - 23. IF THE LOOP ON ERROR OPTION IS SELECTED, THE ROUTINE WHICH WAS RUNNING AT THE TIME OF THE ERROR WILL BE 'FROZEN' SO THAT THE ERROR MAY
                                       : 5
                                       : 5
 8
                                       : 5
                                                :
                                                   BE ANALYZED FURTHER TO IDENTIFY THE FAILURE MECHANISM.
                                       : 5
                                                :
10
                                                   TEST ALGORITHM IS AS FOLLOWS:
                                       : 5
11
                                                   TURN ON THE DIAGNOSTIC MONITOR
                                       : 5
12
                                                   LOAD RPMR1 WITH A DIAGNOSTIC NUMBER (AND HEAD NUMBER IF NECESSARY)
                                       : 5
                                                :
                                       : 15
                                                   REPEAT
                                                :
14
                                       : 15
                                                       ISSUE A DIAGNOSTIC COMMAND
                                                   :
                                                :
15
                                       : 5
                                                       IF RPER2 (LOW BYTE) <> 0
                                                :
                                                   :
16
                                       : 15
                                                          THEN
                                                : :
                                                      :
                                       : 5
                                                          REPORT THE ERROR (IN HEX). AND THE MODULE CALLOUT
18
19
20
                                       : 5
                                                       ENDIF
                                       : 5
                                                       UNTIL ALL ROUTINES HAVE BEEN RUN
                                       : 5
                                                   ENDREPEAT
                                                :
21
                                       : 5
                                                   TURN OFF THE DIAGNOSTIC MONITOR
22
23
24 037712
25 037712
26 037716
                                                END TEST 53
                                       : 5
                                       T53::
            012704
                     000044
                                                MOV
                                                         444 . R4
                                                                           SET UP THE FIRST ROUTINE NUMBER
            004737
                     016662
                                                JSR
                                                         PC. SEIZE
                                                                           :LOAD THE DRIVE NUMBER
27 037722
            004737
                     015260
                                                JSR
                                                         PC, DIAGST
                                                                           AND THEN THE "HANDSHAKE"
28 037726
            005002
                                                CLR
                                                         R2
                                                                           R2 USED FOR THE TRACK ADDRESS
29 037730
            000304
                                                SWAB
                                                         R4
                                                                           :R4 HIGH BYTE USED FOR THE ROUTINE #
30 037732
                                       21:
   037732
            104404
                                                TRAP
                                                         C$BSEG
            004737
31 037734
                                                         PC, DIAGLD
                     015352
                                                JSR
                                                                           ; NOW EXECUTE THE ROUTINE NUMBER
            017746
32 037740
                                                         @RPER2,-(SP)
                     142606
                                                MOV
                                                                           GET THE RESULTS OF THE TEST
33 037744
            042726
                     177400
                                                                           STRIP JUNK
                                                BIC
34 037750
            001414
                                                BEQ
35 037752
            104456
                                                TRAP
                                                         C#ERHRD
   037754
            000620
                                                . WORD
                                                         400
   037756
            013564
                                                 . WORD
                                                         EM35
   037760
            014310
                                                 . WORD
                                                         ERR1
   037762
                     040011
            012737
                                                         OTRE!DRCLR, FUNCTN
                             002420
                                                                                    :LOAD THE DRIVE CLEAR AND CONTROLLER CLEAR COMMAND
                                                MOV
   037770
            004737
                     015146
                                                                           NOW EXECUTE THE DRIVE CLEAR COMMAND
                                                 JSR
                                                         PC.DRIVER
38 037774
            052777
                     100000
                                                BIS
                                                                           SET THE DIAGNOSTIC MODE BIT AGAIN
                             142534
                                                         40MD, aRPMR1
39 040002
   040002
                                       10000#:
   040002
            104405
                                                TRAP
                                                         C$ESEG
40 040004
            000304
                                                SWAB
                                                         R4
                                                                           RESTORE R4
                                                         R4
   040006
            005204
                                                                           GET NEXT ROUTINE 4
42 040010
            120427
                     000037
                                                         R4.437
                                                                           IS THIS A READ/WRITE ROUTINE?
43 040014
            103745
                                                BLO
                                                         18
                                                                           VALID ROUTINE, KEEP GOING
44 040016
            120427
                     000043
                                                         R4.443
                                                                           READ-WRITE ROUTINE?
45 040022
             101035
                                                         5#
                                                                           ; IF HIGHER, NO
46 040024
            000304
                                                         R4
                                                SWAB
                                                                           ROUTINE # IN HIGH BYTE
   040026
            005737
                     002336
                                                TST
                                                         SELTRK
                                                                           USER SPECIFIED TRACK ADDRESS??
48 040032
            001411
                                                BEQ
                                                         48
                                                                           ; IF ZERO, NO-DO THEM ALL!!
49 040034
                                                         R4,-(SP)
            010446
                                                MOV
                                                                           GET R4 ON THE STACK FOR SOME CHECKING
50 040036
            042716
                     000377
                                                BIC
                                                         #377,(SP)
                                                                           STRIP THE TRACK ADDRESS
51 040042
            022627
                     021400
                                                         (SP)+,#21400
                                                                           WAS THIS THE LAST ROUTINE?
```

	52 0400 53 0400 54 0400	050	001431 053704 000726	002340		BEQ BIS BR	6\$ TRAKAD,R4	:IF =, YES IT WAS!! :SET THE USER SPECIFIED TRACK ADDRESS
	55 0400	056	162704	000400	4\$:	SUB	2\$ #400.R4 R2.R4	GET THE LAST ROUTINE & (WE MAY NOT BE DONE) RESET THE TRACK ADDRESS
	57 0400 58 0400	064 066	005202 050204			BIS	R2 R2,R4	:NEXT TRACK ADDRESS, PLEASE :LOAD THE NEW TRACK ADDRESS
(	59 0400 50 0400 51 0400	074	020227 101716 105004	000037		BLOS	R2,#31.	; WAS IT LEGAL? ; YES IT WAS, GO-ON
(	52 0401 53 0401	100	005002	000400		CLRB CLR ADD	R4 R2 #400,R4	RESET TO TRACK O AND RESET THE TRACK TO O RESET NEXT ROUTINE #
	54 0401	106 112	020427 103707	021400		CMP BLO	R4.#21400 2\$	IS THIS ROUTINE #43 (HIGH BYTE INFO)?
(	56 0401 57 0401 58 0401	116	000406 120427 101702	000073	56:	CMPB	6\$ R4.#73	;DONE, TURN OFF THE MONITOR ;END ROUTINE?
(	59 040 70 040	124	012704	000030		BLOS MOV BR	1\$ #30,R4 1\$	; NOT YET, IF LOWER ; LOAD THE NEXT SEQUENCE OF ROUTINES ; AND KEEP GOING
	71 040	132 136	004737	015312	6\$: L10103:	JSR	PC.DIAGEN	; ALL DONE, SHUT-OFF THE DIAGNOSTIC MONITOR
	040	136	104401			TRAP	C\$ETST	

```
.SBTTL TEST 54 READ-IN-PRESET FUNCTIONAL TEST
                                              TEST 54 READ-IN-PRESET FUNCTIONAL TEST
                                     : 16
                                                 WRITE RPDA WITH DATA PATTERN #3
                                      : 15
                                                 WRITE RPDC WITH DATA PATTERN #3
                                      : 5
                                                 SET RPOF: FMT = 1
                                      : 15
                                              : ISSUE A READ-IN-PRESET COMMAND
                                     : 15
                                                    IF ((RPDA) OR (RPDC) OR (RPOF: FMT) <> 0
                                              : :
                                      : 15
                                                     THEN
10
                                                    OUTPUT ERROR MESSAGE (RIP COMMAND FAILED TO EXECUTE PROPERLY)
                                      : 15
                                                     OUTPUT FAULT LIST: J12
                                      : 5
                                              :
12
                                      : 15
                                                 ENDIF
13
                                      : 5
                                              END TEST 54
14
15 040140
                                     T54::
                                                       #10.,ITCOUN
16 040140
           012737
                    000012 002402
                                                                        :LOAD THE ITERATION COUNT
17 040146
           032777
                    010000 142350
                                              BIT
                                                       MOL, SRPDS
                                                                        DRIVE ON-LINE?
18 040154
           001016
                                              BNE
                                                                        : IF = 1. YES
:GET THE REGISTER IMAGE
19 040156
           004737
                                              JSR
                                                      PC. SAVRPR
                    017326
20 040162
           013746
                                                      LSTEST, -(SP)
                    002114
                                              MOV
   040166
           012746
                    006452
                                              MOV
                                                       #MSGMOL, -(SP)
   040172
           012746
                    000002
                                              MOV
                                                       #2,-(SP)
   040176
                                                       SP.RO
C#PNTF
           010600
                                              MOV
   040200
           104417
                                              TRAP
   040202
           062706
                    000006
                                              ADD
                                                       46.SP
24 040206
           104432
                                              TRAP
                                                       C$EXIT
   040210
           000162
                                              . WORD
                                                      L10104 - .
25 040212
                                     14:
   040212
           104404
                                              TRAP
                                                       C#BSEG
26 040214
           004737
                    016662
                                              JSR
                                                       PC. SEIZE
                                                                        GET THE DRIVE UNDER TEST
27 040220
           013777
                    002350
                                              MOV
                             142272
                                                       PATT3, SRPDA
                                                                        :WRITE PRDA = -1
28 040226
29 040234
           013777
                    002350
                             142312
                                              MOV
                                                       PATT3, SRPDC
                                                                        :WRITE RPDC = -1
           052777
                    010000
                             142302
                                              BIS
                                                       WFMT, BRPOF
                                                                        :FMT 16 = 1
30 040242
           012777
                    000021
                             142242
                                              MOV
                                                       WRIP, BRPCS1
                                                                        ISSUE THE READ-IN-PRESET COMMAND
31 040250
           005777
                    142244
                                              TST
                                                       BRPDA
                                                                        DID RPDA CLEAR?
32 040254
           001405
                                              BEQ
                                                                        FORM THE FAILING DATA
33 040256
           004737
                    017422
                                              JSR
                                                       PC.BICEXP
34 040262
           002520
                                              RPDA
                                                                        THIS REGISTER
35 040264
           177777
                                              177777
                                                                        THESE BITS FAILED TO CLEAR
36 040266
           000420
                                              BR
                                                                        : GO - ON
   040270
           005777
                    142252
                                     24:
                                                       BRPDC
                                              TST
                                                                        DID RPDC CLEAR?
38 040274
           001405
                                              BEQ
                                                                        : IF . O. YES!
39 040276
40 040302
           004737
                                              JSR
                                                       PC.BICEXP
                    017422
                                                                        FORM THE FAILING DATA
           002546
                                              RPDC
                                                                        THIS REGISTER
41 040304
            177777
                                              177777
                                                                        THESE BITS FAILED TO CLEAR
42 040306
            000410
                                              BR
                                                                        NOW REPORT THE ERROR
43 040310
           032777
                                                       #FMT, BRPOF
                    010000
                                                                        DID FMT16 CLEAR
                            142226
                                              BIT
44 040316
           001417
                                                                        FORM THE FAILING DATA FOR THIS FAILURE
                                              BEQ
45 040320
           004737
                    017422
                                              JSR
                                                       PC.BICEXP
46 040324
           002544
                                              RPOF
                                                                        THIS REGISTER
47 040326
           010000
                                              FMT
                                                                        THIS BIT FAILEDS TO CLEAR
48 040330
           012737
                    004000
                                                                        FORM MODULE CALL-OUT
                             002404 45:
                                              MOV
                                                       #BIT11, ERRWD1
49 040336
           005037
                    002406
                                              CLR
                                                       ERRWD2
                                                                        BOTH WORDS
50 040342
           104456
                                              TRAP
                                                       C$ERHRD
   040344
           000127
                                              . WORD
                                                       87
   040346 040350
           013326
                                              . WORD
                                                       EM30
           014172
                                               . WORD
                                                       ERRO
```

	040352 040356	005037	002402	5\$:	CLR	ITCOUN	;NO ITERATIONS NOW!!
53	040356 040356 040360 040364	104405 005337 003312	002402	10000\$:	TRAP DEC BGT	C\$ESEG ITCOUN 1\$	ONE LESS ITERATION: IF <= 0, DONE!!
55	040366	004737	017722	L10104:	JSR	PC, PRELOD	PUT DRIVE BACK IN 16 BIT MODE
	040372	104401			TRAP	C\$ETST	

```
.SBTTL TEST 55 COMMAND REJECT TEST
                                              TEST 55 COMMAND REJECT TEST
                                     : 15
                                     : 15
                                                 SET RPCS2: PAT = 1
                                                 WRITE RPDA WITH DATA PATTERN #3, ONCE
                                     : 15
                                                 WRITE RPAS WITH DATA PATTERN #3. ONCE
                                     : 5
                                              .
                                     : 5
                                                 ISSUE A READ-IN-PRESET COMMAND
                                              .
                                     : 5
                                                    ((RPDS: ATA <> 1) OR (RPDA <> DATA PATTERN #3))
                                     : 5
                                     : 15
                                                    OUTPUT ERROR MESSAGE (COMMAND EXECUTED WITH ERRORS PRESENT)
11
                                                    OUTPUT FAULT LIST: J12
12
                                     : 5
                                                 ENDIF
13
                                              END TEST 55
15
  040374
                                     T55::
16
  040374
           012737
                    000012 002402
                                              MOV
                                                      #10.,ITCOUN
                                                                        :LOAD THE ITERATION COUNT
17
  040402
           032777
                    010000
                            142114
                                              BIT
                                                       #MOL, DRPDS
                                                                        :DRIVE ON-LINE?
  040410
           001016
                                              BNE
                                                                        : IF = 1, YES
19
  040412
           004737
                    017326
                                              JSR
                                                      PC, SAVRPR
                                                                        GET THE REGISTER SNAPSHOT
  040416
           013746
20
                    002114
                                              MOV
                                                      L$TEST . - (SP)
   040422
           012746
                    006452
                                              MOV
                                                       #MSGMOL, -(SP)
                                                      #2,-(SP)
SP,RO
           012746
   040426
                    200000
                                              MOV
   040432
           010600
                                              MOV
   040434
           104417
                                                      C$PNTF
                                              TRAP
   040436
           062706
                    000006
                                              ADD
                                                       46, SP
  040442
           104432
                                              TRAP
                                                      C$EXIT
   040444
           000166
                                              . WORD
                                                      L10105-.
  040446
                                     1$:
   040446
           104404
                                              TRAP
                                                      C$BSEG
   040450
           004737
                    016662
                                              JSR
                                                      PC.SEIZE
                                                                        GET THE DRIVE UNDER TEST
27
  040454
           052777
                                                      PAT, SRPCS2
                    000020
                                              BIS
                             142040
                                                                        :INVERT PARITY (FORCE ERRORS)
  040462
           013777
                    002350
                                                      PATT3, ORPDA
                             142030
                                              MOV
                                                                        :WRITE RPDA = - 1
  040470
           013777
                    002350
                                                                        :WRITE RPAS = - 1
                             142032
                                              MOV
                                                      PATT3, ORPAS
  040476
           004737
                    017000
                                              JSR
                                                      PC.WAIT
                                                                        NOW WAIT FOR THE 8080 TO DETECT THE PARITY ERROR
  040502
           012777
                    000021
                             142002
                                              MOV
                                                       ORIP, ORPCS1
                                                                        : ISSUE A READ-IN-PRESET
  040510
           023777
                    002350
                             142002
                                              CMP
                                                      PATT3, SRPDA
                                                                        :MATCH??
  040516
           001412
                                              BEQ
                                                                        ; IF OK, (MATCH) GO-ON
; FORM THE EXPECTED DATA
  040520
           013737
                    002350
                             002454
                                              MOV
                                                      PATT3, EXPTED
  040526
35
           013737
                    002520
                            002456
                                              MOV
                                                      RPDA, TESTRG
                                                                        GET THE FAILING REGISTER
  040534
           017737
                    141760
                            002452
                                              MOV
                                                       BRPDA, RCVED
                                                                        NOW THE FAILING RESULTS
37
  040542
           000412
                                              BR
                                                                        :NOW REPORT IT!
38 040544
           004737
                    017000
                                              JSR
                                                      PC. WAIT
                                                                        STALL FOR RPO7 MICROPROCESSOR DELAY
           032777
39 040550
                    100000
                            141746
                                              BIT
                                                      WATA, BRPDS
                                                                        DID ATA CLEAR
40 040556
           001017
                                              BNE
                                                                        ; IF SET, NO - IT'S OK
  040560
           004737
                    017372
                                              JSR
                                                      PC.BISEXP
                                                                        FORM ERROR DATA
42 040564
           002524
                                              RPDS
                                                                        :THIS REGISTER
43
  040566
           100000
                                              ATA
                                                                        THIS BIT FAILED TO SET
44 040570
           012737
                            002404
                    004000
                                    34:
                                              MOV
                                                      #BIT11.ERRWD1
                                                                        FORM MODULE CALL.-OUT
45
  040576
           005037
                    002406
                                              CLR
                                                      ERRWD2
                                                                        BOTH WORDS
  040602
           104456
                                              TRAP
                                                      C$ERHRD
   040604
           000130
                                              . WORD
   040606
           013326
                                              . WORD
                                                      EM30
   040610
           014172
                                               WORD
                                                      ERRO
  040612
           005037
                    002402
                                              CLR
                                                       ITCOUN
                                                                        :NO ITERATIONS NEEDED
48 040616
   040616
                                     10000$:
   040616
           104405
                                              TRAP
                                                       C$ESEG
```

CZRJMBO RPO7 FE/HOST ISOLATOR MACRO VO4.00 1-DEC-83 10:39:09 PAGE 90-1 TEST 55 COMMAND REJECT TEST

SEQ 0182

49 040620 005337 002402 DEC ITCOUN ; ONE LESS ITERATION TO-GO
50 040624 003310 BGT 1\$ ; IF <= 0, DONE
51 040626 004737 017722 JSR PC.PRELOD ; 16/BIT MODE
52 040632 104401 TRAP C\$ETST

```
.SBTTL TEST 56: DATA TEST 01
                                            TEST DATA TEST OF FIRST DATA TEST OF THE MASSBUS DATA LINES
                                              SET UP A (TOGGLE) BIT MAP FOR ALL EXPECTED BITS (BITS 0 TO 15)
                                    : 5
                                    : 5
                                               SET UP FOR A RETRY OF 20128 ITERATIONS (629 . 32)
                                               SET RPDC . O
                                    : 5
                                           :
                                    : 5
                                               SET RPDA - 255(.)
                                           :
8
                                    : 5
                                               REPEAT
                                           :
                                    : 5
                                                  SET RPOF: CMOD - 1
                                           : :
10
                                                  ISSUE A READ TRACK DESCRIPTOR COMMAND
                                           : 5
11
                                                  IF (RPCS1: TRE) OR (RPDS: ERR) = 1
12
                                                     THEN
                                           : : :
13
                                                     SET RPCS2: CLR - 1
                                           : : :
                                                     INCREMENT THE RETRY COUNTER
14
                                           : : :
15
                                    : 5
                                                     RELOAD THE DRIVE NUMBER
                                           : : :
16
                                    : 5
                                                     IF RPDA < LAST TRACK ADDRESS (32-RP07)
                                            : : :
17
                                                        THEN INCREMENT RPDA (HIGH BYTE ONLY)
                                    : 5
                                              : : :
18
                                                        ELSE CLEAR RPDA (HIGH BYTE)
                                               :
19
                                                        INCREMENT RPDC
                                            : :
                                                 :
20
                                           : : :
                                                     ENDIF
21
                                    : 5
                                                     ELSE
                                            : : :
22
23
24
25
26
27
                                    : 5
                                                     STORE TO WORD #1 AND WORD #2
                                            : : :
                                    :5
                                                     MARK OFF BITS WHICH JUST TOGGLED FROM OFF TO ON, IN BIT MAP
                                            : : :
                                    : 15
                                                     INCREMENT RPDA (HIGH BYTE ONLY)
                                    : 5
                                                     IF RPDA (HIGH BYTE) > LAST TRACK ADDRESS (32-RPO7)
                                            : : :
                                    : 15
                                                        THEN
                                    : 5
                                                        SET RPDA (HIGH BYTE) . 0
                                            : : : :
28
                                                        INCREMENT RPDC
                                    : 5
                                            : : : :
29
                                    : 15
                                                        ELSE
                                                     INCREMENT RPDA (HIGH BYTE ONLY)
                                    : 5
                                                  :
31
                                    : 5
                                                     ENDIF
                                            : :
32
                                   : 15
                                                  ENDIF
                                            : :
33
                                                  UNTIL (BIT MAP-ALL BITS UNDER TEST HAVE TOGGLED) OR (RETRY MAX EXCEEDED)
                                    : 5
                                           :
34
                                    : 5
                                               ENDREPEAT
35
                                    : 15
                                            : IF BIT MAP DIDN'T COMPLETELY TOGGLE, AND RETRY COUNT > MAXIMUM (20128)
36
37
                                    : 5
                                            : :
                                    : 5
                                                  OUTPUT ERROR MESSAGE (DATA LINES STUCK OR OPEN)
38
                                    : 5
                                                  OUTPUT FAULT LIST: J11 / J13, CABLES, RHXX, J10, TERMINATOR
                                            :
39
                                    : 5
40
                                            END TEST
                                    15
41
42 040634
                                    T56::
43 040634
           004737 016662
                                                    PC.SEIZE
                                            JSR
                                                                     GET THE DRIVE UNDER TEST
44 040640
           032777
                                                                     IS THE DRIVE REALLY ON-LINE?
                   010000 141656
                                            BIT
                                                    MOL, BRPDS
45 040646
           001016
                                            BNE
                                                                     IF SET, IT IS ON-LINE
46 040650
           004737
                   017326
                                            JSR
                                                    PC. SAVRPR
                                                                     GET THE REGISTER SNAPSHOT
47 040654
           013746
                   002114
                                            MOV
                                                    LSTEST, -(SP
   040660
           012746
                   006452
                                            MOV
                                                    MSGMOL, -(SP)
   040664
           012746
                   000002
                                                    #2.-(SP)
                                            MOV
   040670
          010600
                                                    SP.RO
C$PNTF
                                            MOV
   040672
           104417
                                            TRAP
   040674
           062706
                   000006
                                            ADD
                                                    46.SP
51 040700
           104432
                                            TRAP
                                                    CSEXIT
   040702
           000262
                                            . WORD
                                                    L10106-
           012737
52 040704
                   000012
                                                    #10.,ITCOUN
                           002402
                                   16:
                                            MOV
                                                                     LOAD THE ITERATION COUNT
53 040712
          012737 177777
                           002454
                                            MOV
                                                    #-1.EXPTED
                                                                     SET UP FOR THE EXPECTED RESULTS
54 040720
                                    21:
```

	040720	104404				TRAP	C#BSEG	
	040722	005037	002432			CLR		CLEAR THE BITS RECEIVED COUNTER
	040726	005037						ICTEM INC DITS MECETAED COONIEM
			002452			CLR	RCVED	CLEAR THE RECEIVER OF THE DATA
	040732	005037	002416			CLR	DESCYL	START AT CYLINDER O
58	040736	012737	000377	002414		MOV	#377.DESTRK	AND TRACK O
	040744	012701	000006			MOV		GET AN ITERATION COUNT
	040750	012702						
			002652			MOV	PSTACK,R2	GET THE BUFFER ADDRESS
	040754	005022			3\$:	CLR	(R2).	; INITIALIZE THE BUFFER
62	040756	005301				DEC	R1	ONE LESS ITERATION TO-GO
63	040760	003375				BGT		IF NOT ZERO, KEEP GOING
	040762	052777	100000	141554	41:	BIS		CET COMMAND MODIFIED
					:			ISET COMMAND MODIFIER
	040770	012737	000075	002420		MOV		SET COMMAND . READ TRACK DESCRIPTOR
66	040776	012737	002652	002366		MOV	PSTACK. TABADD	LOAD BUFFER LINK
67	041004	012737	900006	002412		MOV		ISET WORD COUNT
	041012	004737	015146			JSR		100 THE OPERATION NOW!
	041016	005237	002432					TOO THE OPERATION NOW:
						INC	CSTORE	SHOW THIS ITERATION IN THE COUNTER
	041022	032777	040000	141474		BIT	ØERR, ØRPDS	IDID WE GET AN ERROR?
	041030	001004				BNE	5#	IF SET, YES
72	041032	032777	040000	141452		BIT	OTRE, SRPCS1	IDID WE GET A TRANSFER ERROR?
	041040	001403				BEQ	61	INO, THE TRANSFER WAS OK!
	041042	004737	016662		54:	JSR		
			20005		34:		PC.SEIZE	GET RID OF ERRORS NOW
13	041046	000414				BR	86	
	041050	012701	000006		61:	MOV	96.R1	GET THE ITERATION COUNT
77	041054	012702	002652			MOV	MPSTACK,R2	AND THE BUFFER ADDRESS
78	041060	052237	002452		78:	BIS	(R2)+,RCVED	;LOG THE BIT(S) TRANSITION(S)
79	041064	005301				DEC	R1	REDUCE THE ITERATION COUNT
80	041066	003374					74	INCOME THE TIERNITUR COURT
80	041000		****			BGT	76	; IF > O, KEEP GOING!
	041070	023737	002452	002454		CMP	RCVED.EXPTED	ALL BITS TOGGLE?
82	041076	001426				BEQ	10\$	IF SAME, YES
83	041100	023727	002432	047200	84:	CMP	CSTORE . 0<628 . 432	.> ;DONE ALL CYLINDERS?
	041106	103003				BHIS	91	YES, THERE IS AN ERROR
85	041110	004737	017266			JSR		
86	041114		011200					UPDATE THE DRIVER
93	041114	000722				BR	41	AND GO-ON!
01	041116	013737	002534	002456	98:	MOV	RPDB, TESTRG	LOAD FAILING "REGISTER"
88	041124	012737	013000	002404		MOV	#BIT9!BIT10!BIT1	2.ERRWD1 ; CREATE MODULE CALL-OUT
89	041132	012737	000406	002406		MOV	ARITI'RITZ'RITA	ERRWD2 : BOTH WORDS
90	041140	104456				TRAP	CIERHRD	Zamasz (South Monos
	041142	001440						
						. WORD	800	
	041144	013362				. WORD	EM31	
	041146	014172				. WORD	ERRO	
91	041150	005037	002402			CLR	ITCOUN	NO FURTHER ITERATIONS NECESSARY
92	041154				101:			The second statement of the second statement of the second
	041154				100008:			
		104405			100001:	TOAS	CAFCEC	
	041154	104405				TRAP	C\$ESEG	
	041156	005337	002402			DEC	ITCOUN	ONE LESS ITERATION TO GO
	041162	003256				BGT	21	:DO UNTIL = O
	041164				L10106:			
	041164	104401				TRAP	CSETST	
		201102				INAF	CVETST	

```
.SBTTL TEST 57: DATA TEST #2
      2
                                                  TEST DATA TEST #2 TEST INVALID ADDRESS ERROR, RECALIBRATE & SEEK COMMANDS
                                         : 5
                                                     SET RPDC - FE CYLINDER ADDRESS
                                         : 5
                                                     SET RPDA = 0
      6
                                         : 56
                                                     SET RPOF: CMD
                                                 :
                                         : 5
                                                     CLEAR RMPM1: DMD
                                                 :
      8
                                                     ISSUE SEEK COMMAND
                                         : 5
                                                 :
                                                       RPER1: IAE <> 1
                                         : 5
                                                     IF
                                                 :
     10
                                         : 5
                                                        THEN
                                                    :
     11
                                         : 5
                                                        OUTPUT ERROR MESSAGE (FAILED TO DETECT AN INVALID ADDRESS ERROR)
     12
                                         : 15
                                                        OUTPUT FAULT LIST: JO9, J10, J08, J07, J12, RHXX, CABLES, TERMINATOR
                                                 :
                                                    :
     13
                                         : 5
                                                        ELSE
                                                  :
                                                    :
     14
                                         : 5
                                                        SET RPCS2: CLR = 1
                                                  :
                                                    :
     15
                                         : 5
                                                        ISSUE RECALIBRATE COMMAND
                                                  : :
     16
                                         : 5
                                                        IF ((RPCS1: TRE) OR (RPDS: ERR)) = 1
                                                  : :
     17
                                         : 5
                                                  : :
                                                        :
     18
                                          : 5
                                                           OUTPUT ERROR MESSAGE (DETECTED ERRORS AFTER ISSUING A RECALIBRATE COMMAND)
                                                  : :
     19
                                                           OUTPUT FAULT LIST: JO9, J10, J12, CABLES, RHXX, TERMINATOR
                                         : 5
                                                  : :
     20
                                         : 5
                                                        ENDIF
                                                  : :
     21
                                                        SET RPOF: CMD = 1
                                         : 5
                                                 : :
     22
                                                        SET
                                         :5
                                                            RPMR1: DMD = 1
                                                 : :
                                         : 15
                                                        SET RPDC - FE CYLINDER
                                                    :
     24
                                         : 5
                                                        ISSUE A SEEK COMMAND
                                         : 15
                                                           RPDC (> RPCC AND ((RPDS: ERR (> 1) OR (RPCS1: TRE (> 1))
                                                        IF
                                                  :
                                                     :
     26
                                         : 5
                                                           THEN
                                                  :
                                                    :
                                                        :
                                         15
                                                           OUTPUT ERROR MESSAGE (DIDN'T ACCESS FE CYLINDER PROPERLY, DIDN'T DETECT AN
                                                  : :
                                                        :
ERROR)
     28
                                         : 5
                                                           OUTPUT FAULT LIST: JO9, J10, RHXX, CABLES, J12, TERMINATOR
                                                  : :
                                                       :
                                          : 5
                                                           ELSE
                                                  : :
                                                       :
     30
                                          : 15
                                                           IF RPDC <> RPCC AND ((RPDS: ERR = 1) OR (RPCS1: TRE = 1))
                                                       :
     31
                                         : 5
                                                              THEN
                                                  : : :
                                                           :
     32
                                         : 5
                                                              OUTPUT ERROR MESSAGE (DIDN'T ACCESS FE CYLINDER PROPERLY, DID DETECT ERR
                                                  1 1 1 1
ORS)
                                         : 5
                                                              OUTPUT FAULT LIST: JO9, J10, J08, J07, RHXX, CABLES, J12
                                                  : : :
                                                           :
                                         : 5
                                                           ENDIF
                                                    :
     35
                                         : 5
                                                        ENDIF
     36
                                         : 15
                                                    ENDIF
     37
                                         : 5
                                                  END TEST
     39 041166
                                         T57::
     40 041166
                013737
                        002376
                                                          LASCYL, DESCYL
                                 002416
                                                  MOV
                                                                           FORM THE CE CYLINDER ADDRESS
     41 041174
                005237
                         002416
                                                                           IT IS ONE MORE THAN THE END CYLINDER
                                                  INC
                                                          DESCYL
     42 041200
                005037
                         002414
                                                  CLR
                                                          DESTRK
                                                                           START AT TRACK 40
     43 041204
                004737
                        016662
                                                  JSR
                                                          PC, SEIZE
                                                                           GET THE DRIVE UNDER TEST
     44 041210
                032777
                        010000
                                141306
                                                  BIT
                                                                           IS THE DRIVE ON LINE??
                                                          MOL, BRPDS
     45 041216
                001016
                                                  BNE
     46 041220
                004737
                         017326
                                                  JSR
                                                          PC. SAVRPR
                                                                           GET THE REGISTER SNAPSHOT
     47 041224
                013746
                                                          LITEST, -(SP)
                         002114
                                                  MOV
        041230
                012746
                         006452
                                                  MOV
                                                          4MSGMOL, -(SP)
        041234
                012746
                         000002
                                                  MOV
                                                          #2,-(SP)
        041240
                010600
                                                          SP.RO
                                                  MOV
        041242
                104417
                                                  TRAP
                                                          C&PNTF
        041244
                062706
                         000006
                                                  ADD
                                                          46, SP
     51 041250
                104432
                                                  TRAP
                                                          CSEXIT
        041252
                000432
                                                  . WORD
                                                          L10107-.
     52 041254
                                         18:
        041254
                104404
                                                  TRAP
                                                          C#BSEG
     53 041256
                052777
                                                          #CMOD, BRPOF
                        100000 141260
                                                  BIS
                                                                           SET COMMAND MODIFIER
```

55 56 57 58 59 60 61 62 63 64 65 66 67	041264 041272 041300 041306 041314 041320 041324 041332 041334 041332 041350 041356 041364 041372 041376 041376 041400 041402	042777 012737 012737 012737 004737 004737 004737 001423 012737 012737 012737 012737 104456 001441 012454 014172	100000 002652 000006 000005 015146 017000 002000 141160 002526 005700 000406	141244 002366 002412 002420 141174 002454 002456 002456 002404 002406	28:	BIC MOV MOV JSR JSR CMP BEQ MOV MOV MOV MOV MOV TRAP . WORD . WORD	#PSTACK, TABADD #6.NEGWRD #SEEK, FUNCTN PC, DRIVER PC, WAIT #IAE, @RPER1 2\$ #IAE, EXPTED @RPER1, RCVED RPER1, TESTRG #BIT6!BIT7!BIT8!	AND FAIL TO SET DIAGNOSTIC MODE (FORCE ERRORS!!)  DO THE LINK TRANSFER ADDRESS  AND SET UP A WORD COUNT  LOAD A SEEK COMMAND  NOW ISSUE THE COMMAND  WAIT FOR THINGS TO SETTLE DOWN  DID WE GET AN INVALID ADDRESS ERROR? (ONLY??)  IF = YES WE DID!  FORM THE EXPECTED DATA  FORM THE RECEIVED DATA  THIS REGISTER FAILED THE TEST  BIT9!BIT11.ERRWD1;LIST THE MODULE CALLOUT  ERRWD2;FOR BOTH MASKS
	041402				100000\$:			
	041402	104405			10000.	TRAP	C\$ESEG	
69	041404	104404				TRAP	C\$BSEG	
70	041406	004737	016662			JSR	PC.SEIZE	PURGE ERRORS, AND RELOAD THE DRIVE NUMBER
	041412	012737 004737	000007	002420		MOV		NOW SET A RECALIBRATE COMMAND IN THE QUEUE
73	041420	004737	015146			JSR JSR	PC.DRIVER PC.WAIT	; EXECUTE THE COMMAND NOW! ; WAIT FOR SOME SETTLE TIME
74	041430	032777	040000	141054		BIT	ATRE. BRPCS1	TRANSFER ERROR??
75	041436	001405				BEQ		NOPE, NOT IF ZERO
76	041440	004737	017422			JSR	PC.BICEXP	LOAD THIS FAILURE STATUS
	041444	002512				RPCS1		; THIS REGISTER
	041446	040000				TRE		THIS BIT SET AND SHOULDN'T HAVE
	041450 041452	000410	040000	141044	34:	BR BIT	44 ØERR. BRPDS	NOW REPORT THE FIND
81	041460	001420	040000	141044	34:	BEQ	S#	IDID WE GET AN ERROR SUMMATION BIT??
82	041462	004737	017422			JSR	PC.BICEXP	FORM THIS ERROR!!
83	041466	002524				RPDS		THIS REGISTER FAILED
	041470	040000				ERR		THIS BIT SET AND SHOULDN'T HAVE
	041472	012737 012737	005400 000406	002404	48:	MOV	OBITS:BIT9:BIT11	.ERRIND1; FORM THE MODULE CALLOUT
	041506	104456	000406	002406		TRAP	C\$ERHRD	ERRWD2; FOR BOTH MASKS
	041510	001442				. WORD	802	
	041512	013051				. WORD	EM23	
	041514	014172				. WORD	ERRO	
	041516	004737	016662			JSR	PC, SEIZE	RESET THE ERROR CONDITION
09	041522 041522				54:			
	041522	104405			100014:	TRAP	C#ESEG	
90	041522 041524	104404				TRAP	C#BSEG	
91	041526	052777	100000	141002		BIS	OMD, BRPMR1	; AND NOW SET DIAGNOSTIC MODE
92	041534	012737	000005	002420		MOV	#SEEK, FUNCTN	;LOAD A SEEK COMMAND
95	041542	004737	015146			JSR	PC.DRIVER	IDO THE SEEK NOW!
95	041546 041552	004737 027777	017000 140770	140770		JSR CMP	PC.WAIT SRPDC.SRPCC	SETTLE TIME
96	041560	001446	240110	240110		BEQ	78	IDID WE GET ON-CYLINDER??
97	041562	017737	140760	002454		MOV	SRPDC, EXPTED	LOAD THE ERROR STATUS
98	041570	017737	140754	002452		MOV	SRPCC, RCVED	LEXPECTED VS RECEIVED
	041576	013737	002550	002456		MOV	RPCC.TESTRG	AND THE "FAILED" REGISTER
100	041604	032777	040000	140712		BIT	WERR, BRPDS	LOOK FOR ERROR BITS

101	041612	001017				DNE		UE DIDNUT CET ON CVI THEE DUT UE DETENDED IN THE
	041614	032777	040000	140670		BNE	6\$ #TRE.@RPCS1	; WE DIDN'T GET ON-CYLINDER, BUT WE DETECTED AN ERROR ;DID WE DETECT A TRANSFER ERROR?
	041622	001013		2.00.0		BNE	6\$	IF = 1, YES
104	041624	012737	005400	002404		MOV		11, ERRWD1; LOAD THE MODULE CALLOUT
	041632	012737	000406	002406		MOV	#BIT1!BIT2!BIT	8, ERRWD2; FOR BOTH MASKS
106	041640	104456				TRAP	C\$ERHRD	
	041642	001443				. WORD	803	
	041646	014172				. WORD	EM21 ERRO	
107	041650	000412				BR	7\$	NOW CHECK FOR LOOP
		012737	005700	002404	6\$:	MOV		8:8179:BIT11, ERRHD1: LOAD ALL THESE BITS FOR MODULE CALLOUT
	041660	012737	000006	002406		MOV	OBIT1!BIT2.ERR	WD2: THESE BITS ALSO!!
110	041666	104456				TRAP	C\$ERHRD	
	041670	001444				. WORD	804	
	041672	012454				. WORD	EM14	
111	041674	014172	016662		7\$:	. WORD JSR	ERRO DC CETZE	END LITTUOUT FORCOC
	041702	004131	010002		10002\$:	Jak	PC, SEIZE	;END WITHOUT ERRORS
	041702	104405			100054:	TRAP	C\$ESEG	
113	041704				L10107:			
	041704	104401				TRAP	C\$ETST	

```
.SBTTL YEST 58: DATA TEST #3
                                            TEST DATA TEST #3 READ TD'S, FORMAT, FORMAT VERIFY A SELECTED TRACK ON FE CYLINDER THEN PERFORM DATA TESTING ON THAT TRACK
                                    : 15
                                    : 5
                                            : VAR
                                                      DO-REPEAT: BOOLEAN
                                               VAR RETRY-COUNTER: INTEGER SET RPDC - FE CYLINDER ADDRESS
                                            :
                                            :
                                               SET DO-REPEAT - TRUE
                                            .
                                               SET RPDA = 255(.)
                                            :
10
                                               ISSUE A SEEK COMMAND
                                            :
                                               IF ((RPER2: ERR) OR (RPCS1: TRE)) = 1
11
                                            :
12
                                                  THEN
                                            :
                                               :
                                                  OUTPUT ERROR MESSAGE (DIDN'T EXECUTE SEEK PROPERLY)
                                            :
                                               :
14
                                                  OUTPUT FAULT LIST: JO9, J10, J08, J07, CABLES, RHXX, TERMINATOR
                                            :
15
                                               ENDIF
                                            :
                                               REPEAT
16
                                            :
17
                                                  SET RPOF: : CMD = 1
                                            : :
18
                                                  ISSUE A READ TRACK DESCRIPTOR COMMAND
                                            : :
19
                                                  IF TO WORD #3 <> 1 100 000 000 000 000 OR (RPCS2: ERR OR RPCS1: TRE = 1)
                                            : :
20
                                                     THEN
                                            : : :
21
                                                     IF RPDA (HIGH BYTE) < LAST TRACK ADDRESS
                                            : : :
22
                                            : : : :
                                                         THEN
23
24
25
26
27
                                                         INCREMENT RPDA (HIGH BYTE ONLY)
                                    : 5
                                               : : :
                                                         SET RPCS2: CLR - 1
                                                  : :
                                                         RELOAD THE DRIVE NUMBER FOR THE DRIVE-UNDER-TEST
                                               :
                                                  :
                                                     :
                                              :
                                                  : :
                                                         OUTPUT MESSAGE (INCORRECTLY FORMATTING TRACK 40, REFORMAT USING
                                            : : : :
28
29
30
                                                        FORMATTER UPON COMPLETION OF THIS DIAGNOSTIC)
                                            : : : :
                                                         SET DO-REPEAT - FALSE
                                            : : : :
                                    : 5
                                            : : ENDIF
31
                                                     ELSE
                                            : : :
32
                                    : 5
                                                     SAVE TRACK NUMBER FOR FOUND NULLSET TO
                                            : : :
33
34
35
                                                     FORMAT TRACK FOUND WITH NULLSET TO INFORMATION
                                            : : :
                                                     IF ((RPDS: : ERR) OR (RPCS1: : TRE) = 1)
                                            : : :
                                            : : : :
36
37
                                                         OUTPUT ERROR MESSAGE (FAILED DURING A FORMAT TRACK OPERATION)
                                               :
                                                         OUTPUT FAULT LIST: JO9, J10, J11 / J13, J14, RHXX, CABLES, TERMINATOR
                                              :
38
39
                                                     ENDIF
                                              :
                                                      SET DO-REPEAT - FALSE
                                            : :
                                                  :
40
                                                  ENDIF
                                            : :
41
                                                  UNTIL NOT DO-REPEAT
42
                                               ENDREPEAT
43
                                               ISSUE A WRITE-CHECK HEADER COMMAND (WITH RPOF: CMD = 1)
                                            :
44
                                               IF ((RPDS: ERR) OR (RPCS1: TRE) = 1
                                            :
                                            : :
46
                                                  OUTPUT ERROR MESSAGE (FAILED OPERATION: WRITE-CHECK HEADERS, RPOF: CMD = 1)
                                            :
                                    : 5
                                                  OUTPUT FAULT LIST: JO9, J10, J11 / J13, J14, RHXX, CABLES, TERMINATOR
                                            :
48
                                               ENDIF
                                    : 5
                                            :
49
                                    : 5
                                            :
50
51
52
53
54
55
                                               WRITE A SECTOR USING DATA PATTERNS 1 TO 8. ONE AT A TIME
                                            :
                                               IF ((RPDS: ERR) OR (RPCS1: TRE) = 1)
                                            :
                                                  THEN
                                               :
                                    : 5
                                                  INCREMENT RETRY-COUNTER
                                            : :
                                    : 5
                                                  IF RETRY COUNTER < 3
                                            : :
                                    : 5
                                            : : : THEN
56
57
                                    : 5
                                                     GOTO A
                                            : : :
                                    : 5
                                                     ELSE
                                            : : :
```

```
58
                                              : : : OUTPUT ERROR MESSAGE (FAILED TO WRITE A SIMPLE DATA TRANSFER)
59
                                      : 5
                                                        OUTPUT FAULT LIST: J11 / J13, J09, J10, J14, CABLES, RHXX, TERMINATOR
                                                 : :
60
                                      : 5
                                                    ENDIF
61
                                                 ENDIF
                                      : 15
                                              :
62
                                      : 5
                                                 CLEAR RETRY-COUNTER
                                              :
63
                                      : 15
                                              :
64
65
                                                 READ A SECTOR USING DATA PATTERNS 1 TO 8, ONE AT A TIME
                                      : 5
                                              :
                                                 IF ((RPDS: ERR) OR (RPCS1: TRE) = 1)
                                              :
66
67
68
                                                     THEN
                                      : 15
                                                     INCREMENT RETRY-COUNTER
                                              :
                                                 :
                                      :5
                                                     IF RETRY-COUNTER < 3
                                              :
                                                 :
69
                                      : 5
                                                        THEN GOTO B
                                              :
                                                :
                                                    :
 70
                                                        ELSE
                                              :
                                                 :
 71
                                                        OUTPUT ERROR MESSAGE (FAILED A SIMPLE READ TEST)
                                              :
                                                : :
72
73
74
                                                        OUTPUT FAULT LIST: J11 / J13, J09, J10, J14, CABLES, RHXX, TERMINATOR
                                                     ENDIF
                                      : 5
                                                 ENDIF
                                              :
 75
                                      : 5
                                                 ISSUE A RIP COMMAND
                                              :
 76
                                      : 5
                                                 SET UP A 6 WORD TRANSFER
                                              :
77
                                                  SET RPOF: CMOD = 1
                                      : 15
                                              :
 78
                                                  ISSUE A READ HEADER AND DATA COMMAND
 79
                                                  IF RPER1: FER - 0
                                      : 5
80
                                      : 5
                                                     THEN
81
                                      : 5
                                                     OUTPUT ERROR MESSAGE (FAILED TO DETECT RPER1: FER)
82
                                      : 15
                                                 ENDIF
                                              :
83
                                      : 5
                                                  SET RPOF: FMT16 = 1
84
                                                 RESET ALL DRIVE ERRORS
                                      : 5
 85
                                              END TEST
                                      : 5
87 041706
                                      T58::
 88 041706
            004737
                     017722
                                               JSR
                                                       PC.PRELOD
                                                                        GET THE DRIVE NOW
89 041712
            032777
                             140604
                                                       MOL, BRPDS
                     010000
                                              BIT
                                                                        IS THE DRIVE ON LINE??
 90 041720
            001016
                                                                        ; IF 1. IT IS
 91 041722
            004737
                                                       PC. SAVRPR
                     017326
                                               JSR
                                                                        GET THE REGISTER SNAPSHOT
 92 041726
            013746
                     002114
                                              MOV
                                                       LATEST, -(SP
   041732
            012746
                     006452
                                                       MSGMOL, -(SP)
                                              MOV
    041736
            012746
                     000002
                                                       #2,-(SP)
                                              MOV
    041742
            010600
                                                       SP.RO
                                              MOV
    041744
            104417
                                              TRAP
                                                       C&PNTF
    041746
            062706
                     000006
                                              ADD
                                                       46, SP
93 041752
            104432
                                              TRAP
                                                       CSEXIT
    041754
            002036
                                               . WORD
                                                       L10110-
   041756
            032777
                     004000
                             140540 14:
                                                       WARL, BRPDS
                                              BIT
                                                                        IS THE DRIVE WRITE LOCKED?
   041764
            001416
                                              BEQ
                                                                        ; IF = 0, NO
 96 041766
            004737
                     017326
                                                       PC. SAVRPR
                                               JSR
                                                                        GET THE REGISTER SNAPSHOT
97 041772
            013746
                     002114
                                                       LATEST, -(SP
                                              MOV
    041776
                                                       MSGWLO, -(SP)
            012746
                     006522
                                              MOV
    042002
            012746
                                                       #2.-(SP)
                     000002
                                              MOV
    042006
            010600
                                                       SP.RO
                                              MOV
    042010
            104417
                                              TRAP
                                                       C&PNTF
    042012
            062706
                     000006
                                                       46, SP
                                              ADD
101 042016
            104432
                                              TRAP
                                                       CSEXIT
    042020
            001772
                                               . WORD
                                                       L10110-.
102 042022
            005037
                     002414
                                              CLR
                                      21:
                                                                        ; TRACK ADDRESS (DESIRED)=0
                                                       DESTRK
103 042026
            013737
                     002376
                             002416
                                              MOV
                                                       LASCYL, DESCYL
                                                                        GO TO LAST USER CYLINDER (DESIRED)
104 042034
            005237
                     002416
                                               INC
                                                       DESCYL
                                                                        GO TO FE CYLINDER (DESIRED)
105 042040
                                      T58.1:
```

042040	104400				****	******	
106 042042	104402				TRAP	C\$BSUB	
107 042044	012737	000005	002420		TRAP	C\$BSEG	-I DAC UP A CEEK COMMAND
108 042052	012777	100000	140456		MOV		LOAD UP A SEEK COMMAND SET FOR DIAGNOSTIC MODE
109 042060	004737	015146	140430		JSR		ISSUE THE COMMAND
110 042064	004737	017000			JSR	PC.WAIT	STALL FOR SOME SETTLE TIME
111 042070	012777	000377	140432		MOV		CLEAR OUT THE RESULTING ATTENTION BIT
112 042076	004737	017032	2.0.00		JSR		LOOK FOR ERRORS
113 042102	005737	002466			TST	ERSTAT	; IF ERRORS, THIS = -1
114 042106	001414				BEQ	34	; IF O, NO
115 042110	012737	001700	002404		MOV		BIT9, ERRWD1 : FORM THE MODULE CALLOUT
116 042116	012737	000406	002406		MOV	#BIT1!BIT2!BIT8.	ERRWD2 FOR BOTH WORDS
117 042124	104456				TRAP	C\$ERHRD	
042126	001445				. WORD	805	
042130	013411				. WORD	EM32	
042132	014172				. WORD	ERRO	
118 042134	004737	015400			JSR	PC, DRVCLR	RESET ERRORS
119 042140				34:			
042140	101105			10000\$:			
042140	104405				TRAP	C#ESEG	
120 042142 121 042144	104404 012702	002652			TRAP	C\$BSEG	THITTIN TIP A DIFFEO
122 042150	012701	002652 000006		48:	MOV		:INITIALIZE A BUFFER
123 042154	005022	000000		54:	CLR		GET THE BUFFER SIZE
124 042156	005301			34:	DEC		;BUFFER=0 ;ONE LESS WORD TO GO
125 042160	003375				BGT		DO UNTIL - O
126 042162	012737	000075	002420		MOV		SET UP FOR A READ TRACK DESCRIPTOR OP
127 042170	052737	000377	002414		BIS	#377, DESTRK	;SECTOR ADDRESS=-1
128 042176	052777	100000	140340		BIS	#CMOD, BRPOF	SET THE COMMAND MODIFIER FOR A READ TO OPERATION
129 042204	012737	000006	002412		MOV	46 , NEGHRD	SET UP FOR A 6 WORD TRANSFER
130 042212	012737	002652	002366		MOV	#PSTACK, TABADD	LOAD THE LINK ADDRESS
131 042220	004737	015146			JSR	PC.DRIVER	ISSUE THE COMMAND
132 042224	023727	002656	140000		CMP	PSTACK+4, #140000	IS TRACK DESCRIPTOR NULL?
133 042232	001431				BEQ		; IF EQUAL, YES!
134 042234 135 042240	004737	015400			JSR	PC, DRVCLR	RESET ANY ERROR!
136 042244	004737 105737	017266			JSR	PC.SPIRAL	GO TO NEXT TRACK
137 042250	001335	002415			TSTB	DESTRK+1	DID WE TRY ALL TRACKS?
138 042252	012746	007062			BNE	MESG15, -(SP)	; IF NOT O, NO TRY AGAIN
042256	012746	000001			MOV	#1,-(SP)	
042262	010600	000002			MOV	SP.RO	
042264	104417				TRAP	CIPNTF	
042266	062706	000004			ADD	04,SP	
139 042272	012746	006763			MOV	MESG12, -(SP)	
042276	012746	000001			MOV	#1,-(SP)	
042302	010600				MOV	SP.RO	
042304	104417				TRAP	C&PNTF	
042306	062706	000004			ADD	44.SP	
140 042312	004737	015400			JSR	PC.DRVCLR	CLEAR OUT ANY ERRORS NOW!!
141 042316 142 042322	013746 052716	002416		6#:	MOV	DESCYL, -(SP)	GET THE DESIRED CYLINDER ADDRESS
143 042326	032737	030000	002652		BIS	#BIT13!BIT12,(SP	
144 042334	001402		002652		BIT	#BIT14,PSTACK	WAS THE TO MOVED?
145 042336	052716	040000			BEQ	4BIT14,(SP)	; IF ZERO. NO ; SET THE CORRECT BIT
146 042342	005737	002652		78:	TST	PSTACK PSTACK	BIT 15 SET? (HEADER O MOVED)
147 042346	100002				BPL	8\$	; IF ZERO, NO
148 042350	052716	100000			BIS	48IT15,(SP)	SET THE SAME BIT IN THE MASK

149 0.42554   022657   022652   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   03426   0342									
151 042350 012737 002406 002406 MOV 05011151112181113_ERRIND1_ISET UP THE MODULE CALLOUT 152 042350 012737 002652 002452 MOV 05011151112181113_ERRIND1_ISET UP THE MODULE CALLOUT 153 042356 012737 002652 002452 MOV 05011151112181113_ERRIND1_ISET UP THE MODULE CALLOUT 153 042356 012731 002450 MOV 05011151112181113_ERRIND1_ISET UP THE MODULE CALLOUT 153 042356 012731 002450 MOV 05011511 002450 MOV 05011511 002450 MOV 05011511 002450 MOV 0501151112181113181113_ERRIND1_ISET UP THE MODULE CALLOUT 153 042454 012737 002450 MOV 05011511 002450 MOV 0501151 00245				002652		8\$:			
152 042376 012737 000406 002452 MOV 961T1181T2181T6, ERROZ_FOR BOTH MASKS 177776 01351 002452 MOV 961T1181T2181T6, ERROZ_FOR BOTH MASKS 177776 012434 MOV 961T181T2181T6, ERROZ_FOR BOTH MASKS 177776 012434 MOV 961T181T2181T6, ERROZ_FOR BOTH MASKS 177776 012436 MOV 961T181T2181T6, ERROZ_FOR BOTH MASKS 177776 002437 MOV 961T181T2181T6, ERROZ_FOR BOTH MASKS 177776 002437 MOV 961T181T2181T6, ERROZ_FOR BOTH MASKS 177776 002434 MOV 961T181T2181T6, ERROZ_FOR BOTH MASKS 177776 002440 MOV 961T181T2181T6, ERROZ_FOR BOTH MASKS 177776 002440 MOV 961T181T2181T6, ERROZ_FOR BOTH MASKS 177776 MOV 961T181T2181T18, ERROZ_FOR BOTH MASKS 177776 MOV 961T181T181T181T8, ERROZ_FOR BOTH MASKS 177776 MOV 961T181T181T181T8, ERROZ_FOR BOTH MASKS 177776 MOV 961T181T181T181T8, ERROZ_FOR BOTH MASKS 177776 MOV 961T181T181T181T181T181T181T181T181T181T1	150 (	042360	001423	077400	002404				; IF EQUAL, YES
153 042376 013737 002652 002452 MOV 2657 177776 002454 MOV 26579 , EMPTED 1 FROM THE DATA FOR THE ERROR REPORT 155 042430 016637 177776 002454 MOV 26579 , EMPTED 1 FROM THE ERROR REPORT 1 FROM THE ERROR THE ERROR REPORT 1 FROM THE ERROR THE FROM THE ERROR THE FROM THE ERROR THE FROM THE FRO	152	042370	012737	000406	002404			ABITI'S BITA BITA	FRRUDZ: FOR BOTH MASKS
154 042404 016637 177776 002476 155 042420 101436 042420 101436 042420 201440 042420 014406 042420 014406 042420 014406 042420 014406 042420 014406 042420 01470 014500 012701 002470  158 042434 042737 002737 002414 04000 02444 04000, (R1) 159 042442 013702 000414 04000 12071 042400 014701 04240 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702 014702	153	042376	013737					PSTACK RCVED	FORM THE DATA FOR THE ERROR REPORT
155 04242 01456	154	042404	016637	177776	002454		MOV	-2(SP),EXPTED	AND THE EXPECTED DATA
042422 013761 042426 013701 042426 013701 1570 42426 013701 1570 42426 013701 1570 42426 013701 1570 42426 013701 1570 42426 013701 1570 42426 013701 1570 42426 013701 1570 42426 013701 1570 42426 013701 1570 42426 013701 1570 42426 013701 1570 42426 013701 1570 42426 013702 1610 42446 105002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 42454 015002 1610 4	155	042412		011531	002470			#READTD, FATOF	
042424 013701 002730 1570 42430 012701 002730 002414 99:: MORD ERS2 F.R1 158 042434 042737 000377 002414 BIC 877, DESTRK 15ECTOR ADDRESS 8 0: 158 042434 013702 002414 1570 000377 002414 1570 000377 002414 1570 000377 002414 1570 000377 002414 1570 000377 002414 1570 000377 000377 000031 1570 000371 000031 1570 000371 000031 1570 000371 000031 1570 000371 000031 1570 000371 000031 1570 000371 000031 1570 000371 000031 1570 000371 000031 1570 000371 000031 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 000032 1570 000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 00000371 0000371 0000371 0000371 0000371 0000371 0000371 0000371 000	156	042420	104456						
04246 014500 1570 02730 012701 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730 002730							. WORD		
157 042430 12701 002730 00377 002414 002616 105002 00377 002414 002416 105002 00377 002414 002416 105002 00377 002418 002416 105002 00311 002416 002436 10203 000031 002416 002436 10203 000031 002416 002436 10203 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 000031 0000031 000031 000031 000031 000031 000031 000031 000031 000031 0000031 0000031 0000031 0000031 0000031 0000031 0000031 0000031 00000031 0000031 0000031 0000031 0000031 0000031 00000031 00000031 00000000							WORD WORD		
158 042442   015702   000377   002414   81C   81T   877,DESTRK   15ECTOR ADDRESS = 01   1000   161 042450   010203   000031   000031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031   0100031			012701	002730		91:		ATORUFF R1	GET THE OUTPUT RUFFER ADDRESS
159 042442   013702   002414   015002   010031   01203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203   010203	158	042434	042737	000377	002414		BIC	#377.DESTRK	SECTOR ADDRESS = 0!
105 024244 01571 002416 104: MOV DESCYL, (R1) 1 CYLINDER ADDRESS 150000, (R1)+ MARK SECTOR GOOD, IN 16 BIT MODE 160 042474 005704 BHI 114 115 117.5 -1, LOAD HIGH OR "ODD" SECTOR 160 042474 005704 BHI 114 115 117.5 -1, LOAD HIGH OR "ODD" SECTOR 175 R4 117.5 -1, LOAD HIGH OR "ODD" SECTOR 175 R4 117.5 -1, LOAD HIGH OR "ODD" SECTOR 175 R2 (R1)+ LOAD LOW SECTOR 175 R2 (R1)+ LOAD LOAD LOW SECTOR 175 R2 (R1)+ LOAD LOAD LOAD LOAD LOAD LOAD LOAD LOAD	159	042442	013702	002414			MOV	DESTRK,R2	
105 024244 01571 002416 104: MOV DESCYL, (R1) 1 CYLINDER ADDRESS 150000, (R1)+ MARK SECTOR GOOD, IN 16 BIT MODE 160 042474 005704 BHI 114 115 117.5 -1, LOAD HIGH OR "ODD" SECTOR 160 042474 005704 BHI 114 115 117.5 -1, LOAD HIGH OR "ODD" SECTOR 175 R4 117.5 -1, LOAD HIGH OR "ODD" SECTOR 175 R4 117.5 -1, LOAD HIGH OR "ODD" SECTOR 175 R2 (R1)+ LOAD LOW SECTOR 175 R2 (R1)+ LOAD LOAD LOW SECTOR 175 R2 (R1)+ LOAD LOAD LOAD LOAD LOAD LOAD LOAD LOAD	160	042446	105002						
105 024244 01571 002416 104: MOV DESCYL, (R1) 1 CYLINDER ADDRESS 150000, (R1)+ MARK SECTOR GOOD, IN 16 BIT MODE 160 042474 005704 BHI 114 115 117.5 -1, LOAD HIGH OR "ODD" SECTOR 160 042474 005704 BHI 114 115 117.5 -1, LOAD HIGH OR "ODD" SECTOR 175 R4 117.5 -1, LOAD HIGH OR "ODD" SECTOR 175 R4 117.5 -1, LOAD HIGH OR "ODD" SECTOR 175 R2 (R1)+ LOAD LOW SECTOR 175 R2 (R1)+ LOAD LOAD LOW SECTOR 175 R2 (R1)+ LOAD LOAD LOAD LOAD LOAD LOAD LOAD LOAD	161	042450	010203	000071			MOV	R2,R3	; THIS IS THE HIGH OR "ODD" SECTOR
105 024244 01571 002416 104: MOV DESCYL, (R1) 1 CYLINDER ADDRESS 150000, (R1)+ MARK SECTOR GOOD, IN 16 BIT MODE 160 042474 005704 BHI 114 115 117.5 -1, LOAD HIGH OR "ODD" SECTOR 160 042474 005704 BHI 114 115 117.5 -1, LOAD HIGH OR "ODD" SECTOR 175 R4 117.5 -1, LOAD HIGH OR "ODD" SECTOR 175 R4 117.5 -1, LOAD HIGH OR "ODD" SECTOR 175 R2 (R1)+ LOAD LOW SECTOR 175 R2 (R1)+ LOAD LOAD LOW SECTOR 175 R2 (R1)+ LOAD LOAD LOAD LOAD LOAD LOAD LOAD LOAD	163	042456	005004	000031				925.,K5	IT STARTS AT SECTOR ADDRESS 25
105 042470 052721 150000 15711 002416 105: MOV DESCYI, (R1)   (CYLINDER ADDRESS ADDRESS) 166 042476 05704 05704 15711 050000   BIS DIS DISCOMO, (R1)   MARK SECTOR GOOD, IN 16 BIT MODE 169 042570 100211   MOV R2, (R1)   II # R2, (R1)   II R2, (R	164	042460	012705	000062			MOV	450 PS	** OF SECTIONS/TRACK
166 042470   052701   150000   157   167 04274   05704   168 042876   100410   100   111   111   111   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117   117						104:		DESCYL.(R1)	
167 042474 005704 168 04276 100410 169 042500 010221 170 042502 005202 171 042504 032777 000004 140012 173 042512 001405 174 042514 005104 175 042520 010321 176 042520 005203 177 042524 005004 178 042526 012721 179 042526 102721 179 042526 102721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 179 042526 012721 140000 128	166	042470	052721				BIS	#150000,(R1)+	MARK SECTOR GOOD, IN 16 BIT MODE
169 042500 010221 170 042502 005202 171 042504 032777 000004 140012 173 042514 005104 175 042520 010321 176 042520 010321 177 042524 005003 177 042526 010321 178 042526 010321 179 042532 010321 179 042532 010321 179 042532 012721 140000 120 120 120 120 120 120 120 120 120 120							TST	R4	DO THIS TO GET NEXT SECTOR
170 042504 005202 171 042504 005277 172 042512 001405 173 042514 005104 174 042516 000403 175 042520 003201 176 042520 005034 177 042524 005004 178 042526 012721 140000 180 042536 012721 140000 181 042536 012721 140000 181 042536 012721 140000 181 042536 012721 140000 181 042536 012721 140000 181 042536 012721 140000 181 042536 012721 140000 181 042536 012721 140000 181 042536 012721 140000 181 042536 012721 140000 181 042536 012721 140000 181 042536 012721 140000 181 042536 012721 140000 181 042536 012737 00063 002420 183 042550 003345 185 042560 012737 00063 002420 186 042566 012737 00063 002420 187 042574 052777 100000 137742 188 042602 004737 015146 189 042606 004737 015146 189 042606 004737 015406 190 042636 001417 190 042636 001417 191 042616 001414 192 042636 001447 042640 014026 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042650 014075 042660 014075 042670 014075 042670 014075 042670 014075 042670 014075 042670 014075 042670 014075 042670 014075 042670 014075 042670 014075 042670 014075 042670 014075 042670 014075 042670 014075 042670 014075 042670 014075 042670 014075 042670 014075 042670 014075 042670 014075 042670 014075 042670 014075 042670 014075 042670 014075 042670 014075 042670 014075 042670 014075 042670 014075 042670 014075 04	168	042476	100410					11\$	;IT'S -1, LOAD HIGH OR "ODD" SECTOR
171 042512 001405 173 042512 001405 173 042514 005104 174 042516 000403 175 042520 010321 176 042520 005203 177 042524 005004 178 042520 005203 179 042532 012721 140000 179 042532 012721 140000 180 042532 012721 140000 180 042532 012721 140000 180 042532 012721 140000 180 042532 012721 140000 180 042532 012721 140000 180 042532 012721 140000 180 042532 012721 140000 180 042532 012731 140000 180 042532 012731 140000 180 042532 012731 140000 180 042532 012731 140000 180 042532 012737 000636 02420 180 042532 012737 000630 002420 180 042532 012737 000630 002420 180 042540 012737 00063 002420 180 042560 012737 00063 002420 180 042560 012737 00063 002420 180 042600 004737 015146 180 042600 004737 015146 180 042600 004737 015146 180 042600 004737 015146 180 042600 004737 015466 191 042616 001414 192 04260 01447 042640 014466 042630 001447 042640 014466 042630 001447 042640 014466 042650 012737 000460 01447 042640 014026 042650 012737 015400 138:  138: 138: 100018: 178	170	042500	010221				MOV	R2,(R1)+	LOAD LOW SECTOR
172 042514 005104 174 042516 000403 175 042520 010321 176 042522 005203 177 042524 005004 178 042526 012721 140000 128: MOV R3,(R1)+ ILOAD HIGH SECTOR COUNT 179 042532 012721 140000 128: MOV P140000,(R1)+ ICOAD HIGH SECTOR COUNT 180 042535 012721 140000 181 042542 012721 140000 181 042542 012721 140000 181 042542 012721 140000 181 042542 012721 140000 181 042542 012721 140000 181 042542 012721 140000 181 042542 012721 140000 181 042542 012721 140000 181 042543 012737 000053 002406 183 042550 012737 000053 002420 184 042550 012737 000053 002420 185 042560 012737 000053 002420 186 042560 012737 000053 002420 187 042574 05277 100000 137742 188 042602 004737 015146 189 042606 004737 015146 189 042606 004737 015146 189 042606 004737 015146 189 042620 012737 002466 189 042620 012737 002466 190 042620 012737 002466 191 042620 012737 002466 192 042620 012737 000466 193 042620 012737 000466 194 042634 104456 042635 001447 042640 014026 042640 014026 042640 014026 042640 014026 042650 014472 195 042640 004737 015400 196 042650 012737 015400 197 042650 014472 198 042620 01472 199 042620 01472 199 042620 012737 015400 138: 138: 100018: 100018: 100018: 17RAP  138: 100018: 17RAP  138: 100018: 17RAP  139 042650 104405	171	042504		000004	140012			ATI EV SOODS	OPTIVE THE SECTOR COUNT
173 042516 000403 175 042520 010321 176 042520 010321 177 042524 005003 177 042524 005004 178 042526 012721 140000 178 042532 012721 140000 180 042535 012721 140000 181 04252 012721 140000 181 04252 012721 140000 181 04252 012721 140000 181 04252 012721 140000 181 04252 012721 140000 181 04252 012721 140000 181 04252 012721 140000 181 04252 012721 140000 181 04252 012721 140000 180 042536 012721 140000 180 042536 012721 140000 180 042536 012721 140000 180 042536 012721 140000 180 042530 003345 184 042552 012737 002730 002366 185 042560 012737 000063 002420 186 042560 012737 000063 002420 187 042574 052777 100000 137742 188 042602 004737 015146 189 042606 004737 015146 189 042606 004737 015146 189 042606 004737 015146 189 042606 004737 015460 189 042606 004737 015460 189 042606 004737 015460 189 042606 004737 015460 189 042606 004737 015460 189 042606 004737 015460 189 042606 004737 015460 189 042606 004737 015460 189 042606 004737 015460 189 042606 004737 015460 189 042606 004737 015460 189 042606 004737 015460 189 042606 004737 015460 189 042606 004737 015460 189 042600 004737 015460 189 042600 004737 015460 189 042600 004737 015460 189 042600 004737 015460 189 042600 004737 015460 189 042600 004737 015460 189 042600 004737 015460 189 042600 004737 015460 189 042600 004737 015460 189 042600 004737 015460 189 042600 004737 015460 189 042600 004737 015460 189 042600 004737 015460 189 042600 004737 015460 189 042600 004737 015460 189 042600 004737 015460 189 042600 004737 004060 180 042600 004737 004060 180 042600 004737 004060 180 042600 004737 004060 180 042600 004737 004060 180 042600 004737 004060 180 042600 004737 004060 180 042600 004737 004060 180 042600 004737 004060 180 042600 004737 004060 180 042600 004737 004060 180 042600 004737 004060 180 042600 004737 004060 180 042600 004737 004060 180 042600 004737 004060 180 042600 004737 004060 180 042600 004747 004747 004747 004747 004747 004747 004747 004747 004747 004747 004747 004747 004747 004747 004747 004747 004747 004747 004747 004747 004747 004747 0047	172	042512		000004	140012		REG	124	TE TEDO NO!
175 042520 010321	173	042514	005104				COM	R4	AND TOGGLE
175 042520 005203	174	042516	000403					12\$	MOVE ON
177 042524 05004 178 042526 012721 140000 180 042536 012721 140000 181 042532 012721 140000 181 042534 012721 140000 182 042536 005305 183 042550 005305 184 042550 012737 002730 002366 185 042560 012737 00003 002420 186 042560 012737 00003 002420 187 042574 052777 100000 137742 188 042560 004737 015146 189 042602 004737 017032 190 042612 005737 002466 191 042602 004737 017032 190 042612 005737 002466 191 042604 004737 017032 191 042616 001414 192 042620 012737 002466 193 042634 004737 015406 194 042634 004737 015400 135: 106 042650 012477 042640 014056 042650 012477 042640 014056 042650 012477 042640 014056 042650 012477 042640 014056 042650 042650 042737 015400 135: 100016: 178	175	042520	010321			11:		R3,(R1)+	:LOAD HIGH SECTOR
178 042536	176	042522						R3	UPDATE SECTOR COUNT
179 042532 012721 140000	178	042524		140000		124.	CLR		
180 042546 012721 140000	179	042532	012721			120:			
181 042542 012721 140000 DEC	180	042536	012721						
182 042546 0053305 183 042550 003345 184 042552 012737 002730 002366 185 042560 012737 000063 002420 186 042566 012737 000063 002420 187 042574 052777 100000 137742 188 042602 004737 015146 189 042606 004737 01506 190 042612 005737 002466 191 042616 001414 192 042620 012737 003400 002404 193 042626 012737 000065 194 042634 104456 042634 104456 042636 001447 042640 014026 042650 014026 042650 014026 042650 014026 042650 012650 104405  136	181	042542	012721	140000				#140000,(R1)+	:FOURTH WORD
185 042550 012737 00063 002420 MOV #FORTRK,FUNCTN   160 042566 012737 000063 002420 MOV #FORTRK,FUNCTN   167 042574 052777 100000 137742 BIS #CMOD,BRPOF   100 042574 00000   137742 BIS #CMOD,BRPOF   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   100 042574   10	182	042546					DEC	R5	ONE LESS SECTOR TO DO
185 042560 012737 000063 002420 MOV #FORTRK,FUNCTN   LOAD UP FOR A FORMAT TRACK OPERATION   186 042566 012737 100000 137742 BIS #CMOD, BRPOF   COMMAND MODIFIER=1   189 042602 004737 015146 JSR PC, DRIVER   LOOK FOR ERRORS   190 042612 005737 002466 JSR PC, ERRCK   LOOK FOR ERRORS   191 042616 001414   192 042620 012737 033400 002404   193 042626 012737 000406 002406   194 042634 104456   042636 001447   042640 014026   042650 01407   042650 01407   042650 01407   042650 01407   195 042650 01407   196 042650 01407   197 042650 01407   198 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 042650 01407   199 0	183	042550		000770	0007//		BGT	10\$	BUT GO ON UNTIL O
186 042566 012737 000454 002412 137742 1817 000454 052777 100000 137742 188 042602 004737 015146 189 042606 004737 017032 188 042602 005737 002466 199 042616 001414 192 042620 012737 033400 002404 193 042626 012737 033400 002406 194 042634 104456 042634 0014472 195 042640 014026 042634 014172 195 042640 014026 042630 014172 195 042640 014026 042630 014172 195 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 042650 0426					002366			#IOBUFF, TABADD	RELOAD THE LINK ADDRESS
187 042574 052777 100000 137742 188 042602 004737 015146 189 042606 004737 017032 190 042612 005737 002466 191 042616 001414 192 042620 012737 033400 002404 193 042626 012737 000406 002406 194 042634 104456 042630 014026 042640 014026 042640 014026 042640 014026 042650 104405  195 042650 104405  196 042650 104405  187 042640 10405  187 042650 104405  187 042650 104405  187 042640 10405  187 042650 104405  187 042650 104405  187 042650 104405  188 042600 004737 015400  187 042640 104026 042650 104405  188 042650 104405  189 042640 10474	186	042566		000055				ACSO AGY NECHED	AND THE HOPE COUNT (31448) FEET
188 042602 004737 015146 189 042606 004737 017032 190 042612 005737 002466 191 042616 001414 192 042620 012737 033400 002404 193 042626 012737 000406 002406 194 042634 104456 042636 001447 042640 014026 042640 014026 195 042640 004737 015400 196 042650 042650 042650 042650 042650 042650 104405  188 042602	187	042574	052777	100000	137742			4CMOD . BRPOF	COMMAND MODIFIER=1
191 042616 001414 192 042620 012737 033400 002404 193 042626 012737 000406 002406 194 042634 104456 042634 014026 042640 014026 042640 014026 042640 014026 042650 042650 042650 104405  TRAP CFERRORS, THIS = -1 13\$ ;LOOKS OK IF 0!! 13\$ ;LOOKS OK IF 0!! 13\$ ;LOOKS OK IF 0!! 1400 48178!8179!81710!81712!81713.ERRWD1 ;LOAD THE MODULE CALLOUT LIST 186Q 13\$ ;LOOKS OK IF 0!! 186Q 15\$ ;LO	188	042602	004737	015146				PC.DRIVER	NOW DO THE TRANSFER
191 042616 001414 192 042620 012737 033400 002404 193 042626 012737 000406 002406 194 042634 104456 042634 014026 042640 014026 042640 014026 042640 014026 042650 042650 042650 104405  TRAP CFERRORS, THIS = -1 13\$ ;LOOKS OK IF 0!! 13\$ ;LOOKS OK IF 0!! 13\$ ;LOOKS OK IF 0!! 1400 48178!8179!81710!81712!81713.ERRWD1 ;LOAD THE MODULE CALLOUT LIST 186Q 13\$ ;LOOKS OK IF 0!! 186Q 15\$ ;LO				017032			JSR	PC, ERRCK	LOOK FOR ERRORS
192 042620 012737 033400 002404 MOV #BIT8!BIT10!BIT12!BIT13,ERRWD1 ;LOAD THE MODULE CALLOUT LIST MOV #BIT1!BIT2!BIT3,ERRWD2 ;FOR BOTH MASK WORDS  194 042634 104456 TRAP C#ERRWD	190	042612		002466				ERSTAT	; IF ERRORS, THIS = -1
193 042626 012737 000406 002406	191	042616	001414	077400	000404			134	LOOKS OK IF O!!
194 042634 104456 TRAP C#ERHRD 042636 001447WORD 807 042640 014026WORD EM41 042642 014172WORD ERRO 195 042644 004737 015400 JSR PC.DRVCLR ;RELOAD AND RESET ERRORS! 196 042650 042650 104405 TRAP C#ESEG	193	042626	012737					48118:8119:81110	FORUMA . FOR POTH MACK HOODS
042636 001447 042640 014026 042642 014172 195 042644 004737 015400 196 042650 042650 042650 104405  .WORD EM1 .WORD ERRO JSR PC.DRVCLR ;RELOAD AND RESET ERRORS! 13\$: 10001\$: 042650 104405  TRAP C\$ESEG	194	042634		000400	002400			CTEBHOU .	ERRINDE IFUR BUTH HASK WURDS
042642 014172 WORD ERRO 195 042644 004737 015400 JSR PC.DRVCLR ;RELOAD AND RESET ERRORS! 196 042650 042650 104405 TRAP C#ESEG		042636					. WORD		
042642 014172 WORD ERRO 195 042644 004737 015400 JSR PC.DRVCLR ;RELOAD AND RESET ERRORS! 196 042650 042650 104405 TRAP C#ESEG		042640	014026				. WORD		
196 042650 042650 042650 104405 TRAP C#ESEG		042642					. WORD	ERRO	사용하다 전 경우 발표를 받는 것은 사람들이 되었다. 그렇게 되었다는 것은
042650 104405 10001\$: 042650 104405 TRAP C\$ESEG	195	042644	004737	015400			JSR	PC, DRVCLR	RELOAD AND RESET ERRORS!
042650 104405 TRAP C#ESEG	130	042650							
*** ***** *****		042650	104405			100011:	TDAD	CAESEG	

199 042662 200 042666 201 042672	012737 012702 012703 005004 110412	000053 002732 000062	002420	145:	MOV MOV CLR MOVB	#IOBUFF+2,R2	LOAD UP A WRITE-CHECK HEADERS COMMAND SET-UP TO REARRANGE THE BUFFER THIS IS THE ITERATION COUNT THIS IS THE SECTOR ADDRESS RELOAD THE SECTOR ADDRESS
203 042676 204 042700 205 042704	005204 062702 005303 003372	000014			INC ADD DEC BGT	R4 #14,R2 R3	;NEXT SECTOR ADDRESS ;SKIP DATA IN CURRENT SECTOR MAP ;ONE LESS ITERATION TO GO ;IF > 0. GO-ON
207 042710 208 042716 209 042724	052777 012737 012737 004737	100000 002730 000454 015146	137626 002366 002412		BIS MOV MOV JSR	#CMOD, @RPOF #IOBUFF, TABADD #<50.#6>, NEGWRD	;COMMAND MODIFIER=1 ;LOAD THE LINK ADDRESS ;AND THE WORD COUNT (314<8> EFF1)
211 042736 212 042744 213 042752	012737 012737 012737 012737 032777	011543 033400 000406 040000	002470 002404 002406 137524		MOV MOV MOV BIT	#WTCKHD,FATOF #BIT8!BIT9!BIT10 #BIT1!BIT2!BIT8,	;NOW DO THE TRANSFER ;LOAD THE FAILING FUNCTION D!BIT12!BIT13.ERRWD1 ;CREATE MODULE CALLOUT ERRWD2 ;LIST FOR BOTH MASKS ;DID WE GET A TRANSFER ERROR?
215 042766 216 042770 217 042774 042776	001407 004737 104456 001450 013441	017150	137324		BEQ JSR TRAP . WORD . WORD		; IF ZERO, NO! ; FIND THE DATA FOR THE REPORT
043002	014500				. WORD BR	ERR2 16#	SKIP THE NEXT DISPATCH
219 043006		017032 002466		15#:	JSR TST	PC.ERRCK ERSTAT	;ANY ERRORS? ;IF ZERO, NO
221 043016 222 043020 043022 043024	001406 104456 001451 012454	002400			BEQ TRAP . WORD . WORD	17\$ C\$ERHRD 809 EM14	TAKE BRANCH IF NO ERRORS
223 043030 224 043034 225 043034	014172 004737	015400		16\$: 17\$: 10002\$:	. WORD JSR	PC.DRVCLR	RESET ALL ERRORS
043034 226 043036	104405			L10111:	TRAP	C#ESEG	
	104403				TRAP	C#ESUB	
043040	104402			T58.2:	TRAP	C#BSUB	
228 043042 229 043046	105037 012737	002414	002404		CLRB	DESTRK	;SECTOR ADDRESS=0 D:BIT12:BIT13,ERRWD1;SET UP THE MODULE CALLOUT
230 043054	012737	000406	002406		MOV	#BIT1!BIT2!BIT8,	ERRWD2:FOR BOTH MASKS
232 043070	012737 012703	000004	002436		MOV	#4.TEMP	; ALLOW FOR FOUR DATA ERRORS BEFORE REPORTING THE ERROR! ;GET THE TEST PATTERN
233 043074	012701	002730		14:	MOV	#IOBUFF.R1	CREATE THE OUTPUT BUFFER
235 043104	011321	000400		24:	MOV	#256.,R2 (R3),(R1)+	GET THE BUFFER SIZE START LOADING THE BUFFER
236 043106	005302 003375				DEC	R2	ONE LESS WORD TO LOAD
238 043112	104404				BGT TRAP	2# C#BSEG	; IF > 0, GO-ON
239 043114	012737 012737	002730 000061	002366 002420	3\$:	MOV	#IOBUFF, TABADD	LOAD THE LINK AGAIN
241 043130	012737	000400	002420		MOV	#WRDTA, FUNCTN #256., NEGWRD	SETUP FOR A WRITE DATA COMMAND WRITE ONE SECTOR
	004737 004737	015146 017032			JSR	PC.DRIVER	NOW DO IT!
244 043146	005737	002466			JSR TST	PC.ERRCK ERSTAT	;LOOK FOR ERRORS ;IF ERRORS, THIS = -1
245 043152	001424				BEQ	46	SKIP ERROR DISPATCH IF O

246 043154	005737	002436			TST	TEMP	.DTD HE DO FOUR TTERATIONES
247 043160		002430					DID WE DO FOUR ITERATIONS?
					BGT	4\$	; IF NOT O, NO!!
248 043162	104456				TRAP	C\$ERHRD	
043164	001452				. WORD	810	
043166	013753				. WORD	EM40	
043170	014172				. WORD	ERRO	
240 047170	014116	-					
249 043172	012/46	00/315			MOV	#FRMTO2,-(SP)	
043176	012746	000001			MOV	41,-(SP)	
043202	010600				MOV	SP,RO	
043204	104414				TRAP	C\$PNTB	
043206		000004					
	062706				ADD	04,SP	
250 043212	012737	177777	002430		MOV	4-1,FASTAT	MARK THIS SECTOR AS FAILED
251 043220	004737	015400			JSR	PC.DRVCLR	GET RID OF ANY ERRORS
252 043224	012702	003030		45:	MOV	#TOBUFF+64 . R2	GET ONE BUFFER LOCATION
253 043230	005112				COM	(83)	AND LOUGE TT LIDE
254 047272		000051	002420			MICKE CIMICAN	:AND LOUSE IT UP! :LOAD THE WRITE CHECK FUNCTION :LOAD THE LINK ADDRESS
254 043232	012737	000051			MOV	WUCKD, FUNCTN	LUAD THE WRITE CHECK FUNCTION
	012737	002730	002366		MOV	#IOBUFF, TABADD	;LOAD THE LINK ADDRESS
256 043246	012737	000400	002412		MOV	9256 NEGWRD	AND THE WORD COUNT
257 043254	004737	015146			JSR	PC.DRIVER	NOW DO THE COMMAND EXECUTION
258 043260	004737	017000			JSR	PC, WAIT	NOW DO THE COMMAND EXECUTION WAIT FOR A SETTLE TIME DID WE GET A WRITE CHECK ERROR?
259 043264			177070		DIT	PC.WAIT	INNTI FOR A SETTLE TITLE
		040000	137230		BIT	AMCE , SHACES	DID WE GET A WRITE CHECK ERROR?
260 043272	001014				BNE	5\$	:IF = 1. YES!
261 043274	004737	017372			JSR	PC.BISEXP	FORM THE FAILING DATA
262 043300	002522				RPCS2		THIS REGISTER FAILED
263 043302	040000				WCE		THIS BIT FAILED TO SET
	104456					CAEDUDD	LINTO BIL LYTTED IN 251
	104436				TRAP	C\$ERHRD	
043306	001453				. WORD	811	
043310	012776				. WORD	EM22	
043312	014172				. WORD	ERRO	
	012737	177777	002430		MOV		MARK THIS FAILURE
266 043322	000434	211111	002430				
267 047724	017746	477004			BR	7\$	NOW GO-ON
267 043324	01//46	137204		54:	MOV	aRPDB,-(SP)	GET THE ACTUAL DATA
268 043330	005112				COM	(R2)	; INVERT THE EXPECTED DATA
269 043332	022612				CMP		;MATCH?
270 043334	001417				BEQ	76	LOOKS OK, GO-ON
	016637	177776	002452		MOV	SCED) BOVED	AND LOC THE DECIMATE FOR EDDOR DEDORTANG
272 043330	010037		002432			-2(SP),RCVED	AND LOG THE RESULTS FOR ERROR REPORTING
272 043344 273 043350	011521	002454			MOV	(R2),EXPTED	NOW GET THE EXPECTED DATA
273 043350	005757	002436		6\$:	TST	TEMP	;WHICH ITERATION?
2/4 045354	003007				BGT	7\$	; IF > O, NOT THE LAST
275 043356	012737	011566	002470		MOV		:LOAD THE FUNCTION AT TIME OF FAILURE
276 043364	104456				TRAP	C\$ERHRD	TECHO THE FOREIZON AT TITLE OF PATEONE
043366	001454						
					. WORD	812	
043370	013505				. WORD	EM34	
043372	014500				. WORD	ERR2	
277 043374	017746	137112		74:	MOV	aRPCS1,-(SP)	; SAVE RPCS). ON STACK
278 043400	042716	037777			BIC	#+C <sc!tre>,(SP)</sc!tre>	GET RID OF THE UNNECESSARY BITS
279 043404	022726	140000					
	022120	140000			CMP	#SC!TRE,(SP)+	DID SC AND TRE SET?
280							
281 043410	001410				BEQ	8#	; IF SET, SKIP ERROR REPORT
282 043412	004737	017372			JSR	PC.BISEXP	LOAD THE FAILING DATA
283 043416	002512				RPCS1		THIS REGISTER
284 043420	140000						
					SC!TRE		THESE BITS DIDN'T SET
285 043422	104456				TRAP	C\$ERHRD	
043424	001455				. WORD	813	
043426	012776				. WORD	EM22	
043430	014172				WORD	ERRO	
286 043432	004737	015400		Re.			DEL OAD AND DECET
200 043432	004/3/	015400		8\$:	JSR	PC, DRVCLR	RELOAD AND RESET

287 043436 288 043444 289 043452 290 043460 291 043464 292 043470 293 043474 294 043476 295 043502 296 043504 297 043510 298 043514 299 043522 300 043526	012737 012737 012737 004737 004737 005737 001452 005337 002404 105237 000137 012737 005037	002730 000400 000051 015146 017032 002466 002436 002414 043114 011566 002436 040000	002366 002412 002420 C02470 136756	9\$: 10\$:	MOV MOV JSR JSR TST BEQ DEC BLT INCB JMP MOV CLR BIT	#IOBUFF, TABADD #256., NEGWRD #WCKD, FUNCTN PC, DRIVER PC, ERRCK ERSTAT 13\$ TEMP 10\$ DESTRK @#3\$ #WTCKD, FATOF TEMP #TRE, @RPCS1	:NOW VERIFY DATA FOR CORRECTNESS :DO 256 WORD (1 SECTOR) TRANSFER :SET UP FOR A WRITE CHECK :DO THE COMMAND NOW! :ERRORS? :IF ERRORS, THIS = - 1 :SKIP ERROR DISPATCH IF O :ALLOW ONE LESS ERROR! :IF < O, REPORT THE ERROR NOW!! :GO TO THE NEXT SECTOR :AND FOR NOW, SKIP THE ERROR DISPATCH! :LOAD THE FAILING FUNCTION :TEMP = O, FOR A POSSIBLE LOOP :DID WE GET A TRANSFER ERROR?
301 043534 302 043536 303 043542 043544 043546 043550	001417 004737 104456 001456 013441 014500	017150			JSR TRAP . WORD . WORD	11\$ PC.LOCATE C\$ERHRD 814 EM33 ERR2	:IF O. NO :FIND THE ERROR
304 043552 043556 043562 043564 043566 305 043572	012746 012746 010600 104414 062706 000411	007315 000001 000004			MOV MOV MOV TRAP ADD BR	#FRMT02,-(SP) #1,-(SP) SP,R0 C#PNTB #4.SP	SKIP NEXT REPORT
306 043574 307 043600 308 043604 309 043606 043610 043612 043614	004737 005737 001406 104456 001457 012454 014172	017032 002466		114:	JSR TST BEQ TRAP .WORD .WORD	PC.ERRCK ERSTAT 13\$ C\$ERHRD 815 EM14	;LOOK FOR ANY ERROR ;IF ONE FOUND, THIS = - 1 ;NO ERRORS, GO-ON
310 043616 311 043622 312 043626 313 043630 314 043634 315 043636	004737 005737 001403 005037 000720	015400 002430 002430		124: 134:	JSR TST BEQ CLR BR	ERRO PC.DRVCLR FASTAT 14\$ FASTAT 9\$	RESET AND RELOAD ANY ERROR? IF ZERO, NO RESET THE FAILED MARKER AND GO TO NEXT SECTOR
043636 043636 316 043640 317 043642 318 043646 319 043650	104405 005723 020327 101002 000137	002362 043074		10000\$:	TRAP TST CMP BHI JMP	C\$ESEG (R3)+ R3,0PATT8 15\$	POP R3 TO THE NEXT DATA TABLE ENTRY DONE YET IF R3 > # PATT8, YES DO MORE!!
320 043654 043654 043654 321 043656 322 043660 323 043666 324 043672 325 043700 326 043706 327 043714 328 043722 329 043726	104403 104404 012737 004737 012737 052777 012737 012737 004737 022777	000021 015146 000073 100000 000006 002652 015146 000020	002420 002420 136636 002412 002366 136572	15#: L10112:	TRAP TRAP MOV JSR MOV BIS MOV MOV JSR CMP	C\$ESUB C\$BSEG #RIP,FUNCTN PC,DRIVER #RDHDTA,FUNCTN #CMOD,@RPOF #6,NEGWRD #PSTACK,TABADD PC,DRIVER #FER,@RPER1	SET UP FOR ANOTHER READ IN PRESET SSUE THE COMMAND NOW PREPARE TO READ A HEADER ONLY SIX WORDS / TRANSFER LIKE I SAID. SIX WORDS ONLY! TRANSFER TO START AT THIS BUFFER ADDRESS THIS SHOULD CAUSE A FORMAT ERROR DID IT??

	043734 043736	001423 012737	000020	002454		BEQ MOV	1\$ #FER.EXPTED	; IF MATCH, IT DID! ; FORM THE EXPECTED DATA
	043744	017737	136556	002452		MOV	aRPER1.RCVED	FORM THE RECEIVED DATA
	043752	013737	002526	002456		MOV	RPER1, TESTRG	THIS REGISTER FAILED THE TEST
	043760	012737	004400	002404		MOV		RWD1; LOAD THE MODULE CALLOUT
	043766	012737	000406	002406		MOV		B.ERRWD2:FOR BOTH MASKS
	043774	104456	000400	002400		TRAP	C\$ERHRD	D, ERRWUZ; FUR BUTH MASKS
330	043776	001460				. WORD		
	044000	012454					816	
	044002	014172				. WORD	EM14	
777	044004		017700			. WORD	ERRO	DECET FOR 44 DET WORK
The second second		004737	017722		1\$:	JSR	PC,PRELOD	RESET FOR 16 BIT MODE
330	044010	***			10000\$:			
770	044010	104405				TRAP	C\$ESEG	
339	044012				L10110:			
	044012	104401				TRAP	C\$ETST	

```
'L TEST 59 RPER1 NEGATIVE BIT TESTS
                                             TEST 59 RPER1 NEGATIVE BIT TESTS
                                                SET UP AN ILLEGAL COMMAND (043 - OCTAL)
                                     : 5
                                     : 5
                                                ISSUE THE COMMAND
                                                IF RPER1: ILF . 0
                                     : 5
                                             :
                                     : 5
                                                   THEN
                                             :
                                                   OUTPUT ERROR MESSAGE (FAILED TO DETECT RPER1: ILF)
                                             :
                                                :
                                                   OUTPUT FAULT LIST: J12
10
                                                ENDIF
11
                                                ISSUE A DRIVE CLEAR COMMAND
12
                                                SET UP FOR SECTOR ADDRESS 50(DECIMAL)
                                                SET UP FOR TRACK ADDRESS 31(DECIMAL)
13
                                             :
                                                ISSUE SEEK COMMAND
                                             :
15
                                                IF RPER1: IAE . 0
                                             :
16
                                             :
                                                :
17
                                                   OUTPUT ERROR MESSAGE (FAILED TO DETECT RPER1: IAE)
                                             :
18
                                                ENDIF
                                             :
19
                                                ISSUE A DRIVE CLEAR
                                             :
20
                                                DECREMENT THE SECTOR ADDRESS (49 DECIMAL)
                                             :
21
22
23
24
25
26
27
                                                INCREMENT THE TRACK ADDRESS (32 DECIMAL)
                                             :
                                                ISSUE SEEK COMMAND
                                             :
                                                IF RPER1: IAE - 0
                                                   THEN
                                                   OUTPUT ERROR MESSAGE (FAILED TO DETECT RPER1: IAE)
                                                   OUTPUT FAULT LIST: J7, J8, RHXX, CABLES, TERMINATOR
                                     15
                                                ENDIF
                                             :
28
                                             : ISSUE DRIVE CLEAR COMMAND END TEST 59
                                     : 5
29
                                     : 5
31
   044014
                                     T59::
32 044014
           104404
                                             TRAP
                                                     C$BSEG
33 044016
          004737
                   015400
                                                                      START UP WITHOUT ERRORS
                                             JSR
                                                      PC.DRVCLR
  044022
           032777
                   010000 136474
                                             BIT
                                                      OMOL, BRPDS
                                                                      DRIVE ONLINE?
35 044030
           001016
                                                                      F = 1. YES GET THE REGISTER SNAPSHOT
                                             BNE
36 044032
           004737
                                                     PC. SAVRPR
                    017326
                                             JSR
37 044036
           013746
                                                     LITEST, -(SP)
                    002114
                                             MOV
   044042 012746
                                                     #MSGMOL.-(SP)
#2.-(SP)
SP.RO
C#PNTF
                    006452
                                             MOV
   044046 012746
                    000002
                                             MOV
   044052 010600
                                             MOV
   044054 104417
                                             TRAP
   044056
           062706
                                                      46, SP
                   000006
                                             ADD
41 044062
           104432
                                             TRAP
                                                     CSEXIT
   044064
           000244
                                             . WORD
                                                     L10113-
42 044066
           012737
                    000043
                            002420 18:
                                             MOV
                                                                      :LOAD UP AN ILLEGAL FUNCION
                                                      443, FUNCTN
43 044074
           013737
                    002526
                                             MOV
                            002456
                                                      RPER1, TESTRG
                                                                      FORM UP PART OF THE ERROR MESSAGE
44 044102
           004737
                    015146
                                              JSR
                                                                       ISSUE THAT ILLEGAL COMMAND
                                                     PC.DRIVER
45 044106
           022777
                    000001
                            136412
                                             CMP
                                                                       DID ILLEGAL FUNCTION ONLY SET?
                                                      WILF, SRPER1
46 044114
           001417
                                             BEQ
                                                                       IF MATCH, YES
47 044116
           012737
                    004000
                            002404
                                             MOV
                                                      48IT11, ERRWD1
                                                                       LOAD THE MASK
48 044124
           005037
                    002406
                                                                      FOR BOTH MASKS
                                             CLR
                                                      ERRWD2
49 044130
           012737
                    000001
                            002454
                                             MOV
                                                      #ILF, EXPTED
50 044136
                                                      BRPER1, RCVED
           017737
                    136364
                                                                       REPORT THE RECEIVED DATA
                            002452
                                             MOV
51 044144
           104456
                                             TRAP
                                                      C$ERHRD
   044146
           001461
                                             . WORD
                                                      817
   044150 012454
                                             . WORD
                                                      EM14
   044152 014172
                                              . WORD
                                                      ERRO
```

	044154				2\$: 10000\$:			
	044154	104405			200001.	TRAP	CIESEG	
	044156	104404				TRAP	CIBSEG	
	044160	004737	015400			JSR	PC.DRVCLR	PURGE ANY ERRORS
	044164	012737	005700	002404		MOV		BIT9:BIT11, ERRWD1: LOAD THE MODULE CALLOUT
56	044172	012737	000406	002406		MOV	ARTTI IRTT2 IRTTA	ERRWD2 FOR BOTH MASKS
57	044200	012737	001165	002416		MOV		LAST USER CYLINDER, PLEASE
	044206	112737	000037	002415		MOVB		LAST USER TRACK, PLEASE
	044214	112737	000062	002414		MOVB	#50. DESTRK	ILLEGAL SECTOR ADDRESS, PLEASE
		012737	000005	002420		MOV	OSEEK, FUNCTN	LOAD UP A SEEK COMMAND
	044230	004737	015146			JSR	PC.DRIVER	ISSUE THE COMMAND, BUT EXPECT IT TO FAIL
	044234	022777	002000	136264		CMP	WIAE, SRPER1	DID WE GET THE EXPECTED RESULTS?
		001413				BEQ		IF MATCH, YES
	044244	012737	002000	002454	34:	MOV	#IAE,EXPTED	FORM THE EXPECTED DATA
65	044252	017737	136250	002452		MOV	BRPER1, RCVED	GET THE ACTUAL DATA
	044260	104456				TRAP	CSERHRD	
	044262	001462				. WORD	818	
	044264	012454				. WORD	EM14	
	044266	014172				. WORD	ERRO	
	044270	000414				BR	54	;AND GET-OUT!
68	044272	105337	002414		48:	DECB	DESTRK	LAST LEGAL SECTOR ADDRESS, PLEASE
	044276	105237	002415			INCB	DESTRK+1	; ILLEGAL TRACK ADDRESS, PLEASE
	044302	004737	015400			JSR	PC.DRVCLR	INO ERRORS, YET!!
		004737	015146			JSR	PC.DRIVER	NOW ISSUE THE BOGUS SEEK COMMAND
	044312	022777	002000	136206		CMP	#IAE. BRPER1	;DID WE GET IAE ONLY??
	044320	001351				BNE	3#	TAKE BRANCH IF NOT
74	044322	004737	017722		54:	JSR	PC.PRELOD	RESET FURTHER ERRORS
75	044326				10001\$:			
	044326	104405				TRAP	C\$ESEG	
76	044330				L10113:			
	044330	104401				TRAP	C\$ETST	

```
.SBTTL TEST 60 USER SELECTED MICRODIAGNOSTIC ROUTINE
 2
                                              TEST 60 USER SELECTED MICRODIAGNOSTIC ROUTINE
                                     : 5
                                              : IF MANUAL TESTING IS NOT ALLOWED
                                     : 15
                                              : THEN
                                                    EXIT TEST
                                              :
                                                 ELSE
                                              :
 8
                                              : IF USER SELECTED INPUT ALLOWS A MEX DATA SELECTION
                                                    THEN
                                              :
                                                 .
10
                                              :
                                                 :
11
                                     : 5
                                                    GET A 2 CHARACTER USER INPUT
                                              :
                                                 :
                                     : 5
12
                                                    IF THE USER INPUT IS NOT A VALID HEX CHARACTER
                                              : :
                                     : 5
13
                                                    : THEN
                                              : :
14
                                                       REJECT THE INPUT AND GOTO A
                                              : :
15
                                                    ENDIF
                                              : :
16
                                                   LEFT JUSTIFY THE INPUT DATA AND MAKE IT BYTE ORIENTED
                                              : :
17
                                                    BY PUTTING TWO HEX CHARACTERS IN ONE BYTE
                                     : 5
18
                                                    MOVE THE USER DATA INTO R4
19
                                                    TURN ON THE DIAGNOSTIC MONITOR IN THE DRIVE
                                              : :
20
                                                    LOAD THE ROUTINE NUMBER INTO THE DRIVE WAIT FOR THE COMMAND TO FINISH EXECUTION
                                             : :
21
                                     : 5
                                             : :
22
23
24
25
26
27
                                                    IF RPER2 (> 0
                                     : 5
                                              : :
                                              : :
                                                       REPORT THE ERROR (DRIVE FAILED A MICRODIAGNOSTIC ROUTINE)
                                                       RESET ALL DRIVE AND CONTROLLER ERRORS
                                              :
                                                 :
                                     : 5
                                                    ENDIF
                                              :
                                                 ENDIF
                                     : 15
28
                                              END TEST 60
                                     : 5
29
30 044332
                                     T60::
31 044332
           005737
                                              TST
                    002342
                                                      SELRUN
                                                                        : ALLOW A USER INPUT?
32 044336
           003002
                                              BGT
                                                                        : IF >O. YES
36 044340
                                              TRAP
           104432
                                                      CSEXIT
           000260
   044342
                                               WORD
                                                      L10114-.
37 044344
           005737
                                              TST
                    002422
                                                      ROUTDO
                                     18:
                                                                        SUSER PREVIOUSLY SELECTED INPUT??
38 044350
           100470
                                              BMI
                                                                        SKIP NEXT DIALOGUE
39 044352
           104450
                                              TRAP
                                                      CSMANI
40 044354
           103402
                                              BCS
41 044356
           104432
                                              TRAP
                                                      C$EXIT
   044360
           000242
                                              . WORD
                                                      L10114-.
  044362
                                     21:
                                                                        PRINT 'ROUTINE NO. (2 CHAR "HEX" INPUT)'
43 044362
           012746
                    010271
                                              MOV
                                                      0FRMT23, -(SP)
   044366
                                                      #1.-(SP)
SP.RO
C#PNTF
           012746
                    000001
                                              MOV
   044372 010600
                                              MOV
   044374 104417
                                              TRAP
   044376 062706
                    000004
                                              ADD
                                                       44.SP
44 044402 104443
                                              TRAP
                                                      C#GMAN
   044404
           000406
                                              BR
                                                       10000$
   044406 002652
                                              . WORD
                                                      PSTACK
   044410
           000142
                                              . WORD
                                                       T CODE
   044412
           000000
                                              . WORD
   044414
           000001
                                              . WORD
   044416
           000002
                                              . WORD
                                                      TILOLIM
   044420
           000002
                                              . WORD
                                                      T$HILIM
   044422
                                     10000$:
45 044422
           012704
                                              MOV
                    002652
                                                       OPSTACK, R4
                                                                        GET THE START OF THE STRING
46 044426
           012702
                    000002
                                              MOV
                                                       #2.R2
                                                                        SET AN ITERATION COUNT
```

## CZRJMBO RPO7 FE/HOST ISOLATOR MACRO VO4.00 1-DEC-83 10:39:09 PAGE 95-1 TEST 60 USER SELECTED MICRODIAGNOSTIC ROUTINE

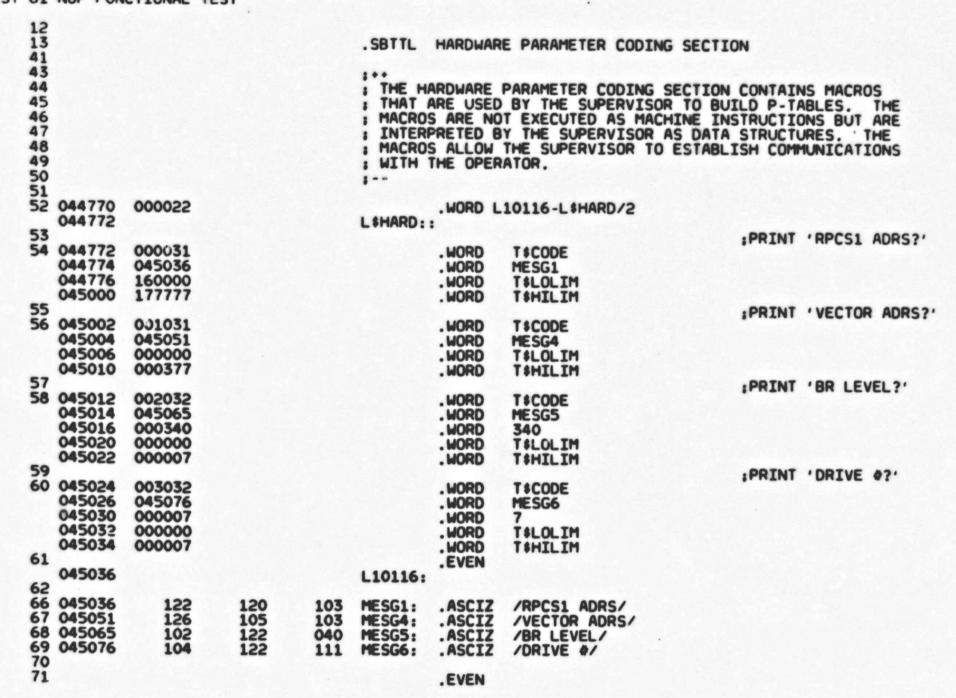
47 044432	112401			3\$:	MOVE	(DA). D1	CET THE DATA CHANDACTED
48 044434		000071		34:	MOVB	(R4)+,R1	GET THE DATA CHAHRACTER
49 044440		000071			CMP	R1.071	AND BEGIN TO SCALE IT
50 044442		000060			BHI	45	TAKE BRANCH IF ALPHA, NOT NUMERIC
51 044446		000000			SUB	060,R1	ISTRIP THE ASCII
					BMI	28	IF MINUS, THE USER GOOFED!! DO AGAIN!
52 044450					BR	54	OK SO-FAR, KEEP GOING
53 044452		000067		45:	SUB	467,R1	STRIP THE ASCII
54 044456					BMI	2\$	; IF MINUS, THE USER GOOFED! DO AGAIN!
55 044460		000017			CMP	R1.017	LEGAL CHARACTER (IN HEX)??
56 044464					BGT	2\$	:IF >. IT'S TOO LARGE
57 044466		177777		5#:	MOVB	R1,-1(R4)	MOVE THE MEX BACK INTO THE BUFFER (SANS ASCII)
58 044472					DEC	R2	ONE LESS CHARACTER TO GO
59 044474	003356				BGT	34	DO UNTIL R2 . O
60 044476					CMPB	-(R4),-(R4)	BACK THE POINTER UP BY TWO BYTES
61 044500					ASLB	(R4)	TO LEFT JUSTIFY THE LOW BYTE
62 044502					ASLB	(R4)	SECOND SHIFT
63 044504	106314				ASLB	(R4)	THIRD SHIFT
64 044506	106324				ASLB	(R4)+	FOURTH SHIFT (POP POINTER)
65 044510		002652			BISB	(R4),PSTACK	FOOM THE ENTIRE 2 CHAR HEY FIELD
66 044514		002653			CLRB		FORM THE ENTIRE 2 CHAR HEX FIELD
67 044520		002422			CCMB	PSTACK+1	THROW THE HIGH BYTE OUT NOW!
68 044524			000404		COM	ROUTDO	MARK THE USER SELECTED INPUT
		002652	002424		MOV	PSTACK, SELNUM	SAVE THE USER ROUTINE NUMBER
69 044532	013704	002424		64:	MOV	SELNUM, R4	LOAD THE ROUTINE NUMBER
70 044536	004737	015260			JSR	PC.DIAGST	TURN ON THE MONITOR
71 044542					SWAB	R4	HIGH BYTE - ROUTINE NUMBER
72 044544					TRAP	C#BSEG	
73 044546		015352			JSR	PC.DIAGLD	;LOAD THE ROUTINE NUMBER
74 044552	017746	135774			MOV	BRPER2,-(SP)	GET THE RESULTS OF THE TEST
75 044556	042726	177400			BIC	#177400,(SP)+	STRIP JUNK
76 044562	001414				BEQ	78	; IF ZERO, NO!!
77 044564					TRAP	C\$ERHRD	
044566					. WORD	401	
044570	013564				. WORD	EM35	
044572	014310				. WORD	ERR1	
78 044574		040011	002420		MOV		TN:PREPARE TO RESET THE ERRORS
79 044602		015146			JSR	PC.DRIVER	PURGE ERRORS NOW!
80 044606			135722		BIS	#DMD, BRPMR1	TURN ON THE DMD BIT AGAIN
81 044614		200000	103166	74.	013	ADID, GALLINI	TIONIA ON THE DUD BIT MONTH
044614				7\$:			
044614				100014:	TRAP	CAECEC	
82 044616		015312				CIESEG	TIPN OFF THE MONTTON
83 044622		013315			JSR	PC.DIAGEN	:TURN OFF THE MONITOR
044622				L10114:	7040	******	
V44022	104401				TRAP	C\$ETST	

```
.SBTTL TEST 61 NOP FUNCTIONAL TEST
                                              TEST 61 NOP FUNCTIONAL TEST
                                     : 15
                                                LOAD UNIT UNDER TEST INTO RPCS2
                                                IF RPDS: DRY <> 1
                                                    THEN
                                              :
                                                    OUTPUT ERROR MESSAGE (RPDS: DRY NOT SET WHEN EXPECTED)
                                              :
                                                ENDIF
                                              :
                                                 WRITE NOP COMMAND TO RPCS1
                                              :
10
                                                TIME RPDS: DRY
11
                                                IF TIME EXPIRES AND RPDS: DRY <> 1
                                              :
12
                                             : : THEN
13
                                                    OUTPUT ERROR MESSAGE (RPDS: DRY NOT SET IN TIME)
                                             :
14
                                     : 5
                                                ENDIF
                                             .
15
                                                IF RPDS: ERR = 1
                                     : 5
                                              :
16
                                     : 5
                                              :
                                                :
                                                    THEN
17
                                     : 5
                                                    OUTPUT ERROR MESSAGE (COMPOSITE ERROR SET WHEN NOT EXPECTED)
18
                                     : 5
                                                 ENDIF
                                              :
19
                                     : 5
                                                IF RPCS1: TRE - 1
                                              :
20
                                     : 5
                                                    THEN
                                              :
                                                :
21
                                                    OUTPUT ERROR MESSAGE (RPCS1: TRE SET WHEN NOT EXPECTED)
                                     : 5
                                              :
                                                :
22
23
                                     : 5
                                                ENDIF
                                     : 5
                                             END TEST 61
24
25 044624
                                     T61::
  044624
           012737
                    004000
                            002404
                                              MOV
                                                                       :LOAD THE ERROR MASK
                                                      #BIT11,ERRWD1
  044632
27
           005037
                    002406
                                              CLR
                                                      ERRWD2
                                                                       FOR BOTH MASKS
28 044636
           004737
                                              JSR
                                                      PC. SEIZE
                    016662
                                                                       GET THE DRIVE NOW!
29 044642
           012701
                    000036
                                              MOV
                                                      #30. R1
                                                                       GET AN OVERALL WATCHDOG TIMER
30 044646
           012777
                    000015
                            135636
                                                      ONOP, SRPCS1
                                              MOV
                                                                       WRITE A NOP COMMAND
31
  044654
                                                      BRPDS
                                                                       DO WE HAVE DRIVE READY?
           105777
                    135644
                                              TSTB
                                     18:
  044660
                                                                       IF MINUS, YES!!
STALL, AND WASTE SOME TIME
           100413
                                              BMI
33
  044662
           004737
                    017000
                                                      PC.WAIT
                                              JSR
  044666
           005301
                                              DEC
                                                      R1
                                                                       ONE LESS ITERATION TO-GO
35
  044670
           003371
                                              BGT
                                                                       :IF R1 <> O. DO AGAIN
36 044672
           004737
                                                      PC. SAVRPR
                    017326
                                              JSR
                                                                        GET THE REGISTER SNAPSHOT
  044676
           104456
                                              TRAP
                                                      C$ERHRD
   044700
           000622
                                              . WORD
                                                      402
   044702
           012015
                                              . WORD
                                                      EM2
   044704
           014652
                                              WORD
                                                      ERR3
38 044706
           000425
                                              BR
                                                                       AND SKIP NEXT PART OF TEST
                                                      45
39 044710
           032777
                    040000 135606
                                    21:
                                              BIT
                                                      WERR, BRPDS
                                                                       COMPOSITE ERROR SET?
40 044716
           001407
                                              BEQ
                                                                       : TAKE BRANCH IF NOT
  044720
           004737
                    017326
                                              JSR
                                                      PC. SAVRPR
                                                                       GET THE REGISTER SNAPSHOT
42 044724
           104456
                                              TRAP
                                                      C$ERHRD
   044726
           000623
                                              . WORD
                                                      403
   044730
           011747
                                              . WORD
                                                      EM1
   044732
           014652
                                              . WORD
                                                      ERR3
43 044734
           000412
                                                                        AND TAKE EARLY EXIT
44 044736
           032777
                                                      ATRE, BRPCS1
                    040000
                           135546
                                              BIT
                                    34:
                                                                       TRANSFER ERROR SET?
45 044744
           001410
                                              BEQ
                                                                       : IF ZERO, WE'RE OK
46 044746
           004737
                    017326
                                              JSR
                                                      PC. SAVRPR
                                                                        GET THE REGISTER SNAPSHOT
47 044752
           104456
                                              TRAP
                                                      C$ERHRD
   044754
           000624
                                              . WORD
                                                      404
   044756
           012562
                                              . WORD
                                                      EM16
   044760
           014652
                                              . WORD
                                                      ERR3
48 044762
           004737
                    016662
                                     45:
                                              JSR
                                                      PC. SEIZE
                                                                       PURGE REMAINING ERRORS
```

49 044766 044766 044766 104401 50

5\$: L10115:

CSETST



1	.SBTTL SOFTWARE PARAMETER CODI	ING SECTION
2		AND SECTION
4 5 6 7 8 9 10	THE SOFTWARE PARAMETER CODING THAT ARE USED BY THE SUPERVIS MACROS ARE NOT EXECUTED AS MA INTERPRETED BY THE SUPERVISOR MACROS ALLOW THE SUPERVISOR T WITH THE OPERATOR.	OR TO BUILD P-TABLES. THE ACHINE INSTRUCTIONS BUT ARE AS DATA STRUCTURES. THE
12 045106 000022 045110	.WORD L10117-L\$S0FT/2	
) Y ?'		PRINT 'EXECUTE TEST 25., MASSBUS INTERFACE SWITCH TEST (L
14 045110 000130 045112 045154 045114 000001	.WORD T\$CODE .WORD MESG17 .WORD 1	
OG (L) Y ?'		PRINT 'EXECUTE TEST 52., PRINT CONTENTS OF INTERNAL ERROR L
16 045116 001130 045120 045234 045122 000001	.WORD T\$CODE .WORD MESG18 .WORD 1	
) N ?'		PRINT 'SELECT A TRACK FOR THE RPO7 INTERNAL RC-WRT TESTS (L
18 045124 002130 045126 045323 045130 000001	.WORD T\$CODE .WORD MESG20 .WORD 1	
20 045132 006044	.WORD T\$CODE	:GO TO 1\$ IF NO
21 22 045134 003052 045136 045405 045140 000037 045142 000000 045144 000037	.WORD T\$CODE .WORD MESG21 .WORD 37 .WORD T\$LOLIM .WORD T\$HILIM	PRINT 'TRACK ADDRESS (D) 0 ?'
23 045146 UTION (L) N ?'	14:	PRINT 'EXECUTE TEST 60., SELECT A MICRO-DIAGNOSTIC FOR EXEC
24 045146 004130 045150 045423 045152 000001	.WORD T CODE .WORD MESG22 .WORD 1	
25 32 33 045154	L10117: .EVEN /	
34 38 045154 105 130 105		25., MASSBUS INTERFACE SWITCH TEST/
39 045234 105 130 105 40 045323 123 105 114 41 045405 124 122 101 42 045423 105 130 105	MESG18::.ASCIZ /EXECUTE TEST S MESG20::.ASCIZ /SELECT A TRACK MESG21::.ASCIZ /TRACK ADDRESS/	52., PRINT CONTENTS OF INTERNAL ERROR LOG/ C FOR THE RPO7 INTERNAL RD-WRT TESTS/
44	.EVEN	
54 55 045516 56 63	\$PATCH::.BLKW 50.	PROGRAM PATCH AREA (50. WORDS)
045662 045702 045664 000006 045666	.EVEN .WORD T#FREE .WORD T#SIZE	

14					
16	045666	000000		. WORD	0
	045670	000004		. WORD	L10122/2-1
	045672		L10120:		
17	045672	176700		. WORD	176700
18	045674	000254		. WORD	254
19	045676	000240		. WORD	240
20	045700	000000		. WORD	0 .
21	045702		L10122:		
23		000001	.END		

AD 01:	1074 G	CONSET	020330	C\$SPRI=	000041	EM17	012622	•	COMTAZ	007404 C
	0020 G		040000						FRMT03	007404 G
				C\$SVEC=		EM2	012015		FRMT04	007426 G
AOE = 00:			020000	C\$TPRI=		EM20	012661		FRMT05	007474 G
ASSEMB = 000	0010	CR =	000015 G	DCK =	100000	EM21	012725	G	FRMT06	007545 G
ATA = 100	0000	CREADY	015134	DCU =	000040	EM22	012776		FRMT07	007574 G
	2566 G		006420 G		020532	EM23	013051		FRMT10	007624 G
ATO = 000										
			002432 G		002416 G	EM24	013126		FRMT11	007655 G
AT1 = 00		C\$AU =			002414 G	EM25	013167		FRMT12	007713 G
AT2 = 00	0004	C\$AUTO=	000061	DFPTBL	002320 G	EM26	013224	G	FRMT13	007756 G
AT3 = 000	0010	C\$BRK =	000022	DIAG =	000035	EM27	013266		FRMT14	010004 G
AT4 = 000		C\$BSEG=			015312	EM3	012055		FRMT15	010031 G
AT5 = 000		C\$BSUB-			015352	EM30				
							013326		FRMT16	010070 G
AT6 = 000		C*CEFG=		DIAGMC=		EM31	013362		FRMT17	010161 G
AT7 = 00		C\$CLCK=			015260 G	EM32	013411		FRMT20	010202 G
A16 = 00	0400	C\$CLEA=	000012	DLT =	100000	EM33	013441	G	FRMT23	010271 G
A17 = 00	1000	C*CLOS=	000035	DMD =	100000	EM34	013505		FRMT40	010337 G
BAI = 00		C\$CLP1=		DMPREG	016212	EM35	013564		FRMT41	010430 G
	0007 G	C\$CVEC-								
					000010	EM36	013641		FRMT50	010510 G
	7422 G	C DCLN=			000400	EM37	013701		FRMT51	010601 G
	7372 G	C\$DODU=		DRCLR =	000011	EM4	012100	G	FRMT60	010661 G
BITPOS OO	2400 G	C DRPT =	000024	DRIVER	015146	EM40	013753	G	FRMT61	010753 G
	0001 G	C\$DU =			004000	EM41	014026		FRMT70	011035 G
	0001 G	C\$EDIT-			000001	EM42	014075		FRMT71	011055 G
	0002 G									
		C\$ERDF=			000002	EM43	014130			002420 G
	0004 G	C\$ERHR=			000004	EM5	012116		F\$AU =	
BIT03 = 00	0010 G	C\$ERRO=			000010	EM6	012155	G	F\$AUTO=	000020
BIT04 = 00	0020 G	C#ERSF=	000054	DRT4 -	000020	EM7	012217	G	F BGN =	
BIT05 = 00	0040 G	C\$ERSO-			000040	ENDCYL	002374	Ğ	F\$CLEA-	
BIT06 = 00	0100 G	C\$ESCA-		DRT6 -	000100	ENDTRK	002370		F\$DU =	
	0200 G	C\$ESEG-						G		
					000200	ERR =	040000		F SEND =	
	0400 G	C\$ESUB=			000400	ERRCK	017032		F\$HARD=	
BIT09 = 00		C\$ETST=		DRVBLT	011477 G	ERROMP	002334		F\$HW =	000013
BIT1 = 00	0002 G	C\$EXIT=	000032	DRVCLR	015400	ERRVEC=	000004		F\$INIT=	000006
BIT10 = 00	2000 G	C#GETB=		DRVNO	002506 G	ERRW01	002404	G	F\$JMP =	
BIT11 = 00	4000 G	C#GETW=		DRVSN	002510 G	ERRWD2	002406		F\$MOD -	
BIT12 - 01	0000 G	C#GMAN-			000200	ERRO	014172		F#MSG =	
	0000 G									
		C#GPHR=		DS	011121 G	ERR1	014310		F \$PROT-	
BIT14 = 04		C#GPLO=			020000	ERR2	014500		F\$PWR -	
BIT15 = 10		C#GPRI=			006423 G	ERR3	014652		F\$RPT -	000012
BIT2 = 00	0004 G	C\$INIT-	000011	DTE -	010000	ERSTAT	002466	G	F\$SEG -	000003
BIT3 = 00	0010 G	C\$INLP=	000020		004000	EVL =	000004	G	F#SOFT=	000005
	0020 G	C\$MANI-	000050		000200	EWN -	000002		F\$SRV -	
	0040 G	CIMEM -			000100	EXPTED	002454	C	FACIE -	000010
	0100 G	C#MSG -				EAFIED	002434	G	F#SUB =	
					004000	E SEND -				000014
	0200 G	C OPEN=	000034	EC.00	004354	E\$LOAD=			F#TEST=	
	0400 G	C\$PNTB-	000014	EF.CON-	000036 G	FASTAT	002430	G	F1 =	200000
BIT9 = 00	1000 G	C\$PNTF=	000017	EF.NEW-	000035 G	FATOF	002470	G		000004
BLOWER 01	1361 G	C\$PNTS=		EF PHR=	000034 G	FAULTS	016556			000010
	0400 G	C\$PNTX=		FF DES-	000037 G		000020			000020
	0000	C#QIO -		EF STA-	0000037 G	FLOAT	000020			
				EF.SIA-	000040 G		020034	•		000040
	2410 G	C#RDBU-		EM1	011747 G	FLST00	007273			000001
	1151 G	C\$REFG=		EM11	012272 G	FLST01	007312	G	G\$CNTO-	
	6132	C#RESE=		EM12	012342 G	FMT =	010000		G\$DELM=	000372
	2426 G	C\$REVI=		EM13	012410 G	FORTRK=	000063		G\$DISP-	
	0040	C\$RFLA-		EM14	012454 G	FRMTOO	007161	G	G\$EXCP=	
	0000	C#RPT -		EM15	012523 G	FRMT01	007214		G\$HILI=	
CONTAN UZ	0202	C#SEFG=	000046	EM16	012562 G	FRMT02	007315	G	G\$LOLI=	000001

G\$N0 =	000000	J1	011161 G	L\$EXP4	002064 G	L10034	025032	MCUTXT	002676 G
G\$OFFS=		J10	011236 G	L\$EXP5	002066 G	L10035	025356		000400
G\$OFSI=		J11		L\$HARD					
			011243 G		044772 G	L10036	025536	MESG1	045036
G\$PRMA=		J12	011250 G	L\$HIME	002120 G	L10037	025730	MESG10	006577 G
G\$PRMD=		J13	011255 G	L\$HPCP	002016 G	L10040	026226	MESG11	006671 G
G\$PRML=	000000	J14	011262 G	L\$HPTP	002022 G	L10041	026524	MESG12	006763 G
G\$RADA=		J15	011267 G	LSHW	002320 G	L10042			
							027042	MESG13	011607 G
G\$RADB=		J16	011274 G	L\$ICP	002104 G	L10043	027360	MESG14	011667 G
G\$RADD=		J17	011301 G	L*INIT	020652 G	L10044	027632	MESG15	007062 G
G\$RADL=	000120	J2	011166 G	L\$LADP	002026 G	L10045	030100	MESG17	045154 G
G\$RADO=		J20	011306 G	L\$LAST	045666 G	L10046	030320	MESG18	045234 G
G\$XFER=			011717 C						
		J21	011313 G	L\$LOAD	002100 G	L10047	030512	MESG20	045323 G
G\$YES =		J3	011173 G	L\$LUN	002074 G	L10050	030622	MESG21	045405 G
HCE =	000200	J4	011200 G	L#MREV	002050 G	L10051	031014	MESG22	045423 G
HCI =	002000	J5	011205 G	L\$NAME	002000 G	L10052	031152	MESG4	045051
	000400	J6	011212 G	L\$PRIO	002042 G	L10053	031320	MESG5	045065
HDA	011320 G	J7	011217 C						
			011217 G	L\$PROT	020644 G	L10054	031444	MESG6	045076
	000000	J8	011224 G	L\$PRT	002112 G	L10055	031576	MOH =	020000
HERTZ	015750	J9	011231 G	L\$REPP	002062 G	L10056	031734	MOL =	010000
HOE =	100000 G	KWSRV	016104	L\$REV	002010 G	L10057	032134	MSGMOL	006452 G
	002000	KIRELA	011443 G	L\$RPT	020636 G				
						L10060	032300	MSGWLO	006522 G
	010000 G	LASCYL	002376 G	L\$SOFT	045110 G	L10061	032560	MSK	002450 G
	000040 G	LASTRK	002372 G	L\$SPC	002056 G	L10062	032716	MTD =	040000
IE =	000100	LBC =	002000	L\$SPCP	002020 G	L10063	033140	MTRBRK	011421 G
	020000 G		002000	L#SPTP	002024 G	L10064	033322		001000
	000004		001000	L#STA	002030 G		033322		
						L10065	033452		100000
ILF =	000001	LCLKTB	015740	L\$SW	002332 G	L10066	033730		010000
ILOCK	002460 G	LDZERO	017572	L\$TEST	002114 G	L10067	034030	NEGWRD	002412 G
ILR =	000002	LF =	000012 G	LSTIML	002014 G	L10070	034316	NEM =	004000
INTFLG	002462 G	LKS	015742	L\$UNIT	002012 G	L10071	034422	NEXLOC	017252
INTSRV	020630 G	LKV	015744	L10000					
IOBUFF					002330	L10072	034634		000015
	002730 G	LOCATE	017150	L10001	002344	L10073	035106	OCTHEX	015416
IR =	202700	LOE =	040000 G	L10002	014306	L10074	035204	OFFDIR=	000200
IRLOCK	017672	LOT =	000010 G	L10003	014476	L10075	035322		000001
ISR =	000100 G	L\$ACP	002110 G	L10004	014650	L10076	035500	ONEFIL=	
ITCOUN	002402 G	L\$APT	002036 G	L10005	014676	L10077			
							035756		020000
	004000 G	L\$AU	021506 G	L10006	016130	L10100	036230	OPRPNL	011455 G
	000100	L\$AUT	002070 G	L10007	020634	L10101	036740	OR =	000200
	000041	L\$AUTO	021346 G	L10010	020642	L10102	037710	ORLOCK	017706
I \$AUTO=	000041	L\$CCP	002106 G	L10012	021344	L10103	040136	O\$APTS=	
ISCLN =	000041	L+CLEA	021350 G	L10013	021346	L10104	040372	O\$AU =	000000
TADIL -	000041		000070 6					0+40	000000
TANDO -	000041	L#CO	002032 G	L10014	021476	L10105	040632	O\$BGNR=	000000
TALMO =	000041	L#DEPO	002011 G	L10015	021504	L10106	041164	O\$BGNS=	000001
I\$INIT=	000041	L#DESC	006362 G 002076 G	L10016	021512	L10107	041704	0\$DU =	000000
I \$MOD =	000041	L DESP	002076 G	L10017	021610	L10110	044012	O\$ERRT=	000000
TAMSG =	000041	L#DEVP	002060 G	L10020	021776	L10111	043036	O#GNSW=	000000
TAPPOT-	000040		002000 6	110020	022110	LIOITI	043030	0+042M-	000001
TADTAD	000040	L#DISP	002124 G	L10021	022140	L10112	043654	O\$POIN=	000001
	000041	L#DLY	002116 G	L10022	022300	L10113	044330	O\$SETU=	000001
I PWR =	000041	L#DTP	002040 G	L10023	022442	L10114	044622	PAR -	000010
I \$RPT =	000041	L\$DTYP	002116 G 002040 G 002034 G 021500 G	L10024	022772	L10115	044766		000020
ISSEG -	000041	L#DU	021500 6	L10025	023266	L10116	045036	PATCHT	000020
TACETH	000041	LADUT	002072 C		0232440	110110			002434 G
		L\$DUT	002072 G	L10026	023440	L10117	045154	PATT1	002344 G
	000041	L#DVTY	006354 G	L10027	023600	L10120	045672	PATT2	002346 G
I \$ SRV =	000041	L\$EF	002052 G	L10030	023770	L10122	045702	PATT3	002350 G
I\$SUB =	000041	L#ENVI	002044 G	L10031	024150	MASK	002446 G	PATT4	002352 G
	000041	L#ETP	002102 G	L10032	024332		020000	PATT5	002354 G
	000167		002045 G						
040111	000101	L\$EXP1	002046 G	L10033	024506	MCUTAB	004060 G	PATT6	002356 G

. ABS. 045702

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PATT7 002360 G	DDDC 003534 C	C41 CYM- 010000	T44011 - 040015	
PATT8 002362 G	RPDS 002524 G RPDT 002540 G	S\$LSYM= 010000 TABADD 002366 G	T\$\$DU = 010015 T\$\$HAR= 010116	T45 034636 G
PATT9 002364 G	RPEC1 002556 G	TAP = 040000	T\$\$HW = 010000	T46 035110 G T47 035206 G
PCLKTB 015724	RPEC2 002560 G	TEMP 002436 G	T##INI = 010012	T47 035206 G T48 035324 G
PGE = 100000	RPER1 002526 G	TERM 011325 G	T##MSG- 010005	T49 035502 G
PGM = 001000	RPER2 002552 G	TESTRG 002456 G	T\$\$PC = 000001	T5 022302 G
PHF = 000400	RPER3 002554 G	TRAKAD 002340	T##PRO= 010011	T50 035760 G
PIP = 020000	RPLA 002532 G	TRE = 040000	T\$\$PTA= 010121	T51 036232 G
PKB 015730	RPMR1 002536 G	TST03 004160 G	T\$\$RPT= 010010	T52 036742 G
PKC 015732	RPOF 002544 G	TST04 004172 G	T\$\$SEG= 010001	T53 037712 G
PKCS 015726	RPSN 002542 G	TST05 004204 G	T\$\$SOF= 010117	T54 040140 G
PKV 015734	RPVEC 002476 G	TST08 004216 G	T\$\$SRV= 010007	T55 040374 G
PNT = 001000 G	RPWC 002514 G	TST11 004232 G	T##SUB= 010112	T56 040634 G
PRELOD 017722 PRI = 002000 G	RTD = 000075 RWU1 = 002000	TST12 004244 G	T##SW = 010001	T57 041166 G
PRIOO = 000000 G	RWU2 = 004000	TST28 004256 G TST33 004272 G	T\$\$TES= 010115 T1 021514 G	T58 041706 G
PRIO1 = 000040 G	RWU3 = 010000	TST34 004302 G	T1 021514 G T10 023602 G	T58.1 042040 T58.2 043040
PRIO2 = 000100 G	SAVRPR 017326	TST49 004330 G	T11 023772 G	T59 044014 G
PRIO3 = 000140 G	SBE = 000004	T\$ARGC= 000001	T12 024152 G	T6 022444 G
PRIO4 = 000200 G	SC = 100000	T\$CODE= 004130	T13 024334 G	T60 044332 G
PRIO5 = 000240 G	SCF = 000002	T\$ERRN= 000624	T14 024510 G	T61 044624 G
PRIO6 = 000300 G	SC1 = 000100	T\$EXCP= 000000	T15 025034 G	T7 022774 G
PRIO7 = 000340 G	SC16 = 002000	T#FLAG= 000040	T16 025360 G	T8 023270 G
PSEL = 002000	SC2 = 000200	T#FREE= 045702	T17 025540 G	T9 023442 G
PSTACK 002652 G PTRANS 011376 G	SC32 = 004000	T\$GMAN= 000000	T18 025732 G	UAM = 000200 G
PTRANS 011376 G RCVED 002452 G	SC4 = 000400 SC64 = 010000	T\$HILI= 000037 T\$LAST= 000001	T19 026230 G	UNABLE 002464 G
RDDTA = 000071	SC8 = 001000	T\$LOLI= 000000	T2 021612 G T20 026526 G	UNIT 002472 G
RDHDTA= 000073	SDF = 000020	T#LSYM= 010000	T21 027044 G	UPE = 020000
RDY = 000200	SEARCH= 000031	T\$LTNO= 000075	T22 027362 G	US1 = 000001
READTD 011531 G	SEEK = 000005	T\$NEST= 177777	T23 027634 G	US2 = 000002
READY 015122	SEIZE 016662	T\$NS0 = 000000	T24 030102 G	US4 = 000004
RECAL = 000007	SELNUM 002424 G	T\$NS1 = 000005	T25 030322 G	VV = 000100
REG 002576 G REGSET 017452	SELRUN 002342	T#NS2 = 000003	T26 030514 G	WAIT 017000
REGSET 017452 RELEAS= 000013	SELTRK 002336 SENSOR 011341 G	T\$NS3 = 000003 T\$PCNT= 000000	T27 030624 G	WAITMS 016756
RESET 017474	SETUP 017744	T\$PTAB= 010121	T28 031016 G T29 031154 G	WATDRY 020372 WATIME 016776
RH 011132 G	SFPTBL 002332 G	T\$PTHV= 000001	T3 022000 G	WATIME 016776 WCE = 040000
RHEXT 002502 G	SIZE70 014700	T\$PTNU= 000001	T30 031322 G	WCF = 000040
RHTYPE 002504 G	SKI = 040000	T\$SAVL= 177777	T31 031446 G	WCKD = 000051
RIP = 000021	SNDIGT 006447 G	T#SEGL= 177777	T32 031600 G	WCKHD = 000053
RMR = 000004	SNK 002440 G	T\$SEKO= 010001	T33 031736 G	WLE = 004000
ROUTDO 002422 G	SPIRAL 017266	T#SEK1= 010003	T34 032136 G	WOR = 001000
RPADR 002474 G RPARDY 015042	SRC 002442 G	T#SIZE= 000006	T35 032302 G	WRDTA - 000061
RPAS 002530 G	SRCTMP 002444 G STOPCK 016054	T#SUBN= 000000	T36 032562 G	WRL = 004000
RPBA 002516 G	ST.CLK 015550	T\$TAGL= 177777 T\$TAGN= 010123	T37 032720 G T38 033142 G	WRTD = 000065 WRU = 000400
RPBAE 002562 G	ST.LCL 016016	T\$TEMP= 000000	T39 033324 G	WTCKD 011566 G
RPCC 002550 G	ST.PCL 015752	T#TEST= 000075	T4 022142 G	WTCKHD 011543 G
RPCS1 002512 G	SVCGBL = 000000	T#TSTM= 177777	T40 033454 G	X\$ALWA- 000000
RPCS2 002522 G	SVCINS= 000000	T\$TSTS= 000001	T41 033732 G	X\$FALS= 000040
RPCS3 002564 G	SVCSUB= 000000	T##AU = 010016	T42 034032 G	X\$0FFS= 000400
RPDA 002520 G	SVCTAG= 000000	T##AUT= 010013	T43 034320 G	X\$TRUE= 000020
RPDB 002534 G RPDC 002546 G	SVCTST= 000000	T##CLE= 010014	T44 034424 G	\$PATCH 045516 G
RPDC 002546 G	SWTTST 002332	T\$\$DAT= 010122		
ADC 045700	000			

SEQ 0208

ERRORS DETECTED: 0

VIRTUAL MEMORY USED: 32256 WORDS ( 126 PAGES)
DYNAMIC MEMORY AVAILABLE FOR 70 PAGES
CZRJMB.BIC.CZRJMB/C=[20,0]SVC34R.MLB.[20,12]CZRJMB.DOC.CZRJMB.HIS.CZRJMB

C11033 11	E. FILEIAGE	INDEE (C	NE! 104.0	0 ,										
\$\$\$ERR \$\$\$MFG \$\$\$NOT \$PATCH	14-531 2-17 15-42 98-55¢	2-30 60-25	6-3 87-23	7-362 95-33	7-424									
A16 A17 AD ADR	12-7# 12-8# 13-128 11-57#	17-33 17-33 16-3¢	17-38 17-38	49-29 49-37	49-30 49-41	49-34 50-31	49-61 50-32	49-65 50-36	50-39 50-63	50-43 50-67	50 -80			
AOE ASSEMB ATO AT1	12-87# 7-373 12-103# 12-104#	7-373												
AT2 AT3 AT4 AT5	12-106# 12-106# 12-107# 12-108#													
ATA ATA ATABIT	12-1090 12-1100 12-730 13-890	76-17 30-75	76-21	77-36	77-41	77-55	77-61	77-65	80-40	80-44	90-39	90-43		
BELL	12-284													
BICEXP	23-65¢ 55-28 89-45	41-44 56-31 92-76	41-78 58-28 92-82	42-62 65-28	49-39 66-24	49-63 73-29	49-76 74-23	50-41 75-55	50-65 76-19	50-78 77-63	51-39 81-18	52-41 83-29	53-29 89-33	54-28 89-39
BISEXP	23-58¢ 53-29 75-37	41-54 53-29 77-39	41-62 53-29 80-42	41-69 54-28 82-23	42-42 54-28 90-41	42-54 54-28 93-261	46-39 55-28 93-282	46-45 55-28	49-32 55-28	49-52 56-31	50-34 56-31	50-54 56-31	51-28 57-26	52-30 75-31
BITO	11-57¢ 49-78	14-68 53-29	14-138 53-29	14-162 53-29	14-259 53-29	14-435 53-29	14-489 54-28	14-499 54-28	14-501 55-28	20-59 55-28	27-15 56-31	49-50 56-31	49-54	49-74
BITOO BITO1 BITO2 BITO3	11-57 11-57 11-57 11-57	11-570 11-570 11-570 11-570				30.27	34-20	54.50	33-20	33-20	30-31	20-21	86-58	
BITO4 BITO5 BITO6 BITO7 BITO8	11-57 11-57 11-57 11-57	11-57¢ 11-57¢ 11-57¢ 11-57¢												
BIT09	11-57 11-57	11-570												
BIT1	11-570 38-18 50-56 62-36 91-89	14-68 39-20 50-76 63-29 92-66	14-84 40-19 51-20 64-23 92-86	14-132 41-36 52-22 65-32	14-136 42-33 53-29 66-28	14-138 43-40 54-28 67-18	14-156 44-29 54-28 68-16	14-162 45-29 54-28 70-62	14-164 46-29 54-28 71-33	14-174 47-23 55-28 73-37	14-178 48-23 56-31 81-22	14-234 49-25 57-19 82-27	14-236 50-28 58-20 84-57	37-29 50-52 61-25 85-31
BIT10	11-57¢ 71-32 93-212	14-137 73-36 93-229	14-260 78-22	92-105 22-93 79-34	92-109 58-19 79-44	93-116 60-44 80-36	93-152 61-24 80-54	93-193 62-35 81-21	93-213 63-28 82-26	93-230 64-22 84-56	93-335 65-31 85-30	94-56 67-17 91-88	68-15 93-151	70-60 93-192
BIT11	11-57¢ 14-304 14-332	14-139 14-306 14-334	14-206 14-308 14-336	14-208 14-310 14-338	14-218 14-312 14-340	14-258 14-314 14-342	14-260 14-316 14-344	14-270 14-318 14-346	14-290 14-320 14-348	14-294 14-322 14-350	14-296 14-324 14-352	14-298 14-326 14-354	14-300 14-328 14-356	14-302 14-330
	14-360 14-442 75-41	14-362 22-90 75-59	14-364 58-19 76-22	14-366 60-44 77-66	14-368 63-28 78-22	14-370 64-22 79-44	14-372 65-31 83-32	14-374 66-27 84-56	14-376 67-17 85-30	14-378 68-15 89-48	14-386 70-52 90-44	14-388 72-39 92-65	14-428 73-36 92-85	14-358 14-432 74-27 92-104
BIT12	92-108 11-57#	93-334 14-139	94-47 14-260	94-55 22-96	96-26 58-19	60-44	61-24	62-35	63-28	64-22	65-31	67-17	68-15	70-60

CHUSS H	ELEKENCE	IMPLE (C)	KEF V04.00	,										
	71-32 93-192	73-36 93-212	78-22 93-229	79-34	79-44	80-36	80-54	81-21	82-26	84 - 56	85-30	91-88	93-142	93-151
BIT13	11-57#	14-139	14-258	14-270	14-290	14-424	14-430	14-432	14-434	14-446	14-448	14-450	14-452	14-454
DITTA	14-456	14-458	14-460	14-462	14-466	93-142	93-151	93-192	93-212	93-229				
BIT14	11-570	14-199	14-258	14-290	14-434	14-446	14-448	14-466	14-468	14-470	14-498	93-143	93-145	
BIT15	11-574	14-139	14-258	14-290	14-466	14-470	14-486	14-488	14-490	14-492	14-494	14-496	14-498	14-500
BIT2	14-502	14-504 14-68	20-25	93-148 55-28	55-28	55-28	ER 20	60 AE	61 25	60 76	67 20		/F 70	
0112	68-16	70-62	71-33	73-37	81-22	82-27	58-20 84-57	60-45 85-31	61-25	62-36	63-29	64-23	65-32	67-18
	93-152	93-193	93-213	93-230	93-335	94-56	04-57	92-21	91-89	92-66	92-86	92-105	92-109	93-116
BIT3	11-574	14-60	14-62	14-64	14-66	14-86	14-88	14-90	14-92	14-94	14-96	14 00	14 100	14 142
01.5	14-144	14-146	14-148	14-150	14-152	14-154	14-156	14-162	14-164	14-166	14-168	14-98 14-170	14-100	14-142 14-174
	14-176	14-178	14-180	14-182	14-184	14-186	14-188	14-190	14-192	14-194	14-196	14-198	14-200	14-202
	14-206	14-208	14-210	14-214	14-230	14-232	14-234	14-236	14-394	56-31	56-31	56-31	61-25	14-505
BIT4	11-570	14-60	14-62	14-64	14-66	14-84	14-88	14-92	14-98	14-100	14-142	14-144	14-146	14-148
	14-150	14-152	14-154	14-156	14-158	14-160	14-166	14-168	14-170	14-176	14-180	14-182	14-184	14-186
	14-188	14-190	14-192	14-194	14-196	14-198	14-200	14-204	14-206	14-210	14-222	14-224	14-226	14-228
	14-230	14-238	14-240	14-242	14-244	14-246	14-248	14-250	14-252	14-254	14-256	14-284	14-286	14-288
	14-390	14-392	14-394	14-396	14-398	14-400	14-402	60-45	78-23	81-22		2. 50.	24 200	24-200
BIT5	11-574	14-60	14-62	14-64	14-66	14-69	14-86	14-90	14-94	14-96	14-138	14-140	14-142	14-144
	14-146	14-148	14-154	14-162	14-166	14-168	14-170	14-172	14-176	14-200	14-202	14-206	14-208	14-210
	14-212	14-214	14-222	14-224	14-226	14-228	14-282	14-400						
BIT6	11-574	14-38	14-40	14-42	14-44	14-46	14-48	14-50	14-52	14-54	14-56	14-58	14-70	14-72
	14-74	14-76	14-78	14-80	14-82	14-84	14-126	14-128	14-130	14-132	14-136	14-138	14-198	14-206
	14-208	14-222	14-224	14-230	14-258	14-262	14-268	14-304	14-376	14-480	86-20	92-65	92-108	93-115
	94-55													
BIT7	11-57#	14-61	14-63	14-65	14-67	14-138	14-139	14-141	14-143	14-145	14-147	14-149	14-155	14-167
	14-169	14-171	14-177	14-198	14-201	14-207	14-216	14-218	14-258	14-259	14-260	14-264	14-268	14-270
	14-276	14-280	14-282	14-290	14-291	14-296	14-300	14-304	14-310	14-312	14-314	14-316	14-318	14-336
	14-338	14-376	14-378	14-474	14-488	14-489	14-491	14-493	14-495	14-499	14-501	61-24	63-28	64-22
BITB	65-31 11-57¢	66-27	67-17	68-15	69-21	70-58	85-30	86-20	92-65	92-108	93-115	94-55		
0110	14-292	14-84	14-102	14-108	14-206 14-432	14-208	14-258	14-264	14-266	14-268	14-270	14-272	14-274	14-276
	67-18	68-16	72-43	73-37	75-41	77-38	14-474	58-20	60-45	61-25	62-36	63-29	64-23	65-32
	92-85	92-86	92-104	92-105	92-108	93-115	93-116	81-22 93-151	82-27 93-152	84-57 93-192	85-31 93-193	91-89 93-212	92-65	92-66 93-229
	93-230	93-334	93-335	94-55	94-56	33-113	33-110	73-131	33-135	33-135	33-133	33-515	93-213	33-553
BIT9	11-570	14-102	14-104	14-106	14-108	14-110	14-112	14-114	14-116	14-118	14-120	14-122	14-124	14-132
	14-139	14-258	14-263	14-264	14-266	14-268	14-270	14-272	14-274	14-290	14-292	14-422	14-424	14-426
	14-428	14-430	14-432	14-434	14-438	14-448	14-470	14-472	14-498		75-41	77-38	77-42	91-88
	92-65	92-85	92-104	92-108	93-115	93-151	93-192	14-472 93-212	14-498 93-229	72-43 94-55	13-41	11-50	11-46	71-00
BITPOS	13-234	18-14	18-21	30-744	30-754	93-151 79-29	80-30							
BLOWER	13-134	16-300												
BOE	11-570													
BSE	12-1810													
BYTCHT	13-270													
C\$AU	7-3730	34 - 35												
C\$AUTO	7-3734	31-18												
C\$BRK	7-3734	18-33	18-44	24-36	24-48									
C\$BSEG	7-3730	37-21	37-33	38-21	38-21	38-21	38-21	39-22	39-22	39-22	39-22	40-21	40-21	40-21
	40-21	41-38	41-39	41-50	42-35	42-36	43-42	43-42	43-42	43-42	44-31	45-31	45-34	46-31
	47-27	47-27	47-27	47-27	48-25	48-25	48-25	48-25	49-28	49-46	49-59	49-70	50-30	50-48
	50-61	50-72	51-24	51-35	52-24	52-37	53-29	53-29	53-29	54-28	54-28	54-28	55-28	55-28
	55-28	56-31	56-31	56-31	57-21	57-34	58-22	58-35	59-16	60-37	61-17	62-15	63-17	64-25
	64-25	64-25	64-25	65-20	66-14	67-21	68-20	69-25	69-25	69-25	69-25	70-36	71-19	72-20
	73-15	74-19	75-23	76-14	77-30	78-15	79-24	80-26	81-14	82-16	83-23	86-25	86-41	86-60
	86-82	88-30	89-25	90-25	91-54	92-52	92-69	92-90	93-106	93-120	93-197	93-238	93-321	94 - 32

CHUSS H	ELEVENCE	INDLE (C	NEF 904.00	, ,										
C\$BSUB	94-53 7-373#	95-72 93-105	93-227											
C\$CEFG C\$CLCK C\$CLEA C\$CLOS	7-373¢ 7-373¢ 7-373¢ 7-373¢	20-101 32-57	20-120											
C\$CLP1 C\$CVEC C\$DCLN C\$DODU	7-3734 7-3734 7-3734 7-3734	32-26	32-29	32-31	36-64	57-49	58-47	59-37						
C\$DRPT C\$DU C\$EDIT C\$ERDF	7-373¢ 7-373¢ 7-373¢ 7-373¢	33-34 7-427 22-21												
C\$ERHR	7-373# 42-45 50-68 55-28	18-20 42-57 50-81 55-28	23-101 42-65 51-31 55-28	24-26 44-43 51-42 55-28	25-69 45-48 52-33 56-31	25-106 46-48 52-44 56-31	36-67 49-35 53-29 56-31	37-30 49-42 53-29 56-31	37-41 49-55 53-29 57-29	41-47 49-66 53-29 57-40	41-57 49-79 54-28 58-31	41-65 50-37 54-28 58-41	41-72 50-44 54-28 59-31	41-81 50-57 54-28 60-46
	61-26 77-67 86-70 93-222	62-37 78-24 86-92 93-248	63-30 79-36 88-35 93-264	65-33 79-46 89-50 93-276	66-29 80-38 90-46 93-285	70-66 80-45 91-90 93-303	71-34 80-56 92-67 93-309	72-44 81-23 92-87 93-336	73-38 82-28 92-106 94-51	74-34 83-34 92-110 94-66	74 - 36 84 - 58 93 - 117 95 - 77	75-43 85-42 93-156 96-37	75-61 86-35 93-194 96-42	76-24 86-52 93-217 96-47
C\$ERSO C\$ERSO C\$ESCA	7-373¢ 7-373¢ 7-373¢ 7-373¢							70 000		7.00		70-31	30-42	30-47
C\$ESEG	7-373¢ 40-21 47-27 50-71	37-32 41-49 47-27 50-84	37-43 41-59 47-27 51-34	38-21 41-83 47-27 51-45	38-21 42-47 48-25 52-36	38-21 42-67 48-25 52-47	38-21 43-42 48-25 53-29	39-22 43-42 48-25 53-29	39-22 43-42 49-45 53-29	39-22 43-42 49-58 54-28	39-22 44-47 49-69 54-28	40-21 45-52 49-82 54-28	40-21 45-58 50-47 55-28	40-21 46-50 50-60 55-28
	55-28 64-25 73-40 86-96	56-31 64-25 74-38 88-39	56-31 64-25 75-63 89-52	56-31 65-38 76-26 90-48	57-31 66-33 77-69 91-92	57-42 67-38 78-26 92-68	58-33 68-48 79-48 92-89	58-43 69-25 80-58 92-112	59-33 69-25 81-25 93-119	60-47 69-25 82-30 93-196	61-28 69-25 83-36 93-225	62-39 70-68 86-39 93-315	63-32 71-36 86-56 93-338	64-25 72-46 86-74 94-52
C\$ESUB C\$ETST	94-75 7-3730 7-3730	95-81 93-226	93-320											
CVETST	49-85 63-35 77-72	36-71 50-87 64-28 78-29	37-46 51-49 65-41 79-51	38-24 52-51 66-36 80-61	39-25 53-30 67-41 81-28	40-24 54-29 68-51 82-33	41-86 55-29 69-28 83-40	42-70 56-32 70-72 84-64	43-46 57-50 71-39 85-74	44-50 58-48 72-50 86-106	45-61 59-40 73-43 87-115	46-53 60-56 74-41 88-72	47-30 61-31 75-66 89-56	48-28 62-42 76-29 90-52
CSEXIT	91-95 7-373¢ 54-28 93-93	92-113 30-20 55-28 93-101	93-339 30-126 56-31 94-41	94-76 32-42 58-32 95-36	95-83 41-34 60-28 95-41	96-49 46-27 60-31	47-21 60-36	48-21 77-52	49-49 83-22	49-73 87-26	50-51 89-24	50-75 90-24	52-20 91-51	53-29 92-51
C\$GETB C\$GETW C\$GMAN C\$GPHR C\$GPLO	7-3730 7-3730 7-3730 7-3730 7-3730	60-33 30-37	60-49	95-44										
C\$GPRI C\$INIT	7-373¢ 7-373¢	30-141												
C\$INLP C\$MANI C\$MEM	7-373¢ 7-373¢ 7-373¢	60-29	95-39											
C\$MSG C\$OPEN	7-373¢ 7-373¢	16-105	16-124	16-136	16-142									

OSS R	RP07 FE/	TABLE (CR	REF V04.00	))										EQ 021
PNTB	7-373# 21-12	16-99 21-18	16-100 93-249	16-104 93-304	16-112	16-117	16-123	16-128	16-129	16-130	16-132	16-135	16-141	21-9
PNTF	7-373# 87-76 93-139 7-373#	26-17 87-82 94-37	26-26 87-89 95-43	30-27 87-91	30-82 87-96	30-95 87-106	30-100 87-112	77-47 89-20	83-18 90-20	87-45 91-47	87-52 92-47	87-58 93-92	87-64 93-97	87-70 93-13
PNTX QIO RDBU	7-373¢ 7-373¢ 7-373¢	20-218	20-219	20-221	20-222	20-224	20-225	20-229	20-230					
REFG RESE REVI RFLA	7-373¢ 7-373¢ 7-373¢ 7-373¢	30-12 7-373# 7-427	30-16 30-10	30-22										
RPT	7-373# 7-373#	28-75												
SPRI SVEC IPRI	7-373¢ 7-373¢ 7-373¢	32-18 20-154	47-26 20-161	51-23 36-62	51-48 57-32	52 - 26 58 - 34	52-50 59-15	57-35	58-36	59-26	59-39			
LMOD KSTA R	13-126 16-119 13-35¢ 12-30¢ 54-28	16-6# 20-193# 20-98* 22-9 55-28	20-116* 23-94 56-31	20-131* 30-71 57-46	20-169 32-20 58-24	32-22 37-35 58-44	41-40 59-18	41-74 59-34	46-32 63-18	49-60 70-39	50-62 75-45	51-36	52-38	53-2
DD MPAR	12-156# 25-87# 64-25	91-64 38-21 67-24	92-53 38-21	93-128 39-22	93-187 39-22	93-207 40-21	93-325 40-21	43-42	43-42	47-27	47-27	48-25	48-25	64-2
NSET E J	25-118# 12-192# 12-191# 15-12	38-21	68-44 39-22	69-25 40-21	69-25 43-42	47-27	48-25	64-25	69-25					
EADY F TORE	18-44¢ 15-39¢ 13-37¢ 12-93¢	18-46 16-104 25-30*	19-26 16-123 25-52	16-132 25-76*	16-135 25-78*	16-141 25-120*	21-18 91-55*	30-27 91-69*	30-100 91-83	87-96	87-112			
CODE SCYL STRK	12-173# 16-98 13-30# 13-29# 94-58*	16-120 19-17 19-18 94-59*	16-127 23-20 23-16 94-684	27-10# 23-22# 23-18# 94-69#	91-574 23-23*	92-40¢ 91-58¢	92-41¢ 92-42¢	93-103* 93-102*	93-104* 93-127*	93-141 93-136	93-165 93-158*	94-57* 93-159	93-228*	93-2
AGEN AGED AGMC	9-9¢ 12-212¢ 20-9¢ 20-24¢ 7-373	19-14 32-16 22-115 7-373	19-21 86-38 87-36	19-41 86-55 88-31	20-12 86-73 95-73	20-26 86-95	32-14 87-114	86-19 88-71	87-29 95-82					
AGST	19-39¢ 12-40¢	87-33	88-27	95-70										
REG	12-98¢ 16-101 12-171¢ 12-66¢	70-38 16-118	70-41 16-139	70-45 20-217#	70-47	70-65	88-38	92-54	92-91	93-108	95-80			
LR VER	12-207¢ 19-12¢ 93-109 12-128¢ 12-119¢	20-9 19-42 93-131 63-22	70-46 20-10 93-188 63-24	77-54 20-13 93-210	88-36 20-27 93-242	95-78 86-27 93-257	86-44 93-290	86-62 93-323	86-84 93-328	88-37 94-44	91-68 94-61	92-58 94-71	92-72 95-79	92-9

CZRJMBO RPO7 FE/HOST	TOOL ATOD MACDO	VOA 00 1 F	TEC 92 10	TO TO DACE	CE
CZRJIIDU KPUT FEZHUST	TOUCHTUR MACKU	VU4.00 1-L	DEC -02 10	1:39:09 PAGE	3-3
CROSS REFERENCE TABLE	CODEE VOA OO	)			
CHUSS HEI ENERGE INDE	LILLI VUS.UU	,			

SEQ 0213

C11033 1	ILI ENLINGE	INDEE (C	NE! 104.00	,										
DRT2 DRT3 DRT4 DRT5 DRT6 DRT7 DRT8 DRVBLT DRVCLR  DRVNO DRVSN DRY DS DSE DSNMSG DTE DVA DVC E\$END E\$LOAD EC.00 ECH ECI EF.CON EF.NEW EF.PWR EF.RES	11-57¢ 11-57¢ 11-57¢	7-427 20-196	86-54 93-134 20-219 60-38 30-95	86-72 93-140 22-10 61-18	86-94 93-195 26-11 62-16	87-35 93-223 26-17 62-19	87-47 93-251 26-26 62-26	87-53 93-286 30-58* 63-19	87-59 93-310 30-72 70-37	87-65 94-33 30-82 70-40	87-71 94-54 32-21 70-44	87-77 94-70 41-41 75-46	87-84 41-75 77-53	87-97 46-33
EF.STA EM1 EM11	11-57# 16-44# 16-52#	74-36 36-67	75-61	96-42										
EM12 EM13 EM14 EM15 EM16 EM17 EM2	16-53¢ 16-54¢ 16-55¢ 80-56 16-56¢ 16-57¢ 16-58¢	37-41 25-69 85-42 23-101 41-47 42-45 96-37	25-106 86-35 24-26 58-31	44-43 86-52 60-46 81-23	45-48 86-70 78-24 96-47	49-42 86-92	50-44 92-67	62-37 92-110	63-30 93-222	72-44 93-309	76-24 93-336	77-67 94-51	79-36 94-66	80-38
EM20 EM21 EM22	16-60# 16-61# 16-62# 54-28	82-28 37-30 54-28	92-106 41-57 54-28	41-65 55-28	41-72 55-28	49-35 55-28	49-55 56-31	50-37 56-31	50-57 56-31	51-31 57-29	52-33 61-26	53-29 75-43	53-29 80-45	53-29 93-264
EM23 EM24 EM25 EM26 EM27 EM3	93-285 16-63¢ 70-66 16-64¢ 16-65¢ 16-66¢ 16-67¢ 16-46¢	41-81 71-34 57-40 58-41 59-31 22-21	49-66 73-38	49-79 79-46	50-68 83-34	50-81 92-87	51-42	52-44	53-29	54-28	55-28	56-31	65-33	66-29
EM30 EM31 EM32 EM33	16-69¢ 16-70¢ 16-71¢ 16-72¢	89-50 91-90 93-117 46-48	90-46 93-217	93-303										

CHO33 H	EL ENEINCE	INDLE (Ch	EF V04.00	, ,										
EM34 EM35 EM36 EM37	16-73# 16-74# 16-75# 16-76#	93-276 88-35 84-58 93-156	95-77											
EM4 EM40 EM41 EM42 EM43 EM5 EM6	16-47# 16-78# 16-79# 16-80# 16-81# 16-48# 16-49#	93-248 93-194 74-34 18-20 42-57 42-65												
EM7 ENDCYL ENDTRK ERR	16-50# 13-21# 13-19# 12-72#	30-60 30-59 22-61	22-66	74-21	74-25	75-35	75 70	75 57	75 57	74.04				
	77-65	83-27	83-31	91-70	92-80	92-84	75-39 92-100	75-53 96-39	75-57	76-21	77-36	77-41	77-55	77-61
ERRO	16-96# 42-65 51-31	23-101 44-43 51-42	24-26 45-48 52-33	25-69 46-48 52-44	25-106 49-35 53-29	37-30 49-42 53-29	37-41 49-55 53-29	41-47 49-66 54-28	41-57 49-79 54-28	41-65 50-37 54-28	41-72 50-44 55-28	41-81 50-57 55-28	42-45 50-68	42-57 50-81
	56-31 73-38 82-28	56-31 74-34 83-34	57-29 74-36 84-58	58-31 75-43 85-42	58-41 75-61 86-35	60-46 76-24 86-52	61-26 77-67 86-70	62-37 78-24 86-92	63-30 79-36 89-50	65-33 79-46 90-46	66-29 80-38 91-90	70-66 80-45	55-28 71-34 80-56	56-31 72-44 81-23
FDD4	92-110	93-117	93-194	93-222	93-248	93-264	93-285	93-309	93-336	94-51	94-66	92-67	92-87	92-106
ERR1 ERR2	16-107# 16-126#	18-20 93-156	88-35 93-217	95-77 93-276	93-303									
ERR3	16-1384	96-37	96-42	96-47										
ERRCK ERRDMP	22-60#	93-112 87-21	93-189	93-219	93-243	93-291	93-306							
ERRVEC	17-10	17-13	17-14+	17-41+										
ERRWD1	13-25¢ 45-28¢	20-1994	20-205*	27-10 48-22*	30-64± 49-26±	32-9* 50-27*	37-28*	38-194	39-19+	40-18*	41-35+	42-32+	43-39+	44-28*
	60-44*	61-24+	62-35*	63-28*	64-22*	65-314	51-19± 66-27±	52-21 <b>*</b> 67-17 <b>*</b>	53-29 <b>*</b> 68-15 <b>*</b>	54-28* 69-21*	55-28* 70-52*	56-31 <b>*</b> 70-58 <b>*</b>	57-18 <b>*</b> 70-60 <b>*</b>	58-19* 71-32*
	72-394 80-544	72-43± 81-21±	73-364	74-274	75-414	75-59#	76-22*	77-38+	77-42+	77-66*	78-22+	79-34+	79-44*	80-36*
	93-115*	93-151*	82-26*	83-32 <b>*</b> 93-212 <b>*</b>	84-56*	85-30¢ 93-334¢	86-204	89-48 <b>*</b> 94-55 <b>*</b>	90-44*	91-88*	92-65*	92-85*	92-104#	92-108*
ERRWD2	13-26#	20-200+	20-206*	30-65*	32-10+	37-29*	38-18+	39-20+	40-19+	41-36+	42-33+	43-40*	44-29*	45-29#
	61-25*	47-23*	48-234	49-254	50-28 <b>*</b> 65-32 <b>*</b>	51-20¢ 66-28¢	52-22 <b>*</b> 67-18 <b>*</b>	53-29 <b>*</b> 68-16 <b>*</b>	54-28*	55-28 <b>*</b> 70-55 <b>*</b>	56-31 <b>*</b> 70-62 <b>*</b>	57-194 71-33*	58-20* 72-40*	60-45 <b>*</b> 73-37 <b>*</b>
	74-26*	75-42*	75-60#	76-23+	77-34+	78-23*	79-35+	79-45*	80-37#	80-55*	81-22*	82-27*	83-33*	84-57#
	85-31 <b>*</b> 93-335 <b>*</b>	86-21 <b>*</b> 94-48 <b>*</b>	89-49* 94-56*	90-454	91-89*	92-66*	92-86*	92-105*	92-109*	93-116*	93-152*	93-193*	93-213*	93-230*
ERSTAT	13-510	22-60*	22-74*	30-694	32-11*	70-34+	70-434	70-49#	70-50	70-53	70-56	70-69*	72-26*	72-31*
EVL	72-35* 11-57#	72-36	72-41	72-474	93-113	93-190	93-220	93-244	93-292	93-307				
EWN	12-624													
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	63-21*	63-24*	63-25	70-64#	71-22*	72-25*	73-35*	75-514	78-194	79-294	60-43 <b>*</b> 79-30	61-22 <b>*</b> 79-38	62-27*	62-32 80-30*
	80-32 86-894	80-47 <b>*</b> 86-90 <b>*</b>	80-48 90-34*	80-494 91-534	80-50	84-55*	85-414	85-70*	86-32*	86-33*	86-49+	86-50*	86-67*	86-68*
F\$AU	7-3734	34-9	34 - 35	71-33+	91-81	92-62*	92-974	93-154*	93-2724	93-331+	94-494	94-64*		
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	40-11	40-21	40-21	40-21	40-21	40-24	41-31	41-34	41-38	41-39	41-50	41-86	42-31	42-35
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F\$CLEA F\$DU	42-36 45-61 48-25 50-30 52-37 55-27 57-34 60-37 64-25 68-51 72-20 77-28 81-14 86-25 89-56 92-113 93-321 96-51 7-373# 7-373#	42-70 46-24 48-25 50-48 52-51 55-28 57-50 60-56 64-25 69-20 72-50 77-30 81-28 86-41 90-15 93-87 93-339 97-42 32-8 33-8	43-37 46-27 48-25 50-51 53-28 55-28 58-18 61-15 64-28 69-25 73-13 77-52 82-14 86-60 90-24 93-93 94-31 97-52 32-57 33-34	43-42 46-31 48-25 50-61 53-29 55-28 58-22 61-17 65-18 69-25 73-15 77-72 82-16 86-82 90-25 93-101 94-32 98-12	43-42 46-53 48-28 50-72 53-29 55-28 58-32 61-31 65-20 69-25 73-43 78-13 82-33 86-106 90-52 93-105 94-41 98-64	43-42 47-18 49-24 50-75 53-29 55-29 58-35 62-13 65-41 69-25 74-17 78-15 83-13 87-20 91-42 93-105 94-53 99-15	43-42 47-21 49-28 50-87 53-29 56-30 58-48 62-15 66-12 69-28 74-19 78-29 83-22 87-26 91-51 93-106 94-76 99-16	43-46 47-27 49-46 51-18 53-30 56-31 59-13 62-42 66-14 70-33 74-41 79-22 83-23 87-115 91-54 93-120 95-30 99-16	44-26 47-27 49-49 51-24 54-27 56-31 59-16 63-15 66-36 70-36 75-21 79-24 83-40 88-24 91-95 93-197 95-36	44-31 47-27 49-59 51-35 54-28 56-31 59-40 63-17 67-14 70-72 75-23 79-51 84-18 88-30 92-39 93-226 95-41 99-22	44-50 47-27 49-70 51-49 54-28 56-31 60-22 63-35 67-21 71-17 75-66 80-24 84-64 88-72 92-51 93-227 95-72	45-26 47-30 49-73 52-17 54-28 56-32 60-28 64-20 67-41 71-19 76-12 80-26 85-25 89-15 92-52 93-227 95-83	45-31 48-18 49-85 52-20 54-28 57-17 60-31 64-25 68-14 71-39 76-14 80-61 85-74 89-24 92-69 93-238 96-25	45-34 48-21 50-26 52-24 54-29 57-21 60-36 64-25 68-20 72-18 76-29 81-12 86-17 89-25 92-90 93-320 96-49
F\$END	7-373 7-373 28-60 36-60 38-17 40-17 41-86 43-46 46-24 47-30 49-49 50-75 52-20 54-27 55-28 57-17 59-13 60-56 63-15 65-18 67-38 67-38 67-38 67-38 67-38 67-38 67-38 69-25 71-39 74-17 76-26 78-29 81-12 83-13 85-74 87-115 89-56 91-95 93-33 99-15	7-373 7-373 28-75 36-60 38-21 40-17 42-31 44-26 46-24 48-18 49-58 50-84 52-36 54-27 55-28 57-17 59-13 61-15 63-15 63-15 65-18 67-41 69-28 72-18 74-17 76-29 78-29 81-12 83-22 86-17 87-115 90-15 92-39 93-39 95-81 99-16	7-373 7-373 30-20 36-60 38-21 40-17 42-31 44-26 46-27 48-18 49-69 50-87 52-47 55-29 57-31 59-13 61-15 63-32 65-38 67-41 69-28 72-18 74-38 76-29 79-22 81-12 83-36 86-17 88-24 90-15 92-39 93-105 94-31 95-83 99-21	7-373 7-399 30-126 36-71 38-21 40-21 42-31 44-26 46-50 48-18 49-73 50-87 52-51 54-28 55-29 57-42 59-33 61-15 63-35 65-41 68-14 70-33 72-18 74-41 77-28 79-22 81-25 83-40 86-17 88-24 90-15 92-39 93-119 94-31 95-83 99-22	7-373 10-26 30-141 36-71 38-24 40-21 42-67 44-47 46-53 48-21 49-82 51-18 52-51 54-28 56-30 57-50 59-40 61-28 63-35 65-41 68-14 70-33 72-46 74-41 77-28 79-22 81-28 83-40 86-39 88-24 90-24 92-51 93-196 94-31 96-25	7-373 11-51 31-18 37-19 38-24 40-21 42-70 44-50 46-53 48-25 49-85 51-18 53-28 54-28 56-30 57-50 59-40 61-31 64-20 66-12 68-14 70-33 72-50 75-21 77-28 79-48 81-28 84-18 86-56 88-39 90-48 92-68 93-225 94-41 96-25	7-373 16-105 32-42 37-19 39-18 40-24 42-70 44-50 47-18 48-25 49-85 51-18 53-28 54-28 56-30 58-18 60-22 61-31 64-20 66-12 68-48 70-68 72-50 75-21 77-52 79-51 82-14 84-18 86-74 88-72 90-52 93-226 94-52 96-25	7-373 16-124 32-57 37-19 39-18 40-24 43-37 45-26 47-18 48-25 50-26 51-34 53-28 54-29 56-31 58-18 60-22 62-13 64-20 66-12 68-51 70-72 73-13 77-69 79-51 82-14 84-18 86-96 88-72 90-52 92-112 93-226 94-75 96-49	7-373 16-136 33-19 37-32 39-18 41-31 43-37 45-26 47-18 48-28 50-26 51-45 53-29 54-29 56-31 58-18 60-22 62-13 64-25 66-33 68-51 70-72 73-13 75-63 77-72 80-24 82-14 84-64 86-106 89-15 91-42 92-113 93-227 94-76 96-49	7-373 16-142 33-34 37-43 39-22 41-31 43-37 45-26 47-21 48-28 50-26 51-49 53-29 55-27 56-31 58-32 60-28 62-13 64-25 66-36 69-20 71-17 73-13 75-66 77-72 80-24 82-30 84-64 86-106 89-15 91-42 92-113 93-227 94-76 96-51	7-373 20-185 34-20 37-46 39-22 41-31 43-42 45-58 47-27 49-24 50-47 51-49 53-29 55-27 56-31 62-39 64-25 66-36 69-20 71-17 73-40 75-66 78-13 80-24 82-33 85-25 87-20 89-15 91-42 93-87 93-315 97-42	7-373 27-41 34-35 37-46 39-22 41-34 43-42 45-61 47-27 49-24 50-51 52-17 53-29 55-27 56-32 58-43 60-36 62-42 64-28 67-14 69-20 71-17 73-43 76-12 78-13 80-58 82-33 85-25 87-20 89-24 91-51 93-87 93-30 97-61	7-373 27-43 34-36 38-17 39-25 41-83 43-42 45-61 47-27 49-24 50-60 52-17 53-30 55-28 56-32 58-48 60-47 62-42 64-28 67-14 69-25 71-36 73-43 76-12 78-13 83-13 85-25 87-20 89-52 91-92 93-87 93-30 95-30 98-33	7-373 28-40 36-38 38-17 39-25 41-86 43-46 46-24 47-30 49-45 50-71 53-30 55-28 57-17 58-48 60-56 63-15 65-18 67-14 69-25 71-39 74-17 76-12 78-26 80-61 83-13 85-74 87-26 89-56 91-95 93-93 93-338 95-36 98-64

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F\$HARD F\$HW F\$INIT F\$JMP F\$MOD F\$MSG F\$PROT F\$PWR	7-373¢ 7-373¢ 7-373¢ 7-373¢ 49-49 83-22 7-373¢ 7-373¢ 7-373¢	97-52 9-9 30-8 28-60 49-73 87-26 7-399 16-96 29-8	97-61 9-25 30-141 28-60 50-51 89-24 10-26 16-105 29-12	98-20 30-20 50-75 90-24 11-51 16-107	30-126 52-20 91-51 27-43 16-124	32-42 53-29 92-51 28-40 16-126	33-19 54-28 93-93 34-36 16-136	33-19 55-28 93-101 36-38 16-138	34-20 56-31 94-41 96-51 16-142	34-20 58-32 95-36 97-42	41-34 60-28 95-41 98-64	46-27 60-31	47-21 60-36	48 -21 77-52
F\$RPT F\$SEG	7-3734 7-3734 7-3734 39-22 40-21 43-42 47-27 48-25 50-71 53-29 55-28 58-43 64-25 69-25 73-40 80-58 86-96 92-112 94-75	28-46 37-21 39-22 41-38 43-42 47-27 49-28 50-72 53-29 56-31 59-16 64-25 69-25 74-19 81-14 88-30 93-106 95-72	28-75 37-32 39-22 41-39 43-42 47-27 49-45 50-84 53-29 56-31 59-33 64-25 69-25 74-38 81-25 88-39 93-119	37-33 39-22 41-49 43-42 47-27 49-46 51-24 54-28 56-31 60-37 64-25 69-25 75-23 82-16 89-25 93-120	37-43 39-22 41-50 43-42 47-27 49-58 51-34 54-28 56-31 60-47 64-25 69-25 75-63 82-30 89-52 93-196	38-21 39-22 41-59 44-31 47-27 49-59 51-35 54-28 56-31 61-17 65-20 69-25 76-14 83-23 90-25 93-197	38-21 39-22 41-83 44-47 47-27 49-69 51-45 54-28 56-31 61-28 65-38 69-25 76-26 83-36 90-48 93-225	38-21 40-21 42-35 45-31 48-25 49-70 52-24 54-28 57-21 62-15 66-14 70-36 77-30 86-25 91-54 93-238	38-21 40-21 42-36 45-34 48-25 49-82 52-36 54-28 57-31 62-39 66-33 70-68 77-69 86-39 91-92 93-315	38-21 40-21 42-47 45-52 48-25 50-30 52-37 55-28 57-34 63-17 67-21 71-19 78-15 86-41 92-52 93-321	38-21 40-21 42-67 45-58 48-25 50-47 52-47 55-28 57-42 63-32 67-38 71-36 78-26 86-56 92-68 93-338	38-21 40-21 43-42 46-31 48-25 50-48 53-29 55-28 58-22 64-25 68-20 72-20 79-24 86-60 92-69 94-32	38-21 40-21 43-42 46-50 48-25 50-60 53-29 55-28 58-33 64-25 68-48 72-46 79-48 86-74 92-89 94-52	39-22 40-21 43-42 47-27 48-25 50-61 53-29 55-28 58-35 64-25 69-25 73-15 80-26 86-82 92-90 94-53
F\$SOFT F\$SRV F\$SUB F\$SW F\$TEST	7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 42-70 49-85 56-32	98-12 20-179 93-105 10-8 36-60 43-37 50-26 57-17	98-20 20-185 93-226 10-25 36-71 43-46 50-87 57-50	98-33 27-39 93-227 37-19 44-26 51-18 58-18	27-41 93-320 37-46 44-50 51-49 58-48	38-17 45-26 52-17 59-13	38-24 45-61 52-51 59-40	39-18 46-24 53-28 60-22	39-25 46-53 53-30 60-56	40-17 47-18 54-27 61-15	40-24 47-30 54-29 61-31	41-31 48-18 55-27 62-13	41-86 48-28 55-29 62-42	42-31 49-24 56-30 63-15
F1 F2 F3 F4	63-35 70-72 77-72 84-64 91-95 12-51# 12-52# 12-53# 12-54#	64-20 71-17 78-13 85-25 92-39	64-28 71-39 78-29 85-74 92-113	65-18 72-18 79-22 86-17 93-87	65-41 72-50 79-51 86-106 93-339	66-12 73-13 80-24 87-20 94-31	66-36 73-43 80-61 87-115 94-76	67-14 74-17 81-12 88-24 95-30	67-41 74-41 81-28 88-72 95-83	68-14 75-21 82-14 89-15 96-25	68-51 75-66 82-33 89-56 96-49	69-20 76-12 83-13 90-15	69-28 76-29 83-40 90-52	70-33 77-28 84-18 91-42
FASTAT FATOF FAULTS FER FLOAT FLSTOO	12-82¢ 25-51¢	32-12+ 16-129 16-121 93-329 38-21	93-250* 93-155* 16-133 93-331 39-22	93-265* 93-211* 21-9* 40-21	93-311 93-275* 43-42	93-313± 93-298± 47-27	48-25	64-25	69-25					
FLST01 FMT FORTRK FRMT00	15-55# 12-154# 12-216#	21-9 21-12 25-10 93-185 16-99	89-29	89-43	89-47									

FRMT01 FRMT02 FRMT03 FRMT04 FRMT05 FRMT06 FRMT07 FRMT10 FRMT11 FRMT12 FRMT13 FRMT14 FRMT15 FRMT16 FRMT17 FRMT20 FRMT21	15-53¢ 15-56¢ 15-57¢ 15-58¢ 15-59¢ 15-60¢ 15-61¢ 15-63¢ 15-65¢ 15-65¢ 15-67¢ 15-72¢ 15-72¢ 15-72¢ 15-78¢ 15-78¢ 15-78¢ 15-78¢ 15-78¢ 15-78¢ 15-78¢ 15-78¢ 15-78¢ 15-78¢	16-100 93-249 16-128 16-117 16-129 87-52 87-58 87-64 87-70 87-76 87-82 87-89 87-91 87-106 87-45 95-43 20-218 20-219 20-221 20-221 20-222 20-224 20-225 20-229 20-230 19-14 92-71*	16-130 93-304	19-21 93-107*	19-41* 93-126*	20-9* 93-185*	20-12* 93-198*	20-26* 93-240*	30-70* 93-254*	32-14 93-289*	86-19* 93-322*	87-29* 93-324*	88-36* 94-42*	91-65* 94-60*
G\$CNTO G\$DELM G\$DISP G\$EXCP G\$HILI	7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢	22-50	42-39	42-51	57-37	58-38	59-28							
G\$LOLI G\$NO G\$OFFS G\$OFSI G\$PRMA G\$PRMD G\$PRML G\$RADA G\$RADB	7-3730 7-3730 7-3730 7-3730 7-3730 7-3730 7-3730 7-3730 7-3730	60-33 60-33 97-54 95-44 60-33 95-44	60-49 60-49 60-49 97-56 97-58 60-49	95-44 95-44 95-44 97-60 98-14	97-54 97-54 98-22 98-16	97-56 97-56 98-18	97-58 97-58 98-24	97-60 97-60	98-14 98-14	98-16 98-16	98-18 98-18	98-22 98-22	98-24 98-24	
G\$RADD G\$RADL G\$RADO G\$XFER	7-3730 7-3730 7-3730 7-3730	98-22 60-33 97-54 98-20	60-49 97-56	98-14 97-58	98-16 97-60	98-18	98-24							
G\$YES GO HCE HCI HCRC	7-373¢ 12-50¢ 12-85¢ 12-152¢	97-54	97-56	97-58	97-60	98-14	98-16	98-18	98-22	98-24				
HERTZ	12-86# 13-131 7-354# 15-87 34-11 20-99#	16-27¢ 7-368 15-98 34-22 20-115¢	7-390 16-144 35-5# 20-130#	7-407 28-3¢ 36-48 20-151¢	7-430 28-48 36-55 20-181	8-10 28-62 97-4#	9-15 29-14 97-75	10-17 30-102 98-26	11-4# 30-128 98-48	11-41 31-12 98-57	12-222 32-33 99-2	14-519 32-44	15-19 33-10	15-29 33-21

HOE I\$AU I\$AUTO I\$CLN I\$DU I\$HRD I\$INIT I\$MOD I\$MSG I\$PROT I\$PTAB I\$PWR	11-57¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 97-52¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢	34-9# 31-10# 32-8# 33-8# 97-61# 30-8# 7-399 96-51 16-96# 29-8# 99-16	34-35# 31-18# 32-42 33-34# 30-20 7-399# 96-51# 16-105#	32-57# 30-126 10-26 97-42 16-107# 99-21	30-141# 10-26# 97-42# 16-124# 99-21#	11-51 98-64 16-126#	11-51# 98-64# 16-136#	27-43 16-138#	27-43# 16-142#	28-40	28-40#	34-36	34 - 36#	36-38
I\$RPT I\$SEG	7-373¢ 7-373¢ 38-21¢ 40-21¢ 43-42¢ 46-31¢ 48-25¢ 49-82¢ 51-34¢ 53-29¢ 55-28¢ 58-22¢ 62-15¢ 65-20¢ 69-25¢ 73-13 77-69¢ 82-16¢ 86-82¢ 91-92¢ 93-197¢ 95-81¢	28-46# 36-60 39-18 40-21# 43-42# 46-50# 48-25# 50-26 51-35# 54-27 56-30 58-33# 62-39# 65-38# 69-28# 73-15# 78-13 82-30# 86-96# 92-39 93-225# 96-25	28-75# 37-19 39-22# 40-21# 43-42# 47-18 48-25# 50-30# 51-45# 54-28# 56-31# 58-35# 63-15 66-12 69-25# 73-40# 78-15# 83-13 87-20 92-52# 93-227	37-21# 39-22# 41-31 43-42# 47-27# 48-25# 50-47# 52-17 54-28# 56-31# 56-31# 56-31# 66-14# 69-25# 74-17 78-26# 83-23# 88-24 92-68# 93-238#	37-324 39-224 41-384 43-424 47-274 49-24 50-484 52-244 54-284 56-314 59-13 63-324 66-334 69-254 74-194 79-22 83-364 88-304 92-694 93-3154	37-33# 39-22# 41-39# 43-42# 47-27# 49-28# 50-51 52-36# 54-28# 56-31# 59-16# 64-20 67-14 70-33 74-38# 79-24# 84-18 88-39# 92-89# 93-321#	37-43# 39-22# 41-50# 44-26 47-27# 49-45# 50-60# 52-37# 54-28# 56-31# 59-33# 64-25# 67-21# 70-36# 75-21 79-48# 85-25 89-15 92-90# 93-338#	38-17 39-224 41-834 44-314 47-274 49-464 50-614 52-474 54-284 56-314 60-22 64-254 67-384 70-684 75-234 80-24 86-17 89-254 92-1124 94-31	38-21# 39-22# 42-31 44-47# 47-27# 49-49 50-71# 53-28 55-27 57-17 60-37# 64-25# 68-14 71-17 75-63# 80-26# 86-25# 89-52# 93-87 94-32#	38-21# 40-17 42-35# 45-26 47-27# 49-58# 50-72# 53-29# 55-28# 57-21# 60-47# 64-25# 68-20# 71-19# 76-12 80-58# 86-39# 90-15 93-105	38-214 40-214 42-364 45-314 48-18 49-594 50-75 53-294 55-284 57-314 61-15 64-254 68-484 71-364 76-144 81-12 86-414 90-254 93-1064 94-534	38-21¢ 40-21¢ 42-67¢ 45-34¢ 48-25¢ 49-69¢ 50-84¢ 53-29¢ 55-28¢ 57-34¢ 61-17¢ 64-25¢ 69-20 72-18 76-26¢ 81-14¢ 86-56¢ 90-48¢ 93-119¢ 94-75¢	38-21# 40-21# 43-37 45-58# 48-25# 49-70# 51-18 53-29# 55-28# 57-42# 61-28# 64-25# 69-25# 72-20# 77-28 81-25# 86-60# 91-42 93-120# 95-30	38-21# 40-21# 43-42# 46-24 48-25# 49-73 51-24# 53-29# 55-28# 58-18 62-13 65-18 69-25# 72-46# 77-30# 82-14 86-74# 91-54# 93-196# 95-72#
I\$SETU I\$SFT I\$SRV I\$SUB	7-373¢ 98-12¢ 7-373¢ 7-373¢ 49-24 63-15 77-28 91-42	99-15 98-33# 20-179# 36-60 50-26 64-20 78-13 92-39	99-15¢ 20-185¢ 37-19 51-18 65-18 79-22 93-87	99-16 27-39¢ 38-17 52-17 66-12 80-24 93-105	99-22 27-41# 39-18 53-28 67-14 81-12 93-105#	99-22# 40-17 54-27 68-14 82-14 93-226	41-31 55-27 69-20 83-13 93-226#	42-31 56-30 70-33 84-18 93-226#	43-37 57-17 71-17 85-25 93-227	44-26 58-18 72-18 86-17 93-227#	45-26 59-13 73-13 87-20 93-320	46-24 60-22 74-17 88-24 93-320#	47-18 61-15 75-21 89-15 93-320#	48-18 62-13 76-12 90-15 94-31
I\$TST	95-30 7-373# 38-24# 41-34 44-26 46-53# 49-24 51-49# 54-27# 56-32 59-13 61-15# 64-20	96-25 36-60 38-240 41-86 44-260 46-530 49-240 52-17 54-28 56-320 59-130 61-31 64-200	36-60# 39-18 41-86# 44-50 47-18 49-85 52-17# 54-29 56-32# 59-40 61-31# 64-28	36-71 39-18# 41-86# 44-50# 47-18# 49-85# 52-20 54-29# 57-17 59-40# 61-31# 64-28#	36-71# 39-25 42-31 44-50# 47-21 49-85# 52-51 54-29# 57-17# 59-40# 62-13 64-28#	36-714 39-254 42-314 45-26 47-30 50-26 52-514 55-27 57-50 60-22 62-134 65-18	37-19 39-25# 42-70 45-26# 47-30# 50-26# 52-51# 55-27# 57-50# 60-22# 62-42 65-18#	37-194 40-17 42-704 45-61 47-304 50-87 53-28 55-28 57-504 60-28 62-424 65-41	37-46 40-17¢ 42-70¢ 45-61¢ 48-18 50-87¢ 53-28¢ 55-29 58-18 60-31 62-42¢ 65-41¢	37-46# 40-24 43-37 45-61# 48-18# 50-87# 53-29 55-29# 58-18# 60-36 63-15 65-41#	37-46# 40-24# 43-37# 46-24 48-21 51-18 53-30 55-29# 58-32 60-56 63-15# 66-12	38-17 40-24# 43-46 46-24# 48-28 51-18# 53-30# 56-30 58-48 60-56# 63-35 66-12#	38-17¢ 41-31 43-46¢ 46-27 48-28¢ 51-49 53-30¢ 56-30¢ 58-48¢ 60-56¢ 63-35¢ 66-36	38-24 41-31# 43-46# 46-53 48-28# 51-49# 54-27 56-31 58-48# 61-15 63-35# 66-36#

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IAE IBE	66-36# 69-28# 72-50 75-21# 77-72# 80-61# 83-22 86-17 88-72# 91-42 93-93 95-30# 12-88# 11-57#	67-14 69-28# 72-50# 75-66 78-13 80-61# 83-40 86-17# 88-72# 91-42# 93-101 95-36 92-60	67-14# 70-33 72-50# 75-66# 78-13# 81-12 83-40# 86-106 89-15 91-51 93-105 95-41 92-62	67-41 70-33# 73-13 75-66# 78-29 81-12# 83-40# 86-106# 89-15# 91-95 93-227 95-83 94-62	67-41# 70-72 73-13# 76-12 78-29# 81-28 84-18 86-106# 89-24 91-95# 93-339 95-83# 94-64	67-41# 70-72# 73-43 76-12# 78-29# 81-28# 84-18# 87-20 89-56 91-95# 93-339# 95-83#	68-14 70-72# 73-43# 76-29 79-22 81-28# 84-64 87-20# 89-56# 92-39 93-339# 96-25	68-14# 71-17 73-43# 76-29# 79-22# 82-14 84-64# 87-26 89-56# 92-39# 94-31 96-25#	68-51 71-17# 74-17 76-29# 79-51 82-14# 84-64# 87-115 90-15 92-51 94-31# 96-49	68-51# 71-39 74-17# 77-28 79-51# 82-33 85-25 87-115# 90-15# 92-113 94-41 96-49#	68-51# 71-39# 74-41 77-28# 79-51# 82-33# 85-25# 87-115# 90-24 92-113# 94-76 96-49#	69-20 71-39# 74-41# 77-52 80-24 82-33# 85-74 88-24 90-52 92-113# 94-76#	69-20# 72-18 74-41# 77-72 80-24# 83-13 85-74# 88-24# 90-52# 93-87 94-76#	69-28 72-18# 75-21 77-72# 80-61 83-13# 85-74# 88-72 90-52# 93-87# 95-30
IDU IE IER	11-57# 12-5# 11-57#	51-25	51-26	51-30	51-37	51-41	52-27	52-28	52-32	52-39	52-43	57-36	58-37	59-27
ILEV ILF ILOCK ILR	12-63¢ 12-78¢ 13-48¢ 12-79¢	93-171 71-27 24-13	71-29 24-17	72-28 25-55	72-30 25-59	94-45 25-93	94-49 25-97	30-66*	43-38*	43-45*				
INTFLG	13-490	27-40 <b>*</b> 57-32	30-67¢ 58-34	57-22 <b>*</b> 59-15	57-38	58-23*	58-39	59-17*	59-29					
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IXE	13-24# 40-22* 43-43* 49-27* 51-21* 54-28* 56-31* 61-16* 66-13* 71-37* 76-13* 80-46* 84-62* 90-47* 11-57# 12-174#	25-107* 41-37* 44-30* 49-36* 51-32* 54-28* 56-31* 61-27* 66-30* 72-19* 76-25* 80-57* 85-26* 90-49*	36-61* 41-48* 44-44* 49-43* 51-43* 54-28* 56-31* 61-29* 66-34* 72-45* 76-27* 80-59* 85-43* 91-52*	36-68* 41-58* 44-48* 49-56* 51-46* 54-28* 56-31* 62-14* 67-20* 72-48* 77-29* 81-13* 85-72* 91-91*	36-69* 41-66* 45-30* 49-67* 52-23* 54-28* 57-20* 62-38* 67-39* 73-14* 77-68* 81-24* 86-18* 91-93*	37-20* 41-73* 45-49* 49-80* 52-34* 54-28* 57-30* 62-40* 68-19* 73-39* 77-70* 81-26* 86-36*	37-31* 41-82* 45-59* 49-83* 52-45* 55-28* 57-41* 63-16* 68-49* 73-41* 78-14* 82-15* 86-53*	37-42* 41-84* 46-30* 50-29* 52-48* 55-28* 57-47* 63-31* 69-24* 74-18* 78-25* 82-29* 86-71*	37-44* 42-34* 46-49* 50-38* 53-29* 55-28* 58-21* 63-33* 69-26* 74-37* 78-27* 82-31* 86-93*	38-20* 42-46* 46-51* 50-45* 53-29* 55-28* 58-42* 64-21* 70-35* 74-39* 79-23* 83-14* 86-103*	38-22* 42-58* 47-24* 50-58* 53-29* 55-28* 58-45* 64-26* 70-67* 75-22* 79-47* 83-35* 89-16*	39-21* 42-66* 47-28* 50-69* 53-29* 55-28* 59-14* 65-19* 70-70* 75-44* 79-49* 83-37* 89-51*	39-234 42-68* 48-24* 50-82* 53-29* 56-31* 59-32* 65-34* 71-18* 75-62* 80-25* 84-19* 89-53*	40-20* 43-41* 48-26* 50-85* 53-29* 56-31* 59-35* 65-39* 71-35* 75-64* 80-39* 84-59* 90-16*
J\$JMP J1 J10 J11 J12 J13 J14 J15 J16 J17 J20 J20 J21	7-373¢ 13-108 13-117 13-118 13-120 13-121 13-122 13-123 13-124 13-109 13-129 13-130	28-60 16-7# 16-16# 16-17# 16-18# 16-19# 16-20# 16-21# 16-22# 16-23# 16-8# 16-24# 16-25#	33-19	34-20										

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J4
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J5
        13-112
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        13-113
                 16-12#
J7
        13-114
                 16-13#
J8
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19
        13-116
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                                                                59-28
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CROSS REFERENCE TABLE (CREF VO4.00 )

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L$TEST
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                               83-18
                                         89-20
                                                    90-20
                                                               91 47
                                                                         92-47
                                                                                    93.92
                                                                                              93-97
                                                                                                         94 - 37
L.STIML
           7-4270
L SUNIT
           7-4279
L10000
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L10003 16-1244
L10004 16-136#
L10005 16-142#
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                               30-1410
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                    58-484
                    50-31
                               60-36
                                         60-564
L10050 61-31¢
L10051 62-42¢
L10052 63-35¢
L10053 64-28¢
L10054 65-410
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L10057 68-510
L10060 69-28#
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L10062 71-390
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L10071	78-294													
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L10074	81-284													
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L10100	85-744													
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L10103	88-724	01-1134												
L10104	89-24	89-564												
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L10107	92-51	92-1130												
L10110	93-93	93-101	93-3394											
L10111	93-2264													
L10112	93-320#													
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L10114	95-36	95-41	95-834											
L10115	96-494													
L10116	97-52	97-610												
L10117	98-12	98-334												
L10120	99-160	00 014												
LASCYL	99-16	99-21#	70											
LASTRK	13-220	23-20	30-604	92-40	93-103									
LBC	12-1784	52-10	30-59*											
LBT	12-680													
LCE	12-1770													
LCLKTB	20-126+	20-146#												
LDZERO	24-130	39-22	43-42	64-25	69-25									
LF	15-13				0,-23									
LKS	20-1274	20-1484	20-162¢ 20-161	20-174+										
LKV	20-129+	20-1490	20-161	32-29										
LOCATE	22-850	93-216	93-302											
LOE	11-570													
LOT	11-570													
MASK	13-430	25-35*	25-38	25-684	25-724	25-1224	25-123+	38-21	39-22	40-21	43-42	47-27	48-25	64-25
MCPE	69-25	22.60												
MCUTAB	12-100	22-68	22-73	58-26	58-30	65-26	65-30	73-21	73-31					
MCUTXT	13-108¢ 13-103¢	27-11 27-12	27 72											
MDPE	12-330	46-37	27-32	E7 30	F7 00									
MESG1	97-54	97-664	46-41	53-29	53-29	54 - 28	54-28	55-28	55-28	56-31	56-31			
MESG10	15-470	26-17												
MESG11	15-480	26-26												
MESG12	15-490	93-139												
MESG13														
	16-414	60-33												

MPCOLP IP PAR AR INC	
MESG15 15-50¢ 93-138 MESG17 98-14 98-38¢ MESG18 98-16 98-39¢ MESG20 98-18 98-40¢ MESG21 98-22 98-41¢ MESG22 98-24 98-42¢ MESG4 97-56 97-67¢ MESG5 97-58 97-68¢ MESG6 97-60 97-69¢ MOH 12-129¢	
MOL 12-70# 26-12 77-44 83-15 89-17 90-17 91-44 92-44 93-89 94-34 MSGMOL 15-45# 77-47 83-18 89-20 90-20 91-47 92-47 93-92 94-37 MSGWL0 15-46# 93-97	
MCV 17 444 37 00. 37 00 07 100 07 100 07 100	25-91 25-101 25-122
MTRBRK 13-136 16-32# MXF 12-34# 41-51 41-52 41-56 NBA 12-131# NED 12-37#	
NEGMRD 13-28# 19-12* 19-16 91-67* 92-56* 93-129* 93-186* 93-209* 93-241* 93-256* 93-288* 9	93-326*
NEM 12-36# NEXLOC 22-112# 87-48 87-54 87-60 87-66 87-72 87-78 87-85 87-98 NOP 12-209# 96-30 O\$APTS 7-373# 7-427 O\$BGNR 7-373# 7-427 O\$BGNS 7-373# 7-405# 7-427	
0 *DU 7-3730 7-427 0 *ERRT 7-3730 7-427 0 *GNSW 7-3730 7-4050 7-427 0 *POIN 7-3730 7-405 7-4050 7-4050 7-4050 7-427 0 *SETU 7-3730 7-4050 7-427 98-63 0 CTHEX 16-110 16-115 20-490 87-104 0 FFDIR 12-1510 0 M 12-610	
OMEET! 3 44 0.0	28-12 34-37 35-1
OPRPNL 13-138 16-34#  OR 12-32# 24-49 42-49 42-52 42-56 42-60 42-64  ORLOCK 24-19 24-48# 24-50 25-61 25-99 44-38 45-43 53-29 54-28 55-28 55-28 PAR 12-81# 66-19 66-22 66-26 71-24 71-26 72-24 72-32 72-34 73-24 75-29 78 PAT 12-29# 46-34 72-22 75-25 77-32 77-57 79-26 79-37 80-28 82-18 90-27 PATCNT 13-38# 25-32# 25-118# 38-21 39-22 40-21 43-42 47-27 48-25 64-25 69-25 PATT1 13-8# 13-144 13-150 13-162 13-169 13-175 13-181 13-193 45-33 66-16 73-17 7	56-31 56-31 75-33 75-47 75-26 77-33 77-58
PATT2 13-90 13-145 13-151 13-157 13-163 13-170 13-176 13-182 13-194 37-22 37-27 48-25 64-25 6	45-55 69-25 89-27 89-28
PATT4 13-11# 38-21 39-22 40-21 43-42 47-27 48-25 62-22 64-25 65-21 69-25 PATT5 13-12# 13-164 13-196 44-27	
PATT6 13-13# 13-197 PATT7 13-14# 13-198 67-15 67-25 68-17 68-45 PATT8 13-15# 13-199 93-317 PATT9 13-16# 13-156 13-200	

C.1.055	E. E.LE	INDEE (CI		,										
PCLKTB PGE PGM PMF PIP	20-107+ 12-35# 12-67# 12-176# 12-71#	20-137¢ 12-193¢												
PKB	20-1094	20-110+	20-140#	20-155*										
PKCS PKV PNT	20-108+ 20-114+ 11-57¢	20-139¢ 20-142¢	20-156* 20-154	20-172* 32-26										
PRELOD PRI PRIOO PRIO1 PRIO2 PRIO3 PRIO4 PRIO5	25-8¢ 11-57¢ 11-57¢ 11-57¢ 11-57¢ 11-57¢ 11-57¢	83-39	89-55	90-51	93-88	93-337	94 - 74							
PRIO6 PRIO7 PSEL	11-57¢ 11-57¢ 12-9¢	20-154 32-18	20-161 47-26	51-23	52-26	57-32	57-33	58-34	59-15	59-39				
PSTACK	13-102¢ 85-45 93-130	16-112 85-68 93-132	16-112 87-28 93-143	16-112 87-45 93-146	16-112 87-45 93-149	16-117 87-106 93-153	16-117 87-106 93-327	16-117 87-106 95-44	16-117 87-106 95-45	20-51 91-60 95-65*	20-66 91-66 95-66*	25-88 91-77 95-68	84-22 92-55	84 -45 93 - 121
RCVED	13-135 13-450 25-64* 63-25 79-43* 92-98* 12-2180	16-310 16-100 25-103+ 70-65+ 80-35+ 93-153+	16-130 37-26* 71-23* 80-53* 93-271*	22-64* 37-40* 71-26* 84-53* 93-332*	22-65 44-42¢ 71-29¢ 85-40¢ 94-50¢	22-71* 45-46* 71-30 86-34* 94-65*	22-72 60-42* 72-24* 86-51*	22-100+ 61-19+ 72-25 86-69+	23-74* 61-20 72-30* 86-91*	23-75 62-28* 72-34* 90-36*	23-99* 62-31* 73-34* 91-56*	24-20+ 62-32 75-50+ 91-78+	24-21* 63-20* 78-21* 91-81	24 - 24 63 - 22 79 - 33 + 92 - 63 +
RDHDTA RDY READTD	12-219¢ 12-6¢ 16-37¢	93-324 57-23 93-155	57-24	57-28	57-36	59-27								
READY	18-33¢ 12-206¢	18-35 92-71	19-13	19-24										
REGSET RELEAS	13-100¢ 20-225 23-59 12-208¢	20-219 20-225 23-66	20-219 20-225 23-72#	20-219	20-219	20-219	20-219	20-230	20-230	20-222	20-222	20-222	20-222	20-222
RESET	23-90#	38-21 16-50	40-21	47-27	48-25									
RHEXT RHTYPE RIP RMR	13-57¢ 13-58¢ 50-73 12-210¢	17-114 17-124 52-18 25-9	17-20+ 17-40+ 53-29 83-25	17-24+ 20-226 54-28 89-30	17-30 22-88 55-28 90-31	30-48 23-40 56-31 93-322	30-46 84-34	41-32 84-47	46-25	47-19	48-19	49-47	49-71	50-49
ROUTDO RPADR RPARDY	12-80¢ 13-32¢ 13-55¢ 18-11¢	30-25# 30-55# 19-28	95-37	95-67#										
RPAS	13-69# 80-32	18-14 80-34	18-21 <b>*</b> 80-35	22-22 <b>*</b> 80-48 <b>*</b>	78-17 80-50	78-20 80-52	78-21 80-53	79-30 90-294	79-32 93-1114	79-33	79-384	79-40	79-42	79-43
RPBA RPBAE RPCC	13-64¢ 13-82¢ 13-77¢	13-154 13-173	13-204 13-210	19-19* 23-38	22-86 48-25	37-22 <b>*</b> 49-50	37-23 49-53	37-25 49-74	37-26 49-77	37-34 50-52	37-36 50-55	37-39 50-76	37-40 50-79	40-21
RPCS1	13-624	92-95 13-185	92-98 13-202	92-99 18-45	19-20*	22-68	22-70	22-71	23-35	25-9*	30-35	36-63	41-42	41-45

CROSS R	EFERENCE	TABLE (CR	REF V04.00	))										
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RPCS2	13-66# 38-21 42-60 54-28 59-19* 75-25*	13-142 41-40* 42-63 54-28 59-34* 75-45*	13-206 41-41* 46-32* 54-28* 60-38* 75-46*	22-9* 41-51* 46-33* 55-28 61-18* 77-32*	22-10* 41-52 46-34* 55-28 62-16* 77-53*	23-94* 41-55 46-37 55-28* 62-21* 77-57*	24-37 41-74* 46-40 56-31 62-26* 79-26*	24-49 41-75* 49-60* 56-31 63-18* 79-37*	26-11* 42-37 50-62* 56-31* 63-19* 80-28*	30-71* 42-40 51-36* 57-46* 70-37* 82-18*	30-73* 42-43 52-38* 58-24* 70-39* 90-27*	32-20* 42-49 53-29 58-25* 70-40* 93-259	32-21* 42-52 53-29 58-44* 70-44* 93-262	37-35* 42-55 53-29* 59-18* 72-22*
RPCS3	13-83¢ 53-29 56-31	13-167 53-29* 56-31	13-211 54-28 56-31*	22-90 54-28	22-93 54-28	22-96 54-28	47-27 54-28*	52-28 55-28	52-31 55-28	52-39 55-28	52-42 55-28	53-29 55-28*	53-29 56-31	53-29 56-31
RPDA	13-65¢ 77-58*	13-179 79-27*	13-186 80-29*	13-205 82-19#	19-18*	65-24* 89-31	66-18* 89-34	66-21 90-28+	67-26 90-32	73-19* 90-35	73-20 90-36	75-26*	75-27	77-334
RPDB	13-71# 53-29	13-160 53-29*	22-100 54-28	42 - 48 ± 54 - 28 ±	42-59 55-28	44 - 34 + 55 - 28	44-39 55-28*	44-41 55-28+	44-42 56-31	45-27 56-31	45-38* 56-31*	45-44 56-31*	45-46 91-87	46-36* 93-267
RPDC RPDS	13-76¢ 13-67¢ 75-38 83-27 93-171	13-188 18-34 75-53 83-30 94-34	13-209 22-11 75-56 89-17 96-31	19-17* 22-13* 76-17 90-17 96-39	67-34 22-16 76-20 90-39	68-24 22-61 77-36 90-42	68-46 22-63 77-40 91-44	89-28* 22-64 77-44 91-70	89-37 26-12 77-55 92-44	89-40 26-21 77-61 92-80	92-95 68-32 77-64 92-83	92-97 74-21 80-40 92-100	74-24 80-43 93-89	75-35 83-15 93-94
RPDT RPEC1 RPEC2	13-73¢ 13-80¢ 13-81¢	60-39	60-41	60-42	61-19	61-23	63-20	63-27						
RPER1	13-68# 75-32 94-65	66-19 75-47 94-72	66-22 75-49	66-25 75-50	71-21 92-60	71-24 92-63	72-28 92-64	72-32 93-329	72-38 93-332	73-24 93-333	73-33 94-43	73-34 94-45	74 - 28 94 - 50	75-29 94-62
RPER2 RPER3	13-78¢ 87-67 13-79¢	16-113 87-73 74-32	20-195 87-79	71-27 87-86	74 - 30 87 - 99	86-23 88-32	86-28 95-74	86-45	86-63	86-85	87-37	87-49	87-55	87-61
RPLA RPMR1	13-700 13-720 70-47 13-750	85-29 13-191 70-63 13-187	85-34 13-207 86-26*	85-40 18-19 86-434	85-54 19-40* 86-61*	85-60 20-11* 86-83*	85-61 20-14* 88-38*	85-62 20-24* 92-54*	20-25*	20-38 93-108*	20-40* 95-80*	70-38*	70-41	70-45*
RPSN RPVEC	13-740	30-83 30-56*	13-208 30-57±	25-10 <b>*</b> 32-31	67-30 57-32	89-29 <b>*</b> 57-44	89-43 57-49	89-46 58-34	91-64+ 58-47	92-53 <b>*</b> 59-15	93-128 <b>*</b> 59-20	93-187 <b>*</b> 59-24	93-207 <b>*</b> 59-37	93-325*
RPWC RTD RWU1 RWU2 RWU3	13-63¢ 12-220¢ 12-188¢ 12-189¢ 12-190¢	13-148 91-65	13-203 93-126	19-16*	31-32	31.44	31-49	30-34	30-47	37-13	39-20	37-24	39-37	
S\$LSYM	7-373¢ 34-35¢ 38-21 39-22 40-21 41-50¢ 43-42 45-31¢ 47-27	9-25# 36-71# 38-21 39-22 40-21# 41-86# 43-42 45-34 47-27 48-25	10-250 37-21 38-21 39-220 40-210 42-35 43-42 45-34 47-27 48-250	16-105¢ 37-21 38-21¢ 39-22¢ 40-21¢ 42-35 43-42¢ 45-34¢ 47-27¢ 48-25¢	16-124¢ 37-21¢ 38-21¢ 39-22¢ 40-21¢ 42-35¢ 43-42¢ 45-61¢ 47-27¢ 48-25¢	16-1360 37-33 38-210 39-220 40-240 42-36 43-420 46-31 47-270 48-250	16-142# 37-33 38-21# 39-25# 41-38 42-36 43-42# 46-31 47-27# 48-28#	20-185¢ 37-33¢ 38-24¢ 40-21 41-38 42-36¢ 43-46¢ 46-31¢ 47-30¢ 49-28	27-41¢ 37-46¢ 39-22 40-21 41-38¢ 42-70¢ 44-31 46-53¢ 48-25 49-28	28-75# 38-21 39-22 40-21 41-39 43-42 44-31 47-27 48-25 49-28#	30-141¢ 38-21 39-22 40-21 41-39 43-42 44-31¢ 47-27 48-25 49-46	31-18¢ 38-21 39-22 40-21 41-39¢ 43-42 44-50¢ 47-27 48-25 49-46	32-57¢ 38-21 39-22 40-21 41-50 43-42 45-31 47-27 48-25 49-46¢	33-34¢ 38-21 39-22 40-21 41-50 43-42 45-31 47-27 48-25 49-59
	49-59 50-61#	49-59 <b>¢</b> 50-72	49-70 50-72	49-70 50-72#	49-70# 50-87#	49-85¢ 51-24	50-30 51-24	50-30 51-24#	50-30 <del>0</del> 51-35	50-48 51-35	50-48 51-35#	50-48¢ 51-49¢	50-61 52-24	50-6 <u>1</u> 52-24

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SBE SC SC1 SC16	96-46 12-170¢ 12-12¢ 54-28 12-136¢ 12-140¢	22-68 55-28	22-73 55-28	41-42 56-31	41 - 46 56 - 31	41-67 58-26	41-71 58-30	41-76 81-16	41 -80 81 -20	46-43 82-21	46-47 82-25	53-29 93-278	53-29 93-279	54-28 93-284
SC2 SC32 SC4 SC64 SC8 SCF SDF SEARCH	12-137# 12-141# 12-138# 12-142# 12-139# 12-169# 12-172# 12-211#													
SEEK SEIZE SELNUM SELRUN	12-205# 19-39 73-16 86-22 13-33# 10-15#	92-57 19-43 74-20 87-27 95-68* 95-31	92-92 20-39 75-24 88-26 95-69	93-107 22-9# 76-15 89-26	94-60 25-8 77-31 90-26	64-24 77-60 91-43	65-23 78-16 91-74	66-17 79-25 92-43	67-19 80-27 92-70	68-18 81-15 92-88	68-34 82-17 92-111	69-23 83-24 96-28	71-20 84-20 96-48	72-21 85-32
SELTRK SENSOR SETUP SFPTBL SIZE70	10-12# 13-133 25-29# 10-8# 17-11#	88-47 16-29¢ 38-21	39-22	40-21	43-42	47-27	48-25	64-25	69-25					
SKI SNDIGT SNK	12-180¢ 15-41¢ 13-40¢ 68-43*	30-95 24-16+ 68-46	24-20	25-33+	25-34	25-58*	25-62	25-96*	25-100	25-102	67-23+	68-22*	68-234	68-24
SPIRAL SRC SRCTMP	23-160 13-410 13-420 47-274	91-85 25-36* 25-37* 48-25	93-135 25-37 25-51 48-25*	25-121+ 25-74+ 64-25	25-124 25-124* 64-25*	38-21 69-25	38-21* 69-25*	39-22	39-22*	40-21	40-21*	43-42	43-42*	47-27
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16-135 16-135 16-141 18-33 20-120 20-219 20-221 20-222 20-225 20-225 20-230	7-427 7-427 7-427 7-427 7-427 7-427 7-427 8-8 8-8 8-8 8-8 8-8 8-8 8-8 15-27 16-100 16-112 16-112 16-123 16-123 16-123 16-130 16-132 16-135 16-141 18-33 16-141 18-33 20-120 20-219 20-222 20-225 20-225 20-225 20-230	7-427 7-427 7-427 7-427 7-427 7-427 7-427 8-8 8-8 8-8 8-8 8-8 8-8 16-99 16-100 16-117 16-117 16-124 16-129 16-130 16-132 16-130 16-132 16-135 16-141 18-44 20-120 20-229 20-221 20-221 20-229 20-229 20-230	7-427 7-427 7-427 7-427 7-427 7-427 7-427 8-8 8-8 8-8 8-8 8-8 8-8 8-8 16-99 16-100 16-117 16-117 16-124 16-129 16-130 16-132 16-130 16-135 16-141 18-44 20-120 20-154 20-229 20-221 20-225 20-225 20-225 20-230	7-427 7-427 7-427 7-427 7-427 7-427 7-427 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-	7-427 7-427 7-427 7-427 7-427 7-427 7-427 7-427 7-427 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-	7-427 7-427 7-427 7-427 7-427 7-427 7-427 8-8 8-8 8-8 8-8 8-8 10-8 16-100 16-104 16-112 16-117 16-123 16-128 16-129 16-130 16-132 16-136 16-132 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-136 16-13	7-427 7-427 7-427 7-427 7-427 7-427 8-8 8-8 8-8 8-8 8-8 8-8 10-8 16-100 16-104 16-112 16-117 16-123 16-128 16-129 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-130 16-20 20-219 20-222 20-222 20-225 20-225 20-225 20-225 20-225 20-225 20-225 20-225 20-225 20-225 20-225 20-225 20-225 20-225 20-225 20-225 20-225 20-225 20-225 20-225 20-225 20-225 20-225 20-225 20-225 20-225 20-225 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87-26 87-45 87-52	87-26 87-45	87-26 87-45 87-58	87-26 87-45 87-58	87-45 87-52	87-45 87-52	87-45 87-52							
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93-336 94-37	93-309 93-336 94-37	93-315 93-338 94-37	93-315 93-338 94-37	93-320 93-339 94-37	93-320 93-339 94-37	93-321 94-32 94-41	93-321 94-32 94-41						
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95-77	95-77	95-77	95-77	95-81	95-81	95-83	95-83	96-37	96-37	96-37	96-37	96-37	96-37
96-37 96-47 97-54	96-37 96-47 97-54	96-42 96-47 97-56	96-42 96-47 97-56	96-42 96-49 97-56	96-42 96-49	96-42 97-52 97-56	96-42 97-52	96-42 97-54 97-56	96-42 97-54	96-47 97-54	96-47 97-54	96-47 97-54	96-47 97-54
97-58	97-58	97-58	97-58	97-58	97-56 97-58	97-60	97-56 97-60	97-60	97-56 97-60	97-58 97-60	97-58 97-60	97-58 97-60	97-58 97-60

SVCSUB	97-60 98-16 98-22 98-33 7-373¢	97-60 98-16 98-22 98-33 7-381#	97-61 98-16 98-22 98-63 93-105	97-61 98-16 98-22 98-63 93-105	98-12 98-18 98-22 98-63 93-105	98-12 98-18 98-22 98-63 93-227	98-14 98-18 98-22 98-63 93-227	98-14 98-18 98-22 98-63 93-227	98-14 98-18 98-24 99-16	98-14 98-18 98-24 99-16	98-14 98-20 98-24 99-16	98-14 98-20 98-24 99-16	98-16 98-22 98-24	98-16 98-22 98-24
SVČTAG	7-373¢	7-383¢	9-25	9-25	9-25	10-25	10-25	10-25	16-105	16-105	16-105	16-124	16-124	16-124
	16-136	16-136	16-136	16-142	16-142	16-142	20-185	20-185	20-185	27-41	27-41	27-41	28-75	28-75
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	81-28	81-28	82-30	82-30	82-30	82-33	82-33	82-33	83-36	83-36	83 - 36	83-40	83-40	83 - 40
	84-64	84-64	84-64	85-74	85-74	85-74	86-39	86-39	86-39	86-56	86 - 56	86-56	86-74	86 - 74
	86-74	86-96	86-96	86-96	86-106	86-106	86-106	87-115	87-115	87-115	88 - 39	88-39	88-39	88 - 72
	88-72	88-72	89-52	89-52	89-52	89-56	89-56	89-56	90-48	90-48	90 - 48	90-52	90-52	90 - 52
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SVCTST	7-373¢ 40-17 44-26 49-24 54-27	99-16 7-3804 40-17 45-26 49-24 54-27	99-21 36-60 40-17 45-26 50-26 54-27	99-21 36-60 41-31 45-26 50-26 55-27	99-21 36-60 41-31 46-24 50-26 55-27	37-19 41-31 46-24 51-18 55-27	37-19 42-31 46-24 51-18 56-30	37-19 42-31 47-18 51-18 56-30	38-17 42-31 47-18 52-17 56-30	38-17 43-37 47-18 52-17 57-17	38-17 43-37 48-18 52-17 57-17	39-18 43-37 48-18 53-28 57-17	39-18 44-26 48-18 53-28 58-18	39-18 44-26 49-24 53-28 58-18
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	68-14	68-14	68-14	69-20	69 - 20	69-20	70-33	70-33	70-33	71-17	71-17	71-17	72-18	72-18

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T\$\$DAT T\$\$DU T\$\$HAR T\$\$HW T\$\$INI T\$\$MSG T\$\$PC T\$\$PRO	32-8# 99-16 33-8# 97-52 9-9 30-8# 16-96# 99-15# 29-8#	32-42 99-164 33-19 97-524 9-94 30-20 16-105 99-22	32-57 99-21 33-34 97-61 9-25 30-126 16-107#	30-141 16-124	16-126#	16-136	16-138#	16-142						
T\$\$SEG	99-15# 28-46# 37-21 38-21 39-22 40-21 41-38 42-36 43-42# 45-34 47-27 48-25 49-28 49-70# 51-45 53-29 54-28# 55-28# 56-31# 56-31# 56-31# 56-35 61-28 64-25 65-38 69-25 69-25 69-25 69-25 93-225 94-53 98-12 20-179# 93-105#	99-16 28-60 37-21# 38-21 39-22 40-21 41-38# 42-36# 43-42# 45-34# 47-27 48-25 49-28# 49-73 50-71 51-45# 53-29 54-28# 56-31# 58-35# 61-28# 64-25 69-25# 73-15# 76-26# 80-26# 80-26# 80-26# 80-26# 80-26# 81-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 91-28# 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48-25¢ 49-58¢ 50-48 51-24 52-47 54-28 55-28 56-31 57-42 60-37 63-32 64-25¢ 67-38 69-25¢ 71-36 75-23 78-26 82-16 86-56 89-25 93-338	38-21 38-21 39-22 40-21 41-59 43-42 44-31 46-50 47-27 48-25 49-59 50-48 51-24 52-47 54-28 55-28 56-31 57-42 60-37 63-32 64-25 67-38 67-38 67-38 69-25 67-38 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 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64-25# 68-20 75-63 72-20 75-63 79-24 82-30 86-60 89-52 92-69 93-196 94-32	38-21 39-22 39-22# 40-21# 41-83# 43-42 44-47# 47-27 47-27# 48-25# 49-69 50-60 51-34# 53-29 54-28 55-28 56-31# 58-22# 64-25 64-25# 64-25# 64-25# 72-20# 75-63# 79-24# 82-30# 82-30# 82-30# 82-30# 83-196# 94-32#	38-21 39-22 40-21 40-21 42-35 43-42 45-31 47-27 48-25 48-25 48-25 49-69 50-60 51-35 53-29 54-28 55-28 56-31 56-31 64-25 65-20 68-48 69-25 72-46 76-14 79-48 83-23 86-74 90-25 92-89 93-197 94-52	38-21 39-22 40-21 40-21 42-35 43-42 45-31 47-27 48-25 48-25 48-25 49-70 50-61 51-35 53-29 54-28 55-28 55-28 56-31 61-17 64-25 65-20 68-48 69-25 68-48 72-46 72-46 79-48 83-23 86-74 90-25 92-89 93-197 94-52

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	71-39 78-13#	72-18# 78-29	72-50 79-22#	73-13# 79-51	73-43 80-24#	74-17# 80-61	74-41 81-12#	75-21# 81-28	75-66 82-14#	76-12# 82-33	76-29	77-284	77-52	77-72
	84-64	85-25#	85-74	86-17#	86-106	87-20#	87-26	87-115	88-24#	88-72	83-13# 89-15#	83-22 89-24	83-40 89-56	84 - 18# 90 - 15#
	90-24 94-76	90-52 95-30#	91-42# 95-36	91-51 95-41	91-95	92-39#	92-51	92-113	93-87#	93-93	93-101	93-339	94-31#	94-41
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	7-4274	7-4274	7-4274	16-99	16-99	16-99	16-99#	16-99#	16-100	16-100	16-100	16-100	16-100#	16-100#
	16-100#	16-104 16-117	16-104 16-117	16-104#	16-112	16-112 16-117	16-112 16-117	16-112	16-112 16-117#	16-112	16-112#	16-1120	16-1120	16-112#
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	16-130 20-218	16-130#	16-130#	16-130#	16-132	16-132	16-1324	16-135	16-135	16-135#	16-141	16-141	16-1414	20-218
	20-219#	20-2194	20-219	20-219	20-219	20-219	20-219	20-219	20-219	20-219	20-219	20-219#	20-219#	20-219#
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	20-225	20-225	20-225	20-225	20-225	20-225	20-225	20-225	20-225	20-225#	20-225#	20-225#	20-2254	20-225#
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	26-17# 30-95	26-26 30-95	26-26 30-95	26-26 30-95#	26-26# 30-95#	26-26# 30-100	30-27	30-27	30-27#	30-82	30-82	30-82	30-824	30-824
	83-18	83-18	83-184	83-184	87-45	87-45	30-100 87-45	30-100# 87-45	77-47 87-45¢	77-47 87-45¢	77-47 87-45 <b>4</b>	77-47 <del>4</del> 87-52	77-47 <del>4</del> 87-52	83-18 87-52
	87-52#	87-52#	87-58	87-58	87-58	87-58#	87-58#	87-64	87-64	87-64	87-644	87-64#	87-70	87-70
	87-70 87-89	87-70# 87-89	87-70¢ 87-89¢	87-76 87-89#	87-76 87-91	87-76 87-91	87-76# 87-91#	87-76# 87-96	87-82 87-96	87-82 87-964	87-82 87-106	87-82# 87-106	87-82# 87-106	87-89
	87-106	87-106	87-106#	87-106#	87-106#	87-106#	87-106#	87-112	87-112	87-1124	89-20	89-20	89-20	87-106 89-20#
	89-20¢ 92-47¢	90-20	90-20 93-92	90-20 93-92	90-20#	90-20#	91-47	91-47 93-97	91-47 93-97	91-47#	91-474	92-47	92-47	92-47
	93-138#	93-139	93-139	93-1394	93-249	93-249	93-2494	93-304	93-304	93-97	93-97# 94-37	93-97¢ 94-37	93-138 94-37	93-138 94-37¢
T\$CODE	94-37¢ 60-33	95-43 60-33	95-43 60-33	95-430	60 77A	60 TTA								
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TAPON	98-18 98-22	98-184 98-22	98-18¢ 98-22	98-18# 98-22#	98-224	98-224	98-24	98-24	98-24	98-20 98-24#	98-20# 98-24#	98-20# 98-24#	98-20#	98-20#
T\$ERRN	7-373# 36-67#	18-20 37-30	18-20¢ 37-30¢	22-21 37-41	22-210	23-101	23-101#	24-26	24-26#	25-69	25-69#	25-106	25-106#	36-67
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	49-35¢ 50-57¢	49-42 50-68	49-424	49-55	49-55#	49-66	49-66#	49-79	49-79#	50-37	50-37#	50-44	50-444	50-57
	53-29	53-29	50-68¢ 53-29	50-81 53-29#	50-81¢ 53-29¢	51-31 53-29#	51-31# 53-29#	51-42 54-28	51-42# 54-28	52-33 54-28	52 - 33# 54 - 28	52-44 54-28¢	52 - 44¢ 54 - 28¢	53-29 54-28#
	53-29 54-28¢	55-28	55-28	55-28	55-28	55-28#	55-28#	55-28#	55-28#	56-31	56-31	56-31	56-31	56-314
	56-31¢ 60-46¢	56-31# 61-26	56-31#	57-29	57-29# 62-37#	57-40 63-30	57-40# 63-30#	58-31 65-33	58-31# 65-33#	58-41	58-414	59-31	59-31#	60-46
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	92-67#	92-87	92-87#	92-106	92-106#	92-110	92-110#	93-117	93-1174	93-156	93-156#	93-194	93-194#	93-217
	93-217#	93-222	93-222#	93-248	93-248#	93-264	93-264#	93-276	93-276#	93-285	93-285#	93-303	93-303#	93-309

	93-309¢ 96-47¢	93-336	93-3360	94 - 51	94-510	94 - 66	94 - 664	95-77	95-774	96 - 37	96-370	96-42	96-420	96-47
TSEXCP	95-44	95-444	97-54	97-544	97-56	97-560	97-58	97-584	97-60	97-604	00 22	00 224		
TSFLAG	28-60	28-600	28-604	30-20	30-20	30-204	30-204	30-126			98-22	98-224	** **	
	32-420	33-19	33-194	33-194	34 -20	34 - 200	34 - 204	41-34	30-126	30-1260	30-1260	32-42	32-42	32-420
	46-270	47-21	47-21	47-210	47-210	48-21			41-34	41-340	41-340	46-27	46-27	46-274
	49-73	49-730	49-730				48-21	48-210	48-210	49-49	49-49	49-490	49-494	49-73
				50-51	50-51	50-510	50-510	50-75	50-75	50-750	50 - 754	52-20	52-20	52-20#
	52-204	53-29	53-29	53-294	53-294	54-28	54-28	54-284	54-284	55-28	55-28	55-284	55-284	56 - 31
	56-31	56-310	56-310	58-32	58-32	58-324	58-320	60-28	60-28	60-28#	60-284	60-31	60-31	60-31#
	60-310	60-36	60-36	60-360	60-364	77-52	77-52	77-524	77-524	83-22	83-22	83-224	83-224	87-26
	87-26	87-264	87-264	89-24	89-24	89-244	89-24#	90-24	90-24	90-244	90-244	91-51	91-51	91-510
	91-510	92-51	92-51	92-514	92-510	93-93	93-93	93-934	93-934	93-101	93-101	93-1010	93-1010	94-41
	94-41	94-410	94-414	95 - 36	95-36	95 - 364	95 - 364	95-41	95-41	95-414	95-410			
T\$FREE	98-63	99-224												
T \$GMAN	7-3730	95-44	95-440	95-440										
T\$HILI	95-44	95-444	97-54	97-544	97-56	97-564	97-58	97-584	97-60	97-604	98-22	98-220		
T\$LAST	7-3730	98-634	99-15											
TILOLI	95-44	95-444	97-54	97-540	97-56	97-560	97-58	97-580	97-60	97-604	98-22	98-224		
TSLSYM	7-373	7-3730	9-25	10-25	16-105	16-124	16-136	16-142	20-185	27-41	28-75	30-141	31-18	32-57
	33-34	34 - 35	36-71	37-46	38-24	39-25	40-24	41-86	42-70	43-46	44-50	45-61	46-53	47-30
	48-28	49-85	50-87	51-49	52-51	53-30	54-29	55-29	56-32	57-50	58-48	59-40	60-56	61-31
	62-42	63-35	64-28	65-41	66-36	67-41	68-51	69-28	70-72	71-39	72-50	73-43	74-41	75-66
	76-29	77-72	78-29	79-51	80-61	81-28	82-33	83-40	84-64	85-74	86-106	87-115	88-72	
	90-52	91-95	92-113	93-226	93-320	93-339	94 - 76	95-83	96-49	97-61	98-33	01-112	00-15	89-56
TILTNO	98-630				70 020		24.10	75-05	70-47	31-01	70-33			
TINEST	7-3730	7-399	7-399	7-3990	9-9	9-9	9-90	9-25	9-25	9-25	9-250	10.0	10.0	10 04
	10-25	10-25	10-25	10-250	10-26	10-26	10-26	10-264	11-51	11-51	11-510	10-8 16-96	10-8	10-84
	16-105	16-105	16-105	16-1050	16-107	16-107	16-1070	16-124	16-124	16-124	16-1240	16-126	16-96	16-964
	16-136	16-136	16-136	16-1360	16-138	16-138	16-1384	16-142	16-142	16-142	16-1420		16-126	16-126#
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	29-12	29-12	29-12	29-120	30-8	30-8	30-84	30-141	30-141	30-141		29-8	29-8	29-80
	31-18	31-18	31-18	31-180	32-8	32-8	32-84	32-57	32-57	32-57	30-1410	31-10	31-10	31-100
	33-34	33-34	33-34	33-340	34-9	34-9	34-90	34 - 35	34-35		32-570	33-8	33-8	33-84
	34-369	36 - 38	36-38	36-384	36-60	36-60	36-604	36-71		34 - 35	34-350	34 - 36	34 - 36	34 - 36
	37-21	37-21	37-210	37-32	37-32	37-32	37-320	37-33	36-71	36-71	36-714	37-19	37-19	37-194
	37-46	37-46	37-46	37-460	38-17	38-17	37-324		37-33	37-330	37-43	37-43	37-43	37-434
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	38-210	38-210	38-214	38-21	38-21	38-21	38-21	38-21	38-21	38-21	38-21	38-21	38-21	38-214
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	39-25	39-25		39-22	39-22	39-22	39-220	39-220	39-224	39-220	39-224	39-224	39-224	39-224
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	40-210	40-210	40-210	40-210	40-210	40-210	40-210	40-24	40-24	40-24	40-240	41-31	41-31	41-314
	41-38	41-38	41-380	41-39	41-39	41-390	41-49	41-49	41-49	41-490	41-50	41-50	41-504	41-59
	41-59	41-59	41-590	41-83	41-83	41-83	41-830	41-86	41-86	41-86	41-86#	42-31	42-31	42-314
	42-35	42-35	42-350	42-36	42-36	42-360	42-47	42-47	42-47	42-470	42-67	42-67	42-67	42-674
	42-70	42-70	42-70	42-700	43-37	43-37	43-370	43-42	43-42	43-42	43-42	43-42	43-42	43-42
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	44-31	44-31	44-310	44-47	44-47	44-47	44-470	44-50	44-50	44-50	44-500	45-26	45-26	45-264
	45-31	45-31	45-310	45-34	45-34	45-340	45-52	45-52	45-52	45-524	45-58	45-58	45-58	45-584
	45-61	45-61	45-61	45-614	46-24	46-24	46-240	46-31	46-31	46-310	46-50	46-50	46-50	46-504
	46-53	46-53	46-53	46-530	47-18	47-18	47-184	47-27	47-27	47-27	47-27	47-27	47-27	47-27
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	47-270	47-270	47-270	47-270	47-270	47-270	47-270	47-30	47-30	47-30	47-304	48-18	48-18	48-184

48-25 48-25 48-28 49-46 49-70 50-61 50-87 51-35 52-24 52-31 53-29 54-29 55-29 56-31 56-32 58-40 60-56 61-31 62-42 63-35 64-25 64-25 65-20 66-14 67-21 68-20 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-26 69-27 79-51 80-61 81-28 82-33 83-40 85-41 86-82	48-25 48-25 48-28 49-46 49-70 50-87 51-35 52-24 52-29 53-29 53-29 54-29 55-29 56-31 56-32 58-40 60-56 61-31 62-42 63-35 64-25 64-25 65-20 66-14 67-21 68-20 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 69-25 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51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 51-45 61-15 61-15 61-15 61-15 61-17 61-12 61-12 61-12 61-13 61-12 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 61-13 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T\$PCNT T\$PTAB T\$PTHV T\$PTNU T\$SAVL	38-21 45-340 93-1970 99-150 99-16 7-427 7-3730 7-3730	38-21# 45-52 93-225 99-16 99-16# 99-22# 99-16	39-22 47-27 93-2380 99-16	39-220 47-270 93-315 99-160	40-21 48-25 99-22	40-21¢ 48-25¢	41 - 39¢ 64 - 25	41-49 64-25¢	41-50¢ 69-25	41-59 69-25#	42-36¢ 93-106¢	42-47 93-119	43-42 93-120¢	43-42¢ 93-196
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40-21 40-21 41-50 42-36 43-42 43-42 43-42 43-42 45-34 46-31 47-27 48-25 48-25 48-25 48-25 49-70 50-47 51-45 51-45 51-45 51-45 51-45 51-45 63-32 64-25 64-25 64-25 64-25 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36 67-36	40-21 41-38 41-39 42-36 43-42 43-42 43-42 43-42 43-27 47-27 48-25 48-25 49-28 49-28 49-73 50-48 50-71 51-24 52-24 52-24 52-24 53-28 54-28 55-28 56-31 57-42 58-43 60-37 62-15 63-32 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25	40-21 41-38 41-59 42-36# 43-42 43-42# 45-34# 46-50 47-27 48-25 48-25 49-28 49-28 49-38 49-38 50-71 51-34 52-47# 53-29 54-28 55-28 55-28 56-31 57-42# 56-31 57-42# 56-31 57-42# 66-14 67-38# 64-25# 64-25# 64-25# 64-25# 64-25# 64-25# 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64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25	40-21 41-39 41-39 41-59 42-47 43-42 43-42 44-31 45-50 47-27 48-25 48-25 49-45 49-82 50-51 50-72 51-34 52-36 53-29 54-28 55-28 56-31 56-31 56-31 56-31 56-31 56-31 56-31 56-31 57-31 56-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-31 56-31 57-63	40-21 41-39 41-59 42-47 43-42 43-42 44-31 45-52 46-50 47-27 48-25 48-25 49-45 49-59 49-82 50-60 50-72 51-34 52-36 53-29 54-28 55-28 56-31 57-31 58-22 56-31 57-31 58-23 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25	40-21 41-39 41-83 42-47 43-42 44-47 45-52 46-50 47-27 48-25 48-25 49-59 49-82 50-60 50-72 49-82 50-60 51-36 53-29 54-28 55-28 56-31 57-31 58-33 59-16 60-47 62-39 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25 64-25	40-21# 41-49 41-83 42-47# 43-42 43-42 44-47 45-52# 47-27 47-27# 48-25# 49-45 49-69 50-60 50-75 51-35 52-36 53-29# 54-28# 55-31 56-31 57-31 58-33 59-16# 61-17 62-39 64-25 65-20 66-33 68-48 69-25# 70-68 72-46 74-19# 76-14	40-21# 41-49 41-83 42-67 43-42 43-42 44-47 45-58 47-27 47-27 48-25 48-25 48-25 49-45 50-80 50-80 50-80 50-80 50-80 50-80 50-80 51-35 52-36 53-29 54-28 56-31 57-31 58-33 59-33 61-17 62-39 64-25 65-20 66-33 69-25 67-36 70-68 70-68 70-68	40-21# 41-49 41-83 42-67 43-42# 44-47 45-58 47-27 47-27# 48-25# 48-25# 49-46 49-69 50-80# 50-80# 51-35# 52-37 53-29# 54-28 55-28 55-28 56-31# 57-34 58-33 59-33 61-17# 63-17 64-25 65-20# 67-21 68-48 69-25# 71-19 72-46 74-38 76-14#	40-21# 41-49 41-83# 42-67 43-42# 44-47# 45-58 47-27 47-27# 48-25# 49-46 49-69 50-84 51-45 52-37 53-29# 54-28 55-28 55-28 56-31# 57-34 58-33# 59-33 61-28 63-17 64-25 65-38 67-21 68-48# 69-25# 71-19 72-46# 74-38 76-26	40-21# 41-49# 42-35 42-67 43-42# 45-31 45-58 47-27 47-27 48-25 48-25 48-25 48-25 48-25 48-25 48-25 50-61 50-84 51-45 52-37# 53-29 53-29# 54-28 55-28 56-31 56-31# 57-34# 58-35 59-33 61-28 63-17# 64-25 65-38 67-21# 64-25 65-38 67-21# 67-25# 71-19# 73-15 74-38 76-26	40-21# 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63-32 64-25 64-25¢	63-32 64-25 64-25¢	63-32¢ 64-25 64-25¢	64-25 64-25 64-25	64-25 64-25 64-25¢	64-25 64-25 64-25	64-25 64-25 64-25	64-25 64-25 65-20	64-25 64-25 65-20	64-25 64-25 65-20¢	64 - 25 64 - 25 65 - 38	64-25 64-25 65-38	64-25 64-25 65-38	64-25¢ 64-25¢ 65-38
67-38 69-25 69-25	67-38 69-25 69-25	67-38# 69-25 69-25	68-20 69-25 69-25	68-20 69-25 69-25	68-20¢ 69-25 69-25	68-48 69-25 69-25	68-48 69-25 69-25¢	68-48 69-25 69-25	68-48 69-25 69-25	68-48¢ 69-25	69-25 69-25	69-25 69-25	69-25 69-25
71-36 73-40 75-23	71-36 73-40 75-23#	73-40 75-63	73-40 75-63	73-40¢ 75-63	74-19 75-63	74-19 75-63#	74-190 76-14	74-38 76-14	71-19 72-46 74-38 76-140	71-19 72-464 74-38 76-26	71-19¢ 73-15 74-38 76-26	71-36 73-15	71-36 73-15¢
76-26¢ 78-26 80-58 82-16 83-36¢	77-30 78-26 80-58 82-16#	77-30 78-260 80-58 82-30	77-300 79-24 80-58 82-30	77-69 79-24 80-58¢ 82-30	77-69 79-240 81-14 82-30	77-69 79-48 81-14 82-30#	77-69 79-48 81-140 83-23	77-69¢ 79-48 81-25 83-23	78-15 79-48 81-25 83-23¢	78-15 79-48# 81-25 83-36	78-15# 80-26 81-25 83-36	78-26 80-26 81-25¢ 83-36	78-26 80-26# 82-16 83-36
86-56 86-96 89-25	86-25 86-56 86-96 89-25#	86-25 86-56# 86-96 89-52	86-25# 86-60 86-96 89-52	86-39 86-60 86-96# 89-52	86-39 86-60¢ 88-30 89-52	86-39 86-74 88-30 89-52#	86-39 86-74 88-30¢ 90-25	86-39¢ 86-74 88-39 90-25	86-41 86-74 88-39 90-25¢	86-41 86-74¢ 88-39 90-48	86-41# 86-82 88-39 90-48	86-56 86-82 88-39¢ 90-48	86-56 86-82¢ 89-25 90-48
90-48¢ 92-68 92-112 93-120 93-225¢	91-54 92-68 92-112 93-120¢ 93-238	91-54 92-68# 92-112 93-196 93-238	91-54# 92-69 92-112 93-196 93-238#	91-92 92-69 92-112¢ 93-196 93-315	91-92 92-69# 93-106 93-196 93-315	91-92 92-89 93-106 93-1960 93-315	91-92 92-89 93-106¢ 93-197 93-315	91-92# 92-89 93-119 93-197 93-315#	92-52 92-89 93-119 93-197¢ 93-321	92-52 92-89# 93-119 93-225 93-321	92-520 92-90 93-119 93-225 93-3210	92-68 92-90 93-119¢ 93-225	92-68 92-90# 93-120 93-225

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	94 - 75	94 - 75	94-75	94 - 75	94 - 754	95-72	95-72	95-724	95-81	95-81				94-53#
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	56-31	56-314	56-314	56-310	57-214	57-31	57-344	57-42	58-22#	58-33	58-35#	58-43	59-164	59-33
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	77-30#	77-69	78-154	78-26	79-24#	79-48	80-264	80-58	81-14#	81-25	82-16#	82-30	83-23#	83-36
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	91-424	92-394	93-874	93-105	93-105	93-1054	93-227	93-227	93-2274	94-310	95-304	96-254		
T\$TAGL	7-3734													
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	16-126	16-1264	16-138	16-138	16-1384	20-179	20-179	20-1794	27-39	27-39	27-394	28-46	28-46	28-46#
	29-8	29-8	29-84	30-8	30-8	30-84	31-10	31-10	31-104	32-8	32-8	32-84	33-8	33-8
	33-84	34-9	34-9	34-94	36-60	36-60	36-604	37-19	37-19	37-190	38-17	38-17	38-174	39-18
	39-18	39-184	40-17	40-17	40-174	41-31	41-31	41-310	42-31	42-31	42-310	43-37	43-37	43-374
	44-26	44-26	44-260	45-26	45-26	45-264	46-24	46-24	46-244	47-18	47-18	47-184	48-18	48-18
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	53-28	53-284	54-27	54-27	54-274	55-27	55-27	55-274	56-30	56-30	56-300	57-17	57-17	57-170
	58-18	58-18	58-184	59-13	59-13	59-134	60-22	60-22	60-224	61-15	61-15	61-150	62-13	62-13
	62-130	63-15	63-15	63-15#	64-20	64-20	64-204	65-18	65-18	65-184	66-12	66-12	66-12#	67-14
	67-14	67-140	68-14	68-14	68-144	69-20	69-20	69-204	70-33	70-33	70-330	71-17	71-17	71-170
	72-18	72-18	72-180	73-13	73-13	73-130	74-17	74-17	74-170	75-21	75-21	75-214	76-12	76-12
	76-124	77-28	77-28	77-284	78-13	78-13	78-130	79-22	79-22	79-224	80-24	80-24	80-244	81-12
	81-12	81-124	82-14	82-14	82-140	83-13	83-13	83-13#	84-18	84-18	84-184	85-25	85-25 90-15	85-25#
	86-17	86-17	82-14 86-17#	87-20	87-20	83-13 87-20#	88-24	88-24	84-18 88-24#	89-15	89-15	85-25 89-15¢	90-15	90-15
	81-12 86-17 90-15¢	81-12# 86-17 91-42	91-42	82-14 87-20 91-420	82-14¢ 87-20 92-39 94-31¢	92-39 95-30 99-15#	83-13 88-24 92-39¢	88-24 93-87	93-87	84-18 89-15 93-87¢	84-18¢ 89-15 93-105	93-105	93-105#	85-25¢ 90-15 93-227
	93-227	93-2270	94-31	94-31	94-310	95-30	95-30	95-304	96-25	96-25	96-25#	97-52	97-52	97-524
	98-12	98-12	98-124	99-15	99-15	99-150	99-16	99-16	99-16	99-16	99-16#	99-164		
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TST33 TST34	13-185#	68-21 69-25	68-27	68-40										
TST49 UAM	13-2020	84-23	84-44											
UNABLE UNIT UNS UPE US1	13-50# 13-54# 12-92# 12-38# 12-25#	30-68* 30-28*	32-13* 30-29*	60-33 30-37	60-34	60-49	60-50	60-55*						
US2 US4	12-26# 12-27#													
WAIT	12-64# 18-16 76-16 96-33	22-18 77-35	22-50 <b>#</b> 77-59	26-14 79-28	26-23 80-31	53-29 82-20	54-28 83-26	55-28 90-30	56-31 90-38	60-52 92-59	65-25 92-73	72-27 92-94	73-23 93-110	75-28 93-258
WAITMS	22-36¢ 26-9¢	30-77 30-63												
WATIME WCE WCF	20-184* 12-39¢ 12-83¢	22-36 <b>*</b> 93-259	22-37 93-263	22-424										
MCKD MCKHD	12-2130 12-2140 12-890	93-254 93-198	93-289											
WOR WRDTA WRL WRTD WRU	12-187# 12-215# 12-69# 12-217# 12-186#	93-240 93-94												
WTCKD WTCKHD X\$ALWA	16-39¢ 16-38¢ 7-373¢	93-275 93-211	93-298											
X\$FALS X\$OFFS X\$TRUE	7-373¢ 7-373¢ 7-373¢ 7-373¢	98-20 98-20												

CZRJMBO RPO7 FE/HOST ISOLATOR MACRO VO4.00 1-DEC-83 10:39:09 PAGE M-1 CROSS REFERENCE TABLE (CREF VO4.00 )

CRUSS R	EFERENCE	TABLE (CH	EF V04.00	, ,										
BCOMPL BERROR	1-150	7-373¢ 7-373¢	30-14	60-30	95-40									
BGNAUT BGNCLN	1-23# 1-31# 1-39#	7-373¢ 7-373¢ 7-373¢	34-9 31-10 32-8											
BGNDU BGNHRD	1-474	7-3734	33-8 97-52											
BGNHW BGNINI BGNMOD	1-66# 1-77# 1-85#	7-373¢ 7-373¢ 7-373¢	9-9 30-8 7-399	11-51	28-40	36-38	97-42							
BGNMSG BGNPRO	1-98#	7-3734	16-96 29-8	16-107	16-126	16-138								
BGNPTA BGNRPT BGNSEG	1-114¢ 1-144¢ 1-152¢	7-373¢ 7-373¢ 7-373¢	99-16 28-46 37-21	37-33	38-21	38-21	38-21	38-21	39-22	39-22	39-22	39-22	40-21	40-21
	40-21 46-31 50-48	40-21 47-27 50-61	41-38 47-27 50-72	41-39 47-27 51-24	41-50 47-27 51-35	42-35 48-25 52-24	42-36 48-25 52-37	43-42 48-25 53-29	43-42 48-25 53-29	43-42 49-28 53-29	43-42 49-46 54-28	44-31 49-59 54-28	45-31 49-70	45-34 50-30
	55-28 64-25	55-28 64-25	56-31 64-25	56-31 64-25	56-31 65-20	57-21 66-14	57-34 67-21	58-22 68-20	58-35 69-25	59-16 69-25	60-37 69-25	61-17 69-25	54-28 62-15 70-36	55-28 63-17 71-19
	72-20 86-60 94-32	73-15 86-82 94-53	74-19 88-30 95-72	75-23 89-25	76-14 90-25	77-30 91-54	78-15 92-52	79-24 92-69	80-26 92-90	81-14 93-106	82-16 93-120	83-23 93-197	86-25 93-238	86-41 93-321
BGNSET BGNSFT BGNSRV	1-161#	7-373¢ 7-373¢ 7-373¢	99-15 98-12	27.70										
BGNSUB BGNSW	1-193# 1-201# 1-225#	7-3734	20-179 93-105 10-8	27-39 93-227										
BGNTST	1-236# 48-18 62-13	7-373¢ 49-24 63-15	36-60 50-26 64-20	37-19 51-18 65-18	38-17 52-17 66-12	39-18 53-28 67-14	40-17 54-27 68-14	41-31 55-27 69-20	42-31 56-30 70-33	43-37 57-17 71-17	44 - 26 58 - 18 72 - 18	45-26 59-13 73-13	46-24 60-22 74-17	47-18 61-15 75-21
BNCOMP	76-12 90-15	77-28 91-42	78-13 92-39	79-22 93-87	80-24 94-31	81-12 95-30	82-14 96-25	83-13	84-18	85-25	86-17	87-20	88-24	89-15
BNERRO BREAK	1-266# 1-270# 1-274#	7-373¢ 7-373¢ 7-373¢	20-103	20-122	30-18 24-36	30-24	30-38							
BRESET CKLOOP CLOCK	1-278¢ 1-282¢ 1-286¢	7-373¢ 7-373¢ 7-373¢	30-10 20-101	20-120										
CLOSE	1-292#	7-373¢ 7-373¢	32-26	32-29	32-31	36-64	57-49	58-47	59-37					
DELAY	1-301#	7-373¢ 7-373¢	22-50	42-39	42-51	57-37	58-38	59-28						
DESCRI DEVTYP DISPAT	1-3170 1-3410 1-3460	7-3730 7-3730 7-3730	15-27 15-17 8-8											
DISPLA DOCLN DODU	1-360¢ 1-376¢ 1-380¢	7-3730 7-3730 7-3730												
DORPT	1-3854	7-3730 7-3730	34-35											
ENDAUT ENDCLN ENDCOM	1-4010	7-3730	31-18 32-57											
ENDDU ENDHRD	1-4250 1-4410 1-4530	7-373# 7-373# 7-373#	33-34 97-61											

CHUSS H	ELEVENCE	INDLE (Ch	EF 904.00	,										
ENDHW ENDINI ENDMOD ENDMSG ENDPRO ENDPTA ENDRPT	1-465¢ 1-475¢ 1-487¢ 1-500¢ 1-512¢ 1-520¢ 1-529¢	7-3730 7-3730 7-3730 7-3730 7-3730 7-3730 7-3730	9-25 30-141 10-26 16-105 29-12 99-21	27-43 16-124	34 - 36 16 - 136	96-51 16-142	98-64							
ENDSEG	1-541¢ 40-21 46-50 50-60 55-28 64-25 72-46 86-74	7-373¢ 40-21 47-27 50-71 55-28 64-25 73-40 86-96	28-75 37-32 41-49 47-27 50-84 56-31 64-25 74-38 88-39	37-43 41-59 47-27 51-34 56-31 64-25 75-63 89-52	38-21 41-83 47-27 51-45 56-31 65-38 76-26 90-48	38-21 42-47 48-25 52-36 57-31 66-33 77-69 91-92	38-21 42-67 48-25 52-47 57-42 67-38 78-26 92-68	38-21 43-42 48-25 53-29 58-33 68-48 79-48 92-89	39-22 43-42 48-25 53-29 58-43 69-25 80-58 92-112	39-22 43-42 49-45 53-29 59-33 69-25 81-25 93-119	39-22 43-42 49-58 54-28 60-47 69-25 82-30 93-196	39-22 44-47 49-69 54-28 61-28 69-25 83-36 93-225	40-21 45-52 49-82 54-28 62-39 70-68 86-39 93-315	40-21 45-58 50-47 55-28 63-32 71-36 86-56 93-338
ENDSET ENDSET ENDSRV ENDSUB ENDSW	94-52 1-555# 1-568# 1-580# 1-596# 1-614#	94-75 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢	95-81 99-22 98-33 20-185 93-226 10-25	27-41 93-320										
ENDTST	1-624# 48-28 62-42 76-29 90-52	7-373¢ 49-85 63-35 77-72 91-95	36-71 50-87 64-28 78-29 92-113	37-46 51-49 65-41 79-51 93-339	38-24 52-51 66-36 80-61 94-76	39-25 53-30 67-41 81-28 95-83	40-24 54-29 68-51 82-33 96-49	41-86 55-29 69-28 83-40	42-70 56-32 70-72 84-64	43-46 57-50 71-39 85-74	44-50 58-48 72-50 86-106	45-61 59-40 73-43 87-115	46-53 60-56 74-41 88-72	47-30 61-31 75-66 89-56
EQUALS ERRDF ERRHRD	1-642# 1-714# 1-718# 41-81 50-57 54-28 60-46 76-24 86-52 93-217 96-47	7-373¢ 7-373¢ 42-45 50-68 55-28 61-26 77-67 86-70 93-222	11-57 22-21 18-20 42-57 50-81 55-28 62-37 78-24 86-92 93-248	23-101 42-65 51-31 55-28 63-30 79-36 88-35 93-264	24-26 44-43 51-42 55-28 65-33 79-46 89-50 93-276	25-69 45-48 52-33 56-31 66-29 80-38 90-46 93-285	25-106 46-48 52-44 56-31 70-66 80-45 91-90 93-303	36-67 49-35 53-29 56-31 71-34 80-56 92-67 93-309	37-30 49-42 53-29 56-31 72-44 81-23 92-87 93-336	37-41 49-55 53-29 57-29 73-38 82-28 92-106 94-51	41-47 49-66 53-29 57-40 74-34 83-34 92-110 94-66	41-57 49-79 54-28 58-31 74-36 84-58 93-117 95-77	41-65 50-37 54-28 58-41 75-43 85-42 93-156 96-37	41-72 50-44 54-28 59-31 75-61 86-35 93-194 96-42
ERROR ERRSF ERRSOF ERRTBL ESCAPE EXIT	1-7220 1-7260 1-7300 1-7340 1-7440 1-7710	7-3730 7-3730 7-3730 7-3730 7-3730 7-3730	28-60	30-20	30-126	32-42	33-19	34-20	41-34	46-27	47-21	48-21	49-49	49-73
FEQUAL GETBYT GETPRI GETWOR GMANIA	50-51 89-24 1-810# 1-824# 1-834# 1-829# 1-839#	50-75 90-24 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢	52-20 91-51	53-29 92-51	54-28 93-93	55-28 93-101	56-31 94-41	58-32 95-36	60-28 95-41	60-31	60-36	77-52	83-22	87-26
GMANID GMANIL GPHARD GPRMA GPRMD GPRML	1-848# 1-859# 1-868# 1-874# 1-903# 1-934#	7-3730 7-3730 7-3730 7-3730 7-3730 7-3730	95-44 60-33 30-37 97-54 95-44 60-33	60-49 97-56 95-44# 60-33#	97-58 60-49	97-60 60-49¢	98-22 98-14	98-16	98-18	98-24				
J. 7	. ,,,,,	5150	00-33	00-334	00-47	00-470	30-14	20-10	20-10	70-24				

HEADER	1-954#	7-3734	7-427											
INLOOP	1-962#	7-3730												
IOSETU	1-966#	7-3734												
IOSTAR	1-9744	7-3734												
IPCKTS	7-1270	53-29	54-28	55-28	56-31									
KT11	1-982#	7-3734												
LASTAD	1-:474	7-3730	98-63											
M\$BYTE	1-D00#	7-3734	7-427	7-427	7-427	7-4274								
M\$CHEC	1-E18#	7-373#	28-60	28-60#	30-20	30-20#	30-126	30-126#	32-42	32-424	33-19	33-19#	34-20	34-20#
	41-34	41-344	46-27	46-27#	47-21	47-214	48-21	48-214	49-49	49-494	49-73	49-734	50-51	50-514
	50-75	50-75#	52-20	52-20#	53-29	53-29#	54-28	54-284	55-28	55-28#	56-31	56-314	58-32	58-32#
	60-28	60-28#	60-31	60-31#	60-36	60-36#	77-52	77-52#	83-22	83-22#	87-26	87-264	89-24	89-24#
	90-24	90-24#	91-51	91-51#	92-51	92-51#	93-93	93-93#	93-101	93-101#	94-41	94-414	95-36	95-36#
	95-41	95-414												
M\$CNTO	1-E82#	7-3734	60-33	60-33#	60-49	60-49#	95-44	95-444	97-54	97-54#	97-56	97-56#	97-58	97-58#
	97-60	97-60#	98-14	98-14#	98-16	98-16#	98-18	98-18#	98-22	98-22#	98-24	98-244		
M\$CGUN	1-066#	7-373#	16-99	16-99#	16-100	16-100	16-100#	16-104	16-104#	16-112	16-112	16-112	16-112	16-112#
	16-117	16-117	16-117	16-117	16-1174	16-123	16-1230	16-128	16-128#	16-129	16-129#	16-130	16-130	16-130#
	16-132	16-132#	16-135	16-135#	16-141	16-1410	20-218	20-218#	20-219	20-219	20-219	20-219	20-219	20-219
	20-219	20-2194	20-221	20-2214	20-222	20-222	20-222	20-222	20-222	20-222	20-222	20-2224	20-224	20-224#
	20-225	20-225	20-225	20-225	20-225	20-225	20-225	20-2254	20-229	20-229#	20-230	20-230	20-230#	21-9
	30-954	21-12 30-100	21-12#	21-18	21-184	26-17	26-174	26-26	26-264	30-27	30-274	30-82	30-824	30-95
	87-64	87-640	87-70	87-704	87-76	83-18 87-76#	83-18¢ 87-82	87-45	87-45	87-454	87-52	87-524	87-58	87-58#
	87-106	87-106	87-106	87-106	87-1064	87-112		87-824	87-89	87-89#	87-91	87-910	87-96	87-964
	92-474	93-92	93-92#	93-97	93-974	93-138	87-112¢ 93-138¢	89-20 93-139	89-20#	90-20	90-20#	91-47	91-474	92-47
	94-374	95-43	95-434	33-31	33-314	93-130	42-1304	42-134	93-139#	93-249	93-2494	93-304	93-304#	94-37
M\$DATA	1-B67#	7-3730	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7.427	7 427	7 407	7 407
	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7-427
	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7-4274	7-4274	15-17
	15-170	15-27	15-274						1-461	1-461	1-451	1-4514	1-4514	12-11
M\$DECR	1-029#	7-3734	9-25	9-25#	10-25	10-25#	10-26	10-26#	16-105	16-105#	16-124	16-124#	16-136	16-136#
	16-142	16-1424	20-185	20-1854	27-41	27-414	27-43	27-434	28-75	28-75#	29-12	29-12#	30-141	30-1414
	31-18	31-184	32-57	32-574	33-34	33-344	34-35	34-354	34-36	34-364	36-71	36-714	37-32	37-32
	37-324	37-324	37-43	37-43	37-434	37-434	37-46	37-464	38-21	38-21	38-21	38-21	38-21	38-21
	38-21	38-21	38-21#	38-21#	38-21#	38-214	38-21#	38-21#	38-214	38-21#	38-24	38-244	39-22	39-22
	39-22	39-22	39-22	39-22	39-22	39-22	39-22#	39-22#	39-22#	39-224	39-22#	39-224	39-224	39-224
	39-25	39-25#	40-21	40-21	40-21	40-21	40-21	40-21	40-21	40-21	40-21#	40-21#	40-21#	40-21#
	40-210	40-21#	40-21#	40-214	40-24	40-244	41-49	41-49	41-494	41-49#	41-59	41-59	41-594	41-594
	41-83	41-83	41-834	41-830	41-86	41-864	42-47	42-47	42-474	42-474	42-67	42-67	42-674	42-67#
	42-70	42-700	43-42	43-42	43-42	43-42	43-42	43-42	43-42	43-42	43-424	43-424	43-424	43-424
	43-420	43-420	43-424	43-420	43-46	43-464	44-47	44-47	44-474	44-470	44-50	44-50#	45-52	45-52
	47-27	47-27	45-58 47-27	45-58	45-58 <del>4</del> 47-27	45-584	45-61	45-614	46-50	46-50	46-504	46-504	46-53	46-53#
	47-270	47-270	47-30	47-27	48-25	47-27	47-27	47-27	47-274	47-270	47-274	47-274	47-274	47-274
	48-25#	48-254	48-250	48-254	48-254	48-25 48-25#	48-25 48-28	48-25 48-28#	48-25 49-45	48-25	48-25	48-25	48-254	48-25#
	49-584	49-584	49-69	49-69	49-694	49-694	49-82	49-82	49-824	49-45	49-454	49-454	49-58	49-58
	50-474	50-470	50-60	50-60	50-60#	50-60#	50-71	50-71	50-714	50-714	49-85	49-85#	50-47	50-47
	50-87	50-87#	51-34	51-34	51-340	51-344	51-45	51-45	51-454	51-454	50-84 51-49	50-84 51-494	50-84# 52-36	50-84¢ 52-36
	52-36#	52-36#	52-47	52-47	52-474	51-34¢ 52-47¢	52-51	52-51#	53-29	53-29	53-29	53-29	53-29	53-29
	53-29#	53-29#	53-294	53-294	53-29#	53-29#	53-30	53-30#	54-28	54-28	54-28	54-28	54-28	54-28
	54-284	54-284	54-28#	54-28#	54-284	54-284	54-29	54-29#	55-28	55-28	55-28	55-28	55-28	55-28
	55-28#	55-28#	55-284	55-284	55-284	55-28#	55-29	55-29#	56-31	56-31	56-31	56-31	56-31	56-31
	56-31#	56-31#	56-314	56-314	56-314	56-314	56-32	56-32#	57-31	57-31	57-310	57-310	57-42	57-42
	57-424	57-424	57-50	57-504	58-33	58-33	58-334	58-334	58-43	58-43	58-434	58-434	58-48	58-484
	59-33	59-33	59-33#	59-334	59-40	59-40#	60-47	60-47	60-474	60-47#	60-56	60-56#	61-28	61-28

	61-28#	61-28#	61-31	61-31#	62-39	62-39	62-39#	62-39#	62-42	62-42#	63-32	63-32	63-32#	63-32#
	63-35	63-35#	64-25	64-25	64-25	64-25	64-25	64-25	64 - 25	64-25	64-25#	64-25#	64-25#	64-25#
	64-25#	64-25#	64-25#	64-25#	64-28	64-28#	65-38	65-38	65-38#	65-38#	65-41	65-41#	66-33	66-33
	66-33#	66-33#	66-36	66-36#	67-38	67-38	67-38#	67-38#	67-41	67-41#	68-48	68-48	68-484	68-48#
	68-51	68-51#	69-25	69-25	69-25	69-25	69-25	69-25	69-25	69-25	69-25#	69-25#	69-25#	69-25#
	69-25#	69-25#	69-25#	69-25#	69-28	69-28#	70-68	70-68	70-68#	70-68#	70-72	70-724	71-36	71-36
	71-36#	71-36#	71-39	71-39#	72-46	72-46	72-46#	72-46#	72-50	72-50#	73-40	73-40	73-40#	73-40#
	73-43	73-434	74-38	74-38	74-384	74-38#	74-41	74-414	75-63	75-63	75-634	75-634	75-66	75-664
	76-26	76-26	76-26#	76-26#	76-29	76-29#	77-69	77-69	77-69#	77-694	77-72	77-724	78-26	78-26
	78-26#	78-264	78-29	78-29#	79-48	79-48	79-48#	79-484	79-51	79-514	80-58	80-58	80-584	80-584
	80-61	80-61#	81-25	81-25	81-25#	81-25#	81-28	81-28#	82-30	82-30	82-30#	82-30#	82-33	82-334
	83-36	83-36	83-364	83-36#	83-40	83-40#	84-64	84-64#	85-74	85-744	86-39	86-39	86-394	86-394
	86-56	86-56	86-56#	86-56#	86-74	86-74	86-74#	86-744	86-96	86-96	86-96#	86-96#	86-106	
	87-115	87-1150	88-39	88-39	88-39#	88-39#	88-72	88-724	89-52	89-52	89-524	89-524	89-56	86-106#
	90-48	90-48	90-48#	90-48#	90-52	90-52#	91-92	91-92	91-92#	91-92#	91-95	91-954	92-68	89-56#
	92-68#	92-684	92-89	92-89	92-89#	92-89#	92-112	92-112	92-1124	92-1124	92-113	92-1134	93-119	92-68
	93-119#	93-1194	93-196	93-196	93-196#	93-1964	93-225	93-225	93-2254	93-225#	93-226	93-226#	93-119	93-119
	93-315#	93-3154	93-320	93-320#	93-338	93-338	93-3384	93-338#	93-339	93-3394	94-52			93-315
	94 - 75	94-75	94-75#	94-75#	94-76	94-764	95-81	95-81	95-814	95-814	95-83	94-52	94-524	94-52#
	96-51	96-514	97-61	97-614	98-33	98-334	98-64	98-644	99-16	99-164	93-03	95-83#	96-49	96-49#
M\$DEFA	1-E70#	7-3734	60-33	60-334	60-49	60-494	95-44	95-444	97-54	97-54#	97-56	97-564	07 50	07 504
	97-60	97-60#	98-14	98-144	98-16	98-16#	98-18	98-184	98-22	98-224	98-24		97-58	97-58#
M\$ENDE	1-0744	7-3730	9-25#	10-25#	10-26#	16-105#	16-1244	16-1364	16-1424	20-185#	27-414	98-24# 27-43#	20 754	70
	31-184	32-574	33-344	34-354	34-36#	36-71#	37-324	37-434	37-464				28-75#	30-1414
	39-22#	39-22#	39-22#	39-22#	39-254	40-21#	40-214	40-214	40-21#	38-214	38-214	38-214	38-21#	38-244
	42-470	42-674	42-704	43-424	43-424	43-424	43-424	43-464	44-474	40-24#	41-494	41-594	41-834	41-864
	46-534	47-274	47-270	47-270	47-270	47-304	48-254	48-25#	48-254	44-50#	45-524	45-584	45-614	46-50#
	49-824	49-854	50-474	50-60#	50-714	50-844	50-874	51-344	51-45#	48-25#	48-284	49-454	49-584	49-69#
	53-29#	53-294	53-304	54-284	54-284	54-284	54-294	55-28#	55-28#	51-49#	52-364	52-474	52-51#	53-29#
	56-32#	57-314	57-424	57-504	58-334	58-434	58-484	59-33#	59-40#	55-284	55-29#	56-31#	56-314	56-31#
	62-424	63-324	63-35#	64-25#	64-25#	64-25#	64-25#	64-28#	65-38#	60-474	60-564	61-284	61-314	62-39#
	68-484	68-514	69-25#	69-254	69-254	69-25#	69-284	70-68#	70-724	65-410	66-33#	66-364	67-384	67-414
	73-430	74-384	74-410	75-634	75-66#	76-264	76-294	77-694	77-724	71-36#	71-39#	72-464	72-504	73-404
	80-614	81-25#	81-28#	82-304	82-334	83-364	83-404	84-644	85-744	78-26# 86-39#	78-29#	79-484	79-514	80-584
	87-115#	88-394	88-72#	89-524	89-564	90-484	90-524	91-924	91-954		86-564	86-74#	86-96#	86-106#
	93-196#	93-225#	93-226#	93-315#	93-320#	93-3384	93-3394	94-524	94-754	92-68#	92-894	92-1124	92-1134	93-119#
	97-614	98-334	98-64#	70-0254	30-0E0W	33-330W	33-3394	74-754	34-134	94-76#	95-81#	95-83#	96-49#	96-51#
M\$ERRI	1-8490	7-3734	18-20	18-20#	22-21	22-21#	23-101	23-101#	24-26	24 264	25 60	25 604	OF 100	25 104
	36-67	36-674	37-30	37-304	37-41	37-414	41-47	41-470	41-57	24-26¢ 41-57¢	25-69	25-694	25-106	25-106#
	41-81	41-810	42-45	42-454	42-57	42-574	42-65	42-65#	44-43	44-434	41-65	41-654	41-72	41-720
	41-81 49-35	41-81¢ 49-35¢	42-45 49-42	42-45#	42-57 49-55	42-57# 49-55#	49-66	49-664	49-79	49-794	45-48 50-37	45-484	46-48	46-484
	50-57	50-574	50-68	50-684	50-81	50-814	51-31	51-314	51-42	51-424	52-33	50-374	50-44	50-440
	53-29 54-28#	53-29	53-29	53-29	53-29#	53-294	53-29#	53-29#	54-28	54-28	54-28	52-33 <b>4</b> 54-28	52-44	52-444
	54-28#	54-28#	55-28	55-28	55-28	55-28	55-284	55-28#	55-284	55-284		54-20	54-284	54-28#
	56-310	56-31#	56-314	56-314	57-29	55-28 57-29#	57-40	57-40#	58-31	55-28#	56-31	56-31	56-31	56-31
	60-46	60-46#	61-26	61-26#	62-37	62-37#	63-30	63-30#	65-33	58-31¢ 65-33¢	58-41 66-29	58-414	59-31	59-31#
	71-34	71-340	72-44	72-444	73-38	73-384	74-34	74-344	74 - 36	74-364	75-43	66-29¢ 75-43¢	70-66	70-66#
	71-34 76-24 80-56	76-244	77-67	77-674	78-24	78-244	79-36	79-364	79-46	79-464	80-38	80-384	75-61	75-614
	80-56	80-56#	81-23	81-234	82-28	82-28#	83-34	83-344	84-58	84-584	85-42		80-45	80-454
	86-52	86-52#	86-70	86-704	86-92	86-924	88-35	88-354	89-50	89-50#	90-46	85-424	86-35	86-35#
	86-52 92-67	92-67#	92-87	92-874	92-106	92-106#	92-110	92-110#	93-117	93-1174	93-156	90-46#	91-90	91-904
	93-217	93-2174	93-222	93-222#	93-248	93-248#	93-264	93-264#	93-276	93-276#	93-136	93-1564	93-194	93-1944
	93-309	93-309#	93-336	93-336#	94-51	94-51#	94-66	94-66#	95-77	95-774	96-37	93-2854	93-303	93-303#
	96-47	96-474					24-00	34-001/	23-11	33-114	30-31	96-37#	96-42	96-42#
M\$ESCA	1-006#	7-3730												
MSESCS	1-D10#	7-3734												

CHOSS II	E. CITCINGE	INDEE CON	LI 104.00	,										
MSEXCP	1-E010	7-3730	95-44	95-44	95-444	97-54	97-54	97-540	97-56	97-56	97-564	97-58	97-58	97-584
	97-60	97-60	97-60#	98-22	98-22	98-220								
MSEXIT	1-0140	7-3734	28-604	30-20	30-204	30-126	30-126#	32-42	32-424	33-194	34 - 204	41-34	41-340	46-27
	46-270	47-21	47-210	48-21	48-210	49-490	49-734	50-514	50-75#	52-20	52-204	53-29	53-294	54-28
	54-280	55-28	55-284	56-31	56-31#	58 - 32	58 - 324	60-28	60-284	60-31	60-314	60-36	60-364	77-52
	77-520	83-22	83-224	87-26	87-264	89-24	89-244	90-24	90-24#	91-51	91-514	92-51	92-514	93-93
MAEVEE	93-930	93-101	93-101#	94-41	94-410	95-36	95-364	95-41	95-414					
MSEXSE	1.0220	7-3730	28-604	30-204	30-1260	32-424	33-194	34 - 200	41-340	46-270	47-210	48-214	49-49	49-494
	49-73	49-730	50-51	50-510	50-75	50-754	52-204	53-290	54-284	55-284	56-314	58-324	60-284	60-31#
MSEXTJ	1-0184	77-524	83-22# 28-60	87-26#	89-244	90-244	91-510	92-510	93-930	93-1010	94-410	95-364	95-414	
	48-210	49-494	49-730	50-514	30 - 20¢ 50 - 75¢	30-126#	32-420	33-19	33-194	34 - 20	34-200	41-344	46-270	47-210
	77-520	83-220	87-264	89-240	90-244	52-20¢ 91-51¢	53-290	54 - 284	55-284	56-310	58-324	60-284	60-310	60-36#
MSGEN	1-0384	7-3730	7-427	7-427	7-427	7-427	7-427	93-934 7-427	93-1010	94-410	95-364	95-410	7 407	7 467
	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7-427
	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7-427	7-427
	7-4270	7-4270	7-4270	7-4270	7-4270	7-4270	7-4270	7-4274	7-4270	7-4270	7-4270	7-4270	7-4270	7-4270
	7-4274	7-4274	7-4270	7-4270	7-4270	7-4274	7-4270	7-4270	7-4270	7-4270	7-4270	7-4270	7-4270	7-4270
	7-4274	7-4270	7-4270	7-4270	7-4270	7-4270	7-4270	7-4270	8-8	8-80	9-9	9-9	9-94	9-90
	9-25	9-250	10-8	10-8	10-84	10-84	10-25	10-250	15-17	15-170	15-27	15-270	16-96	16-964
	16-105	16-1050	16-107	16-1070	16-124	16-1240	16-126	16-1264	16-136	16-1360	16-138	16-1384	16-142	16-1420
	20-1794	20-185	20-1850	27-39	27-390	27-41	27-410	28-46	28-464	28-75	28-754	29-8	29-84	30-8
	30-80	30-141	30-1410	31-10	31-100	31-18	31-184	32-8	32-84	32-57	32-570	33-8	33-84	33-34
	33-340	34-9	34 - 90	34 - 35	34 - 350	36-60	36-60#	36-71	36-710	37-19	37-190	37-32	37-324	37-43
	37-430	37-46	37-460	38-17	38-174	38-21	38-21	38-21	38-21	38-214	38-210	38-214	38-214	38-24
	38-240	39-18	39-180	39-22	39-22	39-22	39-22	39-224	39-224	39-224	39-220	39-25	39-254	40-17
	40-170	40-21	40-21	40-21	40-21	40-210	40-210	40-214	40-210	40-24	40-244	41-31	41-314	41-49
	41-490	41-59	41-590	41-83	41-830	41-86	41-864	42-31	42-310	42-47	42-470	42-67	42-674	42-70
	42-700	43-37	43-370	43-42	43-42	43-42	43-42	43-420	43-420	43-424	43-424	43-46	43-464	44-26
	46-240	44-47	44-470	44-50	44-500	45-26	45-264	45-52	45-520	45-58	45-584	45-61	45-614	46-24
	47-270	47-30	46-50¢ 47-30¢	46-53 48-18	46-530	47-18 48-25	47-180	47-27	47-27	47-27	47-27	47-270	47-270	47-270
	48-280	49-24	49-240	49-45	49-450	49-58	48-25	48-25	48-25	48-250	48-250	48-254	48-254	48-28
	50-260	50-47	50-470	50-60	50-604	50-71	49-580	49-69 50-84	49-69¢ 50-84¢	49-82	49-820	49-85	49-854	50-26
	51-340	51-45	51-450	51-49	51-494	52-17	52-170	52 - 36	52-364	50-87 52-47	50-87¢ 52-47¢	51-18	51-180	51-34
	53-280	53-29	53-29	53-29	53-294	53-290	53-294	53-30	53-304	54-27	54-270	52-51 54-28	52-51¢ 54-28	53-28 54-28
	54-284	54-280	54-284	54-29	54-294	55-27	55-270	55-28	55-28	55-28	55-284	55-284	55-284	55-29
	55-294	56-30	56-300	56-31	56-31	56-31	56-314	56-310	56-310	56-32	56-324	57-17	57-170	57-31
	57-310	57-42	57-424	57-50	57-504	58-18	58-180	58-33	58-334	58-43	58-430	58-48	58-484	59-13
	59-130	59-33	59-334	59-40	59-400	60-22	60-220	60-33	60-334	60-47	60-470	60-49	60-494	60-56
	60-560	61-15	61-150	61-28	61-280	61-31	61-310	62-13	62-134	62-39	62-394	62-42	62-424	63-15
	63-150	63-32	63-324	63-35	63-350	64-20	64-200	64-25	64-25	64-25	64-25	64-254	64-250	64-254
	64-250	64-28	64-28#	65-18	65-184	65-38	65-384	65-41	65-410	66-12	66-124	66-33	66-334	66-36
	66-360	67-14	67-140	67-38	67-384	67-41	67-410	68-14	68-140	68-48	68-484	68-51	68-51#	69-20
	69-204	69-25	69-25	69-25	69-25	69-250	69-254	69-25#	69-25#	69-28	69-284	70-33	70-334	70-68
	70-680	70-72	70-720	71-17	71-170	71-36	71-360	71-39	71-390	72-18	72-180	72-46	72-464	72-50
	72-500	73-13	73-130	73-40	73-400	73-43	73-430	74-17	74-170	74-38	74-384	74-41	74-410	75-21
	75-21¢ 77-69¢	75-63 77-72	75-634	75-66	75-660	76-12	76-124	76-26	76-264	76-29	76-294	77-28	77-284	77-69
	79-510	80-24	77-720 80-240	78-13	78-130	78-26	78-260	78-29	78-294	79-22	79-220	79-48	79-48#	79-51
	82-140	82-30	82-300	80-58 82-33	80-584	80-61	80-610	81-12	81-120	81-25	81-250	81-28	81-284	82-14
	84-640	85-25	85-250	85-74	82-33¢ 85-74¢	83-13	83-130	83-36	83-364	83-40	83-400	84-18	84-184	84-64
	86-96#	86-106	86-1064	87-20	87-200	86-17 87-115	86-174	86-39	86-394	86-56	86-564	86-74	86-740	86-96
	89-150	89-52	89-520	89-56	89-564	90-15	87-1150	88-24 90-48	88-244	88-39	88-394	88-72	88-724	89-15
	91-920	91-95	91-954	92-39	92-394	92-68	90-15#	92-89	90-484	90-52	90-520	91-42	91-424	91-92
	93-870	93-105	93-1050	93-119	93-1190	93-196	93-1960	93-225	93-2250	92-112 93-226	92-1120	92-113	92-1134	93-87
						20.100	70-1700	33-553	13-5534	73.550	93-2260	93-227	93-227#	93-315

MSGENB	93-315# 94-76# 97-52# 1-C38# 1-D35# 16-142 31-18 37-32# 38-21 39-22 39-25 40-21# 41-83 42-70 43-42# 45-52# 47-27 47-27# 48-25# 49-85 50-71# 51-45 52-51 53-30 54-29 56-32 58-33# 60-47 62-39# 64-25 65-38 67-38# 67-38# 67-38# 67-48# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64 86-74# 81-28 84-64	93-320 95-30 97-61 7-3730 7-3730 16-1426 31-180 37-320 38-21 39-22 39-250 40-210 41-83 42-700 41-83 42-700 43-420 45-520 47-27 47-270 48-250 49-850 50-710 51-45 52-510 53-300 54-290 55-290 56-320 56-320 56-320 56-320 56-380 67-380 67-380 67-380 67-380 68-740 88-720 91-22 93-225 93-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380 95-3380	93-3204 95-304 97-614 60-33 9-25 20-185 32-57 37-43 38-214 39-22 40-214 41-834 43-424 45-58 47-27 47-30 48-254 49-584 50-47 50-75 51-454 53-29 54-28 55-28 56-31 57-31 58-43 60-474 62-42 64-25 65-384 67-41 69-25 70-684 72-50 75-63 77-694 79-51 82-30 85-74 86-96 89-52 91-924 93-2254 93-339 95-64	93-338 95-44 98-12 60-33¢ 9-25¢ 20-185¢ 32-57¢ 37-43 38-21¢ 49-21¢ 41-83¢ 43-42¢ 41-83¢ 43-42¢ 45-58 47-27 47-30¢ 48-25¢ 49-58¢ 50-47 50-75¢ 51-45¢ 53-29 54-28 55-28 56-31 57-31 58-43 60-47¢ 62-42¢ 64-25 64-25 67-41¢ 69-25 70-68¢ 72-50¢ 73-69¢ 72-50¢ 73-69¢ 72-50¢ 73-69¢ 73-25¢ 93-339¢ 93-339¢ 93-844	93-3384 95-444 98-124 60-49 10-25 27-41 33-34 37-434 38-214 39-22 40-21 40-24 41-86 43-42 43-46 45-584 47-27 48-25 48-25 48-25 48-25 65-41 55-28 56-31 57-314 56-434 60-56 63-32 64-254 65-41 68-48 69-254 70-72 73-40 75-634 77-72 80-58 82-304 86-39 86-964 89-524 91-95 92-113 93-226 94-52 95-83	93-339 95-81 98-33 60-494 10-254 27-414 33-344 37-434 38-214 39-22 40-21 40-244 41-864 43-42 43-464 45-584 47-27 48-254 49-69 50-474 51-494 53-29 54-28 55-28 56-31 57-314 58-434 60-564 63-32 64-254 65-414 68-48 69-254 70-724 73-40 75-634 77-724 80-58 82-304 86-39 86-39 86-39 86-39 86-39 86-39 86-39 86-39 86-39 86-39 86-39 86-39 86-39 86-39 86-39 86-39 86-39 86-39 86-39 86-39 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	7-427 7-4270 7-4270 7-4270 10-8 16-138 31-100 98-630	7-427 7-4270 7-4270 7-4270 10-8 16-1386 32-8	7-427 7-4270 7-4270 7-4270 10-80 20-179 32-80	7-427 7-4270 7-4270 7-4270 11-510 20-1790 33-8	7-427 7-4270 7-4270 7-4270 15-17 27-39 33-80	7-427 7-4270 7-4270 7-4270 15-170 27-390 34-9	7-427 7-4270 7-4270 7-4270 15-27 28-400 34-90	7-427 7-4270 7-4270 7-4270 15-270 28-46 36-380	7-427 7-4270 7-4270 7-4270 16-96 28-460 97-420	7-427 7-427¢ 7-427¢ 8-8 16-96¢ 29-8 97-52	7-427 7-427¢ 7-427¢ 8-8¢ 16-107 29-8¢ 97-52¢	7-427 7-427¢ 7-427¢ 9-9 16-107¢ 30-8 98-12	7-427 7-427¢ 7-427¢ 9-9 16-126 30-8¢ 98-12¢	7-427¢ 7-427¢ 7-427¢ 9-9¢ 16-126¢ 31-10 98-63
MSGNIN	1-D49¢ 7-427 7-427 7-427¢ 7-427¢ 7-427¢ 8-8 8-8 8-8 8-8 8-8 8-8¢ 8-8¢ 8-8¢ 8-	7-373¢ 7-427 7-427 7-427¢ 7-427¢ 7-427¢ 8-8 8-8 8-8 8-8 8-8 8-8 8-8¢ 8-8¢ 8-8	7-427 7-427 7-427 7-427 7-427 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-	7-427 7-427 7-427 7-427 7-427 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-	7-427 7-427 7-427 7-427 7-427 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-	7-427 7-427 7-427 7-427 7-427 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-	7-427 7-427 7-427 7-427 7-427 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-	7-427 7-427 7-427 7-427 7-427 7-427 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-	7-427 7-427 7-427 7-427 7-427 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-	7-427 7-427 7-427 7-427 7-427 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-	7-427 7-427 7-427 7-427 7-427 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-	7-427 7-427 7-427 7-427 7-427 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-	7-427 7-427 7-427 7-427 7-427 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-8 8-	7-427 7-427 7-427¢ 7-427¢ 7-427¢ 8-8 8-8 8-8 8-8 8-8 8-8¢ 8-8¢ 8-8¢ 8-
	16-104 16-112 16-117 16-128 16-129 16-130 16-1320 16-1320 16-141 18-200 20-1010 20-154 20-161 20-2180 20-219 20-221 20-222 20-2220 20-2250 20-2250 20-2300 21-12 21-180 22-50 23-1010 25-69 25-69 26-170 28-60	16-104 16-112 16-117 16-128 16-129 16-1300 16-1320 16-141 18-200 20-103 20-154 20-1610 20-2180 20-219 20-221 20-221 20-222 20-225 20-2250 21-9 21-12 21-180 22-50 24-26 25-69 25-1060 26-26 28-60	16-104 16-112 16-117 16-128 16-129 16-1300 16-135 16-141 18-200 20-1030 20-154 20-1610 20-2180 20-2190 20-221 20-221 20-225 20-225 20-225 20-225 20-225 20-225 20-225 20-250 21-9 21-120 22-21 22-50 24-26 25-69 25-1060 26-26 28-600	16-104 16-112 16-117 16-123 16-128 16-1290 16-135 16-141 18-200 20-120 20-1540 20-1610 20-2180 20-2190 20-221 20-221 20-225 20-225 20-225 20-230 21-9 21-120 22-21 22-50 24-26 25-69 25-1060 26-26 28-600	16-104 16-112 16-123 16-128 16-1290 16-1300 16-135 16-1410 18-200 20-120 20-1540 20-1610 20-219 20-2190 20-2210 20-2210 20-225 20-225 20-225 20-225 20-230 21-9 21-120 22-21 22-50 24-26 25-690 26-17 26-26 28-75	16-1040 16-112 16-117 16-123 16-128 16-1290 16-1350 16-135 16-1410 18-33 20-120 20-1540 20-219 20-2190 20-2210 20-2210 20-2250 20-2250 21-9 21-120 22-21 22-21 22-21 22-21 22-21 22-21 22-21 22-21 22-21 22-21 22-21 22-250 24-260 25-690 26-17 26-26 28-750	16-104# 16-112# 16-117 16-123 16-128# 16-129# 16-130# 16-135 16-141# 18-33# 20-120# 20-154# 20-161# 20-219# 20-221# 20-225# 20-225# 20-225# 20-225# 21-12# 22-21# 23-101 24-26# 25-69# 26-17 26-26 30-10	16-1040 16-1120 16-1131 16-1230 16-1230 16-1321 16-1350 16-1410 18-44 20-1200 20-1540 20-1540 20-2190 20-2210 20-2210 20-2220 20-2230 21-90 21-18 22-210 23-101 24-260 25-690 26-17 26-260 30-100	16-1040 16-1120 16-1130 16-1280 16-132 16-1350 16-1350 16-142 18-440 20-1540 20-1540 20-2190 20-2190 20-2220 20-2220 20-2230 21-90 21-18 22-210 23-101 24-260 25-690 26-17 26-260 30-12	16-105 16-112# 16-117# 16-123# 16-128# 16-130 16-132 16-135# 16-142# 20-101 20-122 20-161 20-218 20-219# 20-222 20-222# 20-224# 20-225 20-225 20-229 20-230# 21-18 22-21# 23-101 24-26# 25-106 26-17 26-26# 30-12	16-1050 16-1120 16-1170 16-1230 16-1230 16-132 16-1350 18-20 20-101 20-1220 20-161 20-218 20-2190 20-2220 20-2220 20-22300 21-12 21-18 22-210 23-1010 24-36 25-106 26-260 30-120	16-112 16-1120 16-1170 16-1230 16-129 16-130 16-132 16-136 18-20 20-101 20-154 20-161 20-218 20-2190 20-222 20-2220 20-2220 20-22300 21-12 21-18 22-50 23-1010 24-360 25-106 26-260 30-120	16-112 16-1120 16-1170 16-124 16-129 16-130 16-1320 16-1360 18-20 20-1010 20-154 20-161 20-218 20-2190 20-222 20-2220 20-2250 20-2250 20-2250 21-12 21-180 22-50 23-1010 24-48 25-106 26-170 27-41 30-14	16-112 16-1124 16-1244 16-129 16-130 16-1324 16-141 18-20 20-1014 20-154 20-161 20-218 20-219 20-221 20-222 20-2254 20-2254 20-2254 20-2304 21-12 21-184 22-50 23-1014 24-484 25-1064 26-174 27-414 30-144

30-16	30-16	30-164	30-16#	30-18	30-18#	30-20	30-20	30-20#	30-20#	30-22	30-22	30-224	30-22#
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30-37# 30-82#	30-37¢ 30-82¢	30-37¢ 30-95	30-38 30-95	30-38# 30-95	30-82	30-82	30-82	30-82	30-82	30-82	30-824	30-82#	30-82#
30-100	30-100	30-100	30-100	30-100#	30-95 30-100#	30-95 30-100#	30-95 30-100#	30-95# 30-126	30-95# 30-126	30-95#	30-954	30-954	30-100
31-18	31-184	32-18	32-18	32-184	32-184	32-26	32-26	32-26#	32-26#	30-126# 32-29	30-126# 32-29	30-141 32-29#	30-141 <i>4</i> 32-29 <i>4</i>
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33-34	33-344	34-20	34-20	34-200	34-204	34-35	34 - 350	36-62	36-62	36-62	36-62	36-62	36-62
36-62#	36-624	36-624	36-62#	36-624	36-624	36-64	36-64	36-644	36-644	36-67	36-67	36-67	36-67
36-67#	36-674	36-67#	36-67#	36-674	36-71	36-714	37-21	37-214	37-30	37-30	37-30	37-30	37-304
37-30¢ 37-41¢	37-30¢ 37-41¢	37-300	37-304	37-32	37-324	37-33	37-334	37-41	37-41	37-41	37-41	37-410	37-410
38-21	38-214	37-41# 38-21#	37-43 38-21#	37-43¢ 38-21¢	37-46 38-21#	37-46# 38-21#	38-21 38-21#	38-21 38-21#	38-21	38-21	38-21	38-21	38-21
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40-21#	40-214	40-214	40-24	40-244	41-34	41-34	41-340	41-340	41-38	41-384	41-39	41-394	41-47
41-47	41-47	41-47	41-470	41-470	41-470	41-470	41-470	41-49	41-494	41-50	41-504	41-57	41-57
41-57	41-57	41-570	41-570	41-570	41-570	41-570	41-59	41-590	41-65	41-65	41-65	41-65	41-654
41-65#	41-654	41-650	41-65#	41-72	41-72	41-72	41-72	41-720	41-720	41-720	41-720	41-720	41-81
42-36	42-360	42-39	42-39	42-39	41-814	41-814	41-814	41-83 42-39	41-834	41-86	41-86#	42-35	42-354
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43-460	44-31	44-310	44-43	44-43	44-43	44-43	44-430	44-430	44-430	44-430	44-434	44-47	44-470
45-484	44-50#	45-31 45-520	45-31¢ 45-58	45-34 45-58¢	45-34¢ 45-61	45-48	45-48	45-48	45-48	45-484	45-480	45-484	45-484
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47-210	47-214	47-26	47-26	47-260	47-264	47-27	47-27	47-27	47-27	47-27	47-27	47-27	47-27
47-270	47-274	47-274	47-270	47-270	47-270	47-270	47-270	47-30	47-304	48-21	48-21	48-214	48-214
48-25	48-25	48-25	48-25	48-25	48-25	48-25	48-25	48-25#	48-254	48-254	48-254	48-254	48-254
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49-580	49-59	49-594	49-66	49-66	49-66	49-55 49-66	49-55	49-554	49-554	49-55¢ 49-66¢	49-55¢ 49-66¢	49-55¢ 49-69	49-58 49-69¢
49-70	49-700	49-73	49-73	49-730	49-730	49-79	49-79	49-79	49-79	49-794	49-794	49-794	49-794
49-794	49-82	49-824	49-85	49-854	50-30	50-304	50-37	50-37	50-37	50-37	50-374	50-370	50-37#
50-370	50-374	50-44	50-44	50-44	50-44	50-440	50-444	50-444	50-440	50-444	50-47	50-474	50-48
50-484	50-51 50-60#	50-51	50-51¢ 50-61¢	50-510	50-57	50-57	50-57	50-57	50-57¢ 50-68¢	50-57¢ 50-68¢	50-57¢ 50-68¢	50-574	50-57¢ 50-71
50-710	50-72	50-61 50-720	50-61	50-68 50-75	50-68 50-75#	50-68 50-75#	50-68	50-684	50-684	50-684	50-684	50-68#	50-71
50-810	50-814	50-84	50-840	50-87	50-750	51-23	50-81 51-23	50-81 51-23¢	50-81 51-23¢	50-81	50-81¢ 51-24¢	50-81¢ 51-31	50-81 <b>#</b> 51-31
51-31	51-31	51-310	51-310	51-310	51-310	51-310	51-34	51-340	51-35	51-24 51-350	51-42	51-42	51-42
51-42	51-420	51-420	51-420	51-424	51-424	51-45	51-34 51-45¢	51-48	51-48	51-484	51-484	51-49	51-494
52-20	52-20 52-330	52-20#	52-20¢ 52-33¢	52-24 52-330	52-240	52-26	52-26	52-26¢ 52-37¢	52-26#	52-33	52-33	52-33	52-33
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53.29	52-444	52-44¢ 53-29	52-444	52-47	52-474	52-50 53-29	52-50	52-500	52-504	52-51	52-514	53-29 53-29	53-29
53-29	53-29 53-29	53-29	53-29 53-29	53-29	53-29 53-29	53-29	53-29	53-29	53-29 53-29¢	53-29	53-29 53-29#	53-29	53-29
52-20 52-33¢ 52-44¢ 53-29 53-29 53-29¢ 53-29¢	53-29#	53-294	53-294	53-29 53-29#	53-294	53-290	52-50 53-29 53-29 53-29	52-50¢ 53-29 53-29¢ 53-29¢	53-294	52-51 53-29 53-29¢ 53-29¢	53-294	53-294	53-29 53-29 53-29¢ 53-29¢
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24-28	54-28	54-28	54-28	54-28	54-28	54-28	54-28 54-28¢	54-28	54-28	54-28	54-28	54-28	54-28
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34-204	34-50V	34 - E04	34-504	34-504	54-284	54-29	54-294	55-28	55-28	55-28	55-28	55-28	55-28

55-28 55-28 55-28 55-28 55-28 56-31 56-31 56-31 56-31 57-29 57-37 57-49 58-31 58-34 58-34 58-34 58-38 58-41 59-15 59-28 59-31 60-33	55-28 55-28 55-28 55-28 55-28 56-31 56-31 56-31 57-31 57-34 57-34 57-34 57-34 57-34 57-34 57-34 57-34 57-34 57-34 57-34 57-34 57-34 57-34 57-34 57-34 57-34 57-34 57-34 57-34 57-34 57-34 57-34 57-34 57-34 57-34 57-34 57-34 57-34 57-34 57-34 57-34 58-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 69-31 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58-38 58-38 58-38 58-38 58-38 58-38	55-28 55-28 55-284 55-284 56-314 56-314 56-314 56-324 57-32 57-35 57-40 57-50 58-32 58-344 58-38 58-344 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38	55-28 55-284 55-284 55-29 56-314 56-314 56-314 57-21 57-32 57-35 57-40 57-504 58-324 58-324 58-344 58-38 58-47 59-154 59-28 59-28 60-284 60-33	55-28 55-284 55-284 55-294 56-314 56-314 57-214 57-32 57-32 57-32 57-32 57-32 57-32 57-32 57-32 57-32 57-32 57-32 57-32 57-32 57-32 57-32 57-32 57-32 57-32 58-324 58-324 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38 58-38	55-28 55-284 55-284 56-31 56-314 56-314 57-29 57-32 57-32 57-32 57-354 57-404 58-224 58-35 58-35 58-35 58-37 60-29 60-334	55-28 55-284 55-284 56-31 56-314 56-314 57-29 57-32 57-37 57-404 58-31 58-334 58-354 58-41 58-474 59-154 59-28 59-28 59-28 59-28	55-28 55-28# 55-28# 56-31 56-31# 56-31# 57-29 57-32 57-37 57-40# 58-31 58-34 58-36 58-41 58-48 59-16 59-28# 59-28# 59-37# 60-30 60-33#	55-28 55-28# 55-28# 56-31 56-31# 56-31# 57-29 57-32# 57-37 57-40# 58-31 58-36 58-41 58-48# 59-16# 59-31 59-31 59-31	55-28 55-284 55-284 56-31 56-314 56-314 57-294 57-37 57-404 58-31 58-34 58-34 58-34 58-34 58-31 59-15 59-26 59-31 59-39 60-31 60-36	55-28 55-284 55-284 56-31 56-314 56-314 57-294 57-324 57-324 57-324 57-324 57-324 57-326 58-314 58-34 58-34 58-34 58-34 58-34 58-34 58-34 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-314 58-316 58-316 58-316 58-316 58-316 58-316 58-316 58-316 58-316 58-316 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60-37 60-49 61-26	60-37¢ 60-49 61-26	60-46 60-49 61-26	60-46 60-49 61-26 <b>4</b>	60-46 60-49 61-26#	60-46 60-49# 61-26#	60-46¢ 60-49¢ 61-26¢	60-46¢ 60-49¢ 61-26¢	60-46# 60-49# 61-28	60-46# 60-56 61-28#	60-46# 60-56# 61-31	60-36 60-47 61-17 61-31#	60-36¢ 60-47¢ 61-17¢ 62-15	60-36# 60-49 61-26 62-15#
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65-33¢ 66-29¢ 68-48 69-25¢	65-38 66-29¢ 68-48¢ 69-25¢	65-38¢ 66-33 68-51 69-25¢	65-41 66-33¢ 68-51¢ 69-25¢	65-41¢ 66-36 69-25 69-25¢	66-14 66-36¢ 69-25 69-25¢	66-14¢ 67-21 69-25 69-28	66-29 67-21# 69-25 69-28#	66-29 67-38 69-25 70-36	66-29 67-38¢ 69-25 70-36¢	66-29 67-41 69-25 70-66	66-29¢ 67-41¢ 69-25 70-66	66-29# 68-20 69-25# 70-66	66-29# 68-20# 69-25# 70-66
70-660 71-34 72-44 73-38	70-660 71-340 72-44 73-38	70-660 71-340 72-440 73-38	70-66# 71-34# 72-44# 73-38#	70-660 71-340 72-440 73-380	70-68 71-340 72-440 73-380	70-68¢ 71-36 72-44¢ 73-38¢	70-72 71-36¢ 72-46 73-38¢	70-720 71-39 72-460 73-40	71-19 71-394 72-50 73-404	71-19¢ 72-20 72-50¢ 73-43	71-34 72-20¢ 73-15 73-43¢	71-34 72-44 73-15¢ 74-19	71-34 72-44 73-38 74-19¢
74-34 74-360 75-430 75-63 76-240	74-34 74-360 75-430 75-630 76-26	74-34 74-360 75-430 75-66 76-260	74-34 74-36¢ 75-43¢ 75-66¢	74-34e 74-38 75-43e 76-14	74-340 74-380 75-61 76-140 77-30	74-340 74-41 75-61 76-24 77-300	74-340 74-410 75-61 76-24 77-47	74-340 75-23 75-61 76-24 77-47	74-36 75-230 75-610 76-24 77-47	74-36 75-43 75-610 76-240 77-47	74-36 75-43 75-610 76-240 77-47	74-36 75-43 75-61¢ 76-24¢	74-36¢ 75-43 75-61¢ 76-24¢
77-470 77-670 78-240 79-360	77-47e 77-67e 78-24e 79-36e	77-470 77-670 78-240 79-360	76-29 77-47¢ 77-69 78-24¢ 79-36¢	76-290 77-52 77-690 78-26 79-360	77-50 77-52 77-72 78-260 79-46	77-52¢ 77-72¢ 78-29 79-46	77-47 77-520 78-15 78-290 79-46	77-47 77-67 78-15# 79-24 79-46	77-47 77-67 78-24 79-240 79-460	77-67 78-24 79-36	77-67 78-24 79-36	77-47 77-670 78-24 79-36	77-474 77-674 78-244 79-36
79-48 80-38¢ 80-56¢ 81-23	79-48# 80-45 80-56# 81-23#	79-51 80-45 80-56¢ 81-23¢	79-510 80-45 80-560 81-230	80-26 80-45 80-56¢ 81-23¢	80-26# 80-45# 80-58 81-23#	80-38 80-45¢ 80-58¢ 81-25	80-38 80-45¢ 80-61 81-25¢	80-38 80-45¢ 80-61¢ 81-28	80-38 80-45¢ 81-14 81-28¢	79-46¢ 80-38¢ 80-56 81-14¢ 82-16	79-46¢ 80-38¢ 80-56 81-23 82-16¢	79-46# 80-38# 80-56 81-23	79-46# 80-38# 80-56 81-23
82-28 83-18 83-34 84-58	82 - 28 83 - 18 83 - 34 84 - 58	82-28# 83-18 83-34 84-58	82-28¢ 83-18¢ 83-34 84-58¢	82-280 83-180 83-340 84-580	82-28¢ 83-18¢ 83-34¢ 84-58¢	82-28¢ 83-18¢ 83-34¢ 84-58¢	82-30 83-18¢ 83-34¢ 84-58¢	82-30¢ 83-22 83-34¢ 84-64	82-33 83-22 83-36 84-640	82-33¢ 83-22¢ 83-36¢ 85-42	83-18 83-22¢ 83-40 85-42	82-28 83-18 83-23 83-40¢ 85-42	82-28 83-18 83-23¢ 84-58 85-42
85-424 86-354 86-524	85-42¢ 86-35¢ 86-52¢	85-42¢ 86-35¢ 86-52¢	85-42¢ 86-35¢ 96-56	85-42¢ 86-39 86-56¢	85-74 86-39¢ 86-60	85-74¢ 86-41 86-60¢	86-25 86-41¢ 86-70	86-25¢ 86-52 86-70	86-35 86-52 86-70	86-35 86-52 86-70	86-35 86-52 86-70#	86-35 86-52# 86-70#	86-354 86-524 86-704

MIGNLS

	86-704	86-70#	86-74	86-744	86-82	06 004	06 00	06 00	06 00	00 00	04 004	04 000	04 004	
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	87-96	87-964	87-96#	87-96#	87-964	87-106	87-106	87-106	87-106	87-106	87-106	87-106	87-106	87-106
	87-106#	87-1064	87-1064	87-1064	87-106#	87-106#	87-106#	87-1064	87-112	87-112	87-112	87-112	87-112	87-1120
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	89-20#	89-20#	89-20#	89-24	89-24	89-244	89-244	89-25	89-254	89-50	89-50	89-50	89-50	89-50#
	89-50#	89-50#	89-50#	89-50#	89-52	89-524	89-56	89-56#	90-20	90-20	90-20	90-20	90-20	90-20
	90-20#	90-20#	90-20#	90-20#	90-20#	90-24	90-24	90-24#	90-24#	90-25	90-25#	90-46	90-46	90-46
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	92-47									91-92#	91-95	91-95#	92-47	92-47
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	92-524	92-67	92-67	92-67	92-67	92-67#	92-674	92-67#	92-67#	92-674	92-68	92-684	92-69	92-69#
	92-87	92-87	92-87	92-87	92-87#	92-874	92-87#	92-87#	92-874	92-89	92-89#	92-90	92-90#	92-106
	92-106	92-106	92-106	92-106#	92-106#	92-106#	92-106#	92-1064	92-110	92-110	92-110	92-110	92-110#	92-110#
	92-1100	92-110#	92-110#	92-112	92-1124	92-113	92-1130	93-92	93-92	93-92	93-92	93-92	93-92	93-924
	93-924	93-924	93-924	93-92#	93-93	93-93	93-934	93-934	93-97	93-97	93-97	93-97	93-97	93-97
	93-974	93-974	93-974	93-974	93-97#	93-101	93-101							
	93-117							93-101#	93-101#	93-105	93-105#	93-106	93-106#	93-117
	93-117	93-117	93-117	93-117#	93-117#	93-1174	93-1174	93-1174	93-119	93-1194	93-120	93-120#	93-138	93-138
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	93-139#	93-1394	93-156	93-156	93-156	93-156	93-1564	93-156#	93-1564	93-1564	93-156#	93-194	93-194	93-194
	93-194	93-194#	93-1940	93-1940	93-1940	93-1944	93-196	93-1964	93-197	93-1974	93-217	93-217	93-217	93-217
	93-2170	93-2174	93-2174	93-2174	93-2170	93-222	93-222	93-222	93-222	93-2224	93-2224	93-2224	93-2224	93-2224
	93-225	93-2254	93-226	93-2264	93-227	93-2274	93-238	93-2384	93-248	93-248	93-248	93-248	93-2484	93-2484
	93-2480	93-2484	93-2484	93-249	93-249	93-249	93-249	93-249	93-2494					93-2404
	93-264									93-2494	93-2494	93-2494	93-264	93-264
		93-264	93-264#	93-264	93-2644	93-2644	93-2644	93-276	93-276	93-276	93-276	93-276#	93-276#	93-2764
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	93-303	93-303#	93-303#	93-303#	93-303#	93-303#	93 - 304	93-304	93-304	93-304	93-304	93-304#	93-304#	93-304#
	93-304#	93-309	93-309	93-309	93-309	93-3094	93-309#	93-3094	93-3094	93-3094	93-315	93-3154	93-320	93-320#
	93-321	93-321#	93-336	93-336	93-336	93-336	93-336#	93-336#	93-3364	93-3364	93-3364	93-338	93-3384	93-339
	93-3394	94-32	94-324	94-37	94-37	94-37	94-37	94-37	94-37	94-37#	94-374	94-370	94-370	94-374
	94-41	94-41	94-410	94-410	94-51	94-51	94-51	94-51	94-514	94-510	94-514	94-514	94-514	94-52
	94-524	94-53	94-530	94-66	94-66	94-66	94-66	94-66#	94-66#	94-664			04 75	04 754
	94-76	94-760			94-00 05 76A			74 -00V			94-664	94-664	94-75	94 - 754
			95-36	95-36	95-36#	95-364	95-39	95-39#	95-40	95-404	95-41	95-41	95-410	95-414
	95-43	95-43	95-43	95-43	95-43	95-434	95-434	95-434	95-434	95-44	95-44	95-44	95-44	95-44
	95-44	95-44	95-44	95-440	95-444	95-444	95-444	95-72	95-724	95-77	95-77	95-77	95-77	95-774
	95-774	95-77#	95-77#	95-774	95-81	95-81#	95-83	95-834	96-37	96-37	96-37	96-37	96-374	96-374
	96-374	96-374	96-374	96-42	96-42	96-42	96-42	96-424	96-424	96-424	96-424	96-424	96-47	96-47
	96-47	96-47	96-474	96-474	96-474	96-470	96-474	96-49	96-494	97-52	97-524	97-54	97-54	97-54
	97-54	97-540	97-56	97-56	97-56	97-56		97-58					07 504	
	97-60	97-60			97 - 50		97-56#		97-58	97-58	97-58	97-58	97-58#	97-60
			97-60	97-60	97-60#	97-61	97-61#	98-12	98-124	98-14	98-14	98-14	98-140	98-16
	98-16	98-16	98-16#	98-18	98-18	98-18	98-184	98-20	98-20#	98-22	98-22	98-22	98-22	98-22
	98-224	98-24	98-24	98-24	98-24#	98-33	98-334	98-63	98-63	98-63	98-634	99-16	99-16	99-16#
	99-16#													
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	39-22	39-22	39-22	39-22	39-224	39-224	39-224	39-224	40-21	40-21	40-21	40-21	40-214	40-210
	40-210	40-210	41-49	41-490	41-59	41-594				42-470				
	43-42						41-83	41-830	42-47		42-67	42-674	43-42	43-42
	43-42	43-42	43-420	43-424	43-420	43-424	44-47	44-470	45-52	45-524	45-58	45-584	46-50	46-50#

M\$GNSU	47-27 48-25# 50-71 53-29 55-28# 58-43 63-32 67-38 71-36 78-26 86-56 92-68 93-338 1-898#	47-27 48-25# 50-71# 53-29# 55-28# 58-43# 63-32# 67-38# 71-36# 78-26# 86-56# 92-68# 93-338# 7-373#	47-27 49-45 50-84 53-29# 56-31 59-33 64-25 68-48 72-46 79-48 86-74 92-89 94-52 93-105	47-27 49-45# 50-84# 53-29# 56-31 59-33# 64-25 68-48# 72-46# 79-48# 86-74# 92-89# 94-52# 93-105#	47-27# 49-58 51-34 54-28 56-31 60-33 64-25 69-25 73-40 80-58 86-96 92-112 94-75 93-227	47-27# 49-58# 51-34# 54-28 56-31# 60-33# 64-25 69-25 73-40# 80-58# 86-96# 92-112# 94-75# 93-227#	47-27# 49-69 51-45 54-28 56-31# 60-47 64-25# 69-25 74-38 81-25 88-39 93-119 95-44	47-27# 49-69# 51-45# 54-28# 56-31# 60-47# 64-25# 69-25 74-38# 81-25# 88-39# 93-119# 95-44#	48-25 49-82 52-36 54-28# 57-31 60-49 64-25# 75-63 82-30 89-52 93-196 95-81	48-25 49-824 52-364 54-284 57-314 60-494 64-254 69-254 75-634 82-304 89-524 93-1964 95-814	48-25 50-47 52-47 55-28 57-42 61-28 65-38 69-25# 76-26 83-36 90-48 93-225	48-25 50-47¢ 52-47¢ 55-28 57-42¢ 61-28¢ 65-38¢ 69-25¢ 76-26¢ 83-36¢ 90-48¢ 93-225¢	48-25# 50-60 53-29 55-28 58-33 62-39 66-33 70-68 77-69 86-39 91-92 93-315	48-25# 50-60# 53-29 55-28# 58-33# 62-39# 66-33# 70-68# 77-69# 86-39# 91-92# 93-315#
M\$GNTA	1-890# 20-185 34-35 42-70 49-85 56-32 63-35 70-72 77-72 84-64 91-95 96-49	7-3730 20-1850 34-350 42-700 49-850 56-320 63-350 70-720 77-720 84-640 91-950 96-490	9-25 27-41 36-71 43-46 50-87 57-50 64-28 71-39 78-29 85-74 92-113 97-61	9-25¢ 27-41¢ 36-71¢ 43-46¢ 50-87¢ 57-50¢ 64-28¢ 71-39¢ 78-29¢ 85-74¢ 92-113¢ 97-61¢	10-25 28-75 37-46 44-50 51-49 58-48 65-41 72-50 79-51 86-106 93-226 98-33	10-25# 28-75# 37-46# 44-50# 51-49# 58-48# 65-41# 72-50# 79-51# 86-106# 93-226# 98-33#	16-105 30-141 38-24 45-61 52-51 59-40 66-36 73-43 80-61 87-115 93-320 99-16	16-105# 30-141# 38-24# 45-61# 52-51# 59-40# 66-36# 73-43# 80-61# 87-115# 93-320# 99-16#	16-124 31-18 39-25 46-53 53-30 60-56 67-41 74-41 81-28 88-72 93-339 99-21	16-124# 31-18# 39-25# 46-53# 53-30# 60-56# 67-41# 74-41# 81-28# 88-72# 93-339# 99-21#	16-136 32-57 40-24 47-30 54-29 61-31 68-51 75-66 82-33 89-56 94-76	16-136¢ 32-57¢ 40-24¢ 47-30¢ 54-29¢ 61-31¢ 68-51¢ 75-66¢ 82-33¢ 89-56¢ 94-76¢	16-142 33-34 41-86 48-28 55-29 62-42 69-28 76-29 83-40 90-52 95-83	16-142# 33-34# 41-86# 48-28# 55-29# 62-42# 69-28# 76-29# 83-40# 90-52# 95-83#
MSGNTE MSHAPT MSHNAP	1-B94# 42-31 49-24 56-30 63-15 70-33 77-28 84-18 91-42 1-A39# 1-B24#	7-3730 42-310 49-240 56-300 63-150 70-330 77-280 84-180 91-420 7-3730 7-3730	36-60 43-37 50-26 57-17 64-20 71-17 78-13 85-25 92-39 7-427 7-427	36-60# 43-37# 50-26# 57-17# 64-20# 71-17# 78-13# 85-25# 92-39# 7-427# 7-427#	37-19 44-26 51-18 58-18 65-18 72-18 79-22 86-17 93-87	37-194 44-264 51-184 58-184 65-184 72-184 79-224 86-174 93-874	38-17 45-26 52-17 59-13 66-12 73-13 80-24 87-20 94-31	38-174 45-264 52-174 59-134 66-124 73-134 80-244 87-204 94-314	39-18 46-24 53-28 60-22 67-14 74-17 81-12 88-24 95-30	39-18# 46-24# 53-28# 60-22# 67-14# 74-17# 81-12# 88-24# 95-30#	40-17 47-18 54-27 61-15 68-14 75-21 82-14 89-15 96-25	40-17¢ 47-18¢ 54-27¢ 61-15¢ 68-14¢ 75-21¢ 82-14¢ 89-15¢ 96-25¢	41-31 48-18 55-27 62-13 69-20 76-12 83-13 90-15	41-31# 48-18# 55-27# 62-13# 69-20# 76-12# 83-13# 90-15#
MSINCR	1-D26# 16-96 16-123# 16-138# 20-179# 24-26# 28-46 30-16# 31-18# 33-8# 36-60# 37-21# 37-43# 38-21 38-21# 39-18 39-22 39-22# 40-17#	7-3730 16-96 16-1240 16-1380 20-2180 24-360 28-460 30-200 32-8 33-340 36-620 37-210 37-460 38-21 38-210 39-18 39-22 39-220 40-170	7-399 16-96# 16-126 16-141# 20-219# 24-48# 28-46# 30-22# 32-8 34-9 36-64# 37-21# 38-17 38-21 38-21# 39-18# 39-22# 40-21	7-3990 16-960 16-126 16-1420 20-2210 25-690 28-750 30-270 32-80 34-9 36-670 37-210 38-17 38-21 38-21 39-180 39-220 40-21	9-9 16-994 16-1264 18-204 20-2224 25-1064 29-8 30-374 32-84 34-94 36-714 37-304 38-17 38-21 38-21 39-184 39-224 40-21	9-9 16-100# 16-126# 18-33# 20-224# 26-17# 29-8 30-82# 32-18# 34-9# 37-19 37-32# 38-17# 38-21 38-21# 39-22 39-22# 40-21	9-90 16-1040 16-1280 18-440 20-2250 26-260 29-80 30-950 32-260 34-350 37-19 37-33 38-170 38-210 38-210 39-220 39-220 40-21	9-9¢ 16-105¢ 16-129¢ 20-101¢ 20-229¢ 27-39 29-8¢ 30-100¢ 32-29¢ 36-38 37-19 37-33 38-17¢ 38-21¢ 38-21¢ 39-22 39-22¢ 40-21	10-8 16-107 16-130# 20-120# 20-230# 27-39 30-8 30-126# 32-31# 36-38# 37-19# 37-33 38-21# 38-21# 38-21# 39-22 39-22# 40-21	10-8 16-107 16-132# 20-154# 21-9# 27-39# 30-8 30-141# 32-42# 36-60 37-19# 37-33# 38-21# 38-21# 38-21# 39-22 39-22# 39-25# 40-21	10-8# 16-107# 16-135# 20-161# 21-12# 27-39# 30-8# 31-10 32-57# 36-60 37-19# 37-33# 38-21 38-21# 38-21# 39-22 39-22# 40-17 40-21	10-8# 16-107# 16-136# 20-179 21-18# 28-40 30-8# 31-10 33-8 36-60 37-21 37-33# 38-21# 38-21# 39-22 39-22# 40-17 40-21	11-51 16-1124 16-138 20-179 22-214 28-404 30-104 31-104 33-8 36-604 37-21 37-334 38-21 38-214 38-214 39-22 39-224 40-17 40-21	11-51# 16-117# 16-138 20-179# 23-101# 28-46 30-12# 31-10# 33-8# 36-60# 37-21 37-41# 38-21 38-21# 39-18 39-18 39-22 39-22# 40-17# 40-21

40-214	40-21#	40-214	40-21#	40-21#	40 214	40 214	40 044	40 044					The latest to the same of the
					40-21#	40-21#	40-21#	40-21#	40-21#	40-21#	40-21#	40-21#	40-21#
40-214	40-21#	40-21#	40-21#	40-21#	40-21#	40-24#	41-31	41-31	41-31	41-314	41-314	41-310	41-344
41-38	41-38	41-38	41-38#	41-38#	41-384	41-384	41-39	41-39					
									41-39	41-39#	41-39#	41-39#	41-394
41-47#	41-49#	41-50	41-50	41-50	41-50#	41-50#	41-50#	41-50#	41-57#	41-59#	41-65#	41-724	41-81#
41-83#	41-86#	42-31	42-31	42-31	42-314	42-310	42-314	42-35	42-35				
										42-35	42-35#	42-354	42-354
42-35#	42-36	42-36	42-36	42-364	42-364	42-364	42-36#	42-45#	42-470	42-57#	42-65#	42-67#	42-704
43-37	43-37	43-37	43-374	43-374	43-374	43-42	43-42	43-42	43-42	43-42			
43-42	43-42	43-42									43-42	43-42	43-42
			43-42	43-424	43-424	43-424	43-424	43-424	43-424	43-424	43-424	43-424	43-424
43-424	43-424	43-424	43-424	43-424	43-424	43-424	43-424	43-424	43-424	43-464	44-26	44-26	44-26
44-264	44-264	44-264	44-31	44-31	44-31								
						44-314	44-314	44-314	44-31#	44-434	44-474	44-50#	45-26
45-26	45-26	45-26#	45-26#	45-26#	45-31	45-31	45-31	45-31#	45-31#	45-314	45-314	45-34	45-34
45-34	45-344	45-344	45-344	45-344	45-484	45-524	45-58#	45-614					
									46-24	46-24	46-24	40-244	46-244
46-244	46-27#	46-31	46-31	46-31	46-314	46-31#	46-31#	46-31#	46-484	46-504	46-534	47-18	47-18
47-18	47-184	47-184	47-184	47-214	47-264	47-27	47-27	47-27	47-27	47-27	47-27		47 27
47-27	47-27	47-27	47-27									47-27	47-27
	41-61		41-51	47-274	47-274	47-274	47-274	47-27#	47-274	47-274	47-274	47-274	47-274
47-274	47-274	47-274	47-274	47-274	47-274	47-274	47-274	47-27#	47-274	47-304	48-18	48-18	48-18
48-18#	48-184	48-184	48-214	48-25	48-25	48-25	48-25						
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48-25	48-25	48-254	48-254	48-25#	48-25#	48-25#	48-254	48-25#	48-254	48-254	48-254	48-25#	48-254
48-254	48-25#	48-254	48-25#	48-25#	48-254	48-254	48-254	48-284	49-24	49-24	49-24		
49-244	49-28	49-28										49-244	49-244
			49-28	49-28#	49-284	49-284	49-28#	49-35#	49-424	49-45#	49-46	49-46	49-46
49-464	49-46#	49-464	49-464	49-494	49-554	49-58#	49-59	49-59	49-59	49-594	49-594	49-594	49-594
49-66#	49-694	49-70	49-70	49-70	49-700	49-704							
							49-704	49-704	49-734	49-794	49-824	49-854	50-26
50-26	50-26	50-26#	50-26#	50-26#	50-30	50-30	50-30	50-30#	50-30#	50-30#	50-30#	50-374	50-444
50-474	50-48	50-48	50-48	50-48#	50-484	50-484	50-484	50-514	50-574				
50-61#									20-214	50-60#	50-61	50-61	50-61
	50-61#	50-61#	50-61#	50-684	50-71#	50-72	50-72	50-72	50-72#	50-724	50-724	50-724	50-754
50-81#	50-84#	50-87#	51-18	51-18	51-18	51-18#	51-184	51-184	51-230	51-24	51-24	51-24	
51-244	51-240	51-244	51-310	51-344		51 75	51 75			31-64	21-54		51-244
					51-35	51-35	51-35	51-35#	51-35#	51-354	51-35#	51-424	51-45#
51-48#	51-49#	52-17	52-17	52-17	52-17#	52-174	52-174	52-20#	52-24	52-24	52-24	52-244	52-244
52-24#	52-244	52-264	52-330	52-364	52-37	52-37	52-37	52-374	52-374				
52-50#			57 30			26-31				52-374	52-374	52-444	52-474
	52-51#	53-28	53-28	53-28	53-284	53-284	53-28#	53-29	53-29	53-29	53-29	53-29	53-29
53-29	53-29	53-29	53-29#	53-29#	53-29#	53-29#	53-29#	53-29#	53-294	53-294	53-294	53-294	
53-29#	53-29#	53-294	53-294	53-294		EZ 204			22-534				53-294
54 274					53-29#	53-294	53-294	53-29#	53-304	54-27	54-27	54-27	54-274
54-27#	54-27#	54-28	54-28	54-28	54-28	54-28	54 - 28	54-28	54-28	54-28	54-284	54-284	54-284
54-28#	54 - 28#	54-284	54-284	54-284	54-284	54-284	54-284	54-284	E4 20A	E4 204			34-504
54-284			54-204	34-504					54 - 284	54-284	54-28#	54-284	54-284
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55-28#	55-28#	55-284	55-28#	55-284	55-284	EE 204			33-504				
			22-504	33-50A		55-284	55-284	55-28#	55-28#	55-284	55-29#	56-30	56-30
56-30	56-30#	56-30#	56-30#	56-31	56-31	56-31	56-31	56-31	56-31	56-31	56-31	56-31	56-31#
56-31#	56-31#	56-314	56-314	56-314	56-314	56-310	56-314	56-314	56-310	56-314	E6 71A		
56-314	56 - 31A	56 71A	56 71A	E6 71A	56 724	50 014	30-314	20-214	20-214	30-314	56-31#	56-31#	56-314
	56-31¢ 57-21¢	56-310	56-310	56-31#	56-324	57-17	57-17 57-32¢	57-17	57-170	57-170 57-34	57-170 57-340	57-21	57-21
57-21	57-214	57-214	57-210	57-214	57-294	57-310	57-324	57-34	57-34	57-34	57-344	57-344	57-344
57-344	57-350	57-400	57-420	57-494	57-504	58-18	58-18		50 104	50 104	50 100		51-344
	50 224				31-304	20-10	20-10	58-18	58-184	58-184	58-184	58-22	58-22
58-22	58-22#	58-224	58-22#	58-22#	58-314	58-324	58-334	58-344	58-35	58-35	58-35	58-354	58-35#
58-35#	58-35#	58-36#	58-414	58-434	58-474	58-484	59-13	59-13	59-13	59-134			
59-16	59-16	59-16	59-16#	59-164			50 000	50-13	33-13	24-134	59-13#	59-134	59-154
27-10	23-10	24-10	23-104		59-164	59-164	59-26#	59-31#	59-334	59-374	59-394	59-404	60-22
60-22	60-22	60-224	60-22#	60-224	60-28#	60-29#	60-314	60-33	60-330	60-334	60-364	60-37	60-37
60-37	60-374	60-374	60-374	60-374	60-464	60-474				60 564			
61-150							60-49	60-494	60-494	60-564	61-15	61-15	61-15
01-124	61-15#	61-15#	61-17	61-17	61-17	61-170	61-170	61-174	61-174	61-264	61-284	61-31#	62-13
62-13	62-13	62-130	62-130	62-134	62-15	62-15	62-15	62-154	62-154	62-154	62-154		62 704
62-420	63-15	63-15	63-15		67 154	67 154	67 43					62-374	62-394
	03-13	03-13		63-15#	63-15#	63-15#	63-17	63-17	63-17	63-174	63-174	63-17#	63-174
63-30#	63-32#	63-35#	64-20	64-20	64-20	64-20#	64-204	64-204	64-25	64-25	64-25	64-25	64-25
64-25	64-25	64-25	64-25	64-25	64-25	64-25	64-25#			64 - 25 64 - 25¢	64 254		64-25
64-25#	64 254	64 254	64 254	64 05				64-254	64-254	04-524	64-254	64-254	64-25#
	64-250	64-25#	64-254	64-25#	64-25#	64-25#	64 - 25#	64-25#	64-254	64-254	64-254	64-25#	64-28#
65-18	65-18	65-18	65-18#	65-184	65-18#	65-20	65-20	65-20	65-204	65-20#	65-20#		
65-384	65-414	66-12	66-12									65-20#	65-334
				66-12	66-124	66-124	66-124	66-14	66-14	66-14	66-144	66-144	66-14#
66-144	66-29#	66-33#	66-364	67-14	67-14	67-14	67-144	67-144	67-144	67-21	67-21	67-21	67-214
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	67-214	67-21#	67-214	67-38#	67-41#	68-14	68-14	68-14	68-14#	68-14#	68-14#	68-20	68-20	68-20	-
	68-204	68-20#	68-20#	68-20#	68-48#	68-51#	69-20	69-20	69-20	69-20#	69-20#	69-204	69-25	69-25	
	69-25	69-25	69-25	69-25	69-25	69-25	69-25	69-25	69-25	69-25	69-25#	69-25#	69-25#	69-25#	
	69-25#	69-254	69-254	69-25#	69-25#	69-25#	69-25#	69-25#	69-25#	69-25#	69-25#	69-25#	69-254	69-25#	
	69-254	69-25#	69-284	70-33	70-33	70-33	70-334	70-334	70-334	70-36	70 - 36	70-36	70-36#	70-364	- 1
	70-36#	70-364	70-664	70-684	70-724	71-17	71-17	71-17	71-170	71-170	71-174	71-19	71-19	71-19	1
	71-19# 72-20	71-19#	71-19#	71-194	71-344	71-364	71-39#	72-18	72-18	72-18	72-184	72-18#	72-18#	72-20	1
	73-134	72-20 73-15	72-20#	72-204	72-20#	72-204	72-444	72-464	72-50#	73-13	73-13	73-13	73-134	73-134	
	74-174	74-174	73-15 74-17¢	73-15 74-19	73-154	73-154	73-154	73-15#	73-384	73-40#	73-434	74-17	74-17	74-17	
	75-21	75-21	75-21	75-214	74-19 75-21#	74-19 75-21#	74-19# 75-23	74-194	74-19#	74-194	74-344	74-364	74 - 384	74-414	
	75-614	75-634	75-664	76-12	76-12	76-12	76-124	75-23 76-12 <b>4</b>	75-23 76-12#	75-234	75-234	75-234	75-234	75-430	
	76-140	76-144	76-244	76-264	76-294	77-28	77-28	77-28	77-284	76-14 77-28#	76-14 77-28 <b>4</b>	76-14	76-144	76-144	
	77-304	77-304	77-304	77-304	77-470	77-524	77-674	77-694	77-724	78-13	78-13	77-30 78-13	77-30 78-13#	77-30	
	78-134	78-15	78-15	78-15	78-154	78-154	78-15#	78-154	78-244	78-264	78-294	79-22	79-22	78-13 <del>4</del> 79-22	
	79-22#	79-22#	79-224	79-24	79-24	79-24	79-244	79-244	79-244	79-244	79-364	79-464	79-484	79-514	1
	80-24	80-24	80-24	80-244	80-244	80-24#	80-26	80-26	80-26	80-264	80-264	80-264	80-264	80-384	1
	80-450	80-564	80-584	80-614	81-12	81-12	81-12	81-12#	81-124	81-124	81-14	81-14	81-14	81-144	
	81-140	81-144	81-144	81-234	81-25#	81-28#	82-14	82-14	82-14	82-140	82-144	82-140	82-16	82-16	
	82-16	82-164	82-16#	82-16#	82-164	82-284	82-30#	82-334	83-13	83-13	83-13	83-130	83-134	83-134	1
	83-18#	83-22#	83-23	83-23	83-23	83-23#	83-23#	83-234	83-23#	83-34#	83-364	83-404	84-18	84-18	1
	84-18 86-17	84-18# 86-17	84-184	84-184	84-584	84-644	85-25	85-25	85-25	85-254	85-254	85-25#	85-424	85-744	
	86-394	86-41	86-17 86-41	86-17# 86-41	86-174	86-174	86-25	86-25	86-25	86-254	86-254	86-25#	86-25#	86-354	-
	86-60#	86-604	86-604	86-704	86-744	86-41# 86-82	86-41 <b>#</b> 86-82	86-41# 86-82	86-524	86-56#	86-60	86-60	86-60	86-604	
	86-106#	87-20	87-20	87-20	87-204	87-204	87-204	87-26#	86-82 <b>4</b> 87-45 <b>4</b>	86-82 <b>4</b> 87-52 <b>4</b>	86-824	86-824	86-924	86-964	
	87-824	87-894	87-910	87-964	87-106#	87-1120	87-1154	88-24	88-24	88-24	87-58¢ 88-24¢	87-64¢ 88-24¢	87-70¢ 88-24¢	87-764	
	88-30	88-30	88-304	88-304	88-304	88-304	88-354	88-394	88-724	89-15	89-15	89-15	89-154	88-30 89-15#	-
	89-15#	89-204	89-244	89-25	89-25	89-25	89-25#	89-254	89-254	89-25#	89-504	89-524	89-564	90-15	1
	90-15	90-15	90-15#	90-150	90-154	90-204	90-244	90-25	90-25	90-25	90-25#	90-25#	90-254	90-254	1
	90-46#	90-484	90-52#	91-42	91-42	91-42	91-424	91-424	91-424	91-470	91-51#	91-54	91-54	91-54	
	91-540	91-540	91-544	91-54#	91-90#	91-920	91-950	92-39	92-39	92-39	92 - 394	92-394	92-394	92-474	1
	92-51#	92-52	92-52	92-52	92-524	92-524	92-524	92-52#	92-674	92-68#	92-69	92-69	92-69	92-694	- 1
	92-69#	92-694	92-69#	92-87#	92-894	92-90	92-90	92-90	92-90#	92-90#	92-90#	92-90#	92-106#	92-1104	2
	93-105	92-1130	93-87	93-87	93-87	93-87#	93-874	93-874	93-920	93-93#	93-974	93-101#	93-105	93-105	
	93-120	93-1034	93-105#	93-105#	93-106	93-106	93-106	93-1064	93-106#	93-106#	93-106#	93-117#	93-119#	93-120	-
	93-1974	93-1974	93-1204	93-1204	93-120#	93-1204	93-138#	93-1394	93-1564	93-1940	93-196#	93-197	93-197	93-197	_
	93-238	93-238	93-238	93-2384	93-2384	93-2384	93-225¢ 93-238¢	93-226#	93-227	93-227	93-227	93-2274	93-2274	93-2276	2
	93-309#	93-315#	93-320#	93-321	93-321	93-321	93-3210	93-3214	93-249#	93-264#	93-2764	93-2854	93-3034	93-304	* i
	94-31	94-31	94-314	93-321 94-31#	94-314	94-32	94-32	94-32	94-324	94-324	93-336¢ 94-32¢	93-338¢ 94-32¢	93-3394	94-31	
to be the	94-51#	94-524	94-53	94-53	94-53	94-53#	94-534	94-534	94-534	94-664	94-754	94-764	94-37¢ 95-30	94-41#	- 1
	95-30	95-30#	95-304	95-30#	95-364	95-394	95-414	95-434	95-44	95-444	95-444	95-72	95-72	95-72	
	95-724	95-724	95-724	95-724	95-774	95-814	95-834	96-25	96-25	96-25	96-25#	96-254	96-25#	96-374	- 1
	96-424	96-474	96-494	97-42	97-424	97-52	97-52	97-524	97-524	98-12	98-12	98-124	98-12#	99-15	
MATOCE	99-15#	99-16	99-16	99-16	99-164										
M\$ IOSE	1-A00#	7-3730													
M\$LDRO	1-C424	7-3734	20-101	20-101#	20-120	20-120#	30-12	30-124	30-16	30-16#	30-22	30-22#	30-37	30-374	
	32-18 51-48	32-184	32-26	32-264	32-29	32-29#	32-31	32-314	36-64	36-644	47-26	47-264	51-23	51-23#	1
	59-26	51-48¢ 59-26¢	52-26 59-37	52-26 <b>4</b> 59-37 <b>4</b>	52-50 59-39	52-500	57-35	57-354	57-49	57-494	58-36	58-364	58-47	58-474	1
M#MASK	1-0714	7-3734	39-31	37-314	37-37	59-39#									1
MSMCHI	1-40	7-373	7-3730	7-3734											
M\$MCLO	1-0240	7-373	7-3730	7-3730											
M\$MSK1	1-0774	7-3734													
MSPOP	1-8814	7-3730	9-25	9-25#	10-25	10-25#	10-26	10-26#	16-105	16-105#	16-124	16-1244	16-136	16-1364	0
													20 200		

	16-142	16-142#	20-185	20-185#	27-41	27-414	27-43	27-43#	28-75	28-75#	29-12	29-12#	30-141	30-1414
	31-18 37-32#	31-18# 37-43	32-57 37-43	32-57¢ 37-43¢	33-34 37-46	33-34¢ 37-46¢	34-35 38-21	34-35# 38-21	34 - 36 38 - 21	34 - 36#	36-71	36-71#	37-32	37-32
	38-214	38-214	38-214	38-214	38-24	38-244	39-22	39-22	39-22	38-21 39-22	38-21 39-22	38-21 39-22	38-21 39-22	38-21 39-22
	39-22#	39-224	39-224	39-224	39-25	39-25#	40-21	40-21	40-21	40-21	40-21	40-21	40-21	40-21
	40-21#	40-214	40-214	40-21#	40-24	40-24#	41-49	41-49	41-49#	41-59	41-59	41-594	41-83	41-83
	41-834	41-86	41-864	42-47	42-47	42-47#	42-67	42-67	42-674	42-70	42-704	43-42	43-42	43-42
	43-42	43-42	43-42	43-42	43-42	43-424	43-424	43-424	43-424	43-46	43-464	44-47	44-47	44-474
	44-50	44-50#	45-52	45-52	45-52#	45-58	45-58	45-58#	45-61	45-61#	46-50	46-50	46-504	46-53
	46-534	47-27	47-27	47-27	47-27	47-27	47-27	47-27	47-27	47-274	47-274	47-274	47-274	47-30
	47-30#	48-25	48-25	48-25	48-25	48-25	48-25	48-25	48-25	48-25#	48-25#	48-254	48-254	48-28
	48-28#	49-45 50-47	49-45 50-47	49-454	49-58 50-60	49-58 50-60	49-58#	49-69	49-69	49-694	49-82	49-82	49-824	49-85
	50-874	51-34	51-34	51-344	51-45	51-45	51-454	50-71 51-49	50-71 51-49¢	50-71 <b>#</b> 52-36	50-84 52-36	50-84 52-36#	50-84# 52-47	50-87
	52-474	52-51	52-514	53-29	53-29	53-29	53-29	53-29	53-29	53-29#	53-294	53-294	53-30	52-47 53-30¢
	54-28	54-28	54-28	54-28	54-28	54-28	54-28#	54 - 284	54-28#	54-29	54-294	55-28	55-28	55-28
	55-28	55-28	55-28	55-284	55-284	55-28#	55-29	55-294	56-31	56-31	56-31	56-31	56-31	56-31
	56-31#	56-31#	56-314	56-32	56-32#	57-31	57-31	57-31#	57-42	57-42	57-424	57-50	57-504	58-33
	58-33	58-33#	58-43	58-43	58-434	58-48	58-48#	59-33	59-33	59-334	59-40	59-404	60-47	60-47
	60-47#	60-56	60-564	61-28	61-28	61-284	61-31	61-310	62-39	62-39	62-394	62-42	62-424	63-32
	63-32	63-324	63-35 64-28	63-354	64-25	64-25	64-25	64-25	64-25	64-25	64-25	64-25	64-25#	64-254
	67-38	67-38	67-384	67-41	65-38 67-41#	65-38 68-48	65-38¢ 68-48	65-41 68-48¢	65-41¢ 68-51	66-33 68-51¢	66-33	66-334	66-36	66-364
	69-25	69-25	69-25	69-25	69-254	69-254	69-25#	69-25#	69-28	69-284	69-25 70-68	69-25 70-68	69-25 70-68 <b>#</b>	69-25 70-72
	70-724	71-36	71-36	71-364	71-39	71-394	72-46	72-46	72-464	72-50	72-50#	73-40	73-40	73-404
	73-43	73-434	74-38	74-38	74-384	74-41	74-414	75-63	75-63	75-634	75-66	75-66#	76-26	76-26
	76-26#	76-29	76-294	77-69	77-69	77-69#	77-72	77-724	78-26	78-26	78-264	78-29	78-294	79-48
	79-48	79-480	79-51	79-514	80-58	80-58	80-584	80-61	80-614	81-25	81-25	81-25#	81-28	81-28#
	82-30 86-39	82-30	82-304	82-33	82-334	83-36	83-36	83-36#	83-40	83-404	84-64	84-644	85-74	85-744
	87-115	86-39 87-115#	86-39 <del>0</del> 88-39	86-56 88-39	86-56 88-39#	86-56 <b>4</b> 88-72	86-74 88-72 <b>4</b>	86-74 89-52	86-74 <b>4</b> 89-52	86-96	86-96	86-964	86-106	86-106#
	90-484	90-52	90-524	91-92	91-92	91-924	91-95	91-954	92-68	89-52 <b>#</b> 92-68	89-56 92-68#	89-56# 92-89	90-48 92-89	90-48 92-89¢
	92-112	92-112	92-112#	92-113	92-1130	93-119	93-119	93-1194	93-196	93-196	93-196#	93-225	93-225	93-2254
	93-226	93-226#	93-315	93-315	93-3150	93-320	93-3204	93-338	93-338	93-3384	93-339	93-3394	94-52	94-52
	94-524	94-75	94 - 75	94 - 754	94-76	94 - 764	95-81	95-81	95-81#	95-83	95-834	96-49	96-494	96-51
MEDDIN	96-510	97-61	97-614	98-33	98-334	98-64	98-644							
M\$PRIN	1-9364	7-3734	16-99 16-129	16-994	16-100	16-100#	16-104	16-104#	16-112	16-1120	16-117	16-1174	16-123	16-123#
	20-219	20-2194	20-221	16-129#	16-130 20-222	16-130#	16-132 20-224	16-1324	16-135 20-225	16-135¢ 20-225¢	16-141	16-1414	20-218	20-218#
	21-9	21-94	21-12	21-120	21-18	21-180	26-17	26-174	26-26	26-264	20-229 30-27	20-2294	20-230 30-82	20-230#
	30-95	30-954	21-12 30-100	21-120	77-47	21-18¢ 77-47¢	83-18	83-184	87-45	87-454	87-52	30-27¢ 87-52¢	87-58	30-82# 87-58#
	87-64	87-644	87-70	87-704	87-76	87-764	87-82	87-824	87-89	87-894	87-91	87-914	87-96	87-96#
	87-106	87-106#	87-112	87-112#	89-20	89-20#	90-20	90-20#	91-47	91-474	92-47	92-474	93-92	93-924
M\$PUSH	93-97	93-974	93-138	93-1384	93-139	93-139#	93-249	93-249#	93-304	93-3044	94-37	94-374	95-43	95-434
HAPUSH	1-9310	7-3730	7-399 16-138	7-3990	9-9	9-94	10-8	10-84	11-51	11-514	16-96	16-964	16-107	16-107#
	30-8	30-84	31-10	16-138¢ 31-10¢	20-179 32-8	20-179¢ 32-8¢	27-39 33-8	27-39¢ 33-8¢	28-40 34-9	28-40¢ 34-9¢	28-46 36-38	28-46¢ 36-38¢	29-8 36-60	29-8# 36-60#
	37-19	37-194	37-21	37-21	37-210	37-33	37-33	37-334	38-17	38-174	38-21	38-21	38-21	38-21
	38-21	38-21	38-21	38-21	38-214	38-21#	38-214	38-214	39-18	39-184	39-22	39-22	39-22	39-22
	39-22	39-22	39-22	39-22	39-22#	39-224	39-224	39-224	40-17	40-174	40-21	40-21	40-21	40-21
	40-21	40-21	40-21	40-21	40-21#	40-214	40-214	40-214	41-31	41-314	41-38	41-38	41-38#	41-39
	41-39	41-390	41-50	41-50	41-50#	42-31	42-310	42-35	42-35	42-354	42-36	42-36	42-364	43-37
	43-370	43-42	43-42	43-42	43-42	43-42	43-42	43-42	43-42	43-424	43-424	43-424	43-420	44-26
	46-31	44-31 46-31	44-31	44-310	45-26	45-26 <b>4</b> 47-27	45-31 47-27	45-31 47-27	45-314	45-34 47-27	45-34 47-27	45-34¢ 47-27	46-24	46-244
	47-274	47-274	47-270	48-18	48-180	48-25	48-25	48-25	48-25	48-25	48-25	48-25	47-27 48-25	47-27# 48-25#
												-10-23	40-63	10-234

	48-25# 49-70 50-72	48-25# 49-70 50-72	48-25¢ 49-70¢ 50-72¢	49-24 50-26 51-18	49-24# 50-26# 51-18#	49-28 50-30 51-24	49-28 50-30 51-24	49-28# 50-30# 51-24#	49-46 50-48 51-35	49-46 50-48 51-35	49-46# 50-48# 51-35#	49-59 50-61 52-17	49-59 50-61 52-17#	49-59# 50-61# 52-24
	52-24 53-29¢ 55-27¢ 56-31 57-34¢	52-24# 53-29# 55-28 56-31 58-18	52-37 54-27 55-28 56-31 58-18#	52-37 54-27# 55-28 56-31 58-22	52-37¢ 54-28 55-28 56-31¢ 58-22	53-28 54-28 55-28 56-31# 58-22#	53-28# 54-28 55-28 56-31# 58-35	53-29 54-28 55-28# 57-17 58-35	53-29 54-28 55-28¢ 57-17¢ 58-35¢	53-29 54-28 55-28# 57-21 59-13	53-29 54-28# 56-30 57-21 59-13#	53-29 54-28# 56-30# 57-21# 59-16	53-29 54-28# 56-31 57-34 59-16	53-29# 55-27 56-31 57-34 59-16#
	60-22 62-15# 64-25 66-14	60-22# 63-15 64-25 66-14#	60-37 63-15# 64-25# 67-14	60-37 63-17 64-25# 67-14#	60-37¢ 63-17 64-25¢ 67-21	61-15 63-17# 64-25# 67-21	61-15# 64-20 65-18 67-21#	61-17 64-20¢ 65-18¢ 68-14	61-17 64-25 65-20 68-14#	61-17# 64-25 65-20 68-20	62-13 64-25 65-20¢ 68-20	62-13# 64-25 66-12 68-20#	62-15 64-25 66-12¢ 69-20	62-15 64-25 66-14 69-20#
	69-25 70-36 73-13¢ 76-12 78-15¢	69-25 70-36 73-15 76-12#	69-25 70-36# 73-15 76-14 79-22#	69-25 71-17 73-15¢ 76-14	69-25 71-17¢ 74-17 76-14¢	69-25 71-19 74-17# 77-28	69-25 71-19 74-19 77-28#	69-25 71-19# 74-19 77-30	69-25# 72-18 74-19# 77-30	69-25¢ 72-18¢ 75-21 77-30¢	69-25# 72-20 75-21# 78-13	69-25# 72-20 75-23 78-13#	70-33 72-20# 75-23 78-15	70-33¢ 73-13 75-23¢ 78-15
	81-14 85-25 86-82 90-15	79-22 81-14# 85-25# 86-82# 90-15#	82-14 86-17 87-20 90-25	79-24 82-14# 86-17# 87-20# 90-25	79-24 82-16 86-25 88-24 90-25¢	79-24# 82-16 86-25 88-24# 91-42	80-24 82-16# 86-25# 88-30 91-42#	80-24# 83-13 86-41 88-30 91-54	80-26 83-134 86-41 88-304 91-54	80-26 83-23 86-41¢ 89-15 91-54¢	80-26# 83-23 86-60 89-15# 92-39	81-12 83-23¢ 86-60 89-25 92-39¢	81-12¢ 84-18 86-60¢ 89-25 92-52	81-14 84-18¢ 86-82 89-25¢
	92-52# 93-120 94-31 96-25#	92-69 93-120 94-31¢ 97-42	92-69 93-120¢ 94-32 97-42¢	92-69¢ 93-197 94-32 97-52	92-90 93-197 94-32¢ 97-52¢	92-90 93-197# 94-53 98-12	92-90# 93-227 94-53 98-12#	93-87 93-227¢ 94-53¢	93-87¢ 93-238 95-30	93-105 93-238 95-30¢	93-105# 93-238# 95-72	93-106 93-321 95-72	93-106 93-321 95-72¢	92-52 93-106# 93-321# 96-25
M\$PUT	1-C72# 16-112 16-123 16-130 20-154	7-373# 16-112 16-123 16-130# 20-154#	16-99 16-112 16-1230 16-132 20-161	16-99 16-112 16-128 16-132 20-161	16-99 16-112 16-128 16-132# 20-161	16-99# 16-112 16-128 16-135 20-161	16-100 16-112¢ 16-128¢ 16-135	16-100 16-117 16-129 16-135#	16-100 16-117 16-129 16-141	16-100 16-117 16-129 16-141	16-100# 16-117 16-129# 16-141#	16-104 16-117 16-130 20-154	16-104 16-117 16-130 20-154	16-104# 16-117# 16-130 20-154
	20-219 20-222 20-225 21-90	20-219 20-222 20-225 21-12	20-219 20-222 20-225 21-12	20-219 20-222 20-225¢ 21-12	20-219 20-222¢ 20-229 21-12¢	20-219# 20-224 20-229 21-18	20-161# 20-221 20-224 20-229# 21-18	20-218 20-221 20-2240 20-230 21-180	20-218 20-2210 20-225 20-230 26-17	20-218# 20-222 20-225 20-230 26-17	20-219 20-222 20-225 20-230 26-17	20-219 20-222 20-225 20-230# 26-17#	20-219 20-222 20-225 21-9 26-26	20-219 20-222 20-225 21-9 26-26
	26-26 30-100 58-34 83-18	26-26# 30-100# 58-34 83-18#	30-27 36-62 58-34¢ 87-45	30-27 36-62 59-15 87-45	30-27# 36-62 59-15 87-45	30-82 36-62 59-15 87-45	30-82 36-62# 59-15 87-45#	30-82 57-32 59-15# 87-52	30-82 <b>#</b> 57-32 77-47 87-52	30-95 57-32 77-47 87-52	30-95 57-32 77-47 87-52#	30-95 57-32¢ 77-47¢ 87-58	30-95¢ 58-34 83-18 87-58	30-100 58-34 83-18 87-58
	87-58# 87-82 87-106 90-20 93-92#	87-64 87-82 87-106 90-20 93-97	87-64 87-82# 87-106 90-20# 93-97	87-64 87-89 87-106 91-47 93-97	87-64# 87-89 87-106 91-47 93-97#	87-70 87-89 87-106# 91-47 93-138	87-70 87-89# 87-112 91-47# 93-138	87-70 87-91 87-112 92-47 93-138#	87-70¢ 87-91 87-112¢ 92-47 93-139	87-76 87-91# 89-20 92-47 93-139	87-76 87-96 89-20 92-47¢ 93-139¢	87-76 87-96 89-20 93-92 93-249	87-764 87-964 89-204 93-92 93-249	87-82 87-106 90-20 93-92
M\$PUT1	93-304 1-C81# 16-100# 16-112#	93-304 7-373# 16-100# 16-112#	93-304¢ 16-99 16-104 16-112¢	94-37 16-99 16-104 16-1120	94-37 16-99 16-1040 16-117	94-37 16-99¢ 16-104¢ 16-117	94-37¢ 16-99¢ 16-112 16-117	95-43 16-99# 16-112 16-117	95-43 16-100 16-112 16-117	95-43¢ 16-100 16-112	16-100 16-112 16-117¢	16-100 16-112 16-117#	16-100¢ 16-112¢ 16-117¢	93-249# 16-100# 16-112# 16-117#
	16-117¢ 16-129 16-132¢ 20-154¢ 20-218¢	16-117¢ 16-129¢ 16-132¢ 20-154¢ 20-218¢	16-123 16-1290 16-135 20-1540 20-219	16-123 16-129# 16-135 20-154# 20-219	16-123¢ 16-130 16-135¢ 20-161 20-219	16-123¢ 16-130 16-135¢ 20-161	16-128 16-130 16-141 20-161	16-128 16-130 16-141 20-161	16-128 16-130# 16-141# 20-161#	16-117 16-128# 16-130# 16-141# 20-161#	16-128# 16-130# 20-154 20-161#	16-128¢ 16-130¢ 20-154 20-161¢	16-129 16-132 20-154 20-218	16-129 16-132 20-154 20-218
	20-219# 20-222 20-224 20-225#	20-219# 20-222 20-224 20-225#	20-219¢ 20-222 20-224¢ 20-225¢	20-219# 20-222 20-224# 20-225#	20-219¢ 20-222 20-225 20-225¢	20-219 20-219# 20-222# 20-225 20-225#	20-219 20-221 20-222# 20-225 20-225#	20-219 20-221 20-222# 20-225 20-225#	20-219 20-221# 20-222# 20-225 20-229	20-219 20-221# 20-222# 20-225 20-229	20-219 20-222 20-222 20-225 20-229#	20-219# 20-222 20-222# 20-225 20-229#	20-219# 20-222 20-222# 20-225 20-230	20-219# 20-222 20-222# 20-225# 20-230

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88-72¢ 90-24 91-54¢ 92-68¢ 93-22 93-119¢ 93-222 93-339 94-75 95-72 16-117¢ 20-101¢ 21-18¢ 30-20¢ 32-42¢ 37-46¢ 39-22¢ 41-34¢ 42-36¢ 43-42¢ 46-48¢ 48-21¢ 49-46¢ 51-23¢ 52-37¢ 53-29¢ 54-29¢ 56-31¢ 60-31¢ 62-39¢ 64-28¢	69-25¢ 70-72¢ 70-72¢ 72-50¢ 74-41 76-26¢ 78-15 79-51¢ 81-25¢ 83-23 86-25¢ 86-82 87-58¢ 87-96¢ 89-20 90-24¢ 91-90 92-69 93-120 93-225 93-303 93-339¢ 94-75¢ 95-72¢ 16-123¢ 20-120¢ 22-21¢ 30-22¢ 32-57¢ 38-21¢ 39-22¢ 41-38¢ 42-45¢ 43-46¢ 46-50¢ 48-25¢ 49-49¢ 51-24¢ 52-44¢ 53-29¢ 55-28¢ 56-31¢ 57-34¢ 58-43¢ 60-33¢ 62-42¢ 65-20¢	69-250 71-19 73-15 74-410 76-29 78-150 80-26 81-28 83-230 86-35 86-820 87-64 87-106 89-200 90-25 91-92 92-690 93-33 93-1200 93-2250 93-304 94-32 94-76 95-77 16-1240 23-1010 30-270 33-340 38-210 39-220 41-390 42-470 44-310 46-530 48-250 49-550 50-480 51-310 52-470 53-300 55-280 56-310 57-350 58-470 66-360 66-360 66-360 66-360 66-360 66-360 66-360 66-360 66-360 66-360 66-360 66-360 66-360 66-360 66-360 66-360 66-360 66-360 66-360 66-360 66-360 66-360 66-360 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55-28¢ 56-31¢ 57-49¢ 59-16¢ 60-47¢ 63-35¢ 66-14¢	69-25# 71-36# 73-40# 75-61 77-47 78-29 80-56 82-28 83-40 86-41# 86-106 87-76 87-115 89-25# 90-48# 92-47 92-90 93-101 93-139# 93-227# 93-315# 94-41 95-39 95-83# 16-132# 20-221# 25-69# 30-100# 36-67# 38-21# 41-57# 42-70# 41-57# 42-70# 45-31# 47-27# 48-25# 49-69# 50-61# 51-45# 53-29# 54-28# 55-28# 56-31# 57-50# 59-26# 60-49# 64-25# 66-29#
5 5 6 6 6 6 7 7	6-310 56- 8-220 58- 9-310 59- 0-560 61- 4-250 64- 6-330 66- 9-250 69- 2-500 73- 5-660 76-	310 56- 310 58- 330 59- 170 61- 250 64- 360 67- 250 69- 150 73- 140 76-	310 56-3 320 58-3 370 59-3 260 61-2	20 57-210 30 58-340 90 59-400 80 61-310 50 64-250 80 67-410 60 70-660 00 73-430	57-290 58-350 60-280 62-150	57-310 58-360 60-290 62-370	57-320 58-410 60-310 62-390	57-340 58-430 60-330 62-420	57-35¢ 58-47¢ 60-36¢ 63-17¢	57-40e 58-48e 60-37e	57-420 59-150 60-460	57-49¢ 59-16¢ 60-47¢	57-50¢ 59-26¢ 60-49¢
8	1-250 81-	284 82-	79-4 160 82-2 250 86-3	80 82-300	79-510 82-330 86-410	80 - 26# 83 - 18# 86 - 52#	80 - 38# 83 - 22# 86 - 56#	80-45¢ 83-23¢ 86-60¢	80-56# 83-34# 86-70#	80-58¢ 83-36¢ 86-74¢	80-61¢ 83-40¢ 86-82¢	81-14¢ 84-58¢ 86-92¢	81 - 23¢ 84 - 64¢ 86 - 96¢

	86-106#	87-264	87-450	87-524	87-584	87-644	87-704	87-764	87-824	87-39#	87-910	87-96#	87-1064	87-1120	
	87-1150	88-300	88-354	88-39#	88-724	89-20#	89-244	89-254	89-50#	89-524	89-56#	90-204	90-244		
	90-464	90-480	90-52#	91-474	91-510	91-540	91-90#	91-92#	91-954	92-474	92-514	92-524	92-674	90-25#	
	92-694	92-874	92-89#	92-90#	92-1064	92-1100	92-1120	92-1134	93-924	93-930	93-974	93-1014	93-1054	92-68#	
	93-1170	93-1194	93-1204	93-1384	93-1394	93-1564	93-1940	93-196#	93-1974	93-2174	93-2224			93-1064	
	93-2384	93-2484	93-2494	93-2644	93-2760	93-2854	93-3030	93-304#	93-309#	93-315#	93-3200	93-225#	93-2264	93-2274	
	93-3394	94-324	94-370	94-410	94-514	94-524	94-534	94-66#	94 - 754	94 - 764		93-321#	93-3364	93-3384	
	95-440	95-724	95-774	95-814	95-834	96-374	96-420	96-474	96-494	74-104	95-364	95-394	95-41#	95-434	
MSTSTL	1-0210	7-3730	16-99	16-994	16-100	16-1004	16-104	16-1040		16 1054					
	16-123	16-1230	16-124	16-1240	16-128	16-1284			16-105	16-105#	16-112	16-1124	16-117	16-1174	
	16-136	16-1360	16-141	16-1414	16-142		16-129	16-129#	16-130	16-1300	16-132	16-1320	16-135	16-1354	
	20-1014	20-120	20-120#	20-154	20-1540	16-1424	18-20	18-20#	18-204	18-33	18-334	18-44	18-440	20-101	
	20-2224	20-224	20-2244			20-161	20-161#	20-218	20-218#	20-219	20-2194	20-221	20-2214	20-222	
	21-184	22-21		20-225	20-2254	20-229	20-2294	20-230	20-230#	21-9	21-90	21-12	21-124	21-18	
	25-69	25-694	22-210	22-214	23-101	23-1014	23-1010	24-26	24-264	24-264	24 - 36	24-364	24-48	24-484	
			25-694	25-106	25-106#	25-106#	26-17	26-174	26-26	26-264	28-75	28-754	30-10	30-104	
	30-12	30-120	30-16	30-164	30-20	30-200	30-22	30-220	30-27	30-270	30-37	30-374	30-82	30-824	
	30-95	30-950	30-100	30-1000	30-126	30-1264	30-141	30-1414	31-18	31-184	32-18	32-184	32-26	32-26#	
	32-29	32-290	32-31	32-310	32-42	32-420	32-57	32-570	33-34	33-344	34 - 35	34 - 354	36-62	36-624	
	36-64	36-640	36-67	36-674	36-674	36-71	36-714	37-21	37-210	37-30	37-304	37-30#	37-32	37-320	
	37-33	37-330	37-41	37-410	37-410	37-43	37-434	37-46	37-460	38-21	38-21	38-21	38-21	38-21	
	38-21	38-21	38-21	38-214	38-21#	38-210	38-214	38-210	38-214	38-214	38-214	38-24	38-240	39-22	
	39-22	39-22	39-22	39-22	39-22	39-22	39-22	39-224	39-224	39-224	39-220	39-224	39-224	39-220	
	39-220	39-25	39-254	40-21	40-21	40-21	40-21	40-21	40-21	40-21	40-21	40-214	40-210	40-210	
	40-210	40-210	40-210	40-214	40-210	40-24	40-244	41-34	41-340	41-38	41-384	41-39	41-394	41-47	
	41-470	41-470	41-49	41-490	41-50	41-500	41-57	41-570	41-574	41-59	41-594	41-65	41-654	41-650	
	41-72	41-720	41-720	41-81	41-810	41-814	41-83	41-830	41-86	41-860	42-35	42-350	42-36	42-364	
	42-45	42-450	42-454	42-47	42-470	42-57	42-574	42-574	42-65	42-654	42-654	42-67	42-674	42-70	
	42-700	43-42	43-42	43-42	43-42	43-42	43-42	43-42	43-42	43-420	43-424	43-420	43-420	43-420	
	43-424	43-420	43-420	43-46	43-464	44-31	44-310	44-43	44-430	44-430	44-47	44-470	44-50	44-504	
	45-31	45-310	45-34	45-340	45-48	45-484	45-484	45-52	45-524	45-58	45-584	45-61	45-614	46-27	
	46-270	46-31	46-310	46-48	46-484	46-484	46-50	46-50#	46-53	46-534	47-21	47-210	47-26	47-264	
	47-27	47-27	47-27	47-27	47-27	47-27	47-27	47-27	47-270	47-270	47-270	47-270	47-274	47-270	
	47-270	47-270	47-30	47-300	48-21	48-210	48-25	48-25	48-25	48-25	48-25	48-25	48-25	48-25	
	48-250	48-250	48-254	48-254	48-250	48-254	48-254	48-254	48-28	48-284	49-28	49-284	49-35	49-354	
	49-350	49-42	49-424	49-424	49-45	49-454	49-46	49-460	49-49	49-494	49-55	49-554	49-554	49-58	
	49-58#	49-59	49-594	49-66	49-664	49-66#	49-69	49-694	49-70	49-700	49-73	49-730	49-79	49-794	
	49-794	49-82	49-824	49-85	49-850	50-30	50-304	50-37	50-370	50-370	50-44	50-444	50-444	50-47	
	50-470	50-48	50-484	50-51	50-510	50-57	50-574	50-570	50-60	50-604	50-61	50-61#	50-68	50-684	
	50-68#	50-71	50-710	50-72	50-724	50-75	50-75#	50-81	50-810	50-810	50-84	50-844	50-87	50-874	
	51-23 51-45	51-230 51-450	51-24 51-48	51-24¢ 51-48¢	51-31 51-49	51-310	51-31¢ 52-20	51-34	51-340	51-35	51-350	51-42	51-420	51-420	
	51-45	51-450	51-48	51-480	51-49	51-494	52-20	51 - 34 52 - 200	51-34¢ 52-24	51-35 52-240	51-35¢ 52-26	52-264	52-33	52-334	
	52-330	52-36	52-36#	52-37	52-370	52-44	52-440	52-440	52-47	52-474	52-50	52-504	52-51	52-33¢ 52-51¢	
	53-29	53-29	53-29	53-29	53-29 53-29#	53-29	53-29	53-29	53-29	53-29	53-29	53-294	53-294	53-294	
	53-29#	53-29#	53-294	53-294	53-294	53-294	53-29 53-29¢	53-294	53-29 53-290	53-29 53-29¢	53-29 53-29#	53-294	53-30	53-300	
	54-28	54-28	54-28	54-28	54-28	54-28	54-28	54-28	54-28	54-28	54-28	54-284	53-30 54-28¢	54-284	
	54-280	54-28#	54-280	54-280	54-284	54-284	54-28#	54-280	54-28 54-28¢	54-28 54-28¢	54-28 54-28¢	54-284	54-20	54-204	
	55-28	55-28	55-28	55-28	55-28	55-28	55-28	55-28	55-28	55-28	55-28	55-284	54-29 55-28#	54-29¢ 55-28¢	
	55-28#	55-284	55-284	55-280	55-284	55-284	55-284	55-284	55-284	55-284	55-28 55-28¢	55-284	55-29	55-204	
	56-31	56-31	56-31	56-31	56-31	56-31	56-31	56-31	56-31	56-31	56-31	56-314	56-310	55-29¢ 56-31¢	
	56-310	56-310	56-310	56-31 56-31	56-31 56-31	56-31 56-31	56-31 56-31¢ 57-31¢	56-31 56-31	56-31 56-31¢ 57-32¢	56-31 56-31	56.314	56-314		56 334	
	57-21	57-210	57-29	57-290	57-294	57-31	57-314	57-32	57.324	57-84	56-31¢ 57-34¢	57.75	56-32	56-324	
	57-400	57-400	57-42	57-420	57-49	57-494	57-50	57-504	58-22	57-34 58-220	50 71	57-35	57-350	57-40	
	58-324	58-33	58-334	58-34	58-340	58-35	58-354	58-36	58-364	50-224	58-31	58-314	58-314	58-32	
	58-47	58-470	58-48	58-48#	59-15	59-150	59-16	59-164		58-41	58-410	58-414	58-43	58-439	
	59-330	59-37	59-374	59-39	59-394	59-40	59-404		59-26	59-264	59-31	59-31#	59-310	59-33	
	60-334	60-36	60-360	60-37	60-370	60-46		60-28	60-280	60-29	60-294	60-31	60-310	60-33	
	30 334	30-30	30-304	30-31	30-374	00-40	60-464	60-460	60-47	60-474	60-49	60-494	60-56	60-56#	

	61-17 62-39 64-25 64-25 66-29 68-204 69-254 70-68 72-204 73-404 74-414 76-144 77-67 78-29 80-26 80-614 82-284 83-36 86-25 86-60 86-106 87-76 87-115 89-244 90-25 91-544 92-67 92-106 93-97 93-1204 93-1974 93-2384 93-2384 93-2384 93-2384	61-17# 62-39# 64-25 64-28 66-29# 68-48 69-25# 70-68# 72-44 73-43 75-23 76-24 77-67# 78-29# 80-26# 81-14 82-30 83-36# 86-25# 86-60# 86-106# 87-76# 87-115# 89-25 90-25# 91-90 92-67# 92-106# 93-97# 93-138 93-217 93-248 93-303	61-26 62-42 64-25 64-284 66-294 68-484 69-254 70-72 72-444 73-434 75-234 76-244 77-674 79-24 80-38 81-144 82-304 83-40 86-35 86-70 87-26 87-82 88-30 89-254 90-46 91-904 92-674 92-1064 93-101 93-1384 93-2174 93-2484 93-3364 94-514	61-260 62-420 64-25 65-20 66-33 68-51 69-250 70-720 72-440 74-19 75-43 76-240 77-69 79-240 80-380 81-23 82-33 83-400 86-350 86-700 87-260 87-820 88-300 89-50 90-460 91-900 92-68 92-110 93-139 93-2170 93-2480 93-3360 94-52	61-26# 63-17 64-25 65-20# 66-33# 68-51# 69-25# 71-19 72-46 74-19# 75-43# 76-26 77-69# 79-36 80-38# 81-23# 82-33# 84-58 86-35# 86-35# 86-70# 87-45 87-89 88-35 89-50# 90-46# 91-92 92-68# 92-110# 93-105 93-139# 93-222 93-249 93-304 93-338 94-52#	61-28 63-174 64-25 65-33 66-36 69-25 69-254 71-194 72-464 74-34 75-434 76-264 77-72 79-364 80-45 81-234 83-18 84-584 83-18 84-584 83-18 84-584 87-454 87-454 87-454 87-894 88-354 89-504 90-48 91-924 92-69 92-1104 93-1054 93-1054 93-2224 93-2494 93-3384 94-53	61-28# 63-30 64-25 65-33# 66-36# 69-25 69-25# 71-34 72-50 74-34# 75-61 76-29 77-72# 79-36# 80-45# 81-25 83-18# 84-58# 86-74# 86-74# 87-52 87-91 88-35# 89-52 90-48# 91-95 92-112 93-106 93-224# 93-224# 93-224# 93-339 94-53#	61-31 63-304 64-254 65-334 67-21 69-25 69-28 71-344 72-504 74-344 75-614 76-294 78-15 79-46 81-254 83-22 84-64 83-22 84-64 86-41 86-82 87-524 87-914 88-39 89-524 90-52 91-954 93-1564 93-1564 93-1564 93-25 93-2644 93-3394 94-66	61-31¢ 63-30¢ 64-25¢ 65-38 67-21¢ 69-25 69-28¢ 71-34¢ 73-15 74-36 75-61¢ 77-30 78-15¢ 79-46¢ 80-56 81-28 83-22¢ 84-64¢ 86-82¢ 87-58 87-96 88-39¢ 89-56 90-52¢ 92-47 92-87¢ 92-113 93-117 93-25¢ 93-264¢ 93-264¢ 93-309¢ 94-32	62-15 63-32 64-254 65-384 67-38 69-25 70-36 71-36 73-154 74-364 75-63 77-304 78-24 79-464 83-23 85-42 86-52 86-52 86-92 87-584 83-23 85-42 89-564 91-47 92-474 92-474 92-474 93-1174 93-1174 93-1174 93-26 93-276 93-315 94-664	62-15# 63-32# 64-25# 65-41 67-38# 69-25 70-36# 71-36# 73-38 74-36# 75-63# 77-47 78-24# 79-48 80-56# 82-16 83-23# 85-42# 86-52# 86-52# 86-92# 87-64 87-106 88-72# 90-20 91-47# 92-51 92-89 93-92 93-117# 93-194# 93-226# 93-276# 93-315# 94-37	62-37 63-35 64-25# 65-41# 67-41 69-25 70-66 71-39 73-38# 74-38 75-66 77-47# 78-24# 79-48# 80-58 82-16# 83-34 85-42# 86-52# 86-52# 87-64# 87-106# 87-106# 89-20 90-20# 91-51 92-89# 93-92# 93-92# 93-119 93-196 93-227 93-276# 93-320 94-75#	62-374 63-354 64-254 66-14 67-414 69-25 70-664 71-394 73-384 74-384 75-664 77-52 78-26 79-51 80-584 82-28 83-344 85-74 86-56 86-96 87-70 87-112 89-204 91-514 92-52 92-90 93-93 93-1194 93-274 93-285 93-285 93-3204 94-41	62-37# 64-25 64-25# 66-14# 68-20 69-25# 70-66# 72-20 73-40 74-41 76-14 77-52# 78-26# 79-51# 80-61 82-28# 83-34# 85-74# 86-56# 86-96# 87-70# 87-112# 89-24 90-24# 91-54 92-52# 92-90# 93-93# 93-120 93-197 93-238 93-285# 93-321 94-76#
	94-51 95-36 95-77¢	95-364	95-39	94 - 52 95 - 394	94-520	94-53 95-41#	94-534	94 - 66 95 - 43¢	94-660	94-664	94 - 75 95 - 72	94-75¢ 95-72¢	94-76 95-77	94 - 76# 95 - 77#
M\$WORD	95-776 96-49 1-C946 8-8 8-8 8-8 18-206 25-69 34-20 41-346 41-72 42-576 46-48 49-496 50-37 50-68 51-42 53-29 54-28	95-81 96-490 7-3730 8-8 8-8 8-8 22-21 25-69 34-200 41-47 41-72 42-65 46-48 49-55 50-37 50-68 51-420 53-29 54-28	7-427 8-8 8-8 8-8 8-8 22-21 25-690 36-67 41-47 41-720 42-65 46-48 49-55 50-37 50-680 52-200 53-29 54-28	95-83 7-4270 8-8 8-8 8-8 8-8 22-21 25-106 36-67 41-47 41-81 42-65 46-480 49-55 50-750 52-33 53-29 54-28	8-8 8-8 8-8 8-8 8-8 22-210 25-106 36-67 41-470 41-81 42-650 47-210 49-550 50-44 50-81 52-33 53-29 54-28	96-37 8-8 8-8 8-8 8-8 23-101 25-106 36-67# 41-57 41-81 44-43 48-21# 49-66 50-44 50-81 52-33 53-29 54-28	8-8 8-8 8-8 8-8 8-8 23-101 25-106¢ 37-30 41-57 41-81¢ 44-43 49-35 49-66 50-44 50-81 52-33¢ 53-29 54-28	8-8 8-8 8-8 8-8 8-8 23-101 28-60 37-30 41-57 42-45 44-43 49-35 49-66 50-44# 50-81# 52-44 53-29 54-28	8-8 8-8 8-8 8-8 8-8 23-101¢ 28-60¢ 37-30 41-57¢ 42-45 44-43¢ 49-35 49-66¢ 50-51¢ 51-31 52-44 53-29 54-28	8-8 8-8 8-8 8-8 8-8 24-26 30-200 37-300 41-65 42-45 45-48 49-350 49-730 50-57 51-31 52-44 53-290 54-28	8-8 8-8 8-8 8-8 8-8 24-26 30-126 37-41 41-65 42-45 45-48 49-42 49-79 50-57 51-31 52-44 53-29 54-28	8-8 8-8 8-8 18-20 24-26 32-42¢ 37-41 41-65 42-57 45-48 49-42 49-79 50-57 51-31¢ 53-29 53-29¢ 54-28	8-8 8-8 8-8 16-20 24-264 33-19 37-41 41-654 42-57 45-484 49-42 49-79 50-574 51-42 53-29 53-294 54-284	8-8 8-8 8-8 18-20 25-69 33-194 37-414 41-72 42-57 46-274 49-424 49-794 50-68 51-42 53-29 53-294 54-284

M#XFER MANUAL MEMORY OPEN POINTE POP PRINTB PRINTS PRINTX PUSH READBU READEF RFLAGS SETPRI SETVEC SLASH STARS	1-:620 Y 1-:660 1-:710	54-28¢ 55-28¢ 56-31 57-40 59-31¢ 60-49¢ 65-33 71-34 74-36 76-24 79-36¢ 80-56 83-34 86-52 88-35 91-90 92-106 93-156 93-222¢ 93-285 93-336¢ 95-44¢ 96-47 98-16 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢ 7-373¢	54-28# 55-28# 56-31 57-40# 60-28# 60-49# 65-33 71-34# 74-36 76-24# 79-46 80-56 83-34# 86-52 88-35 91-90 92-106 93-156 93-248 93-248 93-248 93-248 93-248 93-248	55-28 55-28# 56-31 58-31 60-31# 61-26 65-33 72-44 74-36 77-52# 79-46 80-56# 84-58 86-52 88-35# 91-90 92-106# 93-156# 93-248 93-248 93-248 93-248 93-285# 94-51 95-77 96-47 98-18 98-20# 95-39	55-28 55-28# 56-31# 58-31 60-33 61-26 65-33# 72-44 74-36# 77-67 79-46 81-23 84-58 86-52# 89-24# 91-90# 92-110 93-194 93-248 93-248 93-248 93-248 93-248 93-194 93-194 93-194 93-194 93-194 93-194 93-194 93-194	55-28 55-28# 56-31# 58-31 60-33 61-26 66-29 72-44 75-43 77-67 79-46# 81-23 84-58 86-70 89-50 92-51# 92-110 93-194 93-248# 93-303 94-51 95-77 97-54 98-20	55-28 56-31 56-31 58-31 60-33 61-26 66-29 72-44 75-43 77-67 80-38 81-23 84-58 86-70 89-50 92-67 92-110 93-194 93-264 93-303 94-51 95-77 97-54 98-20	55-28 56-31 56-31 58-32 60-33 62-37 66-29 73-38 75-43 77-67 80-38 81-23 85-42 86-70 89-50 92-67 92-110 93-194 93-264 93-264 93-303 94-66 96-37 97-56 98-22	55-28 56-31 56-31 58-41 60-364 62-37 66-294 73-38 75-434 78-24 80-38 82-28 85-42 86-704 89-504 92-67 93-934 93-217 93-264 93-309 94-66 96-37 97-564 98-224	55-28 56-31 57-29 58-41 60-46 62-37 70-66 73-38 75-61 78-24 80-38 82-28 85-42 86-92 90-24 93-101 93-217 93-217 93-264 93-309 94-66 96-37 97-58 98-24	55-28 56-31 57-29 58-41 60-46 62-37# 70-66 73-38# 75-61 78-24 80-45 82-28 85-42# 86-92 90-46 92-87 93-217 93-217 93-217 93-276 93-309 94-66# 96-37# 97-58# 98-24#	55-28 56-31 57-29 58-41# 60-46 63-30 70-66 74-34 75-61 78-24# 80-45 82-28# 86-35 86-92 90-46 92-87 93-217# 93-217# 93-276 93-309# 95-36# 96-42 97-60 99-16	55-28 56-31 57-29# 59-31 60-46# 63-30 70-66# 74-34 75-61# 79-36 80-45 83-22# 86-35 86-92# 90-46 92-87 93-117 93-222 93-276 93-336 95-41# 96-42 97-60# 99-16#	55-28 56-31 57-40 59-31 60-49 63-30 71-34 74-34 76-24 79-36 80-45¢ 83-34 86-35 87-26¢ 90-46¢ 92-87¢ 93-117¢ 93-222 93-276¢ 93-336 95-44 96-42 98-14
	B 1-<39# 21-9		16-99	16-100	16-104	16-112	16-117	16-123	16-128	16-129	16-130	16-132	16-135	16-141
	F 1-<790 87-70 93-138		21-18 26-17 87-82 94-37	93-249 26-26 87-89 95-43	93-304 30-27 87-91	30-82 87-96	30-95 87-106	30-100 87-112	77-47 89-20	83-18 90-20	87-45 91-47	87-52 92-47	87-58 93-92	87-64 93-97
	X 1-=590 7-3300		20-218	20-219	20-221	20-222	20-224	20-225	20-229	20-230				
	F 1->030		30-12	30-16	30-22									
	I 1->130 C 1->180		32-18 20-154	47-26 20-161	51-23 36-62	51-48 57-32	52-26 58-34	52-50 59-15	57-35	58-36	59-26	59-39		
	1->38¢ 20-7 21-7 23-14 25-6		7-3730 20-22 22-7 23-31 25-27	18-3 20-32 22-26 23-48 25-44	18-9 20-36 22-34 23-56 25-49	18-26 20-43 22-44 23-78 25-81	18-31 20-47 22-48 23-88 25-85	18-38 20-85 22-53 24-2 25-112	18-42 20-96 22-58 24-11 25-116	19-2 20-187 22-77 24-29 26-2	19-10 20-191 22-83 24-34 26-7	19-31 20-211 22-104 24-41 27-2	19-37 20-215 22-110 24-46 27-8	20-2 21-2 23-1 25-2 27-35
SVC TSTFL WAIT,M XFER	27-38 1->520 7-530 M 7-240	7-3720 38-21 30-77 7-3730 50-750 90-240	7-373 39-22	40-21	43-42	47-27	48-25	64-25	69-25					
	1-8120 50-510 89-240		28-60¢ 52-20¢ 91-51¢	30-20# 53-29# 92-51#	30-126 <b>0</b> 54-28 <b>0</b> 93-93 <b>0</b>	32-420 55-280 93-1010	33-190 56-310 94-410	34 - 204 58 - 324 95 - 364	41-34¢ 60-28¢ 95-41¢	46-27 <b>4</b> 60-31 <b>4</b>	47-21¢ 60-36¢	48-21¢ 77-52¢	49-49¢ 83-22¢	49-734 87-26#

XFERF 1-0164 7-3734 98-20 XFERT 1-0204 7-3734

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