LN01 LN01 PRINTER DIAG
CZLNADO

AH-T344D-MC
FICHE 01 OF 01

JUL 1984
digital
Made In USA

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IDENTIFICATION

PRODUCT CODE : AC-T343D-MC

PRODUCT NAME: CZLNADO LN01 DIAG

MAINTAINER: SMALL SYSTEMS DIAGNOSTICS

PRODUCT DATE: FEBRUARY 1984

AUTHOR: GLENN A. PERNA

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1.0 GENERAL INFORMATION

1.1 PROGRAM ABSTRACT

THIS DIAGNOSTIC PROGRAM VERIFIES PROPER PROPER OPERATION OF THE LN01 ELECTRONIC PRINTER AND ITS ASSOCIATED M7258 CONTROL UNIT WHICH INTERFACES TO THE PDP-11 CPU. THE BROAD RANGE OF TESTS ASSURES A COMPREHENSIVE TEST OF THE FUNCTIONAL CAPABILITY OF THE PRINTER. THE INDIVIDUAL TESTS ARE IDENTIFIED AS FOLLOWS:

TEST 1	INTERFACE LOGIC
TEST 2	DATA TRANSFER PATHS
TEST 3	PRINTABLE CHARACTERS
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TEST 5	PRINT CONTROL
TEST 6	MULTIPLE LINE ADVANCE
TEST 7	OVERSTRIKE
TEST 8	INTERLOCK
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TEST 10	LINE FEED NEWLINE MODE
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TEST 13	MARGINS
TEST 14	UNDERLINE
TEST 15	PARTIAL LINE UP, PARTIAL LINE DOWN
TEST 16	DRAW VECTORS
TEST 17	JUSTIFY
TEST 18	PORTRAIT
TEST 19	FONT
TEST 20	MISCELLANEOUS CONTROL FUNCTIONS

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+.
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

1.2 SYSTEM REQUIREMENTS

A TEST STATION IS REQUIRED CONSISTING OF A PDP-11 CPU WITH A MINIMUM OF 28K WORDS OF MEMORY AND A CONSOLE TERMINAL WITH INTERFACE AT DEVICE ADDRESS 777560. THE SYSTEM ALSO REQUIRES AN XXDP SUPPORTED DEVICE SUCH AS AN RK05/RK11 DISK DRIVE TO AFFORD A MEANS TO LOAD THE DIAGNOSTIC PROGRAM.

1.3 RELATED DOCUMENTS AND STANDARDS

1.4 DIAGNOSTIC HIERARCHY PREREQUISITES

THIS DIAGNOSTIC IS COMPATIBLE WITH ALL MEMBERS OF THE PDP-11 COMPUTER FAMILY. THE DIAGNOSTIC IS INTERFACED TO THE PDP-11 DIAGNOSTIC SUPERVISOR THROUGH WHICH IT INTERFACES TO THE ENVIRONMENT.

THE APPLICABLE PDP-11 CPU, MEMORY, AND PERIPHERALS SHOULD BE RUN TO VALIDATE PROPER OPERATION OF THE SYSTEM BEFORE RUNNING THIS DIAGNOSTIC.

1.5 ASSUMPTIONS

THE PRINTERS UNDER TEST SHOULD HAVE POWER APPLIED AND BE PLACED ON LINE IN READINESS FOR TESTING. THE LINE PRINTER MUST HAVE ITS OWN M7258 CONTROLLER SET UP AT A DEVICE ADDRESS. THE DIAGNOSTIC PROVIDES A DEFAULT DEVICE ADDRESS OF 777514 WHICH CAN BE USED WHEN A LINE PRINTER IS BEING TESTED. IT WILL BE NECESSARY FOR THE OPERATOR TO RUN THE LINE PRINTER OFF LINE IN THE SELF TEST MODE BEFORE RUNNING THE DIAGNOSTIC.

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 "DDDDD".

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:DDDDD	REPORT END OF PASS MESSAGE AFTER EVERY DDDDD PASSES ONLY. (DDDDD = 1 TO 64000)
/UNITS:LIST	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	X	X	X	X
RESTART	X	X	X	X	X
CONTINUE		X	X	X	
PROCEED			X		
DROP					X
ADD					X
PRINT					
DISPLAY					X
FLAGS					
ZFLAGS					
EXIT					

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 CALLED BY PRINTX MACRO'S)
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 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.

```
#UNITS (D) ? 1

UNIT 1
LP11 ADDRESS: (O)  (177514) ?
INTERRUPT VECTOR : (O)  (200) ?
```

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).

RUN MANUAL INTERVENTION TESTS (N) ? DEFAULT IS NO

AUTODROP ERROR COUNT (D) 5 ? DROPS ANY UNIT FROM TEST WHICH EXCEEDS SPECIFIED NO. OF ERRORS

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 0 THROUGH 7. THERE IS ONE HARDWARE PARAMETER THAT CAN VARY AMONG UNITS CALLED THE Q-FACTOR. THIS Q-FACTOR MAY BE 0 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 (O) ?  160000<CR>
SUB-DEVICE # (O) ?  0<CR>
Q-FACTOR (O) 0 ?  1<CR>

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

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

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

UNIT 5
CSR ADDRESS (O) ?  160000<CR>
SUB-DEVICE # (O) ?  4<CR>
```

```
Q-FACTOR (O) O ?  <CR>

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

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

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

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

UNIT 7
CSR ADDRESS (O) ?  160000<CR>
SUB-DEVICE # (O) ?  6,7<CR>
Q-FACTOR (O) O ?  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 (O) ?  160000<CR>
SUB-DEVICE # (O) ?  0-7<CR>
Q-FACTOR (O) 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 ALWAYS 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 = 0 - 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 "IER" 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

ERROR	DESCRIPTION
1	"PRINTER ERROR" ERROR CONDITION IN THE PRINTER.
2	"PRINTER NOT READY" PRINTER NOT READY TO ACCEPT DATA.
3	"PRINTER DID NOT INTERRUPT" FAILURE IN INTERFACE LOGIC.
4	"LOADING PRINTER BUFFER DOES NOT CLEAR READY" FAILURE IN INTERFACE LOGIC.
5	"PRINTER INTERRUPTED AT SAME LEVEL AS THE PROCESSOR" FAILURE IN INTERFACE LOGIC.
6	"PRINTER ERROR" ERROR CONDITION IN THE PRINTER.
7	"PRINTER NOT READY" PRINTER NOT READY TO ACCEPT DATA.
8	"PAPER OUT INTERLOCK SWITCH FAILURE" FAULTY INTERLOCK SWITCH
9	"PAPER TRAY HANDLE INTERLOCK SWITCH FAILURE" FAULTY INTERLOCK SWITCH
10	"FRONT DOOR INTERLOCK SWITCH FAILURE" FAULTY INTERLOCK SWITCH
	"NOTE" ERROR MESSAGES #11 AND #12 HAVE BEEN ELIMINATED

13 "INTERRUPT SERVICING FOR THE FOLLOWING DEVICE DID NOT OCCUR"
GLOBAL ERROR INDICATING INTERRUPT FOR DATA TRANSFER DID NOT OCCUR.

14 "PRINTER STATUS ERROR"
GLOBAL ERROR INDICATING PRINTER ERROR CONDITION.

15 "OUTPUT TIMEOUT ERROR"
GLOBAL ERROR INDICATING TRANSMISSION OF LAST CHARACTER DID NOT OCCUR WITHIN A GIVEN TIME.

4.0 PERFORMANCE AND PROGRESS REPORTS

PERFORMANCE AND PROGRESS REPORTS ARE NOT SUPPLIED.

5.0 DEVICE INFORMATION TABLES

DEVICE INFORMATION APPEARS IN THE GLOBAL DATA SECTION.

6.0 TEST SUMMARIES

NOTE: FOR MORE DETAILED DESCRIPTION OF THE FOLLOWING TESTS,
REFER TO THE INDIVIDUAL TEST MODULES LOCATED IN THE ATTACHED LISTING.
EACH MODULE CONTAINS A TEST DEFINITION AND PSEUDO CODE FOR THE SPECIFIC TEST.

TEST 1
INTERFACE LOGIC
VERIFIES OPERATION OF INTERFACE LOGIC BETWEEN THE PRINTER AND THE CPU.

TEST 2
DATA TRANSFER PATHS
CHECKS THE DATA TRANSFER PATHS FROM THE PRINTER OUTPUT TO THE PROCESSOR INTERFACE.

TEST 3
PRINTABLE CHARACTERS
CHECKS FOR PROPER PRINTING OF ALL PRINTABLE CHARACTERS.

TEST 4
NON-PRINTABLE CHARACTERS
CHECKS FOR PROPER DETECTION OF ALL NON-PRINTABLE CHARACTERS.

TEST 5
PRINT CONTROL
CHECKS THAT CHARACTERS IN EXCESS OF 132 CHARACTERS ON A LINE ARE DISREGARDED.

TEST 6
MULTIPLE LINE ADVANCE

CHECKS THE MULTIPLE LINE ADVANCE FOR PROPER PAPER MOVEMENT.

TEST 7
OVERSTRIKE
THIS TEST WILL VERIFY CORRECT OPERATION OF THE PRINTER WHILE
OPERATIN(JUST WITHIN OVERSTRIKE, LINE BUFFER AND PAGE BUFFER LIMITS.

TEST 8
INTERLOCK TEST
THIS TEST CHECKS TO SEE THAT PRINTER INTERLOCKS ARE FUNCTIONING.
IT CHECKS THE ERROR BIT IN THE M7258 MODULE AFTER TRIPPING INTERLOCK
IN PRINTER.

TEST 9
ABSOLUTE AND RELATIVE POSITION
THIS TEST CHECKS THE ABSOLUTE AND RELATIVE POSITIONING COMMANDS BY
USING THEM TO DRAW A RECTANGLE.

TEST 10
NEWLINE MODE
THIS TEST CHECKS THE MACHINES ABILITY TO ENABLE AND DISABLE NEWLINE MODE.

TEST 11
POWER UP DEFAULTS
THIS TEST VERIFIES THE SPECIFIED POWER UP DEFAULT CONDITIONS OF THE PRINTER.

TEST 12
TABS TEST
THIS TEST DOES A COMPREHENSIVE CHECK OF HORIZONTAL AND VERTICAL TAB
FUNCTIONS OF THE PRINTER. IT USES THEM TO DRAW A RECTANGLE.

TEST 13
MARGINS TEST
THIS TEST DOES A COMPREHENSIVE CHECK OF BOTH TOP AND BOTTOM AND
LEFT AND RIGHT MARGIN FUNCTIONS AS WELL AS PHYSICAL LINES PER PAGE FUNCTIONS.

TEST 14
AUTO-UNDERLINE TEST
THIS TEST EXERCISES THE PRINTER'S AUTO-UNDERLINE FUNCTIONS. MESSAGES ARE
PRINTED WITH UNDERLINING AND WITHOUT. TABS AND SPACES ARE CHECKED FOR BEING
UNDERLINED ALSO.

TEST 15
PARTIAL LINE UP/DOWN TEST
THIS TEST EXERCISES THE PRINTER'S ABILITY TO EXECUTE THE PARTIAL LINE UP
AND DOWN ESCAPE SEQUENCE AND FUNCTION.

TEST 16
DRAW VECTORS TEST
THIS TEST EXERCISES THE DRAW VECTOR FUNCTION BY DRAWING A RECTANGULAR GRID
AND INTERMIXING TEXT WITH THE DRAW VECTOR FUNCTION.

TEST 17
JUSTIFY TEST
THIS TEST EXERCISES THE JUSTIFY FUNCTION AS WELL AS DEMONSTRATING THE
USEFULNESS AND LIMITS.

TEST 18
PORTRAIT TEST
THIS TEST DOES A QUICK VERIFY OF THE PRINTER MAJOR FUNCTIONS
IN PORTRAIT MODE USING THE RESIDENT PORTRAIT FONT.

TEST 19
FONT TEST
THE FONT TEST TESTS FUNCTIONS ASSOCIATED WITH MULTIPLE FONT USE
ON THE LN01 SUCH AS:
FONT LOADING,FONT ASSIGNMENT AND FONT SELECTION.

TEST 20
MISCELLANEOUS CONTROL FUNCTIONS TEST
THIS TEST CHECKS THE RESULTS OF SENDING SPECIFIC CONTROL CHARACTERS
WITHIN AN ESCAPE OR CONTROL SEQUENCE. THINGS SUCH AS:
CANCEL,SUBSTITUTE,LINE FEED,FORM FEED ETC.

&

```
                        .TITLE  CZLNADO LNO1 DIAGNOSTIC
                        .ENABL AMA
                        .SBTTL  IDENTIFICATION

                        ; PRODUCT CODE:         AC-T343D-MC

                        ; PRODUCT NAME:         CZLNADO LNO1 DIAG

                        ; MAINTAINER:           SMALL SYSTEMS DIAGNOSTICS

                        ; AUTHORS:              GLENN A. PERNA

                        ; DATE                  FEBRUARY  1984

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711
712                                     ;++
713                                     ; FUNCTIONAL DESCRIPTION
714                                     ;
715                                     ; THIS DIAGNOSTIC PROGRAM VERIFIES PROPER OPERATION OF THE LNO1
716                                     ; LINE PRINTER, AND IT'S ASSOCIATED INTERFACE MODULE.
717                                     ;
718                                     ; THE PROGRAM CONSISTS OF 20 TESTS.
719                                     ;
720                                     ; THE PROGRAM IS COMPATIBLE TO THE PDP-11 DIAGNOSTIC SUPERVISOR AND XXDP+.
721                                     ;
722                                     ;--
723
724
725
726                                     ; VERSION       A-0    JAN  1983        GLENN A. PERNA
727
728
729                                     ; HISTORY       REV. A-0   INITIAL RELEASE       JAN  1983
730                                     ;                          BASIC LINE PRINTER FUNCTIONS ONLY
731
732                                     ;               REV. B-0                         MAR  1983
733                                     ;                          ADDED EXTENDED FUNCTIONALITY TESTING
734                                     ;
735                                     ;               REV. C-0                         SEP  1983
736                                     ;                          RE-RELEASED TO SUPPORT UPGRADED
737                                     ;                          MEMORY (256K).
738                                     ;
739                                     ;               REV. D-0                         FEB 1984
740                                     ;                          RE-RELEASED TO SUPPORT DEC 14/15
741                                     ;                          ROM'S.
742                                     ;
```

```
                                .TITLE  CZLNADO LNO1 TEST
                        .SBTTL PROGRAM HEADER

                                .MCALL  SVC
000000'                         SVC                             ;INITIALIZE SUPERVISOR MACROS
                                .MCALL  STRUCT
000000'                         STRUCT                          ;STRUCTURED MACRO PACKAGE
000000                          $LSTIN=         0               ; LIST ASSY CODE LEFT
000000                          $LSTTAG=        0               ; LIST TAGS LEFT
177777                          $LOCTAG=        -1

000000                  SVCINS= 0       ;LIST INSTRUCTIONS
000000                  SVCTST= 0       ;LIST TEST TAGS
000000                  SVCSUB= 0       ;LIST SUBTEST TAGS
000000                  SVCGBL= 0       ;LIST GLOBAL TAGS
000000                  SVCTAG= 0       ;LIST OTHER TAGS

                        .ENABL AMA
                        .ENABL ABS
                        .ENABL LC
002000                          .=2000

002000                          BGNMOD
002000                          POINTER BGNSW,BGNSFT

002000                          HEADER  CZLNA,D,0,60,1,340
(4) 002000              L$NAME::                        ;DIAGNOSTIC NAME
(4) 002000  103                 .ASCII /C/
(4) 002001  132                 .ASCII /Z/
(4) 002002  114                 .ASCII /L/
(4) 002003  116                 .ASCII /N/
(4) 002004  101                 .ASCII /A/
(6) 002005  000                 .BYTE   0
(6) 002006  000                 .BYTE   0
(5) 002007  000                 .BYTE   0
(5) 002010              L$REV::                         ;REVISION LEVEL
(4) 002010  104                 .ASCII  /D/
(5) 002011              L$DEPO::                        ;0
(4) 002011  060                 .ASCII  /0/
(5) 002012              L$UNIT::                        ;NUMBER OF UNITS
(4) 002012  000000              .WORD   0
(5) 002014              L$TIML::                        ;LONGEST TEST TIME
(4) 002014  000060              .WORD   60
(5) 002016              L$HPCP::                        ;POINTER TO H.W. QUES.
(4) 002016  105314              .WORD   L$HARD
(5) 002020              L$SPCP::                        ;POINTER TO S.W. QUES.
(4) 002020  105374              .WORD   L$SOFT
(5) 002022              L$HPTP::                        ;PTR. TO DEF. H.W. PTABLE
(4) 002022  002252              .WORD   L$HW
(5) 002024              L$SPTP::                        ;PTR. TO S.W. PTABLE
(4) 002024  002264              .WORD   L$SW
(5) 002026              L$LADP::                        ;DIAG. END ADDRESS
(4) 002026  105544              .WORD   L$LAST
(5) 002030              L$STA::                         ;RESERVED FOR APT STATS
(4) 002030  000000              .WORD   0
(5) 002032              L$CO::
```

```
(4)  002032  000000                    .WORD   0
(5)  002034                    L$DTYP::                ;DIAGNOSTIC TYPE
(4)  002034  000001                    .WORD   1
(5)  002036                    L$APT::                 ;APT EXPANSION
(4)  002036  000000                    .WORD   0
(5)  002040                    L$DTP::                 ;PTR. TO DISPATCH TABLE
(4)  002040  002132                    .WORD   L$DISPATCH
(5)  002042                    L$PRIO::                ;DIAGNOSTIC RUN PRIORITY
(4)  002042  000340                    .WORD   340
(5)  002044                    L$ENVI::                ;FLAGS DESCRIBE HOW IT WAS SETUP
(4)  002044  000000                    .WORD   0
(5)  002046                    L$EXP1::                ;EXPANSION WORD
(4)  002046  000000                    .WORD   0
(5)  002050                    L$MREV::                ;SVC REV AND EDIT #
(4)  002050     003                    .BYTE   C$REVISION
(3)  002051     003                    .BYTE   C$EDIT
(5)  002052                    L$EF::                  ;DIAG. EVENT FLAGS
(4)  002052  000000                    .WORD   0
(5)  002054  000000                    .WORD   0
(5)  002056                    L$SPC::
(4)  002056  000000                    .WORD   0
(5)  002060                    L$DEVP::                ; POINTER TO DEVICE TYPE LIST
(4)  002060  002242                    .WORD   L$DVTYP
(5)  002062                    L$REPP::                ;PTR. TO REPORT CODE
(4)  002062  000000                    .WORD   0
(5)  002064                    L$EXP4::
(4)  002064  000000                    .WORD   0
(5)  002066                    L$EXP5::
(4)  002066  000000                    .WORD   0
(5)  002070                    L$AUT::                 ;PTR. TO ADD UNIT CODE
(4)  002070  000000                    .WORD   0
(5)  002072                    L$DUT::                 ;PTR. TO DROP UNIT CODE
(4)  002072  000000                    .WORD   0
(5)  002074                    L$LUN::                 ;LUN FOR EXERCISERS TO FILL
(4)  002074  000000                    .WORD   0
(5)  002076                    L$DESP::                ;POINTER TO DIAG. DESCRIPTION
(4)  002076  002202                    .WORD   L$DESC
(5)  002100                    L$LOAD::                ;GENERATE SPECIAL AUTOLOAD EMT
(4)  002100  104035                    EMT     E$LOAD
(5)  002102                    L$ETP::                 ;POINTER TO ERRTBL
(4)  002102  000000                    .WORD   0
(5)  002104                    L$ICP::                 ;PTR. TO INIT CODE
(4)  002104  005516                    .WORD   L$INIT
(5)  002106                    L$CCP::                 ;PTR. TO CLEAN-UP CODE
(4)  002106  007266                    .WORD   L$CLEAN
(5)  002110                    L$ACP::                 ;PTR. TO AUTO CODE
(4)  002110  002256                    .WORD   L$AUTO
(5)  002112                    L$PRT::                 ;PTR. TO PROTECT TABLE
(4)  002112  002122                    .WORD   L$PROT
(5)  002114                    L$TEST::                ;TEST NUMBER
(4)  002114  000000                    .WORD   0
(5)  002116                    L$DLY::                 ;DELAY COUNT
(4)  002116  000000                    .WORD   0
(5)  002120                    L$HIME::                ;PTR. TO HIGH MEM
(4)  002120  000000                    .WORD   0
770
```

```
                                        ;
                                        ; THE FOLLOWING IS A LOAD PROTECTION TABLE
                                        ;
                                                BGNPROT
                                        L$PROT::
                                                .WORD   0
                                                .WORD   -1
                                                .WORD   -1
                                                ENDPROT
                                        .SBTTL  DISPATCH TABLE

                                        ;++
                                        ; THE DISPATCH TABLE CONTAINS THE STARTING ADDRESS OF EACH TEST.
                                        ; IT IS USED BY THE SUPERVISOR TO DISPATCH TO EACH TEST.
                                        ;--

                                                DISPATCH        20              ;X= NUMBER OF TESTS
(4)  002130  000024                             .WORD   20
(3)  002132                             L$DISPATCH::
(6)  002132  007456                             .WORD   T1
(6)  002134  011226                             .WORD   T2
(6)  002136  011774                             .WORD   T3
(6)  002140  013204                             .WORD   T4
(6)  002142  015154                             .WORD   T5
(6)  002144  016516                             .WORD   T6
(6)  002146  017316                             .WORD   T7
(6)  002150  020440                             .WORD   T8
(6)  002152  023476                             .WORD   T9
(6)  002154  025724                             .WORD   T10
(6)  002156  027356                             .WORD   T11
(6)  002160  033354                             .WORD   T12
(6)  002162  037460                             .WORD   T13
(6)  002164  045074                             .WORD   T14
(6)  002166  050422                             .WORD   T15
(6)  002170  052016                             .WORD   T16
(6)  002172  054072                             .WORD   T17
(6)  002174  063606                             .WORD   T18
(6)  002176  070254                             .WORD   T19
(6)  002200  101616                             .WORD   T20
                                        ;
                                        ;FOR USE ON REVISION C OF THE SUPERVISOR
                                        ;
                                                DESCRIP         <CZLNADO LINE PRINTER DIAGNOSTIC>
(4)  002202                             L$DESC::
(3)  002202  055103  047114  042101             .ASCIZ  /CZLNADO LINE PRINTER DIAGNOSTIC/
(3)  002210  020060  044514  042516
(3)  002216  050040  044522  052116
(3)  002224  051105  042040  040511
(3)  002232  047107  051517  044524
(3)  002240  000103
(2)                                             .EVEN
                                                DEVTYP          <LN01>
(4)  002242                             L$DVTYP::
(3)  002242  047114  030460     000             .ASCIZ  /LN01/
(2)          002250                             .EVEN
```

```
                                .SBTTL  DEFAULT HARDWARE P-TABLE

                                ;++
                                ; THE DEFAULT HARDWARE P-TABLE CONTAINS DEFAULT VALUES OF
                                ; THE TEST-DEVICE PARAMETERS. THE STRUCTURE OF THIS TABLE
                                ; IS IDENTICAL TO THE RUN-TIME P-TABLE.
                                ;--

002250                                  BGNHW   DFPTBL
(3) 002250  000002                      .WORD   L10001-L$HW/2
(3) 002252                      L$HW::
(3) 002252                      DFPTBL::
002252  177514                          .WORD   177514                  ;LP11 REGISTER ADDRESS
002254  000200                          .WORD   200                     ;LP11 INTERRUPT VECTOR

                                ;INTERRUPT VECTOR PRIORITY IS 4 AND CANNOT BE CHANGED


002256                                  ENDHW
(3) 002256                      L10001:


002256                                  BGNAUTO
(3) 002256                      L$AUTO::

002256  000240                          NOP             ; NOT USED

002260                                  ENDAUTO
(3) 002260                      L10002:
(3) 002260  104461                      TRAP    C$AUTO
                                .SBTTL  SOFTWARE P-TABLE

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

002262                                  BGNSW   SFPTBL
(3) 002262  000002                      .WORD   L10003-L$SW/2
(3) 002264                      L$SW::
(3) 002264                      SFPTBL::

002264  000000                  INHINT: .WORD   0                       ;0 IF NO INTERVENTION TESTS
                                                                        ;1 IF MANUAL INTERVENTION TESTS
                                                                        ;DEFAULT IS NO

002266  000005                  MAXERR: .WORD   5                       ; AUTODROP ERROR COUNT
                                ; IF ERROR COUNT EXCEEDS MAXERR THE UNIT WILL BE DROPPED FROM TEST

002270                                  ENDSW
(3) 002270                      L10003:

                                .SBTTL  I/O MACRO DEFINITIONS
```

```
838
839                             .MACRO  OUTPUT  ADD,BFCNT,ERR,PRINTS
840                                     MOV     ADD,BUFADD              ;SAVE THE BUFFER ADDRESS
841                             .IF B   BFCNT
842                                     MOV     #1,BUFCNT               ; BYTE COUNT DEFAULT OF 1
843                             .ENDC
844                             .IF NB  BFCNT
845                                     MOV     BFCNT,BUFCNT            ; SUPPLY BYTE COUNT
846                             .ENDC
847                                     MOV     #-1,PRINTR              ; OUTPUT TO ALL UNITS
848                             .IF B   ERR
849                                     MOV     #LPERR,ERRSVC
850                             .ENDC
851                             .IF NB  ERR
852                                     MOV     ERR,ERRSVC
853                             .ENDC
854                             .IF B PRINTS
855                                     MOV     #1,BUFREP               ; PRINT ONCE DEFAULT
856                             .ENDC
857                             .IF NB PRINTS
858                                     MOV     PRINTS,BUFREP           ; SUPPLY PRINT COUNT
859                             .ENDC
860                                     JSR     PC,IOCTRL               ;CALL THE DRIVER
861                             .ENDM   OUTPUT
862
863
864                             .MACRO  OUTPUI  ADD,BFCNT,ERR,UNIT,PRINTS
865                                     MOV     ADD,BUFADD              ;SAVE BUFFER ADDRESS
866                             .IF B   BFCNT
867                                     MOV #1,BUFCNT                   ; DEFAULT BYTE COUNT OF 1
868                             .ENDC
869                             .IF NB  BFCNT
870                                     MOV     BFCNT,BUFCNT            ;BUFFER BYTE COUNT BFCNT
871                             .ENDC
872                             .IF B   ERR
873                                     MOV     #LPERR,ERRSVC
874                             .ENDC
875                             .IF NB  ERR
876                                     MOV     ERR,ERRSVC
877                             .ENDC
878                             .IF B PRINTS
879                                     MOV     #1,BUFREP               ; PRINT ONCE DEFAULT
880                             .ENDC
881                             .IF NB PRINTS
882                                     MOV     PRINTS,BUFREP           ; SUPPLY PRINT COUNT
883                             .ENDC
884                                     MOV     UNIT,PRINTR             ; SUPPLY UNIT NUMBER
885                                     JSR     PC,IOCTRL               ;CALL THE DRIVER
886                             .ENDM
887
888
889                             ; PRINTS IS A PARAMETER CONTROLLING THE NUMBER IF TIMES THE DATA OR
890                             ; MESSAGE IS TO BE PRINTED (SENT TO THE PRINTER). DEFAULT IS 1.
891                             ;
892                             ; A TIMEOUT OF 20. SECONDS IS FURNISHED BASED ON THE FOLLOWING ASSUMPTIONS :
893                             ;       1   A PRINTER SPEED OF 300 LPM
```

```
   894                                      ;       2   A REPEAT COUNT OF 88 MAX. ( 1 PAGE OF LINES AT 8 LPI. )
   895                                      ;       3   AN INITIAL BAND STARTUP TIME OF 2.5 SECONDS.
   896                                      ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
   897  002270                                      ENDMOD
   898                                      .SBTTL  GLOBAL AREAS
   899
   900  002270                                      BGNMOD
   901
   902                                      ;++
   903                                      ; THE GLOBAL EQUATES SECTION CONTAINS PROGRAM EQUATES
   904                                      ; THAT ARE USED IN MORE THAN ONE TEST.
   905                                      ;--
   906
   910  002270                                      EQUALS
   (1)                                      ;
   (1)                                      ; BIT DIFINITIONS
   (1)                                      ;
   (1)          100000                      BIT15== 100000
   (1)          040000                      BIT14== 40000
   (1)          020000                      BIT13== 20000
   (1)          010000                      BIT12== 10000
   (1)          004000                      BIT11== 4000
   (1)          002000                      BIT10== 2000
   (1)          001000                      BIT09== 1000
   (1)          000400                      BIT08== 400
   (1)          000200                      BIT07== 200
   (1)          000100                      BIT06== 100
   (1)          000040                      BIT05== 40
   (1)          000020                      BIT04== 20
   (1)          000010                      BIT03== 10
   (1)          000004                      BIT02== 4
   (1)          000002                      BIT01== 2
   (1)          000001                      BIT00== 1
   (1)                                      ;
   (1)          001000                      BIT9==  BIT09
   (1)          000400                      BIT8==  BIT08
   (1)          000200                      BIT7==  BIT07
   (1)          000100                      BIT6==  BIT06
   (1)          000040                      BIT5==  BIT05
   (1)          000020                      BIT4==  BIT04
   (1)          000010                      BIT3==  BIT03
   (1)          000004                      BIT2==  BIT02
   (1)          000002                      BIT1==  BIT01
   (1)          000001                      BIT0==  BIT00
   (1)                                      ;
   (1)                                      ; EVENT FLAG DEFINITIONS
   (1)                                      ;   EF32:EF17 RESERVED FOR SUPERVISOR TO PROGRAM COMMUNICATION
   (1)                                      ;
   (1)          000040                      EF.START==        32.                              ; START COMMAND WAS ISSUED
   (1)          000037                      EF.RESTART==      31.                              ; RESTART COMMAND WAS ISSUED
   (1)          000036                      EF.CONTINUE==     30.                              ; CONTINUE COMMAND WAS ISSUED
   (1)          000035                      EF.NEW==          29.                              ; A NEW PASS HAS BEEN STARTED
   (1)          000034                      EF.PWR==          28.                              ; A POWER-FAIL/POWER-UP OCCURRED
   (1)                                      ;
   (1)                                      ;
   (1)                                      ; PRIORITY LEVEL DEFINITIONS
```

```
(1)
(1)          000340                  PRIO7== 340
(1)          000300                  PRIO6== 300
(1)          000240                  PRIO5== 240
(1)          000200                  PRIO4== 200
(1)          000140                  PRIO3== 140
(1)          000100                  PRIO2== 100
(1)          000040                  PRIO1== 40
(1)          000000                  PRIO0== 0
(1)                                  ;
(1)                                  ;OPERATOR FLAG BITS
(1)                                  ;
(1)          000004                  EVL==        4
(1)          000010                  LOT==       10
(1)          000020                  ADR==       20
(1)          000040                  IDU==       40
(1)          000100                  ISR==      100
(1)          000200                  UAM==      200
(1)          000400                  BOE==      400
(1)          001000                  PNT==     1000
(1)          002000                  PRI==     2000
(1)          004000                  IXE==     4000
(1)          010000                  IBE==    10000
(1)          020000                  IER==    20000
(1)          040000                  LOE==    40000
(1)          100000                  HOE==   100000
911
915          000012                  LF==12
916          000014                  FF==14
917          000015                  CR==15
918          000177                  DEL==177
919          000001                  VERS.1== 1
920                                  ;
921                                  ;GLOBAL ERROR CODES FOR USE BY GENERAL ERROR ROUTINE
922                                  ;
923          000001                  STATER= 1                       ;TRANSMITTER STATUS ERROR IN OUTPUT
924          000002                  TIMOUT= 2                       ;TIMEOUT ERROR IN IO DRIVER MODULE
925                                                                  ;THIS ERROR INDICATES THE LAST CHARACTER
926                                                                  ;WAS NOT TRANSMITTED WITHIN A GIVEN TIME
927          000003                  NOINTR= 3                       ;GROSS TIME OUT ERROR. THE SPECIFIED DID NOT
928                                                                  ;INTERRRUPT. THEREFORE IO DRIVER MODULE WAS
929                                                                  ;NOT CALLED
930                                  ;
931                                  .SBTTL  GENERAL REGISTER USAGE DEFINITIONS
932                                  ;
933                                  ;R0     RESERVED FOR USE BY THE MACRO PACKAGES
934                                  ;R1     MAXIMUM NUMBER OF UNITS TO TEST L$UNIT-1
935                                  ;R2     UNIT NUMBER BY 2. USED TO CALCULATE OFFSET INTO PROPER
936                                  ;       PRINTER TABLE
937                                  ;R3     TEMPORARY STORAGE
938                                  ;R4          "      "
939                                  ;R5
940                                  ;R6     STACK POINTER
941                                  ;R7     PROGRAM COUNTER
942                                  ;
943
```

```
                                ;
                                ; LP STATUS TABLE BIT DEFINITIONS
                                ;
                100000          ERROR = BIT15
                040000          DROPED = BIT14
                020000          ACTIVE = BIT13
                000377          LOBYTE = 377    ; BIT MASK FOR CLEARING LOBYTE (COUNTER)


                                .SBTTL  GLOBAL DATA SECTION


002270  000000                  FLAG:   .WORD   0               ;<CR> FLAG FOR USE BY SUPERVISOR
002272  000000                  LINCNT: .WORD   0               ;LINE COUNTER
002274  000000                  LSTCNT: .WORD   0
002276  000000                  COUNT:  .WORD   0
002300  000000                  CCNT:   .WORD   0
002302  000000                  STRCNT: .WORD   0
002304  000000                  CHRGEN: .WORD   0
002306  000000                  UNIT:   .WORD   0               ;UNIT COUNTER FOR SINGLE UNIT TESTING
002310  000000                  LUNIT:  .WORD   0               ;UNIT COUNTER FOR ERRORS
                                                                ;AND TESTS NOT USING THE OUTPUT
                                                                ;MACROS.
002312  000000                  PTABAD: .WORD   0               ;P-TABLE ADDRESS RETURNED BY GPHARD
002314  000000                  PRINTR: .WORD   0               ;SELECTED LINE NO.
                                                                ;MACRO
002316  000000                  CLKTYP: .WORD   0               ;CLOCK TYPE CONTROL WORD
                                                                ;1= NO CLOCK AVAILABLE
                                                                ;2= KW11-L LINE CLOCK
                                                                ;3= KW11-P PROGRAMABLE CLOCK
002320  000000                  CLOCKP: .WORD   0               ; CLOCK P-TABLE ADDRESS
002322  000000                  CLKCSR: .WORD   0               ;CLOCK CSR ADDRESS
002324  000000                  CLKSET: .WORD   0               ; CLOCK TIME SET REG ADDRESS
002326  000000                  CLKVEC: .WORD   0               ;CLOCK VECTOR ADDRESS
002330  000000                  CLKENA: .WORD   0               ;CLOCK ENABLE BITS
002332  000000                  ERRCOD: .WORD   0               ;ERROR CODE TYPE FOR GENERAL
                                                                ;ERROR ROUTINE
002334  000000                  ERRFLG: .WORD   0               ;EXPECTED ERROR INDICATOR
002336  000000                  UUT:    .WORD   0               ; # UNITS ACTUALLY UNDER TEST
                                                                ;EXITS BACK TO IO DRIVER EQUAL
                                                                ;1 IF ERROR WAS EXPECTED.

002340  000000                  INDEX:  .WORD   0
002342  000000                  VFUCMD: .WORD   0
                                ;
                                ;MACRO  VARIABLES

002344  000000                  BUFADD: .WORD   0               ;BUFFER ADDRESS OF DATA TO BE SENT
                                                                ;TO THE PRINTER
002346  000000                  BUFCNT: .WORD   0               ;NUMBER OF BYTES TO TRANSFER

002350  000000                  BUFREP: .WORD   0               ; NUMBER OF TIMES TO PRINT
                                ;
                                ;
```

L2


```
1000                                    ;
1001                                    ;LN01 PARAMETER WORD TABLES
1002                                    ;
1003  002352  000020                    LPCSR:  .REPT   16.             ; ADDRESS OF CSR FOR EACH LP11
1004                                            .WORD   0
1005                                            .ENDR
1006  002412  000016                    LPVEC:  .REPT   16              ; INTERRUPT VECTOR ADDRESS
1007                                            .WORD   0
1008                                            .ENDR
1009  002446  000020                    LPBUF:  .REPT 16.               ; DATA BUFFER REGISTER ADDRESS
1010                                            .WORD   0
1011                                            .ENDR
1012  002506  000020                    STATUS: .REPT 16.               ; UNIT STATUS
1013                                            .WORD   0
1014                                            .ENDR
1015  002546  000020                    CURADD: .REPT 16.               ; CURRENT ADDRESS OF OUTPUT DATA BYTE
1016                                            .WORD   0
1017                                            .ENDR
1018  002606  000020                    MSGCNT: .REPT 16.               ; INITIAL BYTE COUNT OF MSG FOR REPEAT RESTORE
1019                                            .WORD 0
1020                                            .ENDR
1021  002646  000020                    REPCNT: .REPT   16.             ; NO. OF TIMES TO REPEAT MESSAGE
1022                                            .WORD   0
1023                                            .ENDR
1024  002706  000020                    MSGADR: .REPT   16.             ; ADDRESS OF DATA TO PRINT START OF DATA
1025                                            .WORD   0
1026                                            .ENDR
1027  002746  000020                    CURCNT: .REPT 16.               ; CURRENT COUNT REMAINING TO OUTPUT
1028                                            .WORD   -1
1029                                            .ENDR
1030  003006  000020                    LPINTR: .REPT 16.               ; INTERRUPT ROUTINE ADDRESS
1031                                            .WORD   0
1032                                            .ENDR
1033                                    ;;;DELCNT:      .REPT 16.
1034                                    ;;;     .WORD   0               ; TIMEOUT DELAY COUNTER
1035                                    ;;;     .ENDR
1036  003046  000000                    ERRSVC: .WORD   0               ; ERROR ROUTINE DISPATCH ADDRESS
1037  003050  000020                    ERRTBL::        .REPT 16.       ; ERROR COUNT FOR EACH UNIT
1038                                            .WORD   0
1039                                            .ENDR
1040
1041  003110  000000                    WORK::  .WORD   0               ; WORK AREA
1042  003112  000000                    WORK1:  .WORD   0
1043
1044
1045
1046                                    .SBTTL  OUTPUT BUFFER
1047                                    ;
1048                                    ;150 BYTES IS RESERVED FOR THE OUTPUT BUFFER AREA
1049                                    ;
1050
1051                                            .EVEN
1052  003114  000226                    OUTBUF: .REPT   150.
1053                                            .BYTE   0
1054                                            .ENDR
1055
```

```
1056
1057                                    .SBTTL  GLOBAL TEXT SECTION
1058
1059                                    .NLIST BEX
1060                                    ;++
1061                                    ; THE GLOBAL TEXT SECTION CONTAINS FORMAT STATEMENTS,
1062                                    ; MESSAGES, AND ASCII INFORMATION THAT ARE USED IN
1063                                    ; MORE THAN ONE TEST.
1064                                    ;--
1065  003342  051120  047111  042524    CSRERR: .ASCIZ /PRINTER ERROR/
1066  003360  051120  047111  042524    RDYERR: .ASCIZ /PRINTER NOT READY/
1067  003402  040520  042520  020122    PAPSWI: .ASCIZ /PAPER OUT INTERLOCK SWITCH FAILURE - MAKE SURE PAPER IS RESTORED/
1068  003503     120  050101  051105    HANSWI: .ASCIZ /PAPER TRAY HANDLE INTERLOCK SWITCH FAILURE/
1069  003556  051106  047117  020124    DOOSWI: .ASCIZ /FRONT DOOR INTERLOCK SWITCH FAILURE/
1070  003622  051124  047101  046523    INTER1: .ASCIZ  /TRANSMIT INTERRUPT TIMEOUT/
1071  003655     120  044522  052116    TXERR:  .ASCIZ  /PRINTER STATUS ERROR/
1072  003702  052517  050124  052125    OUTTIM: .ASCIZ  /OUTPUT TIMEOUT ERROR/
1073  003727     125  044516  020124    TXNOIN: .ASCIZ  /UNIT FAILED TO INTERRUPT/
1074  003760  046101  020114  047125    UUTEQO: .ASCIZ  /ALL UNITS HAVE BEEN DROPPED..RESTART../
1075  004027     033     143            REINIT: .BYTE   33,143                          ; RESETS DEFAULT CONDITIONS IN LN01
1076  004031     033     133     062    SELDEC: .BYTE   33,133,62,40,111                ; SELECT DECIPOINTS AS PARAMETER
1077  004036     033     133     067    SELPIX: .BYTE   33,133,67,40,111                ; SELECT PIXELS AS PARAMETER
1078  004043     015     012     000    ACRLF:: .BYTE   15,12,0
1079  004046     015     012     012    SKIP3:: .BYTE   15,12,12,12
1080  004052     033     133     061    DECFIN:: .BYTE  33,133,61,41,175                ; SEQUENCE FOR TOGGLING PAPER OF
1081             004060                 .EVEN
1082
1083
1084                                    ;
1085                                    ;
1086
1087                                    .LIST BEX
1088                                    ;
1089                                    ; FORMAT STATEMENTS USED IN PRINT CALLS
1090                                    ;
1091
1092  004060  040445  050114  030461    LPDROP: .ASCIZ  /%ALP11 UNIT %D2%A DROPPED FROM TEST%N/
      004066  052440  044516  020124
      004074  042045  022462  020101
      004102  051104  050117  042520
      004110  020104  051106  046517
      004116  052040  051505  022524
      004124  000116
1093
1094
1095
1096
1097                                    .SBTTL  GLOBAL SUBROUTINES  SECTION
1098
1099                                    ;++
1100                                    ; THE GLOBAL SUBROUTINE SECTION CONTAINS THE SUBROUTINES
1101                                    ; THAT ARE USED BY MORE THAN ONE TEST.
1102                                    ;--
1103
1104
1105                                    ;++
```

N2


```
1106                                    ; FUNCTIONAL DESCRIPTION:
1107                                    ;    SUBROUTINE TO PRINT THE GENERAL ERROR INFORMATION.
1108                                    ;       PRINTS THE ERROR MESSAGE IN THE FOLLOWING FORMAT:
1109                                    ;
1110                                    ;       "ERROR AT CSR XXXXXX UNIT YY"
1111                                    ;
1112                                    ;       WHERE XXXXXX=   DEVICE CSR ADDRESS
1113                                    ;                 YY=   UNIT NUMBER THAT FAILED
1114                                    ;
1115                                    ;       CALLING SEQUENCE
1116                                    ;               JSR PC,LPERR
1117                                    ;       REQUIRED PARAMETERS
1118                                    ;               ERRCOD MUST BE SET TO ONE OF THE ERROR CODES DESCRIBED
1119                                    ;               UNDER ERROR CODES.
1120                                    ;
1121                                    ;--
1122                                    ;
1123                                    ;
1124                                    ;               R2 IS USED INTERNAL TO THE ROUTINE.
1125                                    ;               THE ROUTINE DOES A SAVE ON R2
1126                                    ;               AND RESTORES IT PRIOR TO EXITING.
1127                                    ;
1128
1129  004126                            LPERR:  SELECT ERRCOD OF 3 VERIFY       ;SELECT PROPER MESSAGE FORMAT
 (2)  004126  013746  002332                    MOV     ERRCOD,-(SP)
 (6)  004132  002455                            BLT     50005$
 (3)  004134  023727  002332  000003           CMP     ERRCOD,#3
 (7)  004142  003051                            BGT     50005$
 (2)  004144  006316                            ASL     (SP)
 (3)  004146  062716  004154                    ADD     #50000$,(SP)
 (2)  004152  013607                            MOV     @(SP)+,PC
 (3)  004154                            50000$:
 (5)  004154  004272                            .WORD   50004$
 (5)  004156  004164                            .WORD   50003$
 (5)  004160  004212                            .WORD   50002$
 (5)  004162  004240                            .WORD   50001$
1130
1131  004164                                    CASE 1                  ;STATUS ERROR
 (5)  004164                            50003$:
1132  004164                                    LET ERRTBL(R2) := ERRTBL(R2) + #1
 (7)  004164  005262  003050                    INC     ERRTBL(R2)
1133  004170                                    LET L$LUN := R2 SHIFT -1
 (5)  004170  010237  002074                    MOV     R2,L$LUN
 (8)  004174  006237  002074                    ASR     L$LUN
1134  004200                                    ERRHRD  14,TXERR
 (4)  004200  104456                            TRAP    C$ERHRD
 (5)  004202  000016                            .WORD   14
 (5)  004204  003655                            .WORD   TXERR
 (5)  004206  000000                            .WORD   0
1135
1136  004210                                    CASE 2                  ;OUTPUT TIMEOUT ERROR
 (4)  004210  000430                            BR      50006$
 (5)  004212                            50002$:
1137  004212                                    LET ERRTBL(R2) := ERRTBL(R2) + #1
 (7)  004212  005262  003050                    INC     ERRTBL(R2)
1138  004216                                    LET L$LUN := R2 SHIFT -1
```

```
  (5)  004216  010237  002074                MOV     R2,L$LUN
  (8)  004222  006237  002074                ASR     L$LUN
1139   004226                                ERRHRD  15,OUTTIM      ;
  (4)  004226  104456                        TRAP    C$ERHRD
  (5)  004230  000017                        .WORD   15
  (5)  004232  003702                        .WORD   OUTTIM
  (5)  004234  000000                        .WORD   0
1140
1141   004236                                CASE 3
  (4)  004236  000415                        BR      50006$
  (5)  004240                          50001$:
1142                                          ; NEVER RECIEVED THE INTERRUPT
1143   004240                                LET ERRTBL(R2) := ERRTBL(R2) + #1
  (7)  004240  005262  003050                INC     ERRTBL(R2)
1144   004244                                LET L$LUN := R2 SHIFT -1
  (5)  004244  010237  002074                MOV     R2,L$LUN
  (8)  004250  006237  002074                ASR     L$LUN
1145   004254                                ERRHRD 16,TXNOIN
  (4)  004254  104456                        TRAP    C$ERHRD
  (5)  004256  000020                        .WORD   16
  (5)  004260  003727                        .WORD   TXNOIN
  (5)  004262  000000                        .WORD   0
1146
1147
1148
1149   004264                          ENDSELECT
  (3)  004264  000402                        BR      50006$
  (3)  004266                          50005$:
  (2)  004266  062706  000002                ADD     #2,SP
  (3)  004272                          50004$:
1150
1151   004272                                IF ERRTBL(R2) GT MAXERR THEN
  (6)  004272  026237  003050  002266        CMP     ERRTBL(R2),MAXERR
 (10)  004300  003402                        BLE     50007$
1152   004302  004737  005354                    JSR PC,DROPIT       ; MAXIMUM ERROR COUNT EXCEEDED !
1153   004306                                ENDIF
  (4)  004306                          50007$:
1154   004306                                LET STATUS(R2) := STATUS(R2) CLR.BY #ERROR
  (7)  004306  042762  100000  002506        BIC     #ERROR,STATUS(R2)
1155   004314                                LET ERRCOD := #0
  (4)  004314  005037  002332                CLR     ERRCOD
1156   004320                                LET @LPCSR(R2) := #100          ; CLEAR THE ERROR BIT AND ENABLE INTERRUPTS
  (4)  004320  012772  000100  002352        MOV     #100,@LPCSR(R2)
1157   004326  000207                        RTS     PC                  ;AND EXIT
1158
1159                                    ;-----------------------------------------------------------
1160                                    ; BIN2DA        BINARY TO DECIMAL ASCII CONVERSION ROUTINE
1161                                    ;               ENTER WITH NUMBER TO BE CONVERTED ON THE STACK
1162                                    ;               FOLLOWED BY THE ADDRESS OF A 5 BYTE BUFFER
1163                                    ;               FOR THE ASCII STRING. 5 DIGITS WILL BE CONVERTED
1164                                    ;               LEADING ZEROES WILL BE CONVERTED TO SPACES.
1165                                    ;               CALL BY JSR  PC,BIN2DA
1166                                    ;-----------------------------------------------------------
1167
1168   004330                           BIN2DA: PUSH R4,R5
```

```
  (2)  004330  010446                          MOV     R4,-(SP)
  (3)  004332  010546                          MOV     R5,-(SP)
1169   004334                                 LET R4 := 6(SP)          ; GET ADDRESS FOR ASCII STRING
  (4)  004334  016604  000006                 MOV     6(SP),R4
1170   004340                                 LET R5 := @TABLDA        ; GET ADDRESS OF DECIMAL TABLE
  (4)  004340  012705  004522                 MOV     @TABLDA,R5
1171   004344                                 LET FLAGDA := #0         ; LEADING ZERO FLAG
  (4)  004344  005037  004534                 CLR     FLAGDA
1172   004350                                 LET COUNTD := #0
  (4)  004350  005037  004536                 CLR     COUNTD
1173                                           ; 8.(SP) HAS NUMBER TO BE CONVERTED
1174   004354                                 DECR DIGITS FROM #4 TO #0 BY #1 ; DO 5 DIGITS
  (5)  004354  012737  000004  004540         MOV     #4,DIGITS
  (7)  004362  000402                         BR      50010$
  (6)  004364                          50011$:
 (10)  004364  005337  004540                 DEC     DIGITS
  (7)  004370                          50010$:
  (7)  004370  005737  004540                 TST     DIGITS
  (9)  004374  002435                         BLT     50012$
1175   004376                                     WHILE 8.(SP) GE (R5) DO     ; CREATE A DIGIT
  (4)  004376                          50013$:
  (6)  004376  026615  000010                 CMP     8.(SP),(R5)
 (10)  004402  002405                         BLT     50014$
1176   004404                                     LET 8.(SP) := 8.(SP) - (R5)
  (7)  004404  161566  000010                 SUB     (R5),8.(SP)
1177   004410                                     LET COUNTD := COUNTD + #1
  (7)  004410  005237  004536                 INC     COUNTD
1178   004414                                 ENDDO
  (4)  004414  000770                         BR      50013$
  (3)  004416                          50014$:
1179                                           ; CONVERT DIGIT TO ASCII OR SUPPLY A SPACE
1180   004416                                  IF COUNTD GT #0 OR FLAGDA GT #0 THEN
  (6)  004416  005737  004536                 TST     COUNTD
  (8)  004422  003003                         BGT     50015$
  (6)  004424  005737  004534                 TST     FLAGDA
 (10)  004430  003410                         BLE     50016$
  (6)  004432                          50015$:
1181   004432                                     LET COUNTD := COUNTD SET.BY #60
  (7)  004432  052737  000060  004536         BIS     #60,COUNTD
1182   004440                                     LET (R4)+ :B= COUNTD
  (4)  004440  113724  004536                 MOVB    COUNTD,(R4)+
1183   004444                                     LET FLAGDA := FLAGDA + #1
  (7)  004444  005237  004534                 INC     FLAGDA
1184   004450                                 ELSE
  (4)  004450  000402                         BR      50017$
  (3)  004452                          50016$:
1185   004452                                     LET (R4)+ :B= #40
  (4)  004452  112724  000040                 MOVB    #40,(R4)+
1186   004456                                 ENDIF
  (4)  004456                          50017$:
1187                                           ; DO THE NEXT DIGIT
1188   004456                                 LET R5 := R5 + #2
  (7)  004456  062705  000002                 ADD     #2,R5
1189   004462                                 LET COUNTD := #0
  (4)  004462  005037  004536                 CLR     COUNTD
1190   004466                                 ENDDECR
```

```
 (5)  004466  000736                          BR      50011$
 (4)  004470                                50012$:
1191                                        ; IF NUMBER WAS A ZERO PRINT A '0'
1192  004470                                IF FLAGDA EQ #0 THEN
 (6)  004470  005737  004534                TST     FLAGDA
 (10) 004474  001002                        BNE     50020$
1193  004476                                    LET -(R4) :B= #060
 (4)  004476  112744  000060                MOVB    #60,-(R4)
1194  004502                                ENDIF
 (4)  004502                                50020$:
1195                                        ; CLEAN UP THE STACK AND EXIT
1196  004502                                LET 8.(SP) := 4(SP)
 (4)  004502  016666  000004  000010        MOV     4(SP),8.(SP)
1197  004510                                POP     R5,R4
 (2)  004510  012605                        MOV     (SP)+,R5
 (3)  004512  012604                        MOV     (SP)+,R4
1198  004514                                LET SP := SP + #4
 (7)  004514  062706  000004                ADD     #4,SP
1199  004520  000207                        RTS     PC
1200
1201
1202  004522  023420  001750  000144  TABLDA: .WORD   10000.,1000.,100.,10.,1
      004530  000012  000001
1203  004534  000000                  FLAGDA: .WORD   0
1204  004536  000000                  COUNTD: .WORD   0
1205  004540  000000                  DIGITS: .WORD   0
1206
1207                                        .SBTTL  I/O DRIVER
1208
1209                                        ;
1210                                        ;
1211                                        ;++
1212                                        ;THE I/O DRIVER ROUTINE IS INVOKED BY MEANS OF THE INTERRUPT SYSTEM.
1213                                        ;CALL TO IT IS JMP  IODRV.
1214                                        ;RETURN   RTI.
1215                                        ;ENTER ROUTINE WITH R2 SET UP TO DESIRED UNIT *2. R2 IS USED
1216                                        ;TO CALCULATE OFFSET INTO PROPER TABLE.
1217                                        ;R1 EQUALS MAXIMUM NUMBER OF UNITS ON SYSTEM UNDER TEST.
1218                                        ;
1219                                        ;--
1220                                        ;
1221                                        ; CHECK FOR ERROR FLAG IN STATUS REG.
1222                                        ;
1223  004542                                IODRV:  IF #BIT15 NOTSETIN @LPCSR(R2) THEN
 (6)  004542  032772  100000  002352            BIT     #BIT15,@LPCSR(R2)
 (10) 004550  001061                            BNE     50021$
1224                                        ;
1225                                        ; IF COUNT NOT ZERO SEND NEXT BYTE
1226                                        ;
1227  004552                                        IF CURCNT(R2) GT #0 THEN
 (6)  004552  005762  002746                    TST     CURCNT(R2)
 (10) 004556  003416                            BLE     50022$
1228  004560                                    LET @LPBUF(R2) :B= @CURADD(R2)
 (4)  004560  117272  002546  002446            MOVB    @CURADD(R2),@LPBUF(R2)
1229  004566                                    LET CURADD(R2) := CURADD(R2) + #1
 (7)  004566  005262  002546                    INC     CURADD(R2)
```

```
1230                                        ;
1231                                        ; ENABLE INTERRUPT FOR NEXT BYTE
1232                                        ;
1233  004572                                            LET STATUS(R2) := STATUS(R2) SET.BY #ACTIVE
 (7)  004572  052762  020000  002506          BIS      #ACTIVE,STATUS(R2)
1234  004600                                            LET CURCNT(R2) := CURCNT(R2) - #1
 (7)  004600  005362  002746                  DEC      CURCNT(R2)
1235  004604                                            LET @LPCSR(R2) := #100
 (4)  004604  012772  000100  002352          MOV      #100,@LPCSR(R2)
1236  004612                                        ELSE
 (4)  004612  000437                          BR       50023$
 (3)  004614                                 50022$:
1237                                         ; CURRENT MSG DONE, IF PRINT COUNT NOT ZERO SEND AGAIN
1238  004614                                                LET REPCNT(R2) := REPCNT(R2) - #1
 (7)  004614  005362  002646                  DEC      REPCNT(R2)
1239  004620                                                IF REPCNT(R2) GT #0 THEN
 (6)  004620  005762  002646                  TST      REPCNT(R2)
 (10) 004624  003424                          BLE      50024$
1240  004626                                                    LET CURADD(R2) := MSGADR(R2)  ; RESTORE THE MSG ADDR
 (4)  004626  016262  002706  002546          MOV      MSGADR(R2),CURADD(R2)
1241  004634                                                    LET CURCNT(R2) := MSGCNT(R2)  ; RESTORE THE BYTE COUNT
 (4)  004634  016262  002606  002746          MOV      MSGCNT(R2),CURCNT(R2)
1242  004642                                                    LET @LPBUF(R2) :B= @CURADD(R2)  ; RESEND THE MESSAGE
 (4)  004642  117272  002546  002446          MOVB     @CURADD(R2),@LPBUF(R2)
1243  004650                                                    LET CURADD(R2) := CURADD(R2) + #1 ; BUMP THE POINTER
 (7)  004650  005262  002546                  INC      CURADD(R2)
1244  004654                                                    LET CURCNT(R2) := CURCNT(R2) - #1 ; DROP BYTE COUNT
 (7)  004654  005362  002746                  DEC      CURCNT(R2)
1245  004660                                                    LET STATUS(R2) := STATUS(R2) SET.BY #ACTIVE
 (7)  004660  052762  020000  002506          BIS      #ACTIVE,STATUS(R2)
1246  004666                                                    LET @LPCSR(R2) := #100  ; RE-ENABLE INTERRUPTS
 (4)  004666  012772  000100  002352          MOV      #100,@LPCSR(R2)
1247  004674                                                ELSE
 (4)  004674  000406                          BR       50025$
 (3)  004676                                 50024$:
1248                                         ; CURRENT MSG DONE, REPEAT COUNT =0
1249                                         ; CLEAR ACTIVE AND DISABLE INTERRUPTS.
1250  004676                                                    LET STATUS(R2) := STATUS(R2) CLR.BY #ACTIVE
 (7)  004676  042762  020000  002506          BIC      #ACTIVE,STATUS(R2)
1251  004704                                                    LET @LPCSR(R2) := #00
 (4)  004704  012772  000000  002352          MOV      #00,@LPCSR(R2)
1252  004712                                                ENDIF
 (4)  004712                                 50025$:
1253  004712                                        ENDIF
 (4)  004712                                 50023$:
1254  004712                                        ELSE
 (4)  004712  000410                          BR       50026$
 (3)  004714                                 50021$:
1255                                         ; CLEAR ERROR CONDITION, ENABLE INTERRUPTS
1256                                         ; SET ERROR FLAG
1257  004714                                            LET STATUS(R2) := STATUS(R2) SET.BY #ERROR
 (7)  004714  052762  100000  002506          BIS      #ERROR,STATUS(R2)
1258  004722                                            LET ERRCOD := #STATER        ; STATUS ERROR
 (4)  004722  012737  000001  002332          MOV      #STATER,ERRCOD
1259  004730  004777  176112                      JSR PC,@ERRSVC
1260                                                  ; ERROR SERVICE SHOULD CLEAR ERROR BIT AND ENABLE INTR
```

```
1261  004734                                        ENDIF
 (4)  004734                                  50026$:
1262  004734                                        POP R2
 (2)  004734  012602                              MOV     (SP)+,R2
1263  004736  000002                              RTI
1264                                         .SBTTL I/O CONTROL
1265                                         ;++
1266                                         ;
1267                                         ; THE I/O CONTROL SUBROUTINE IS A SINGLE ENTRY QUEUE MANAGER.
1268                                         ; THIS ROUTINE IS INVOKED BY A JSR FROM AN I/O CALL.
1269                                         ; INPUTS:       PRINTR  -1 FOR ALL TERMINALS
1270                                         ;                       N FOR PRINTER NUMBER 'N'
1271                                         ;               BUFADD  ADDRESS OF MESSAGE TO PRINT
1272                                         ;               BUFCNT  BYTE COUNT TO TRANSMIT TO PRINTER
1273                                         ;
1274                                         ;               ERRSVC  ADDRESS OF ERROR SERVICE SUBROUTINE
1275                                         ;               BUFREP IS NO. OF TIMES TO PRINT THE MESSAGE
1276                                         ;--
1277
1278  004740                                 IOCTRL: PUSH    R2,R3,R4
 (2)  004740  010246                              MOV     R2,-(SP)
 (3)  004742  010346                              MOV     R3,-(SP)
 (4)  004744  010446                              MOV     R4,-(SP)
1279                                         ;
1280                                         ; PRINTR CONTAINS THE UNIT NUMBER.  IF
1281                                         ; PRINTR = -1, THEN QUEUE TO ALL PRINTERS.
1282                                         ;
1283  004746                                        IF PRINTR EQ #-1 THEN
 (6)  004746  023727  002314  177777              CMP     PRINTR,#-1
 (10) 004754  001005                              BNE     50027$
1284  004756                                           LET R3 := L$UNIT
 (4)  004756  013703  002012                      MOV     L$UNIT,R3
1285  004762  005037  002074                         CLR L$LUN
1286  004766                                        ELSE
 (4)  004766  000405                              BR      50030$
 (3)  004770                                  50027$:
1287  004770                                           LET R3 := #1
 (4)  004770  012703  000001                      MOV     #1,R3
1288  004774                                           LET L$LUN := PRINTR
 (4)  004774  013737  002314  002074              MOV     PRINTR,L$LUN
1289  005002                                        ENDIF
 (4)  005002                                  50030$:
1290
1291                                         ;
1292                                         ; DO FOR SELECTED PRINTER(S)
1293                                         ;
1294  005002                                        WHILE R3 GT #0 DO
 (4)  005002                                  50031$:
 (6)  005002  005703                              TST     R3
 (10) 005004  003534                              BLE     50032$
1295                                         ;
1296                                         ; USE R2 AS AN INDEX INTO THE UNIT TABLES
1297                                         ;
1298  005006                                           LET R2 := L$LUN SHIFT 1
 (5)  005006  013702  002074                      MOV     L$LUN,R2
 (8)  005012  006302                              ASL     R2
```

```
1299  005014  005037  002332                      CLR  ERRCOD
1300                                          ;
1301                                          ; IF THE UNIT HAS BEEN DROPPED SELECT THE NEXT UNIT
1302                                          ;
1303  005020                                        IF #DROPED NOTSETIN STATUS(R2) THEN
 (6)  005020  032762  040000  002506              BIT     #DROPED,STATUS(R2)
 (10) 005026  001117                              BNE     50033$
1304                                          ;
1305                                          ;TEST FOR DVC ERROR BIT SET
1306                                          ;
1307  005030                                        IF #BIT15 SETIN @LPCSR(R2) THEN
 (6)  005030  032772  100000  002352              BIT     #BIT15,@LPCSR(R2)
 (10) 005036  001407                              BEQ     50034$
1308  005040                                           LET ERRCOD := #STATER                ; STATUS REG ERROR BIT 15 SET IN
 (4)  005040  012737  000001  002332              MOV     #STATER,ERRCOD
1309  005046                                           LET STATUS(R2) := STATUS(R2) SET.BY #ERROR
 (7)  005046  052762  100000  002506              BIS     #ERROR,STATUS(R2)
1310  005054                                           ELSE
 (4)  005054  000451                              BR      50035$
 (3)  005056                                  50034$:
1311                                          ;
1312                                          ; MAKE SURE PREVIOUS MESSAGE IS DONE
1313                                          ;
1314  005056                                           IF #ACTIVE SETIN STATUS(R2) THEN
 (6)  005056  032762  020000  002506              BIT     #ACTIVE,STATUS(R2)
 (10) 005064  001437                              BEQ     50036$
1315  005066                                                LET R4 := #20000.               ; TIMEOUT COUNTER
 (4)  005066  012704  047040                      MOV     #20000.,R4
1316  005072                                                WHILE #ACTIVE SETIN STATUS(R2) DO
 (4)  005072                                  50037$:
 (6)  005072  032762  020000  002506              BIT     #ACTIVE,STATUS(R2)
 (10) 005100  001430                              BEQ     50040$
1317  005102                                                DELAY 2.                        ; WAIT 200 MICROSECONDS
 (2)  005102  012727  000002                      MOV     #2.,(PC)+
 (2)  005106  000000                              .WORD   0
 (2)  005110  013727  002116                      MOV     L$DLY,(PC)+
 (2)  005114  000000                              .WORD   0
 (2)  005116  005367  177772                      DEC     -6(PC)
 (2)  005122  001375                              BNE     .-4
 (2)  005124  005367  177756                      DEC     -22(PC)
 (2)  005130  001367                              BNE     .-20
1318  005132  005304                                      DEC R4                          ; DEC TIMEOUT COUNTER
1319  005134                                                IFCOND EQ THEN
 (7)  005134  001011                              BNE     50041$
1320  005136                                                   LET ERRCOD := #TIMOUT
 (4)  005136  012737  000002  002332              MOV     #TIMOUT,ERRCOD
1321  005144  042762  020000  002506                         BIC     #ACTIVE,STATUS(R2)
1322  005152  052762  100000  002506                         BIS     #ERROR,STATUS(R2)
1323  005160                                                ENDIF
 (4)  005160                                  50041$:
1324  005160                                           ENDDO
 (4)  005160  000744                              BR      50037$
 (3)  005162                                  50040$:
1325  005162                                           ELSE
 (4)  005162  000406                              BR      50042$
 (3)  005164                                  50036$:
```

```
1326  005164                                                  IF CURCNT(R2) GT #0 THEN
 (6)  005164  005762  002746          TST     CURCNT(R2)
 (10) 005170  003403                  BLE     50043$
1327                                  ;
1328                                  ; OUTPUT WAS QUEUED BUT I/O DRIVER WAS NEVER INVOKED (VIA INTERRUPT)
1329                                  ;
1330  005172                                                      LET ERRCOD := #NOINTR
 (4)  005172  012737  000003  002332  MOV     #NOINTR,ERRCOD
1331  005200                                                    ENDIF
 (4)  005200                        50043$:
1332  005200                                                  ENDIF
 (4)  005200                        50042$:
1333  005200                                                ENDIF
 (4)  005200                        50035$:
1334  005200                                                IF ERRCOD NE #0 THEN
 (6)  005200  005737  002332          TST     ERRCOD
 (10) 005204  001403                  BEQ     50044$
1335  005206                                                  CALL @ERRSVC                    ; REPORT THE ERROR
 (3)  005206  004777  175634          JSR     PC,@ERRSVC
1336  005212                                                ELSE
 (4)  005212  000425                  BR      50045$
 (3)  005214                        50044$:
1337                                  ;
1338                                  ; QUEUE THE MESSAGE AND ENABLE INTERRUPTS -
1339                                  ; THE I/O DRIVER WILL PICK UP FROM HERE.
1340                                  ;
1341  005214                                                      LET CURADD(R2) := BUFADD     ; BYTE ADDRESS
 (4)  005214  013762  002344  002546  MOV     BUFADD,CURADD(R2)
1342  005222                                                      LET MSGADR(R2) := BUFADD     ; MESSAGE ADDRESS
 (4)  005222  013762  002344  002706  MOV     BUFADD,MSGADR(R2)
1343  005230                                                      LET CURCNT(R2) := BUFCNT     ; OUTPUT COUNT
 (4)  005230  013762  002346  002746  MOV     BUFCNT,CURCNT(R2)
1344  005236                                                      LET MSGCNT(R2) := BUFCNT     ; BYTE COUNT
 (4)  005236  013762  002346  002606  MOV     BUFCNT,MSGCNT(R2)
1345  005244                                                      LET REPCNT(R2) := BUFREP     ; PRINT COUNT
 (4)  005244  013762  002350  002646  MOV     BUFREP,REPCNT(R2)
1346  005252                                                      IF CURCNT(R2) GT #0 THEN
 (6)  005252  005762  002746          TST     CURCNT(R2)
 (10) 005256  003403                  BLE     50046$
1347  005260                                                        LET @LPCSR(R2) := #100     ; ENABLE INTERRUPTS
 (4)  005260  012772  000100  002352  MOV     #100,@LPCSR(R2)
1348  005266                                                      ENDIF
 (4)  005266                        50046$:
1349  005266                                                  ENDIF
 (4)  005266                        50045$:
1350  005266                                              ENDIF
 (4)  005266                        50033$:
1351                                  ;
1352                                  ; SELECT THE NEXT UNIT AND DECREMENT THE LINECOUNT
1353                                  ;
1354  005266  005303                      DEC R3
1355  005270  005237  002074              INC L$LUN
1356  005274                            ENDDO
 (4)  005274  000642                  BR      50031$
 (3)  005276                        50032$:
1357
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```
1358  005276                                    POP     R4,R3,R2
 (2)  005276  012604                            MOV     (SP)+,R4
 (3)  005300  012603                            MOV     (SP)+,R3
 (4)  005302  012602                            MOV     (SP)+,R2
1359  005304  000207                            RTS     PC
1360
1361                                    ;++++
1362                                    ; SUBROUTINE    QUIET
1363                                    ;
1364                                    ; THIS SUBROUTINE WILL EFFECTIVLY DELAY UNTIL ALL QUEUED OUTPUT
1365                                    ; IS FINISHED. THE DELAY IS ACCOMPLISHED BY QUEUEING A NULL
1366                                    ; MESSAGE TO ALL LINES.
1367                                    ;-----
1368
1369  005306                            QUIET:  OUTPUT  #0,#0           ; NULL MESSAGE OUTPUT
1370  005350  000240                            NOP
1371  005352  000207                            RTS     PC
1372
1373                                    ;*****************************************************************
1374                                    ; DROPIT        FUNCTIONAL DESCRIPTION :
1375                                    ;
1376                                    ; THIS SUBROUTINE IS USED TO DROP A BAD PRINTER FROM THE TEST
1377                                    ; DISABLE ANY INTERRUPTS FROM THE PRINTER, AND NOTIFY THE
1378                                    ; OPERATOR THAT THE PRINTER WAS DROPPED.
1379                                    ;*****************************************************************
1380
1381  005354                            DROPIT: LET STATUS(R2) := STATUS(R2) SET.BY #DROPED
 (7)  005354  052762  040000  002506            BIS     #DROPED,STATUS(R2)
1382  005362                                    LET CURCNT(R2) := #-1
 (4)  005362  012762  177777  002746            MOV     #-1,CURCNT(R2)
1383  005370                                    LET @LPCSR(R2) := #0
 (4)  005370  005072  002352                    CLR     @LPCSR(R2)
1384  005374                                    PRINTF #LPDROP, L$LUN
 (8)  005374  013746  002074                    MOV     L$LUN,-(SP)
 (7)  005400  012746  004060                    MOV     #LPDROP,-(SP)
 (6)  005404  012746  000002                    MOV     #2,-(SP)
 (3)  005410  010600                            MOV     SP,R0
 (4)  005412  104417                            TRAP    C$PNTF
 (4)  005414  062706  000006                    ADD     #6,SP
1385  005420                                    LET ERRTBL(R2) := #0
 (4)  005420  005062  003050                    CLR     ERRTBL(R2)
1386  005424                                    LET UUT := UUT - #1
 (7)  005424  005337  002336                    DEC     UUT
1387  005430                                    IF UUT EQ #0 THEN
 (6)  005430  005737  002336                    TST     UUT
 (10) 005434  001011                            BNE     50047$
1388  005436                                    PRINTF #UUTEQ0
 (7)  005436  012746  003760                    MOV     #UUTEQ0,-(SP)
 (6)  005442  012746  000001                    MOV     #1,-(SP)
 (3)  005446  010600                            MOV     SP,R0
 (4)  005450  104417                            TRAP    C$PNTF
 (4)  005452  062706  000004                    ADD     #4,SP
1389  005456                                        DOCLN       ; NOTHING TO TEST
 (3)  005456  104444                            TRAP    C$DCLN
1390  005460                                    ENDIF
 (4)  005460                            50047$:
```

J3


```
1391  005460  000207                          RTS     PC
1392
1393
1394
1395                                  ;*****************************************************************
1396                                  ; FAKE          FUNCTIONAL DESCRIPTION:
1397                                  ;
1398                                  ; THIS SUBROUTINE IS REQUIRED TO INSURE PROPER PASS COUNT REPORTS
1399                                  ; IN A MULTI UNIT MODE OF OPERATION.
1400                                  ;*****************************************************************
1401
1402  005462                          FAKE:   LET L$LUN := #0
 (4)  005462  005037  002074                  CLR     L$LUN
1403  005466                                  WHILE L$LUN LT L$UNIT DO
 (4)  005466                          50050$:
 (6)  005466  023737  002074  002012          CMP     L$LUN,L$UNIT
 (10) 005474  002007                          BGE     50051$
1404  005476                                      GPHARD      L$LUN, R3
 (3)  005476  013700  002074                  MOV     L$LUN,R0
 (3)  005502  104442                          TRAP    C$GPHRD
 (3)  005504  010003                          MOV     R0,R3
1405  005506                                      LET L$LUN := L$LUN + #1
 (7)  005506  005237  002074                  INC     L$LUN
1406  005512                                  ENDDO
 (4)  005512  000765                          BR      50050$
 (3)  005514                          50051$:
1407  005514  000207                          RTS     PC
1408
1409
1410  005516                                  ENDMOD
1411                                  .SBTTL  INITIALIZATION SECTION
1412                                  ;++
1413                                  ;THE INITIALIZE ROUTINE IS EXECUTED AT THE BEGINNING OF EACH SUB-PASS AND IS
1414                                  ;PRIMARILY USED FOR REQUESTING P-TABLE PARAMETERS. INFORMATION REQUESTED FROM
1415                                  ;THE OPERATOR INCLUDE THE NUMBER OF UNITS UNDER TEST, DEVICE ADDRESSES, VECTORS,
1416                                  ;AND CLOCK TYPE.
1417                                  ;--
1418  005516                          BGNMOD
1419  005516                          BGNINIT
 (3)  005516                          L$INIT::
1420                                  ;RESET EXTERNAL BUS IF START EVENT FLAG IS SET
1421                                  ;OR POWER FAIL RESTART
1422  005516                                  READEF  #EF.START               ;TEST START EF INDICATOR
 (3)  005516  012700  000040                  MOV     #EF.START,R0
 (3)  005522  104447                          TRAP    C$REFG
1423  005524                                  BCOMPLETE 1$                    ;BRANCH IF FROM START UP
 (2)  005524  103466                          BCS     1$
1424  005526                                  READEF  #EF.RESTART             ;NOW THE RESTARTFLAG
 (3)  005526  012700  000037                  MOV     #EF.RESTART,R0
 (3)  005532  104447                          TRAP    C$REFG
1425  005534                                  BCOMPLETE 1$                    ;IF EITHER START OR POWER FAIL RESTART
 (2)  005534  103462                          BCS     1$
1426                                                                          ;DO A BUS RESET
1427  005536  004737  005462                  JSR     PC,FAKE                 ; UPDATE PASS COUNT
1428  005542                                  SETPRI  #PRI00                  ; PRIORITY ZERO
 (3)  005542  012700  000000                  MOV     #PRI00,R0
```

```
  (3)  005546  104441                          TRAP    C$SPRI
1429   005550                                  LET OUTBUF :B= #14
  (4)  005550  112737  000014  003114          MOVB    #14,OUTBUF
1430   005556                                  OUTPUT #OUTBUF,#1
1431   005620                                  DECR WORK1 FROM #6 TO #1 BY #1
  (5)  005620  012737  000006  003112          MOV     #6,WORK1
  (7)  005626  000402                          BR      50052$
  (6)  005630                           50053$:
 (10)  005630  005337  003112                  DEC     WORK1
  (7)  005634                           50052$:
  (7)  005634  023727  003112  000001          CMP     WORK1,#1
  (9)  005642  002415                          BLT     50054$
1432   005644                                  DELAY 250
  (2)  005644  012727  000250                  MOV     #250,(PC)+
  (2)  005650  000000                          .WORD   0
  (2)  005652  013727  002116                  MOV     L$DLY,(PC)+
  (2)  005656  000000                          .WORD   0
  (2)  005660  005367  177772                  DEC     -6(PC)
  (2)  005664  001375                          BNE     .-4
  (2)  005666  005367  177756                  DEC     -22(PC)
  (2)  005672  001367                          BNE     .-20
1433   005674                                  ENDDEC
  (5)  005674  000755                          BR      50053$
  (4)  005676                           50054$:
1434   005676                                  EXIT INIT                       ; ELSE EXIT INIT CODE
  (3)  005676  104432                          TRAP    C$EXIT
  (3)  005700  001300                          .WORD   L10004-.
1435                                    ;
1436                                    ;POWER UP RESTART OR START COMMAND ISSUED
1437                                    ;
1438   005702                           1$:    BRESET                          ;RESET THE BUS
  (3)  005702  104433                          TRAP    C$RESET
1439   005704                                  IF L$UNIT GT #16. THEN
  (6)  005704  023727  002012  000020          CMP     L$UNIT,#16.
 (10)  005712  003420                          BLE     50055$
1440   005714                                      PRINTF #NRGT16
  (7)  005714  012746  006542                  MOV     #NRGT16,-(SP)
  (6)  005720  012746  000001                  MOV     #1,-(SP)
  (3)  005724  010600                          MOV     SP,R0
  (4)  005726  104417                          TRAP    C$PNTF
  (4)  005730  062706  000004                  ADD     #4,SP
1441   005734                                      PRINTF #NRGT17
  (7)  005734  012746  006625                  MOV     #NRGT17,-(SP)
  (6)  005740  012746  000001                  MOV     #1,-(SP)
  (3)  005744  010600                          MOV     SP,R0
  (4)  005746  104417                          TRAP    C$PNTF
  (4)  005750  062706  000004                  ADD     #4,SP
1442   005754                                  ENDIF
  (4)  005754                           50055$:
1443   005754                                  MANUAL                          ; CHECK FOR UNATTENDED MODE
  (3)  005754  104450                          TRAP    C$MANI
1444   005756                                  BNCOMPLETE      2$              ; IF UNATTENDED BYPASS MANUAL INSTRUCTIONS
  (2)  005756  103024                          BCC     2$
1445
1446   005760                                  PRINTF #RESET1
  (7)  005760  012746  006735                  MOV     #RESET1,-(SP)
```

```
  (6)  005764  012746  000001                MOV     #1,-(SP)
  (3)  005770  010600                        MOV     SP,R0
  (4)  005772  104417                        TRAP    C$PNTF
  (4)  005774  062706  000004                ADD     #4,SP
1447                                    ;
1448                                    ;WAIT FOR A "CR" BEFORE GOING ON
1449                                    ;
1450  006000                                LET FLAG := #0
  (4)  006000  005037  002270                CLR     FLAG
1451  006004                                LET ERRCOD := #0
  (4)  006004  005037  002332                CLR     ERRCOD
1452  006010                                LET UUT := #0
  (4)  006010  005037  002336                CLR     UUT
1453  006014                                100$:
1454  006014                                GMANIL  READY,FLAG,100000,YES
  (3)  006014  104443                        TRAP    C$GMAN
  (3)  006016  000404                        BR      10000$
  (4)  006020  002270                        .WORD   FLAG
  (5)  006022  000130                        .WORD   T$CODE
  (5)  006024  007006                        .WORD   READY
  (5)  006026  100000                        .WORD   100000
  (3)  006030                           10000$:
1455                                    ;
1456                                    ;REQUEST P-TABLE FOR PRINTERS UNDER TEST
1457                                    ;
1458  006030                            2$:     LET R1 := L$UNIT - #1           ;MAXIMUM NUMBER OF UNITS
  (5)  006030  013701  002012                MOV     L$UNIT,R1
  (7)  006034  005301                        DEC     R1
1459  006036                                INCR L$LUN FROM #0 TO R1 BY #1
  (5)  006036  005037  002074                CLR     L$LUN
  (7)  006042  000402                        BR      50056$
  (6)  006044                           50057$:
 (10)  006044  005237  002074                INC     L$LUN
  (7)  006050                           50056$:
  (7)  006050  023701  002074                CMP     L$LUN,R1
  (9)  006054  003071                        BGT     50060$
1460  006056                                    GPHARD L$LUN,R3             ;REQUEST P-TABLE ADDRESS
  (3)  006056  013700  002074                MOV     L$LUN,R0
  (3)  006062  104442                        TRAP    C$GPHRD
  (3)  006064  010003                        MOV     R0,R3
1461  006066                                    BNCOMPLETE 3$               ;BRANCH IF DEVICE NOT PRESENT
  (2)  006066  103060                        BCC     3$
1462  006070                                    LET R2 := L$LUN SHIFT 1
  (5)  006070  013702  002074                MOV     L$LUN,R2
  (8)  006074  006302                        ASL     R2
1463  006076                                    LET ERRTBL(R2) := #0
  (4)  006076  005062  003050                CLR     ERRTBL(R2)
1464  006102                                    LET CURCNT(R2) := #-1
  (4)  006102  012762  177777  002746        MOV     #-1,CURCNT(R2)
1465                                    ;;;         LET DELCNT(R2) := #0
1466  006110                                    LET REPCNT(R2) := #0
  (4)  006110  005062  002646                CLR     REPCNT(R2)
1467                                    ;
1468                                    ;LOAD CSR ADDRESS INTO TABLE
1469                                    ;
1470  006114                                    LET LPCSR(R2) := (R3)+      ;SET UP CSR ADDRESS FOR DEVICE
```

```
  (4)  006114  012362  002352                    MOV     (R3)+,LPCSR(R2)
 1471  006120                                            LET LPBUF(R2) := LPCSR(R2) + #2
  (5)  006120  016262  002352  002446            MOV     LPCSR(R2),LPBUF(R2)
  (7)  006126  062762  000002  002446            ADD     #2,LPBUF(R2)
 1472                                    ;
 1473                                    ;SET UP VECTOR ADDRESS INTO GIVEN TABLE
 1474                                    ;
 1475  006134                                            LET LPVEC(R2) := (R3)+
  (4)  006134  012362  002412                    MOV     (R3)+,LPVEC(R2)
 1476                                    ;
 1477                                    ;SET UP DEVICE INTERRUPT VECTOR INFORMATION
 1478                                    ;
 1479  006140                                    LET WORK := R2 SHIFT 3
  (5)  006140  010237  003110                    MOV     R2,WORK
  (8)  006144  006337  003110                    ASL     WORK
  (8)  006150  006337  003110                    ASL     WORK
  (8)  006154  006337  003110                    ASL     WORK
 1480  006160                                    LET WORK := WORK + #INTOO
  (7)  006160  062737  104624  003110            ADD     #INTOO,WORK
 1481  006166                                    LET LPINTR(R2) := WORK
  (4)  006166  013762  003110  003006            MOV     WORK,LPINTR(R2)
 1482  006174                                    SETVEC LPVEC(R2), LPINTR(R2), #PRIO4
  (7)  006174  012746  000200                    MOV     #PRIO4,-(SP)
  (6)  006200  016246  003006                    MOV     LPINTR(R2),-(SP)
  (5)  006204  016246  002412                    MOV     LPVEC(R2),-(SP)
  (4)  006210  012746  000003                    MOV     #3,-(SP)
  (3)  006214  104437                            TRAP    C$SVEC
  (2)  006216  062706  000010                    ADD     #10,SP
 1483                                    ;
 1484                                    ; ADD ONE TO UNIT UNDER TEST COUNT
 1485                                    ;
 1486  006222                                    LET UUT := UUT + #1
  (7)  006222  005237  002336                    INC     UUT
 1487  006226  000403                                    BR  4$
 1488                                    ;
 1489                                    ;INDICATE L$LUN NOT AVAILABLE FOR TESTING
 1490                                    ;
 1491  006230                            3$:             LET STATUS(R2) := STATUS(R2) SET.BY #DROPED
  (7)  006230  052762  040000  002506            BIS     #DROPED,STATUS(R2)
 1492  006236                            4$:     ENDINC                                  ;GO BACK AND DO IT AGAIN
  (5)  006236  000702                            BR      50057$
  (4)  006240                            50060$:
 1493                                    ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
 1494                                    ; SETUP TO HANDLE CLOCK INTERRUPTS
 1495                                    ; IF AN L-CLOCK IS ON THE SYSTEM THEN SETUP A NOOP INTERRUPT
 1496                                    ; HANDLER BECAUSE LSI SYSTEMS MAY HAVE THE CLOCK ENABLED AT ALL TIMES.
 1497  006240                                    LET CLKTYP := #1        ; DEFAULT FOR NO CLOCK ON SYSTEM
  (4)  006240  012737  000001  002316            MOV     #1,CLKTYP
 1498  006246                                    CLOCK   L,R4            ; TEST FOR L-CLOCK
  (3)  006246  012700  000114                    MOV     #'L,R0
  (3)  006252  104462                            TRAP    C$CLCK
  (3)  006254  010004                            MOV     R0,R4
 1499  006256                                    IFCOND CS THEN          ; WE HAVE AN L-CLOCK
  (7)  006256  103031                            BCC     50061$
 1500  006260                                            LET CLKTYP := #2
  (4)  006260  012737  000002  002316            MOV     #2,CLKTYP
```

```
1501  006266                                        LET CLOCKP := R4
 (4)  006266  010437  002320                  MOV     R4,CLOCKP
1502  006272                                        LET CLKCSR := @CLOCKP
 (4)  006272  017737  174022  002322          MOV     @CLOCKP,CLKCSR
1503  006300                                        LET @CLKCSR := #00  ; TRY TO DISABLE INTERRUPTS
 (4)  006300  012777  000000  174014          MOV     #00,@CLKCSR
1504                                            ; SETUP THE NOOP HANDLER
1505  006306                                        LET CLKVEC := 4(R4)
 (4)  006306  016437  000004  002326          MOV     4(R4),CLKVEC
1506  006314                                        SETVEC  CLKVEC,#IGNORE,#PRIO6
 (7)  006314  012746  000300                  MOV     #PRIO6,-(SP)
 (6)  006320  012746  007202                  MOV     #IGNORE,-(SP)
 (5)  006324  013746  002326                  MOV     CLKVEC,-(SP)
 (4)  006330  012746  000003                  MOV     #3,-(SP)
 (3)  006334  104437                          TRAP    C$SVEC
 (2)  006336  062706  000010                  ADD     #10,SP
1507  006342                                        ENDIF
 (4)  006342                              50061$:
1508                                      ; IF A P-CLOCK IS ON THE SYSTEM UPGRADE CLOCK TYPE TO 3
1509  006342                              CK1:    CLOCK   P,R4
 (3)  006342  012700  000120                  MOV     #'P,R0
 (3)  006346  104462                          TRAP    C$CLCK
 (3)  006350  010004                          MOV     R0,R4
1510  006352                                        IFCOND CS THEN          ; WE HAVE A P-CLOCK
 (7)  006352  103016                          BCC     50062$
1511  006354                                        LET CLKTYP := #3
 (4)  006354  012737  000003  002316          MOV     #3,CLKTYP
1512  006362                                        LET CLOCKP := R4
 (4)  006362  010437  002320                  MOV     R4,CLOCKP
1513  006366                                        LET CLKCSR := @CLOCKP
 (4)  006366  017737  173726  002322          MOV     @CLOCKP,CLKCSR
1514  006374                                        LET CLKVEC := 4(R4)
 (4)  006374  016437  000004  002326          MOV     4(R4),CLKVEC
1515                                                ; TRY TO DISABLE THE P-CLOCK
1516  006402                                        LET @CLKCSR := #00
 (4)  006402  012777  000000  173712          MOV     #00,@CLKCSR
1517  006410                                        ENDIF
 (4)  006410                              50062$:
1518                                      ; IF NO CLOCKS ON THE SYSTEM NOTIFY THE OPERATOR
1519  006410                                        IF CLKTYP EQ #1 THEN
 (6)  006410  023727  002316  000001          CMP     CLKTYP,#1
 (10) 006416  001020                          BNE     50063$
1520  006420                                        PRINTF #NOCLCK
 (7)  006420  012746  007043                  MOV     #NOCLCK,-(SP)
 (6)  006424  012746  000001                  MOV     #1,-(SP)
 (3)  006430  010600                          MOV     SP,R0
 (4)  006432  104417                          TRAP    C$PNTF
 (4)  006434  062706  000004                  ADD     #4,SP
1521  006440                                        PRINTF #NOTIM
 (7)  006440  012746  007105                  MOV     #NOTIM,-(SP)
 (6)  006444  012746  000001                  MOV     #1,-(SP)
 (3)  006450  010600                          MOV     SP,R0
 (4)  006452  104417                          TRAP    C$PNTF
 (4)  006454  062706  000004                  ADD     #4,SP
1522  006460                                        ENDIF
 (4)  006460                              50063$:
```

```
 1523  006460                                     SETPRI #PRI00
  (3)  006460  012700  000000                     MOV     #PRI00,R0
  (3)  006464  104441                             TRAP    C$SPRI
 1524  006466                             LET OUTBUF :B= #14
  (4)  006466  112737  000014  003114             MOVB    #14,OUTBUF
 1525  006474                             OUTPUT #OUTBUF,#1
 1526  006536                             EXIT INIT
  (3)  006536  104432                             TRAP    C$EXIT
  (3)  006540  000440                             .WORD   L10004-.
 1527                                     .NLIST BEX
 1528
 1529  006542  047045  040445  052516     NRGT16: .ASCIZ  /%N%ANUMBER OF LINE PRINTERS UNDER TEST EXCEEDS 16./
 1530  006625     045  022516  047501     NRGT17: .ASCIZ  /%N%AONLY 16 WILL BE TESTED./
 1531  006661     045  022516  051101     MRESET: .ASCIZ  /%N%ARESET PRINTER(S),  AND PLACE ON LINE.%N/
 1532  006735     045  022516  051101     RESET1: .ASCIZ /%N%ARESET PRINTER(S) AND PLACE ON LINE%N/
 1533
 1534  007006  042504  051120  051505     READY:  .ASCIZ  /DEPRESS "RETURN" WHEN READY./
 1535  007043     045  022516  044101     NOCLCK: .ASCIZ  /%N%AHARDWARE CLOCK NOT AVAILABLE./
 1536  007105     045  022516  040501     NOTIM:  .ASCIZ  /%N%AAUTO PRINTING SPEED MEASUREMENT CANNOT BE PERFORMED./
 1537                                     .EVEN
 1538  007176  000000                     PLOC:   .WORD   0
 1539
 1540                                     .LIST BEX
 1541  007200                             ENDINIT
  (3)  007200                             L10004:
  (3)  007200  104411                             TRAP    C$INIT
 1542
 1543                                     ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
 1544                                     ; IGNORE          AN INTERRUPT CATCHER FOR THE L-CLOCK
 1545                                     ;                 THAT IGNORES THE INTERRUPT.
 1546                                     ;                 USED FOR SYSTEMS WHERE CLOCK CANNOT BE TURNED OFF.
 1547                                     ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
 1548
 1549  007202                             IGNORE:                 ; NOOP
 1550  007202  000002                             RTI
 1551
 1552
 1553
 1554                                     ;--------------------------------------------------------------------------------
 1555                                     ;
 1556                                     ; RESVEC          FUNCTIONAL DESCRIPTION
 1557                                     ;
 1558                                     ;       THIS SUBROUTINE WILL SETUP ALL UNITS VECTOR AREAS
 1559                                     ;       TO THE 'NORMAL' INTERRUPT ROUTINES STARTING AT INT00.
 1560                                     ;--------------------------------------------------------------------------------
 1561
 1562  007204                             RESVEC::                PUSH    R3,R4
  (2)  007204  010346                             MOV     R3,-(SP)
  (3)  007206  010446                             MOV     R4,-(SP)
 1563  007210                                                     LET  R4 := #0
  (4)  007210  005004                             CLR     R4
 1564  007212                                                     LET R3 := L$UNIT
  (4)  007212  013703  002012                     MOV     L$UNIT,R3
 1565  007216                                                     WHILE R3 GT #0 DO
  (4)  007216                             50064$:
  (6)  007216  005703                             TST     R3
```

```
 (10) 007220  003417                        BLE     50065$
1566  007222                                    SETVEC LPVEC(R4), LPINTR(R4), #PRIO4
 (7)  007222  012746  000200                  MOV     #PRIO4,-(SP)
 (6)  007226  016446  003006                  MOV     LPINTR(R4),-(SP)
 (5)  007232  016446  002412                  MOV     LPVEC(R4),-(SP)
 (4)  007236  012746  000003                  MOV     #3,-(SP)
 (3)  007242  104437                          TRAP    C$SVEC
 (2)  007244  062706  000010                  ADD     #10,SP
1567  007250                                    LET R4 := R4 + #2
 (7)  007250  062704  000002                  ADD     #2,R4
1568  007254                                    LET R3 := R3 - #1
 (7)  007254  005303                          DEC     R3
1569  007256                                    ENDDO
 (4)  007256  000757                          BR      50064$
 (3)  007260                            50065$:
1570  007260                                    POP R4,R3
 (2)  007260  012604                          MOV     (SP)+,R4
 (3)  007262  012603                          MOV     (SP)+,R3
1571  007264  000207                          RTS     PC
1572
1573                                    .SBTTL  CLEANUP CODING SECTION
1574  007266                            STARS
 (2)                                    ;;**********************************************************************
1575                                    ;;
1576                                    ;THE PURPOSE OF THE CLEANUP SECTION IS TO CLEANUP ALL PRINTERS UNDER TEST
1577                                    ;AND RETEST ANY UNITS WHICH HAVE BEEN DROPPED FROM  TESTING TO INSURE THAT
1578                                    ;THEY HAVE NOT COME BACK ON LINE. IF THE DEVICE HAS COME BACK ON LINE
1579                                    ;TESTING WILL BE RESTARTED ON THE DEVICE. THIS INSURES THAT
1580                                    ;IN THE EVENT A PAPER OUT OCCURRED AND THE OPERATOR HAS PUT ADDITIONAL PAPER
1581                                    ;INTO THE UNIT UNDER TEST, THE INITIALIZATION SEQUENCE DOES NOT
1582                                    ;HAVE TO BE DONE AGAIN IN ORDER TO GET THE DEVICE ACTIVE.
1583                                    ;--
1584  007266                            STARS
 (2)                                    ;;**********************************************************************
1585  007266                            BGNCLN
 (3)  007266                            L$CLEAN::
1586  007266                                    SETPRI #PRIO7
 (3)  007266  012700  000340                  MOV     #PRIO7,R0
 (3)  007272  104441                          TRAP    C$SPRI
1587  007274                                BRESET
 (3)  007274  104433                          TRAP    C$RESET
1588
1589  007276                            CLEAN:  LET R1 := L$UNIT - #1   ;NUMBER OF UNITS-1
 (5)  007276  013701  002012                  MOV     L$UNIT,R1
 (7)  007302  005301                          DEC     R1
1590  007304                                    INCR L$LUN FROM #0 TO R1 BY #1
 (5)  007304  005037  002074                  CLR     L$LUN
 (7)  007310  000402                          BR      50066$
 (6)  007312                            50067$:
 (10) 007312  005237  002074                  INC     L$LUN
 (7)  007316                            50066$:
 (7)  007316  023701  002074                  CMP     L$LUN,R1
 (9)  007322  003016                          BGT     50070$
1591                                    ; DISABLE ALL INTERRUPTS, SELECT ALL LINES
1592                                    ; ZERO ALL ERROR COUNTS
1593  007324                                LET R2 := L$LUN SHIFT 1
```

```
 (5)  007324  013702  002074                MOV     L$LUN,R2
 (8)  007330  006302                        ASL     R2
1594                                    ; CLEAR ALL BITS IN STATUS EXCEPT DEVICE TYPE
1595  007332                                LET STATUS(R2) := STATUS(R2) CLR.BY @ERROR!DROPED!ACTIVE!LOBYTE
 (7)  007332  042762  160377  002506        BIC     @ERROR!DROPED!ACTIVE!LOBYTE,STATUS(R2)
1596  007340                                LET CURCNT(R2) := 0-1
 (4)  007340  012762  177777  002746        MOV     #0-1,CURCNT(R2)
1597  007346                                LET ERRTBL(R2) := #0
 (4)  007346  005062  003050                CLR     ERRTBL(R2)
1598                                ;;;     LET DELCNT(R2) := #0
1599  007352                                LET REPCNT(R2) := #0
 (4)  007352  005062  002646                CLR     REPCNT(R2)
1600  007356                                ENDINC
 (5)  007356  000755                        BR      50067$
 (4)  007360                        50070$:
1601  007360  004737  007204                JSR     PC,RESVEC               ; RESET THE VECTORS
1602  007364                                IF CLKTYP EQ #3 THEN
 (6)  007364  023727  002316  000003        CMP     CLKTYP,#3
 (10) 007372  001006                        BNE     50071$
1603  007374                                  CLRVEC @CLKVEC
 (3)  007374  017700  172726                MOV     @CLKVEC,R0
 (3)  007400  104436                        TRAP    C$CVEC
1604  007402                                  LET @CLKCSR := #00
 (4)  007402  012777  000000  172712        MOV     #00,@CLKCSR
1605  007410                                ENDIF
 (4)  007410                        50071$:
1606  007410                                IF CLKTYP EQ #2 THEN
 (6)  007410  023727  002316  000002        CMP     CLKTYP,#2
 (10) 007416  001013                        BNE     50072$
1607  007420                                  SETVEC CLKVEC,#IGNORE,#PRIO6
 (7)  007420  012746  000300                MOV     #PRIO6,-(SP)
 (6)  007424  012746  007202                MOV     #IGNORE,-(SP)
 (5)  007430  013746  002326                MOV     CLKVEC,-(SP)
 (4)  007434  012746  000003                MOV     #3,-(SP)
 (3)  007440  104437                        TRAP    C$SVEC
 (2)  007442  062706  000010                ADD     #10,SP
1608  007446                                ENDIF
 (4)  007446                        50072$:
1609  007446                                SETPRI #PRIOO
 (3)  007446  012700  000000                MOV     #PRIOO,R0
 (3)  007452  104441                        TRAP    C$SPRI
1610  007454                        ENDCLN
 (3)  007454                        L10005:
 (3)  007454  104412                        TRAP    C$CLEAN
1611
1612  007456                        ENDMOD
1613                                .SBTTL  INTERFACE LOGIC
1614                                ;MODULE         INLOG.P11
1615
1616  007456                        BGNMOD
1617                                ;**
1618                                ;THIS TEST VERIFIES THE OPERATION OF THE INTERFACE LOGIC. TESTS ARE
1619                                ;PERFORMED FOR PRINTER ERROR, PRINTER READY, AND CLEARING PRINTER READY
1620                                ;BY LOADING A CHARACTER INTO THE OUTPUT BUFFER. ALSO IT IS VERIFIED
1621                                ;THAT THE PRINTER WILL NOT INTERRUPT IF IT IS AT THE SAME PRIORITY LEVEL
1622                                ;AS THE PROCESSOR, BUT WILL INTERRUPT IF THE PROCESSOR IS AT A LOWER
```

```
1623                                    ;PRIORITY LEVEL. THE PRINTER IS AT PRIORITY LEVEL 4.
1624                                    ;
1625                                    ;
1626                                    ;--
1627  007456                            BGNTST  1
 (3)  007456                            T1::
1628  007456                            LET R1 := L$UNIT - #1                   ;MAX NUMBER OF UNITS ON SYSTEM
 (5)  007456  013701  002012                    MOV     L$UNIT,R1
 (7)  007462  005301                            DEC     R1
1629                                    ;
1630                                    ;HARD CODED INCREMEMNT LOOP
1631                                    ;INCR LUNIT FROM #0 TO R1 BY #1         ;START LOOP
1632                                    ;
1633  007464  005037  002310                    CLR     LUNIT                   ;UNIT TO 0
1634  007470  000402                            BR      T1C                     ;DO COMPARE
1635  007472                            T1A:
1636  007472  005237  002310                    INC     LUNIT                   ;UPDATE UNIT NUMBER
1637  007476                            T1C:
1638  007476  023701  002310                    CMP     LUNIT,R1                ;DO COMPARISON OF UNIT NUMBER
1639  007502  003402                            BLE     1$                      ;ONTO NEXT UNIT
1640  007504  000137  010244                    JMP     T1B                     ;EXIT LOOP
1641  007510                            1$:
1642  007510                                    LET R2 := LUNIT SHIFT 1
 (5)  007510  013702  002310                    MOV     LUNIT,R2
 (8)  007514  006302                            ASL     R2
1643  007516                                IF #BIT15 SETIN @LPCSR(R2) THEN
 (6)  007516  032772  100000  002352            BIT     #BIT15,@LPCSR(R2)
 (10) 007524  001416                            BEQ     50073$
1644  007526                                    LET STATUS(R2) := STATUS(R2) SET.BY #ERROR
 (7)  007526  052762  100000  002506            BIS     #ERROR,STATUS(R2)
1645  007534                                    LET ERRTBL(R2) := ERRTBL(R2) + #1
 (7)  007534  005262  003050                    INC     ERRTBL(R2)
1646  007540                                    LET L$LUN := LUNIT
 (4)  007540  013737  002310  002074            MOV     LUNIT,L$LUN
1647  007546                                    ERRHRD 1,CSRERR         ;ERROR BIT WAS SET. SAY SO
 (4)  007546  104456                            TRAP    C$ERHRD
 (5)  007550  000001                            .WORD   1
 (5)  007552  003342                            .WORD   CSRERR
 (5)  007554  000000                            .WORD   0
1648  007556                                    LET @LPCSR(R2) := #0
 (4)  007556  005072  002352                    CLR     @LPCSR(R2)
1649  007562                                ENDIF
 (4)  007562                            50073$:
1650                                    ;TIME DELAY
1651                                            ; IF NOT READY ALLOW 3 SECONDS TO COME UP
1652  007562                                    IF #BIT7 NOTSETIN @LPCSR(R2) THEN
 (6)  007562  032772  000200  002352            BIT     #BIT7,@LPCSR(R2)
 (10) 007570  001027                            BNE     50074$
1653  007572                                        DECR WORK1 FROM #30. TO #1 BY #1
 (5)  007572  012737  000036  003112            MOV     #30.,WORK1
 (7)  007600  000402                            BR      50075$
 (6)  007602                            50076$:
 (10) 007602  005337  003112                    DEC     WORK1
 (7)  007606                            50075$:
 (7)  007606  023727  003112  000001            CMP     WORK1,#1
 (9)  007614  002415                            BLT     50077$
```

```
                                                        DELAY 250
                                                MOV     #250,(PC)+
                                                .WORD   0
                                                MOV     L$DLY,(PC)+
                                                .WORD   0
                                                DEC     -6(PC)
                                                BNE     .-4
                                                DEC     -22(PC)
                                                BNE     .-20
                                            ENDDEC
                                                BR      50076$
                                        50077$:
                                            ENDIF
                                        50074$:
                                        ;
                                        ;NOW TEST FOR PRINTER READY
                                        ;
                                            IF #BIT07 NOTSETIN @LPCSR(R2) THEN          ;TEST FOR THE READY BIT
                                                BIT     #BIT07,@LPCSR(R2)
                                                BNE     50100$
                                                LET STATUS(R2) := STATUS(R2) SET.BY #ERROR
                                                BIS     #ERROR,STATUS(R2)
                                                LET L$LUN := LUNIT
                                                MOV     LUNIT,L$LUN
                                                LET ERRTBL(R2) := ERRTBL(R2) + #1
                                                INC     ERRTBL(R2)
                                                ERRHRD 2,RDYERR         ;REPORT AN ERROR
                                                TRAP    C$ERHRD
                                                .WORD   2
                                                .WORD   RDYERR
                                                .WORD   0
                                            ENDIF
                                        50100$:
                                        ;
                                        ;INSURE LOADING CHARACTER CAUSES PRINTER READY TO GO AWAY
                                        ;
                                            LET @LPBUF(R2) := #12
                                                MOV     #12,@LPBUF(R2)
                                            IF #BIT07 SETIN @LPCSR(R2) THEN
                                                BIT     #BIT07,@LPCSR(R2)
                                                BEQ     50101$
                                                LET STATUS(R2) := STATUS(R2) SET.BY #ERROR
                                                BIS     #ERROR,STATUS(R2)
                                                LET ERRTBL(R2) := ERRTBL(R2) + #1
                                                INC     ERRTBL(R2)
                                                LET L$LUN := LUNIT
                                                MOV     LUNIT,L$LUN
                                                ERRHRD 3,ERR11          ;REPORT AN ERROR
                                                TRAP    C$ERHRD
                                                .WORD   3
                                                .WORD   ERR11
                                                .WORD   0
                                                LET @LPCSR(R2) := #0
                                                CLR     @LPCSR(R2)
                                            ENDIF
                                        50101$:
```

```
1677                                    ;
1678                                    ;VERIFY THAT THE PRINTER WILL NOT INTERRUPT IF IT IS AT A PRIORITY LEVEL
1679                                    ;THE SAME AS THE CPU
1680                                    ;
1681  007762                                SETPRI #PRIO4                         ;CPU TO PRIORITY 4
 (3)  007762  012700  000200                    MOV     #PRIO4,R0
 (3)  007766  104441                            TRAP    C$SPRI
1682  007770                                SETVEC LPVEC(R2),#INTERR,#PRIO4       ;LP VECTOR SET UP
 (7)  007770  012746  000200                    MOV     #PRIO4,-(SP)
 (6)  007774  012746  010516                    MOV     #INTERR,-(SP)
 (5)  010000  016246  002412                    MOV     LPVEC(R2),-(SP)
 (4)  010004  012746  000003                    MOV     #3,-(SP)
 (3)  010010  104437                            TRAP    C$SVEC
 (2)  010012  062706  000010                    ADD     #10,SP
1683  010016                                LET &LPCSR(R2) := &LPCSR(R2) SET.BY #100    ;INTERRUPT ENABLE
 (7)  010016  052772  000100  002352            BIS     #100,&LPCSR(R2)
1684  010024                                DECR WORK1 FROM #30. TO #1 BY #1
 (5)  010024  012737  000036  003112            MOV     #30.,WORK1
 (7)  010032  000402                            BR      50102$
 (6)  010034                            50103$:
 (10) 010034  005337  003112                    DEC     WORK1
 (7)  010040                            50102$:
 (7)  010040  023727  003112  000001            CMP     WORK1,#1
 (9)  010046  002415                            BLT     50104$
1685  010050                                    DELAY   250.                ; ALLOW FOR DELAY
 (2)  010050  012727  000372                    MOV     #250.,(PC)+
 (2)  010054  000000                            .WORD   0
 (2)  010056  013727  002116                    MOV     L$DLY,(PC)+
 (2)  010062  000000                            .WORD   0
 (2)  010064  005367  177772                    DEC     -6(PC)
 (2)  010070  001375                            BNE     .-4
 (2)  010072  005367  177756                    DEC     -22(PC)
 (2)  010076  001367                            BNE     .-20
1686  010100                                ENDDEC
 (5)  010100  000755                            BR      50103$
 (4)  010102                            50104$:
1687                                    ;
1688                                    ;NOW TEST THAT THE PRINTER WILL INTERRUPT IF THE CPU PRIORITY IS LOWER THAN
1689                                    ;THE PRINTER PRIORITY
1690                                    ;
1691  010102                                LET &LPCSR(R2) := &LPCSR(R2) CLR.BY #100    ;CLEAR INTERRUPT ENABLE
 (7)  010102  042772  000100  002352            BIC     #100,&LPCSR(R2)
1692  010110                                SETPRI #PRIO3                         ;CPU TO PRIORITY 3
 (3)  010110  012700  000140                    MOV     #PRIO3,R0
 (3)  010114  104441                            TRAP    C$SPRI
1693  010116                                SETVEC LPVEC(R2),#INTHDL,#PRIO4
 (7)  010116  012746  000200                    MOV     #PRIO4,-(SP)
 (6)  010122  012746  010546                    MOV     #INTHDL,-(SP)
 (5)  010126  016246  002412                    MOV     LPVEC(R2),-(SP)
 (4)  010132  012746  000003                    MOV     #3,-(SP)
 (3)  010136  104437                            TRAP    C$SVEC
 (2)  010140  062706  000010                    ADD     #10,SP
1694  010144                                LET &LPCSR(R2) := &LPCSR(R2) SET.BY #100    ;INTERRUPT ENABLE
 (7)  010144  052772  000100  002352            BIS     #100,&LPCSR(R2)
1695  010152                                    DELAY 75.                 ; ALLOW FOR DELAY
 (2)  010152  012727  000113                    MOV     #75.,(PC)+
```

```
  (2)  010156  000000                              .WORD   0
  (2)  010160  013727  002116                      MOV     L$DLY,(PC)+
  (2)  010164  000000                              .WORD   0
  (2)  010166  005367  177772                      DEC     -6(PC)
  (2)  010172  001375                              BNE     .-4
  (2)  010174  005367  177756                      DEC     -22(PC)
  (2)  010200  001367                              BNE     .-20
1696   010202                                      LET ERRTBL(R2) := ERRTBL(R2) + #1
  (7)  010202  005262  003050                      INC     ERRTBL(R2)
1697   010206                                      LET L$LUN := LUNIT
  (4)  010206  013737  002310  002074              MOV     LUNIT,L$LUN
1698   010214                                  ERRHRD 4,ERR13
  (4)  010214  104456                              TRAP    C$ERHRD
  (5)  010216  000004                              .WORD   4
  (5)  010220  011147                              .WORD   ERR13
  (5)  010222  000000                              .WORD   0
1699   010224                                  END2:   LET @LPCSR(R2) := #00           ; CLEAR THE LPCSR
  (4)  010224  012772  000000  002352              MOV     #00,@LPCSR(R2)
1700   010232                                      LET STATUS(R2) := STATUS(R2) CLR,BY #ERROR!DROPED!ACTIVE
  (7)  010232  042762  160000  002506              BIC     #ERROR!DROPED!ACTIVE,STATUS(R2)
1701                                        ;;;     LET DELCNT(R2) := #0
1702                                        ;
1703                                        ;END OF HARD CODED INCREMENT LOOP
1704                                        ;ENDINC
1705                                        ;
1706   010240  000137  007472                  T1A:    JMP     T1A                     ;UPDATE UNIT #
1707   010244  004737  007204                  T1B:    JSR     PC,RESVEC       ; RESET STANDARD VECTORS
1708   010250                                          SETPRI #PRI00
  (3)  010250  012700  000000                      MOV     #PRI00,R0
  (3)  010254  104441                              TRAP    C$SPRI
1709   010256                                      OUTPUT #INTFAC,#47.
1710   010320                                      OUTPUT #DFAULT,#107.    ;PRINTS ON A NEW PAGE THE DEFAULT POWER-UP
1712   010362                                      OUTPUT #DECFIN,#5               ; TOGGLE THE PAPER OFFSET
1714   010424                                      LET OUTBUF :8= #14
  (4)  010424  112737  000014  003114              MOVB    #14,OUTBUF
1715   010432                                      OUTPUT #OUTBUF,#1
1716   010474  004737  005306                      JSR PC,QUIET
1717   010500                                      WHILE #BIT7 NOTSETIN @LPCSR(R2) DO      ;WAIT FOR READY
  (4)  010500                                  50105$:
  (6)  010500  032772  000200  002352              BIT     #BIT7,@LPCSR(R2)
 (10)  010506  001001                              BNE     50106$
1718   010510                                      ENDDO
  (4)  010510  000773                              BR      50105$
  (3)  010512                                  50106$:
1719   010512                                  EXIT TST                                ;EXIT THE TEST
  (3)  010512  104432                              TRAP    C$EXIT
  (3)  010514  000510                              .WORD   L10006-.
1720                                        ;
1721                                        ;INTERRUPT HANDLER TO SERVICE FAULTY INTERRUPT FROM LP INTERFACE.
1722                                        ;THIS ROUTINE IS ENTERED ONLY WHEN THE LP INTERRUPTS AT THE SAME LEVEL AS
1723                                        ;THE CPU AND IS CONSIDERED AN ERROR.
1724                                        ;
1725   010516                                   BGNSRV
1726   010516                                   INTERR: LET ERRTBL(R2) := ERRTBL(R2) + #1
  (7)  010516  005262  003050                      INC     ERRTBL(R2)
1727   010522                                      LET L$LUN := LUNIT
```

```
  (4)  010522  013737  002310  002074          MOV     LUNIT,L$LUN
1728   010530                                  ERRHRD 5,ERR12
  (4)  010530  104456                          TRAP    C$ERHRD
  (5)  010532  000005                          .WORD   5
  (5)  010534  011064                          .WORD   ERR12
  (5)  010536  000000                          .WORD   0
1729   010540                                LET (SP) := @END2
  (4)  010540  012716  010224                  MOV     @END2,(SP)
1730   010544                                ENDSRV
  (3)  010544                                L10007:
  (2)  010544  000002                          RTI
1731                                          ;
1732                                          ;INTERRUPT HANDLER FOR EXPECTED INTERRUPT
1733                                          ;
1734   010546                                 BGNSRV
1735                                          ;
1736   010546                                 INTHDL: LET (SP) := @END2
  (4)  010546  012716  010224                  MOV     @END2,(SP)
1737   010552                                 ENDSRV
  (3)  010552                                 L10010:
  (2)  010552  000002                          RTI
1738                                          ;
1739                                          .NLIST BEX
1740   010554  047111  042524  043122  INTFAC: .ASCIZ  /INTERFACE LOGIC TEST 1   ----   TEST COMPLETE/<12><12>
1741
1742   010634  015414  052143  044510  DFAULT: .ASCII  <14><33>/cTHIS IS THE DEFAULT POWER UP FONT./<12>
1743   010702  052111  044440  020123          .ASCII  /IT IS BASED ON SWITCHES,SET ON THE PARALLEL/
1744   010755     040  047111  042524          .ASCIZ  / INTERFACE MODULE BOARD./<12><12>
1745                                          ;
1746                                          ;ERROR MESSAGES ASSOCIATED WITH THIS TEST
1747                                          ;
1748   011010  047514  042101  047111  ERR11:  .ASCIZ  /LOADING PRINTER BUFFER DOES NOT CLEAR READY/
1749   011064  051120  047111  042524  ERR12:  .ASCIZ  /PRINTER INTERRUPTED AT SAME LEVEL AS THE PROCESSOR/
1750   011147     120  044522  052116  ERR13:  .ASCIZ  /PRINTER DID NOT INTERRUPT AT CPU PRIORITY 3/
1751          011224                          .EVEN
1752   011224                                 ENDTST
  (3)  011224                                 L10006:
  (3)  011224  104401                          TRAP    C$ETST
1753                                          .LIST BEX
1754   011226                                 ENDMOD
1755
1756
1757
1758
1759
1760
1761
1762
1763
1764
1765
1766                                          .SBTTL DATA TRANSFER PATHS
1767                                          ;MODULE          DATPAT.P11
1768
1769   011226                                 BGNMOD
1770                                          ;**
```

```
1771                                    ;THIS TEST CHECKS THE DATA TRANSFER
1772                                    ;PATHS FROM THE PROCESSOR INTERFACE
1773                                    ;TO THE PRINTER OUTPUT. AN ALTERNATING
1774                                    ;PATTERN OF ONES AND ZEROES CORRESPONDING
1775                                    ;TO AN ALTERNATING STRING OF "♠" AND
1776                                    ;"U" CHARACTERS ARE TRANSMITTED ON THE
1777                                    ;FULL 132 COLUMNS.  AFTER 16 LINES OF
1778                                    ;THIS PATTERN, THE OUTPUT PATTERN IS .
1779                                    ;SWITCHED TO AN ALTERNATING PATTERN
1780                                    ;OF "?" AND "@" CHARACTERS FOR ANOTHER
1781                                    ;16 LINES.
1782                                    ;--
1783
1784  011226                            BGNTST  2
 (3)  011226                            T2::
1785
1787  011226                            OUTPUT #DECFIN,#5                       ; TOGGLE PAPER OFFSET
1789                                    ;PRINT TEST IDENTIFICATION
1790  011270                            OUTPUT #REINIT,#2
1791  011332                            OUTPUT #DATPTH,#34.
1792                                    ;PRINT ALTERNATING STRINGS OF CHARACTERS
1793  011374                            INCR PATTERN FROM #1 TO #2 BY #1
 (5)  011374  012737  000001  011770          MOV     #1,PATTERN
 (7)  011402  000402                          BR      50107$
 (6)  011404                        50110$:
(10)  011404  005237  011770                INC     PATTERN
 (7)  011410                        50107$:
 (7)  011410  023727  011770  000002        CMP     PATTERN,#2
 (9)  011416  003111                          BGT     50111$
1794  011420                            IF PATTERN EQ #1 THEN
 (6)  011420  023727  011770  000001        CMP     PATTERN,#1
(10)  011426  001004                        BNE     50112$
1795  011430                                    LET CHAR :B= #'U
 (4)  011430  112737  000125  011722        MOVB    #'U,CHAR
1796  011436                                ELSE
 (4)  011436  000403                        BR      50113$
 (3)  011440                        50112$:
1797  011440                                    LET CHAR :B= #'?
 (4)  011440  112737  000077  011722        MOVB    #'?,CHAR
1798  011446                            ENDIF
 (4)  011446                        50113$:
1799  011446                                LET R4 := #OUTBUF
 (4)  011446  012704  003114                MOV     #OUTBUF,R4
1800  011452                                INCR CCNT FROM #1 TO #66. BY #1
 (5)  011452  012737  000001  002300        MOV     #1,CCNT
 (7)  011460  000402                        BR      50114$
 (6)  011462                        50115$:
(10)  011462  005237  002300                INC     CCNT
 (7)  011466                        50114$:
 (7)  011466  023727  002300  000102        CMP     CCNT,#66.
 (9)  011474  003017                        BGT     50116$
1801  011476                                    LET (R4)+ :B= CHAR
 (4)  011476  113724  011722                MOVB    CHAR,(R4)+
1802  011502  105137  011722                    COMB CHAR
1803  011506                                    LET CHAR :B= CHAR CLR.BY #200
 (7)  011506  142737  000200  011722        BICB    #200,CHAR
```

```
1804  011514                                                    LET (R4)+ :B= CHAR
 (4)  011514  113724  011722                                   MOVB    CHAR,(R4)+
1805  011520  105137  011722                                       COMB CHAR
1806  011524                                                    LET CHAR :B= CHAR CLR.BY #200
 (7)  011524  142737  000200  011722                           BICB    #200,CHAR
1807  011532                                                    ENDINC
 (5)  011532  000753                                           BR      50115$
 (4)  011534                                              50116$:
1808  011534                                                    LET (R4)+ :B= #15
 (4)  011534  112724  000015                                   MOVB    #15,(R4)+
1809  011540                                                    LET (R4) :B= #12
 (4)  011540  112714  000012                                   MOVB    #12,(R4)
1810  011544                                                    INCR LINCNT FROM #1 TO #16. BY #1
 (5)  011544  012737  000001  002272                           MOV     #1,LINCNT
 (7)  011552  000402                                           BR      50117$
 (6)  011554                                              50120$:
 (10) 011554  005237  002272                                   INC     LINCNT
 (7)  011560                                              50117$:
 (7)  011560  023727  002272  000020                           CMP     LINCNT,#16.
 (9)  011566  003024                                           BGT     50121$
1811  011570                                                        OUTPUT #OUTBUF, #134.
1812  011632  004737  005306                                       JSR PC,     QUIET
1813  011636                                                    ENDINC
 (5)  011636  000746                                           BR      50120$
 (4)  011640                                              50121$:
1814  011640                                              ENDINC
 (5)  011640  000661                                           BR      50110$
 (4)  011642                                              50111$:
1815  011642                                              LET OUTBUF :B= #14
 (4)  011642  112737  000014  003114                           MOVB    #14,OUTBUF
1816  011650                                              OUTPUT  #OUTBUF, #1
1817  011712  004737  005306                               JSR PC,QUIET
1818  011716                                              EXIT TST
 (3)  011716  104432                                           TRAP    C$EXIT
 (3)  011720  000052                                           .WORD   L10011-.
1819                                                      .NLIST BEX
1820  011722  000000                                     CHAR:   .WORD 0
1821  011724  055433  030061  042155                     DATPTH: .ASCIZ <33>/[10mDATA TRANSFER PATHS TEST 2/ <12><12><12>
1822
1823          011770                                      .EVEN
1824  011770  000000                                     PATTERN:        .WORD 0
1825                                                                    .EVEN
1826                                                      .EVEN
1827                                                      .LIST BEX
1828
1829  011772                                              ENDTST
 (3)  011772                                              L10011:
 (3)  011772  104401                                           TRAP    C$ETST
1830
1831  011774                                              ENDMOD
1832
1833
1834
1835
1836
1837
```

```
1838
1839
1840
1841
1842                                    .SBTTL PRINTABLE CHARACTERS
1843                                    ;MODULE         PRICH1.P11
1844
1845  011774                            BGNMOD
1846                                    ;++
1847                                    ; THIS TEST WILL PRINT A FULL LINE OF EACH CHARACTER IN THE DEC MULTINATIONAL SET.
1848                                    ; IT WILL THEN SELECT PORTRAIT MODE AND DO THE SAME THING OVER AGAIN.
1849                                    ;--
1850  011774                            BGNTST  3
 (3)  011774                            T3::
1851  011774                                    OUTPUT #PRTCHR, #35.              ; PRINT TEST ID
1852                                    ;
1853                                    ; PRINT ALL CHARACTERS ON ALL UNITS
1854                                    ;
1855          000001                    $BRJMP=1
1856  012036                            OUTPUT #SELDEC,#5                         ; SELECT DECIPOINTS AS PARAMETER
1857  012100                            OUTPUT #DECFIN,#5                         ; TOGGLE PAPER OFFSET
1858  012142                            INCR WORK1 FROM #0 TO #1 BY #1                    ; DO THIS TWICE
 (5)  012142  005037  003112                    CLR     WORK1
 (7)  012146  000402                            BR      50123$
 (6)  012150                            50122$:
 (8)  012150  005237  003112                    INC     WORK1
 (6)  012154                            50123$:
 (7)  012154  023727  003112  000001            CMP     WORK1,#1
 (9)  012162  003402                            BLE     50124$
 (7)  012164  000137  012640                    JMP     50125$
 (6)  012170                            50124$:
1859  012170                                    INCR WORK FROM #40 TO #177 BY #1
 (5)  012170  012737  000040  003110            MOV     #40,WORK
 (7)  012176  000402                            BR      50127$
 (6)  012200                            50126$:
 (8)  012200  005237  003110                    INC     WORK
 (6)  012204                            50127$:
 (7)  012204  023727  003110  000177            CMP     WORK,#177
 (9)  012212  003402                            BLE     50130$
 (7)  012214  000137  012336                    JMP     50131$
 (6)  012220                            50130$:
1860  012220                                        LET R4 := #OUTBUF
 (4)  012220  012704  003114                    MOV     #OUTBUF,R4
1861  012224                                    INCR COUNT FROM #1 TO #132. BY #1
 (5)  012224  012737  000001  002276            MOV     #1,COUNT
 (7)  012232  000402                            BR      50133$
 (6)  012234                            50132$:
 (8)  012234  005237  002276                    INC     COUNT
 (6)  012240                            50133$:
 (7)  012240  023727  002276  000204            CMP     COUNT,#132.
 (9)  012246  003402                            BLE     50134$
 (7)  012250  000137  012262                    JMP     50135$
 (6)  012254                            50134$:
1862  012254                                        LET (R4)+ :B= WORK
 (4)  012254  113724  003110                    MOVB    WORK,(R4)+
1863  012260                                    ENDINC
```

```
 (4)  012260  000765                          BR      50132$
 (4)  012262                          50135$:
1864  012262                                      LET (R4)+ :B= #LF
 (4)  012262  112724  000012                  MOVB    #LF,(R4)+
1865  012266                                      OUTPUT #OUTBUF,#133.
1866  012330  004737  005306                      JSR PC,QUIET
1867  012334                                  ENDINC
 (4)  012334  000721                          BR      50126$
 (4)  012336                          50131$:
1868  012336                                  LET OUTBUF :B= #14
 (4)  012336  112737  000014  003114          MOVB    #14,OUTBUF
1869  012344                                  OUTPUT #OUTBUF,#1                          ; EXECUTE TOF
1870  012406  004737  005306                  JSR PC, QUIET
1871  012412                                  INCR WORK FROM #240 TO #377 BY #1        ; FOR EXTENDED VERSION ONLY
 (5)  012412  012737  000240  003110          MOV     #240,WORK
 (7)  012420  000402                          BR      50137$
 (6)  012422                          50136$:
 (8)  012422  005237  003110                  INC     WORK
 (6)  012426                          50137$:
 (7)  012426  023727  003110  000377          CMP     WORK,#377
 (9)  012434  003402                          BLE     50140$
 (7)  012436  000137  012560                  JMP     50141$
 (6)  012442                          50140$:
1872  012442                                      LET R4 := #OUTBUF
 (4)  012442  012704  003114                  MOV     #OUTBUF,R4
1873  012446                                      INCR COUNT FROM #1 TO #132. BY #1
 (5)  012446  012737  000001  002276          MOV     #1,COUNT
 (7)  012454  000402                          BR      50143$
 (6)  012456                          50142$:
 (8)  012456  005237  002276                  INC     COUNT
 (6)  012462                          50143$:
 (7)  012462  023727  002276  000204          CMP     COUNT,#132.
 (9)  012470  003402                          BLE     50144$
 (7)  012472  000137  012504                  JMP     50145$
 (6)  012476                          50144$:
1874  012476                                          LET (R4)+ :B= WORK
 (4)  012476  113724  003110                  MOVB    WORK,(R4)+
1875  012502                                      ENDINC
 (4)  012502  000765                          BR      50142$
 (4)  012504                          50145$:
1876  012504                                      LET (R4)+ :B= #LF
 (4)  012504  112724  000012                  MOVB    #LF,(R4)+
1877  012510                                      OUTPUT #OUTBUF,#133.
1878  012552  004737  005306                      JSR PC,QUIET
1879  012556                                  ENDINC
 (4)  012556  000721                          BR      50136$
 (4)  012560                          50141$:
1880  012560                                  IF WORK1 EQ #0 THEN                        ; DO THIS ONLY THE FIRST TIME
 (6)  012560  005737  003112                  TST     WORK1
 (8)  012564  001402                          BEQ     .+6
 (9)  012566  000137  012634                  JMP     50146$
1881  012572                                          OUTPUT #PORSQ,#25.                    ; CHANGE TO PORTRAIT AND
1882  012634                                  ENDIF
 (4)  012634                          50146$:
1883  012634                          ENDINC
 (4)  012634  000137  012150                  JMP     50122$
```

```
 (4)  012640                          50125$:
1884  012640                          OUTPUT #DONE,#14.                          ; TEST DONE MESSAGE
1885  012702                          LET OUTBUF :B= #14
 (4)  012702  112737  000014  003114          MOVB    #14,OUTBUF
1886  012710                          OUTPUT #OUTBUF,#1                          ; EXECUTE TOF
1887  012752                          OUTPUT #REINIT,#2                          ; GO BACK TO DEFAULT
1888  013014                          OUTPUT #SELDEC,#5
1889  013056  004737  005306          JSR PC, QUIET
1890           177777                 $BRJMP=-1
1891  013062                          EXIT TST
 (3)  013062  104432                          TRAP    C$EXIT
 (3)  013064  000116                          .WORD   L10012-.
1892                                  .NLIST BEX
1893  013066  055433  030061  050155  PRTCHR: .ASCIZ <33>/[10mPRINTABLE CHARACTERS TEST 3/ <12><12><12>
1894  013132  042524  052123  041440  DONE:   .ASCII  /TEST COMPLETE/<12>
1895  013150     033     120     061  PORSQ:  .BYTE   33,120,61,73,61,61,175,104,105,124,151  ; SEQS TO ASSIGN AND SELECT PORT
1896  013163     164     141     156          .BYTE   164,141,156,61,60,55,122,33,134,33,133,61,61,155
1897           013202                 .EVEN
1898
1899  013202                          ENDTST
 (3)  013202                          L10012:
 (3)  013202  104401                          TRAP    C$ETST
1900                                  .LIST BEX
1901  013204                          ENDMOD
1902
1903
1904
1905
1906
1907
1908
1909
1910
1911
1912                                  .SBTTL  NON-PRINTABLE CHARACTERS
1913                                  ;MODULE         NOPRIN.P11
1914
1915  013204                          BGNMOD
1916                                  ;++
1917                                  ;THIS TEST CHECKS FOR DETECTION OF ALL NON-PRINTABLE CHARACTERS
1918                                  ;EXCEPT FOR HORIZONTAL TAB, LINE FEED, VERTICAL TAB, FORM
1919                                  ;FEED, CARRIAGE RETURN, AND ESCAPE WHICH
1920                                  ;WOULD BE INTERPRETED AS VALID CONTROL CHARACTERS BY THE LN01. EACH
1921                                  ;CHARACTER WILL APPEAR ON THE PRINTER OUTPUT IN THE FORM OF ITS OCTAL
1922                                  ;CODE ACCOMPANIED WITH ITS MNEMONIC.
1923                                  ;122 OF THE TESTED CODE ARE THEN SENT FOLLOWED BY AN "@" CHARACTER.
1924                                  ;IF THE CONTROL CODE HAS TAKEN UP A SPACE IN THE BUFFER THE "@" CHARACTER
1925                                  ;WILL APPEAR AT THE RIGHT MARGIN OF THE PAGE. IF THE CONTROL CODE HAS NOT
1926                                  ;TAKEN UP SPACE IN THE BUFFER THE "@" WILL APPEAR IMMEDIATELY TO THE RIGHT
1927                                  ;OF THE MNEMONIC FOR THE CONTROL CODE.
1928                                  ;
1929                                  ;       "NOTE"
1930                                  ;               IF THIS TEST IS ASSEMBLED AS PART OF VERSION 1 LN01 DIAGNOSTIC
1931                                  ;               IT WILL ALSO SEND ALL 8 BIT CONTROL CODES.  THE ASSEMBLER
1932                                  ;               WILL SEE THE CONDITIONAL STATEMENT: ".IF DF VERS.1",  AND, IF
1933                                  ;               VERS.1 IS DEFINED IN SKEL 2 THEN IT WILL ASSEMBLE THE CODE
```

```
1934                                    ;               FOR THE 8 BIT CONTROL CODES AS WELL AS THE NORMAL 7 BIT CONTROL
1935                                    ;               CODES.
1936                                    ;--
1937
1938  013204                            BGNTST  4
 (3)  013204                            T4::
1939                                    ;INDICATE TEST CURRENTLY BEING DONE
1940
1941  013204                                    OUTPUT #REINIT,#2
1942  013246                                    OUTPUT #NONCHR,#75.
1943  013310                                    LET R4 := #NONBUF
 (4)  013310  012704  014124                    MOV     #NONBUF,R4
1944  013314                                    LET WORK1 := #27.
 (4)  013314  012737  000033  003112           MOV     #27.,WORK1
1945                                    ;
1946                                    ; DO ONE LINE FOR EACH TABLE ENTRY
1947                                    ;
1948  013322                                    LET COUNT := #0
 (4)  013322  005037  002276                    CLR     COUNT
1949  013326                                    INCR LINCNT FROM #1 TO WORK1 BY #1
 (5)  013326  012737  000001  002272           MOV     #1,LINCNT
 (7)  013334  000402                           BR      50147$
 (6)  013336                            50150$:
 (10) 013336  005237  002272                    INC     LINCNT
 (7)  013342                            50147$:
 (7)  013342  023737  002272  003112           CMP     LINCNT,WORK1
 (9)  013350  003063                           BGT     50151$
1950  013352                                        LET R3 := #OUTBUF
 (4)  013352  012703  003114                    MOV     #OUTBUF,R3
1951                                    ;
1952                                    ; MOVE CODE AND MNEMONIC TO PRINT BUFFER
1953                                    ;
1954  013356                                        INCR WORK FROM #1 TO #8. BY #1
 (5)  013356  012737  000001  003110           MOV     #1,WORK
 (7)  013364  000402                           BR      50152$
 (6)  013366                            50153$:
 (10) 013366  005237  003110                    INC     WORK
 (7)  013372                            50152$:
 (7)  013372  023727  003110  000010           CMP     WORK,#8.
 (9)  013400  003002                           BGT     50154$
1955  013402                                        LET (R3)+ :B= (R4)+
 (4)  013402  112423                           MOVB    (R4)+,(R3)+
1956  013404                                    ENDINC
 (5)  013404  000770                           BR      50153$
 (4)  013406                            50154$:
1957
1958                                    ;
1959                                    ;  PUT 120 BYTES OF CODE INTO PRINT BUFFER
1960                                    ;
1961  013406                                        INCR WORK FROM #1 TO #122. BY #1
 (5)  013406  012737  000001  003110           MOV     #1,WORK
 (7)  013414  000402                           BR      50155$
 (6)  013416                            50156$:
 (10) 013416  005237  003110                    INC     WORK
 (7)  013422                            50155$:
 (7)  013422  023727  003110  000172           CMP     WORK,#122.
```

```
 (9)  013430  003002                        BGT     50157$
1962  013432                                      LET (R3)+ :B= (R4)
 (4)  013432  111423                        MOVB    (R4),(R3)+
1963  013434                                  ENDINC
 (5)  013434  000770                        BR      50156$
 (4)  013436                          50157$:
1964
1965                                        ;
1966                                        ; FOLLOWED BY AN "@" CHARACTER AND A LF
1967                                        ;
1968  013436                                    LET (R3)+ :B= #100          ;"@"
 (4)  013436  112723  000100                MOVB    #100,(R3)+
1969  013442                                    LET (R3)+ :B= #12           ;LF
 (4)  013442  112723  000012                MOVB    #12,(R3)+
1970                                        ;
1971                                        ; PRINT LINE OF OCTAL CODE, MNEMONIC, 120 BYTES(NONPRINTABLE CODE), AND "@"
1972                                        ;
1973  013446                                    OUTPUT  #OUTBUF,#132.
1974  013510  004737  005306                    JSR PC,     QUIET
1975  013514                                    LET R4 := R4 + #1
 (7)  013514  005204                        INC     R4
1976  013516                                  ENDINC
 (5)  013516  000707                        BR      50150$
 (4)  013520                          50151$:
1978  013520                                  LET R4 := #NONBF1
 (4)  013520  012704  014507                MOV     #NONBF1,R4
1979  013524                                  LET WORK1 := #32.
 (4)  013524  012737  000040  003112        MOV     #32.,WORK1
1980                                        ;
1981                                        ; DO ONE LINE FOR EACH TABLE ENTRY
1982                                        ;
1983  013532                                  LET COUNT := #0
 (4)  013532  005037  002276                CLR     COUNT
1984  013536                                  INCR LINCNT FROM #1 TO WORK1 BY #1
 (5)  013536  012737  000001  002272        MOV     #1,LINCNT
 (7)  013544  000402                        BR      50160$
 (6)  013546                          50161$:
 (10) 013546  005237  002272                INC     LINCNT
 (7)  013552                          50160$:
 (7)  013552  023737  002272  003112        CMP     LINCNT,WORK1
 (9)  013560  003063                        BGT     50162$
1985  013562                                    LET R3 := #OUTBUF
 (4)  013562  012703  003114                MOV     #OUTBUF,R3
1986                                        ;
1987                                        ; MOVE CODE AND MNEMONIC TO PRINT BUFFER
1988                                        ;
1989  013566                                    INCR WORK FROM #1 TO #8. BY #1
 (5)  013566  012737  000001  003110        MOV     #1,WORK
 (7)  013574  000402                        BR      50163$
 (6)  013576                          50164$:
 (10) 013576  005237  003110                INC     WORK
 (7)  013602                          50163$:
 (7)  013602  023727  003110  000010        CMP     WORK,#8.
 (9)  013610  003002                        BGT     50165$
1990  013612                                    LET (R3)+ :B= (R4)+
 (4)  013612  112423                        MOVB    (R4)+,(R3)+
```

```
1991  013614                                    ENDINC
 (5)  013614  000770                      BR       50164$
 (4)  013616                        50165$:
1992
1993                                ;
1994                                ;  PUT 120 BYTES OF CODE INTO PRINT BUFFER
1995                                ;
1996  013616                                    INCR WORK FROM #1 TO #122. BY #1
 (5)  013616  012737  000001  003110      MOV      #1,WORK
 (7)  013624  000402                      BR       50166$
 (6)  013626                        50167$:
(10)  013626  005237  003110              INC      WORK
 (7)  013632                        50166$:
 (7)  013632  023727  003110  000172      CMP      WORK,#122.
 (9)  013640  003002                      BGT      50170$
1997  013642                                       LET (R3)+ :B= (R4)
 (4)  013642  111423                      MOVB     (R4),(R3)+
1998  013644                                    ENDINC
 (5)  013644  000770                      BR       50167$
 (4)  013646                        50170$:
1999
2000                                ;
2001                                ; FOLLOWED BY AN "@" CHARACTER AND A LF
2002                                ;
2003  013646                                    LET (R3)+ :B= #100             ;"@"
 (4)  013646  112723  000100              MOVB     #100,(R3)+
2004  013652                                    LET (R3)+ :B= #12              ;LF
 (4)  013652  112723  000012              MOVB     #12,(R3)+
2005                                ;
2006                                ; PRINT LINE OF OCTAL CODE, MNEMONIC, 120 BYTES(NONPRINTABLE CODE), AND "@"
2007                                ;
2008  013656                                    OUTPUT  #OUTBUF,#132.
2009  013720  004737  005306                    JSR PC,    QUIET
2010  013724                                    LET R4 := R4 + #1
 (7)  013724  005204                      INC      R4
2011  013726                              ENDINC
 (5)  013726  000707                      BR       50161$
 (4)  013730                        50162$:
2013  013730                              LET OUTBUF :B= #14
 (4)  013730  112737  000014  003114      MOVB     #14,OUTBUF
2014  013736                              OUTPUT #OUTBUF,#1
2015  014000  004737  005306              JSR PC, QUIET
2016  014004                              EXIT     TST                        ;AND EXIT TEST
 (3)  014004  104432                      TRAP     C$EXIT
 (3)  014006  001144                      .WORD    L10013-.
2017                                ;
2018                                ;CHARACTER BUFFER AND TEST HEADER MESSAGE
2019                                ;
2020                                .NLIST BEX
2021  014010  055433  030061  047155  NONCHR: .ASCII  <33>/[10mNON-PRINTABLE CHARACTERS TEST 4/<12>
2022  014055     101  043040  046125          .ASCIZ  /A FULL LINE OF EACH CODE WILL BE SENT/<12>
2023
2024  014124  030040  030060  047040  NONBUF: .ASCII  / 000 NUL/<0>
2025  014135     040  030060  020061          .ASCII  / 001 SOH/<1>
2026  014146  030040  031060  051440          .ASCII  / 002 STX/<2>
2027  014157     040  030060  020063          .ASCII  / 003 ETX/<3>
```

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2028  014170  030040  032060  042440          .ASCII  / 004 EOT/<4>
2029  014201     040  030060  020065          .ASCII  / 005 ENQ/<5>
2030  014212  030040  033060  040440          .ASCII  / 006 ACK/<6>
2031  014223     040  030060  020067          .ASCII  / 007 BEL/<7>
2032  014234  030040  030061  041040          .ASCII  / 010 BS /<10>
2033  014245     040  030460  020066          .ASCII  / 016 SO /<16>
2034  014256  030040  033461  051440          .ASCII  / 017 SI /<17>
2035  014267     040  031060  020060          .ASCII  / 020 DLE/<20>
2036  014300  030040  030462  054040          .ASCII  / 021 XON/<21>
2037  014311     040  031060  020062          .ASCII  / 022 DC2/<22>
2038  014322  030040  031462  054040          .ASCII  / 023 XOF/<23>
2039  014333     040  031060  020064          .ASCII  / 024 DC4/<24>
2040  014344  030040  032462  047040          .ASCII  / 025 NAK/<25>
2041  014355     040  031060  020066          .ASCII  / 026 SYN/<26>
2042  014366  030040  033462  042440          .ASCII  / 027 ETB/<27>
2043  014377     040  031460  020060          .ASCII  / 030 CAN/<30>
2044  014410  030040  030463  042440          .ASCII  / 031 EM /<31>
2045  014421     040  031460  020062          .ASCII  / 032 SUB/<32>
2046  014432  030040  032063  043040          .ASCII  / 034 FS /<34>
2047  014443     040  031460  020065          .ASCII  / 035 GS /<35>
2048  014454  030040  033063  051040          .ASCII  / 036 RS /<36>
2049  014465     040  031460  020067          .ASCII  / 037 US /<37>
2050  014476  030040  033467  042040          .ASCII  / 177 DEL/<177>
2052  014507     040  030062  020060  NONBF1:  .ASCII  / 200     /<200>
2053  014520  031040  030460  020040          .ASCII  / 201     /<201>
2054  014531     040  030062  020062          .ASCII  / 202     /<202>
2055  014542  031040  031460  020040          .ASCII  / 203     /<203>
2056  014553     040  030062  020064          .ASCII  / 204 IND/<204>
2057  014564  031040  032460  047040          .ASCII  / 205 NEL/<205>
2058  014575     040  030062  020066          .ASCII  / 206 SSA/<206>
2059  014606  031040  033460  042440          .ASCII  / 207 ESA/<207>
2060  014617     040  030462  020060          .ASCII  / 210 HTS/<210>
2061  014630  031040  030461  044040          .ASCII  / 211 HTJ/<211>
2062  014641     040  030462  020062          .ASCII  / 212 VTS/<212>
2063  014652  031040  031461  050040          .ASCII  / 213 PLD/<213>
2064  014663     040  030462  020064          .ASCII  / 214 PLU/<214>
2065  014674  031040  032461  051040          .ASCII  / 215 RI /<215>
2066  014705     040  030462  020066          .ASCII  / 216 SS2/<216>
2067  014716  031040  033461  051440          .ASCII  / 217 SS3/<217>
2068  014727     040  031062  020060          .ASCII  / 220     /<220>
2069  014740  031040  030462  050040          .ASCII  / 221 PU1/<221>
2070  014751     040  031062  020062          .ASCII  / 222 PU2/<222>
2071  014762  031040  031462  051440          .ASCII  / 223 STS/<223>
2072  014773     040  031062  020064          .ASCII  / 224 CCH/<224>
2073  015004  031040  032462  046440          .ASCII  / 225 MW /<225>
2074  015015     040  031062  020066          .ASCII  / 226 SPA/<226>
2075  015026  031040  033462  042440          .ASCII  / 227 EPA/<227>
2076  015037     040  031462  020060          .ASCII  / 230     /<230>
2077  015050  031040  030463  020040          .ASCII  / 231     /<231>
2078  015061     040  031462  020062          .ASCII  / 232     /<232>
2079  015072  031040  031463  041440          .ASCII  / 233 CSI/<233>
2080  015103     040  031462  020064          .ASCII  / 234 ST /<234>
2081  015114  031040  032463  047440          .ASCII  / 235 OSC/<235>
2082  015125     040  031462  020066          .ASCII  / 236 PM /<236>
2083  015136  031040  033463  040440          .ASCII  / 237 APC/<237>
2085          015150                          .EVEN
```

```
2086  015150  000000                  NUM:    .WORD 0
2087
2088                                  .LIST BEX
2089  015152                          ENDTST
 (3)  015152                          L10013:
 (3)  015152  104401                          TRAP    C$ETST
2090
2091  015154                          ENDMOD
2092
2093
2094
2095
2096
2097
2098
2099
2100
2101
2102                                  .SBTTL PRINT CONTROL
2103                                  ;MODULE         PRNCON.P11
2104
2105  015154                          BGNMOD
2106                                  ;++
2107                                  ;THIS TEST CHECKS THE PRINT CONTROL BY SENDING MORE THAN 132 CHARACTERS
2108                                  ;BEFORE SENDING A CARRIAGE RETURN AND LINE FEED. ALL CHARACTERS IN EXCESS
2109                                  ;OF 132 CHARACTERS SHOULD BE DISREGARDED.
2110                                  ;
2111                                  ;THREE LINES ARE PRINTED PER ITERATION. THESE LINES WILL IDENTIFY THE
2112                                  ;COLUMN NUMBERS ACROSS THE PAGE. EXAMPLE :
2113                                  ;         0         0         0.....................         1
2114                                  ;         1         2         3.....................         3
2115                                  ;12345678901234567890123456789.....................         012
2116                                  ;
2117                                  ;NOTICE THAT THE PRINTOUT SHOULD IDENTIFY 132 COLUMNS ACROSS THE PAGE.
2118                                  ;
2119                                  ;THIS OUTPUT IS REPEATED 13 TIMES.
2120                                  ;--
2121  015154                          BGNTST  5
 (3)  015154                          T5::
2123  015154                          OUTPUT #DECFIN,#5                       ; TOGGLE PAPER OFFSET
2125  015216                          OUTPUT #REINIT,#2
2126  015260                          LET R1 := L$UNIT - #1
 (5)  015260  013701  002012                    MOV     L$UNIT,R1
 (7)  015264  005301                            DEC     R1
2127          000001                  $BRJMP=1
2128  015266                          INCR LUNIT FROM #0 TO R1 BY #1
 (5)  015266  005037  002310                    CLR     LUNIT
 (7)  015272  000402                            BR      50172$
 (6)  015274                          50171$:
 (8)  015274  005237  002310                    INC     LUNIT
 (6)  015300                          50172$:
 (7)  015300  023701  002310                    CMP     LUNIT,R1
 (9)  015304  003402                            BLE     50173$
 (7)  015306  000137  016144                    JMP     50174$
 (6)  015312                          50173$:
2129  015312                                    LET R2 := LUNIT SHIFT 1
```

```
 (5)  015312  013702  002310                    MOV     LUNIT,R2
 (8)  015316  006302                            ASL     R2
2130  015320                                    OUTPUI #PRTCTL,#61.,,LUNIT
2131  015362                                    LET COUNT := #13.
 (4)  015362  012737  000015  002276            MOV     #13.,COUNT
2132  015370                                    1$:
2133  015370                                    LET R5 := #TABLE1
 (4)  015370  012705  016424                    MOV     #TABLE1,R5
2134  015374                                    WHILE (R5) NE #0 DO
 (4)  015374                              50175$:
 (6)  015374  005715                            TST     (R5)
 (8)  015376  001002                            BNE     .+6
 (9)  015400  000137  015446                    JMP     50176$
2135  015404                                        OUTPUI (R5)+,#10.,,LUNIT
2136  015444                                    ENDDO
 (3)  015444  000753                            BR      50175$
 (3)  015446                              50176$:
2137  015446                                    LET OUTBUF :B= #12
 (4)  015446  112737  000012  003114            MOVB    #12,OUTBUF
2138  015454                                    OUTPUI #OUTBUF,#1,,LUNIT
2139
2140  015516                                    LET R5 := #TABLE2
 (4)  015516  012705  016460                    MOV     #TABLE2,R5
2141  015522                                    WHILE (R5) NE #0 DO
 (4)  015522                              50177$:
 (6)  015522  005715                            TST     (R5)
 (8)  015524  001002                            BNE     .+6
 (9)  015526  000137  015574                    JMP     50200$
2142  015532                                        OUTPUI (R5)+,#10.,,LUNIT
2143  015572                                    ENDDO
 (3)  015572  000753                            BR      50177$
 (3)  015574                              50200$:
2144  015574                                    OUTPUI #OUTBUF,#1,,LUNIT
2145
2146  015636                                    DECR LINCNT FROM #14. TO #1 BY #1
 (5)  015636  012737  000016  002272                MOV     #14.,LINCNT
 (7)  015644  000402                            BR      50202$
 (6)  015646                              50201$:
 (8)  015646  005337  002272                    DEC     LINCNT
 (6)  015652                              50202$:
 (7)  015652  023727  002272  000001            CMP     LINCNT,#1
 (9)  015660  002002                            BGE     50203$
 (7)  015662  000137  015732                    JMP     50204$
 (6)  015666                              50203$:
2147  015666                                        OUTPUI #X11,#10.,,LUNIT
2148  015730                                    ENDDECR
 (4)  015730  000746                            BR      50201$
 (4)  015732                              50204$:
2149  015732                                    OUTPUI #OUTBUF,#1,,LUNIT
2150  015774                                    OUTPUI #OUTBUF,#1,,LUNIT
2151  016036                                    LET COUNT := COUNT - #1
 (7)  016036  005337  002276                    DEC     COUNT
2152  016042                                    IF COUNT GT #0 THEN
 (6)  016042  005737  002276                    TST     COUNT
 (8)  016046  003002                            BGT     .+6
 (9)  016050  000137  016060                    JMP     50205$
```

H5


```
      016054  000137  015370                                   JMP 1$
      016060                                            ENDIF
 (4)  016060                          50205$:
      016060  004737  005306                            JSR PC, QUIET
      016064                                            LET OUTBUF :B= #14
 (4)  016064  112737  000014  003114          MOVB      #14,OUTBUF
      016072                                            OUTPUI  #OUTBUF,#1,,LUNIT
      016134  004737  005306                            JSR PC,QUIET
      016140                          ENDINCR
 (4)  016140  000137  015274                  JMP       50171$
 (4)  016144                          50174$:
              177777                  $BRJMP=-1
      016144                          EXIT TST
 (3)  016144  104432                          TRAP      C$EXIT
 (3)  016146  000346                          .WORD     L10014-.
                                      .NLIST BEX
      016150  055433  030061  050155  PRTCTL: .ASCII <33>/[10mPRINT CONTROL TEST  5/ <12>
      016203     123  047510  046125          .ASCIZ  /SHOULD SHOW 132 COLUMNS PRINTED/<12><12><15>

      016246  020040  020040  020040  X0:     .ASCII  /         0/
      016260  020040  020040  020040  X1:     .ASCII  /         1/
      016272  020040  020040  020040  X2:     .ASCII  /         2/
      016304  020040  020040  020040  X3:     .ASCII  /         3/
      016316  020040  020040  020040  X4:     .ASCII  /         4/
      016330  020040  020040  020040  X5:     .ASCII  /         5/
      016342  020040  020040  020040  X6:     .ASCII  /         6/
      016354  020040  020040  020040  X7:     .ASCII  /         7/
      016366  020040  020040  020040  X8:     .ASCII  /         8/
      016400  020040  020040  020040  X9:     .ASCII  /         9/

      016412  031061  032063  033065  X11:    .ASCII  /1234567890/


                                      .EVEN
      016424  016246  016246  016246  TABLE1: .WORD   X0,X0,X0,X0,X0,X0,X0,X0,X0,X1,X1,X1,X1,0
      016460  016260  016272  016304  TABLE2: .WORD   X1,X2,X3,X4,X5,X6,X7,X8,X9,X0,X1,X2,X3,0
                                              .EVEN


                                      .LIST BEX
      016514                          ENDTST
 (3)  016514                          L10014:
 (3)  016514  104401                          TRAP      C$ETST
      016516                          ENDMOD












                                      .SBTTL  MULTIPLE LINE ADVANCE
                                      ;MODULE          MULTLI.P11

      016516                          BGNMOD
```

```
                                ;++
                                ;THIS TEST CHECKS THE MULTIPLE LINE ADVANCE OF THE LNO1. A LINE OF
                                ;NUMBERS IS SENT AND THEN A NUMBER OF LINE FEEDS ARE SENT. THUS THE
                                ;NUMBER PRINTED WILL INDICATE THE NUMBER OF BLANK LINES FOLLOWING THAT
                                ;LINE. THE NUMBER OF LINES IS VARIED BETWEEN 2 AND 7 AND A LINE OF
                                ;ALL 0'S WILL INDICATE THE END OF THE TEST  SEQUENCE.
                                ;--


016516                          BGNTST  6
(3)  016516                     T6::

                                ;PRINT TEST IDENTIFICATION

016516                          OUTPUT #DECFIN,#5               ; TOGGLE PAPER OFFSET
016560                          OUTPUT #REINIT,#2
016622                          OUTPUT #MULINE,#91.

016664                          LET STACHR := #TABSTR           ;OUTPUT CHARACTERS
(4)  016664  012737  017142  017140        MOV     #TABSTR,STACHR

016672                          REPEAT
(3)  016672                     50206$:
016672                              LET LINCNT :B= @STACHR              ;GET A CHARACTER TO OUTPUT
(4)  016672  117737  000242  002272        MOVB    @STACHR,LINCNT
016700                              LET LINCNT := LINCNT AND #7 ;MAKE THE ASCII TO OCTAL
(7)  016700  013746  002272               MOV     LINCNT,-(SP)
(7)  016704  042716  000007               BIC     #7,(SP)
(7)  016710  042637  002272               BIC     (SP)+,LINCNT
016714                              LET R3 := #OUTBUF               ;SET UP OUTPUT BUFFER
(4)  016714  012703  003114               MOV     #OUTBUF,R3
016720                              INCR CCNT FROM #1 TO #132. BY #1
(5)  016720  012737  000001  002300        MOV     #1,CCNT
(7)  016726  000402                       BR      50207$
(6)  016730                     50210$:
(10) 016730  005237  002300               INC     CCNT
(7)  016734                     50207$:
(7)  016734  023727  002300  000204        CMP     CCNT,#132.
(9)  016742  003003                       BGT     50211$
016744                                  LET (R3)+ :B= @STACHR           ;PUT CHARACTER  IN OUTPUT BUFFER
(4)  016744  117723  000170               MOVB    @STACHR,(R3)+
016750                              ENDINC
(5)  016750  000767                       BR      50210$
(4)  016752                     50211$:
016752                              LET R4 := #0
(4)  016752  005004                       CLR     R4
016754                              WHILE R4 NE LINCNT DO
(4)  016754                     50212$:
(6)  016754  020437  002272               CMP     R4,LINCNT
(10) 016760  001404                       BEQ     50213$
016762                                  LET (R3)+ :B= #12               ;FILL WITH LINE FEEDS
(4)  016762  112723  000012               MOVB    #12,(R3)+
016766                                  LET R4 := R4 + #1
(7)  016766  005204                       INC     R4
016770                              ENDDO
(4)  016770  000771                       BR      50212$
```

```
 (3)  016772                          50213$:
2234
2235                                 ;NOW OUTPUT THE ACTUAL LINE
2236
2237  016772                             LET R4 := LINCNT + #132.          ;NUMBER OF CHARACTERS TO OUTPUT
 (5)  016772  013704  002272                MOV     LINCNT,R4
 (7)  016776  062704  000204                ADD     #132.,R4
2238  017002                             LET STACHR := STACHR + #1         ; UPDATE CHARACTER COUNT
 (7)  017002  005237  017140                INC     STACHR
2239  017006                             OUTPUT #OUTBUF,R4                 ;OUTPUT THE LINE
2240  017046  004737  005306             JSR PC,     QUIET
2241
2242  017052                             UNTIL LINCNT EQ #0
 (3)  017052  005737  002272                TST     LINCNT
 (7)  017056  001305                        BNE     50206$
2243  017060                             LET OUTBUF :B= #14
 (4)  017060  112737  000014  003114        MOVB    #14,OUTBUF
2244  017066                             OUTPUT #OUTBUF,#1
2245  017130  004737  005306             JSR PC,QUIET
2246  017134                             EXIT TST
 (3)  017134  104432                        TRAP    C$EXIT
 (3)  017136  000156                        .WORD   L10015-.
2247
2248
2249  017140  000000                     STACHR: .WORD 0
2250                                     .NLIST BEX
2251  017142  033462  033062  033463     TABSTR: .ASCIZ  /272637463540/
2252  017157     033  030533  066460     MULINE: .ASCII  <33>/[10mMULTIPLE LINE ADVANCE TEST  6/<12>
2253  017222  052516  041115  051105             .ASCIZ  /NUMBERS PRINTED REPRESENT # LINES TO NEXT LINE PRINTED/<12><12>
2254
2255
2256
2257          017314                     .EVEN
2258                                     .LIST BEX
2259
2260  017314                             ENDTST
 (3)  017314                             L10015:
 (3)  017314  104401                            TRAP    C$ETST
2261  017316                             ENDMOD
2262
2263
2264
2265
2266
2267
2268
2269
2270
2271
2272                                     .SBTTL DVSTRIKE
2273  017316                             BGNMOD
2274                                     ;++
2275                                     ;THIS TEST WILL VERIFY CORRECT OPERATION OF THE PRINTER WHILE OPERATING
2276                                     ;JUST WITHIN OVERSTRIKE, LINE BUFFER AND PAGE BUFFER LIMITS.
2277                                     ;
2278                                     ;IN LANDSCAPE, UP TO 142 PRINTABLE CHARS/LINE ARE PERMITTED, WITH
```

```
2279                                    ;A MAXIMUM OF FIVE CARRIAGE RETURNS/LINE. IN PORTRAIT, UP TO 150
2280                                    ;CHARS/LINE WITH A MAXIMUM OF TWO CARRIAGE RETURNS/LINE ARE ALLOWED.
2281                                    ;
2282                                    ;       NOTE:
2283                                    ;               THIS TEST IN A SOMEWHAT MODIFIED FORM IS BEING USED ALSO FOR
2284                                    ;               THE VAX VERSION OF THE LNO1 EXTENDED DIAGNOSTIC.
2285                                    ;
2286                                    ;
2287
2288  017316                            BGNTST 7
 (3)  017316                            T7::
2289
2291  017316                            OUTPUT #DECFIN,#5                       ; TOGGLE PAPER OFFSET
2293  017360                                    OUTPUT #REINIT,#2
2294  017422                                    OUTPUT #VPA,#6                  ; SET VERTICAL POSITION
2295  017464                                    OUTPUT #PORSEL,#5               ; SELECT PORTRAIT MODE
2296  017526                                    OUTPUT #OVTEST,#19.             ; IDENTIFY TEST
2297                                    ;
2298                                    ; OVERLAY TWO LINES OF SEVENTY-FIVE CHARS
2299                                    ;
2300  017570                                    INCR R1 FROM #1 TO #50. BY #1   ; 50 LINES
 (5)  017570  012701  000001                    MOV     #1,R1
 (7)  017574  000401                            BR      50214$
 (6)  017576                            50215$:
 (10) 017576  005201                            INC     R1
 (7)  017600                            50214$:
 (7)  017600  020127  000062                    CMP     R1,#50.
 (9)  017604  003105                            BGT     50216$
2301  017606                                       LET R4 := #OUTBUF
 (4)  017606  012704  003114                    MOV     #OUTBUF,R4
2302  017612                                       INCR R2 FROM #1 TO #75. BY #1
 (5)  017612  012702  000001                    MOV     #1,R2
 (7)  017616  000401                            BR      50217$
 (6)  017620                            50220$:
 (10) 017620  005202                            INC     R2
 (7)  017622                            50217$:
 (7)  017622  020227  000113                    CMP     R2,#75.
 (9)  017626  003003                            BGT     50221$
2303  017630                                       LET (R4)+ :B= #57
 (4)  017630  112724  000057                    MOVB    #57,(R4)+
2304  017634                                       ENDINC
 (5)  017634  000771                            BR      50220$
 (4)  017636                            50221$:
2305  017636                                       LET (R4)+ :B= #15
 (4)  017636  112724  000015                    MOVB    #15,(R4)+
2306  017642                                       OUTPUT #OUTBUF,#76.
2307  017704  004737  005306                       JSR PC, QUIET
2308  017710                                       LET R4 := #OUTBUF
 (4)  017710  012704  003114                    MOV     #OUTBUF,R4
2309  017714                                       INCR R2 FROM #1 TO #75. BY #1
 (5)  017714  012702  000001                    MOV     #1,R2
 (7)  017720  000401                            BR      50222$
 (6)  017722                            50223$:
 (10) 017722  005202                            INC     R2
 (7)  017724                            50222$:
 (7)  017724  020227  000113                    CMP     R2,#75.
```

```
 (9)  017730  003003                        BGT     50224$
                                                LET (R4)+ :B= #134
 (4)  017732  112724  000134                MOVB    #134,(R4)+
                                               ENDINC
 (5)  017736  000771                        BR      50223$
 (4)  017740                          50224$:
                                               LET (R4)+ :B= #15
 (4)  017740  112724  000015                MOVB    #15,(R4)+
                                               LET (R4)+ :B= #12
 (4)  017744  112724  000012                MOVB    #12,(R4)+
                                               OUTPUT #OUTBUF,#77.
                                               JSR PC, QUIET
                                               ENDINC
 (5)  020016  000667                        BR      50215$
 (4)  020020                          50216$:
                                               LET OUTBUF :B= #14
 (4)  020020  112737  000014  003114          MOVB    #14,OUTBUF
                                               OUTPUT #OUTBUF,#1
                                               JSR PC, QUIET
                                     ;
                                     ; OVERLAY TWO LINES OF SEVENTY-ONE CHARS
                                     ;
                                               OUTPUT #LANSEL,#5                    ; SELECT LANDSCAPE MODE
                                               INCR R3 FROM #1 TO #66. BY #1        ; 66 LINES OF OVERPRINTING
 (5)  020136  012703  000001                MOV     #1,R3
 (7)  020142  000401                        BR      50225$
 (6)  020144                          50226$:
 (10) 020144  005203                        INC     R3
 (7)  020146                          50225$:
 (7)  020146  020327  000102                CMP     R3,#66.
 (9)  020152  003105                        BGT     50227$
                                               LET R4 := #OUTBUF
 (4)  020154  012704  003114                MOV     #OUTBUF,R4
                                               INCR R2 FROM #1 TO #71. BY #1
 (5)  020160  012702  000001                MOV     #1,R2
 (7)  020164  000401                        BR      50230$
 (6)  020166                          50231$:
 (10) 020166  005202                        INC     R2
 (7)  020170                          50230$:
 (7)  020170  020227  000107                CMP     R2,#71.
 (9)  020174  003003                        BGT     50232$
                                                  LET (R4)+ :B= #57
 (4)  020176  112724  000057                MOVB    #57,(R4)+
                                               ENDINC
 (5)  020202  000771                        BR      50231$
 (4)  020204                          50232$:
                                               LET (R4)+ :B= #15
 (4)  020204  112724  000015                MOVB    #15,(R4)+
                                               OUTPUT #OUTBUF,#72.
                                               JSR PC, QUIET
                                               LET R4 := #OUTBUF
 (4)  020256  012704  003114                MOV     #OUTBUF,R4
                                               INCR R2 FROM #1 TO #71. BY #1
 (5)  020262  012702  000001                MOV     #1,R2
 (7)  020266  000401                        BR      50233$
 (6)  020270                          50234$:
```

M5


```
  (10) 020270  005202                        INC     R2
   (7) 020272                            50233$:
   (7) 020272  020227  000107                CMP     R2,#71.
   (9) 020276  003003                        BGT     50235$
2334   020300                                   LET (R4)+ :B= #134
   (4) 020300  112724  000134                MOVB    #134,(R4)+
2335   020304                                   ENDINC
   (5) 020304  000771                        BR      50234$
   (4) 020306                            50235$:
2336   020306                                   LET (R4)+ :B= #15
   (4) 020306  112724  000015                MOVB    #15,(R4)+
2337   020312                                   LET (R4)+ :B= #12
   (4) 020312  112724  000012                MOVB    #12,(R4)+
2338   020316                                   OUTPUT #OUTBUF,#73.
2339   020360  004737  005306                   JSR PC, QUIET
2340   020364                                   ENDINC
   (5) 020364  000667                        BR      50226$
   (4) 020366                            50227$:
2341   020366                            EXIT TST
   (3) 020366  104432                        TRAP    C$EXIT
   (3) 020370  000046                        .WORD   L10016-.
2342                                     .NLIST BEX
2343   020372  053117  051105  052123  OVTEST: .ASCIZ  /OVERSTRIKE TEST 7/<12><12>
2344   020416     033     133     061  LANSEL: .BYTE 33,133,61,60,155
2345   020423     033     133     061  PORSEL: .BYTE 33,133,61,61,155
2346   020430     033     133     063  VPA:    .BYTE 33,133,63,60,60,104
2347                                     .EVEN
2348   020436                            ENDTST
   (3) 020436                            L10016:
   (3) 020436  104401                        TRAP    C$ETST
2349                                     .LIST BEX
2350   020440                            ENDMOD
2351                                     .SBTTL  READY LINE INTERLOCKS   TEST 8
2352                                     ;MODULE         OLDLCK.P11
2353
2354   020440                            BGNMOD
2355                                     ;++
2356                                     ;THIS TEST CHECKS THE OPERATION OF THE
2357                                     ;PRINTER READY INTERLOCK SWITCHES.
2358                                     ;MANUAL INTERVENTION IS USED TO
2359                                     ;OPEN THE INTERLOCKS TO PRODUCE FAULTS
2360                                     ;IN THE PRINTER AFTER WHICH THE RESULTANT ERROR
2361                                     ;INDICATION IS VERIFIED.
2362                                     ;--
2363
2364   020440                            BGNTST  8.
   (3) 020440                            T8::
2365                                     ;DETERMINE IF MANUAL INTERVENTION IS ALLOWED
2366   020440                                    MANUAL
   (3) 020440  104450                        TRAP    C$MANI
2367   020442                                   BCOMPLETE 11$
   (2) 020442  103402                        BCS     11$
2368   020444                                   EXIT TST
   (3) 020444  104432                        TRAP    C$EXIT
   (3) 020446  003026                        .WORD   L10017-.
2369                                     ;EXIT TEST IF MANUAL INTERVENTION TESTS ARE NOT SPECIFIED
```

```
2370  020450
 (6)  020450  005737  002264          11$:    IF INHINT EQ #0 THEN
 (10) 020454  001002                          TST     INHINT
2371  020456                                  BNE     50236$
 (3)  020456  104432                          EXIT TST
 (3)  020460  003014                          TRAP    C$EXIT
2372  020462                                  .WORD   L10017-.
 (4)  020462                                  ENDIF
2373  020462                            50236$:
 (4)  020462  005037  002270                  LET FLAG := #0
2374  020466                                  CLR     FLAG
 (5)  020466  013701  002012                  LET R1 := L$UNIT - #1
 (7)  020472  005301                          MOV     L$UNIT,R1
2375                                          DEC     R1
2376                              ;CHECK FOR ERROR IN EACH PRINTER UNDER TEST
2377  020474                          INCR LUNIT FROM #0 TO R1 BY #1
 (5)  020474  005037  002310                  CLR     LUNIT
 (7)  020500  000402                          BR      50237$
 (6)  020502                            50240$:
 (10) 020502  005237  002310                  INC     LUNIT
 (7)  020506                            50237$:
 (7)  020506  023701  002310                  CMP     LUNIT,R1
 (9)  020512  003020                          BGT     50241$
2378  020514                                  LET R2 := LUNIT SHIFT 1
 (5)  020514  013702  002310                  MOV     LUNIT,R2
 (8)  020520  006302                          ASL     R2
2379  020522                                  IF #BIT15 SETIN @LPCSR(R2) THEN
 (6)  020522  032772  100000  002352          BIT     #BIT15,@LPCSR(R2)
 (10) 020530  001410                          BEQ     50242$
2380  020532                                          LET ERRTBL(R2) := ERRTBL(R2) + #1
 (7)  020532  005262  003050                  INC     ERRTBL(R2)
2381  020536                                          ERRHRD 6, CSRERR
 (4)  020536  104456                          TRAP    C$ERHRD
 (5)  020540  000006                          .WORD   6
 (5)  020542  003342                          .WORD   CSRERR
 (5)  020544  000000                          .WORD   0
2382  020546                                          LET @LPCSR(R2) := #0
 (4)  020546  005072  002352                  CLR     @LPCSR(R2)
2383  020552                                  ENDIF
 (4)  020552                            50242$:
2384  020552                              ENDINC
 (5)  020552  000753                          BR      50240$
 (4)  020554                            50241$:
2385                                      ;
2386                                      ; PRINT TEST NAME
2387                                      ;
2388  020554                                  OUTPUT #INTLK,#28.
2389  020616                                  OUTPUT #BLANK,#44.
2390                              ;VERIFY OPERATION OF PAPER OUT INTERLOCK SWITCH
2391                              ;HARD CODED INCREMENT LOOP
2392                                      ;
2393  020660                                  LET ERRFLG := #0
 (4)  020660  005037  002334                  CLR     ERRFLG
2394  020664  005037  002310              CLR LUNIT
2395  020670  000405                      BR  1$
2396  020672                            2$:
```

```
2397  020672  005237  002310          INC LUNIT
2398  020676                          LET R2 := LUNIT SHIFT 1
 (5)  020676  013702  002310               MOV     LUNIT,R2
 (8)  020702  006302                       ASL     R2
2399  020704                     1$:
2400  020704  023701  002310          CMP LUNIT,R1
2401  020710  003402                  BLE 3$
2402  020712  000137  021444          JMP 4$
2403  020716                     3$:
2404  020716                          LET FLAG := #0
 (4)  020716  005037  002270               CLR     FLAG
2405  020722                          PRINTF #PAPRSW
 (7)  020722  012746  022356               MOV     #PAPRSW,-(SP)
 (6)  020726  012746  000001               MOV     #1,-(SP)
 (3)  020732  010600                       MOV     SP,R0
 (4)  020734  104417                       TRAP    C$PNTF
 (4)  020736  062706  000004               ADD     #4,SP
2406  020742                          PRINTF #PAPSW1,LUNIT
 (8)  020742  013746  002310               MOV     LUNIT,-(SP)
 (7)  020746  012746  022462               MOV     #PAPSW1,-(SP)
 (6)  020752  012746  000002               MOV     #2,-(SP)
 (3)  020756  010600                       MOV     SP,R0
 (4)  020760  104417                       TRAP    C$PNTF
 (4)  020762  062706  000006               ADD     #6,SP
2407  020766                          PRINTF #PAPSW2
 (7)  020766  012746  022542               MOV     #PAPSW2,-(SP)
 (6)  020772  012746  000001               MOV     #1,-(SP)
 (3)  020776  010600                       MOV     SP,R0
 (4)  021000  104417                       TRAP    C$PNTF
 (4)  021002  062706  000004               ADD     #4,SP
2408  021006                          GMANIL READY, FLAG, 100000, YES
 (3)  021006  104443                       TRAP    C$GMAN
 (3)  021010  000404                       BR      10000$
 (4)  021012  002270                       .WORD   FLAG
 (5)  021014  000130                       .WORD   T$CODE
 (5)  021016  007006                       .WORD   READY
 (5)  021020  100000                       .WORD   100000
 (3)  021022                    10000$:
2409  021022                          LET LINCNT := #2        ; LINE COUNT WILL ALLOW FOR 3 PAGES OF PAPER
 (4)  021022  012737  000002  002272       MOV     #2,LINCNT
2410  021030                          LET ERRFLG := #0
 (4)  021030  005037  002334               CLR     ERRFLG
2411  021034                          REPEAT
 (3)  021034                    50243$:
2412  021034                              OUTPUI #PAPTST,#2,#5$,LUNIT
2413  021076                              LET LINCNT := LINCNT + #1
 (7)  021076  005237  002272           INC     LINCNT
2414  021102                              IF LINCNT EQ #65. OR LINCNT EQ #130. OR LINCNT EQ #195. THEN
 (6)  021102  023727  002272  000101       CMP     LINCNT,#65.
 (8)  021110  001410                       BEQ     50244$
 (6)  021112  023727  002272  000202       CMP     LINCNT,#130.
 (8)  021120  001404                       BEQ     50244$
 (6)  021122  023727  002272  000303       CMP     LINCNT,#195.
 (10) 021130  001024                       BNE     50245$
 (6)  021132                    50244$:
2415  021132                                  LET OUTBUF := #14                   ; FORM FEED
```

```
 (4)  021132  012737  000014  003114          MOV     #14,OUTBUF
2416  021140                                      OUTPUI #OUTBUF,#1,5$,LUNIT              ; OUTPUT THE FORM FEED
2417  021202                                  ENDIF
 (4)  021202                              50245$:
2418  021202                                  UNTIL LINCNT EQ #260. OR ERRFLG NE #0       ; UNTIL FOUR PAGES PRINTED OR IN
 (4)  021202  023727  002272  000404          CMP     LINCNT,#260.
 (6)  021210  001403                          BEQ     50246$
 (4)  021212  005737  002334                  TST     ERRFLG
 (8)  021216  001706                          BEQ     50243$
 (4)  021220                              50246$:
2419  021220                                  IF ERRFLG EQ #0 THEN
 (6)  021220  005737  002334                  TST     ERRFLG
 (10) 021224  001035                          BNE     50247$
2420  021226                                      LET OUTBUF := #14                       ; FORM FEED
 (4)  021226  012737  000014  003114          MOV     #14,OUTBUF
2421  021234                                      OUTPUI #OUTBUF,#1,5$,LUNIT              ; OUTPUT THE FF
2422  021276                                      ERRHRD 8,PAPSWI
 (4)  021276  104456                          TRAP    C$ERHRD
 (5)  021300  000010                          .WORD   8
 (5)  021302  003402                          .WORD   PAPSWI
 (5)  021304  000000                          .WORD   0
2423  021306                                      LET ERRTBL(R2) := ERRTBL(R2) + #1
 (7)  021306  005262  003050                  INC     ERRTBL(R2)
2424  021312                                      INLINE      <JMP    11002$>
 (2)  021312  000137  021324                  JMP     11002$
2425  021316                                  ELSE
 (4)  021316  000402                          BR      50250$
 (3)  021320                              50247$:
2426  021320                                      LET ERRFLG := #0
 (4)  021320  005037  002334                  CLR     ERRFLG
2427  021324                                  ENDIF
 (4)  021324                              50250$:
2428  021324                              11002$: PRINTF #PAPRDY,LUNIT
 (8)  021324  013746  002310                  MOV     LUNIT,-(SP)
 (7)  021330  012746  022604                  MOV     #PAPRDY,-(SP)
 (6)  021334  012746  000002                  MOV     #2,-(SP)
 (3)  021340  010600                          MOV     SP,R0
 (4)  021342  104417                          TRAP    C$PNTF
 (4)  021344  062706  000006                  ADD     #6,SP
2429  021350                                  LET FLAG := #0
 (4)  021350  005037  002270                  CLR     FLAG
2430  021354                                  GMANIL READY,FLAG,100000,YES
 (3)  021354  104443                          TRAP    C$GMAN
 (3)  021356  000404                          BR      10001$
 (4)  021360  002270                          .WORD   FLAG
 (5)  021362  000130                          .WORD   T$CODE
 (5)  021364  007006                          .WORD   READY
 (5)  021366  100000                          .WORD   100000
 (3)  021370                              10001$:
2431  021370                                  LET R2 := LUNIT SHIFT 1
 (5)  021370  013702  002310                  MOV     LUNIT,R2
 (8)  021374  006302                          ASL     R2
2432  021376                                  LET @LPCSR(R2) := #0                    ; RESET THE LP CSR
 (4)  021376  005072  002352                  CLR     @LPCSR(R2)
2433  021402  000137  020672                  JMP 2$
2434                                    ;EXPECTED ERROR HANDLER.
```

```
2435
2436
2437  021406                                        ;JUST SET EXPECTED ERROR INDICATOR.
2436                                                ;
2437  021406                                        5$:     LET ERRFLG := #1
 (4)  021406  012737  000001  002334                        MOV     #1,ERRFLG
2438  021414                                                LET ERRCOD := #0
 (4)  021414  005037  002332                                CLR     ERRCOD
2439  021420                                                LET STATUS(R2) := STATUS(R2) CLR.BY #ERROR!ACTIVE
 (7)  021420  042762  120000  002506                        BIC     #ERROR!ACTIVE,STATUS(R2)
2440  021426                                                LET CURCNT(R2) := #0    ; CLEAN UP THE DRIVER PARAMETERS
 (4)  021426  005062  002746                                CLR     CURCNT(R2)
2441  021432                                                LET CURADD(R2) := #0
 (4)  021432  005062  002546                                CLR     CURADD(R2)
2442  021436                                                LET REPCNT(R2) := #0
 (4)  021436  005062  002646                                CLR     REPCNT(R2)
2443  021442  000207                                        RTS PC                                  ;AND RETURN
2444                                                ;VERIFY OPERATION OF PAPER TRAY HANDLE INTERLOCK SWITCH.
2445  021444                                        4$:   INCR LUNIT FROM #0 TO R1 BY #1
 (5)  021444  005037  002310                                CLR     LUNIT
 (7)  021450  000402                                        BR      50251$
 (6)  021452                                        50252$:
 (10) 021452  005237  002310                                INC     LUNIT
 (7)  021456                                        50251$:
 (7)  021456  023701  002310                                CMP     LUNIT,R1
 (9)  021462  003117                                        BGT     50253$
2446  021464                                                LET R2 := LUNIT SHIFT 1
 (5)  021464  013702  002310                                MOV     LUNIT,R2
 (8)  021470  006302                                        ASL     R2
2447  021472                                                LET L$LUN := LUNIT
 (4)  021472  013737  002310  002074                        MOV     LUNIT,L$LUN
2448  021500                                                LET FLAG := #0
 (4)  021500  005037  002270                                CLR     FLAG
2449  021504                                                PRINTF #MANRSW
 (7)  021504  012746  022675                                MOV     #MANRSW,-(SP)
 (6)  021510  012746  000001                                MOV     #1,-(SP)
 (3)  021514  010600                                        MOV     SP,R0
 (4)  021516  104417                                        TRAP    C$PNTF
 (4)  021520  062706  000004                                ADD     #4,SP
2450  021524                                                PRINTF #MANSW1,LUNIT
 (8)  021524  013746  002310                                MOV     LUNIT,-(SP)
 (7)  021530  012746  023006                                MOV     #MANSW1,-(SP)
 (6)  021534  012746  000002                                MOV     #2,-(SP)
 (3)  021540  010600                                        MOV     SP,R0
 (4)  021542  104417                                        TRAP    C$PNTF
 (4)  021544  062706  000006                                ADD     #6,SP
2451  021550                                                PRINTF #MANSW2
 (7)  021550  012746  023073                                MOV     #MANSW2,-(SP)
 (6)  021554  012746  000001                                MOV     #1,-(SP)
 (3)  021560  010600                                        MOV     SP,R0
 (4)  021562  104417                                        TRAP    C$PNTF
 (4)  021564  062706  000004                                ADD     #4,SP
2452  021570                                                GMANIL READY, FLAG, 100000, YES
 (3)  021570  104443                                        TRAP    C$GMAN
 (3)  021572  000404                                        BR      10002$
 (4)  021574  002270                                        .WORD   FLAG
 (5)  021576  000130                                        .WORD   T$CODE
 (5)  021600  007006                                        .WORD   READY
```

```
  (5)  021602  100000                              .WORD   100000
  (3)  021604                                10002$:
2453   021604                                      IF @BIT15 SETIN @LPCSR(R2) THEN
  (6)  021604  032772  100000  002352              BIT     @BIT15,@LPCSR(R2)
  (10) 021612  001431                              BEQ     50254$
2454   021614                                      PRINTF @HANRDY
  (7)  021614  012746  023132                      MOV     @HANRDY,-(SP)
  (6)  021620  012746  000001                      MOV     @1,-(SP)
  (3)  021624  010600                              MOV     SP,R0
  (4)  021626  104417                              TRAP    C$PNTF
  (4)  021630  062706  000004                      ADD     @4,SP
2455   021634                                      PRINTF @HANRD1,LUNIT
  (8)  021634  013746  002310                      MOV     LUNIT,-(SP)
  (7)  021640  012746  023217                      MOV     @HANRD1,-(SP)
  (6)  021644  012746  000002                      MOV     @2,-(SP)
  (3)  021650  010600                              MOV     SP,R0
  (4)  021652  104417                              TRAP    C$PNTF
  (4)  021654  062706  000006                      ADD     @6,SP
2456   021660                                      GMANIL READY, FLAG, 100000, YES
  (3)  021660  104443                              TRAP    C$GMAN
  (3)  021662  000404                              BR      10003$
  (4)  021664  002270                              .WORD   FLAG
  (5)  021666  000130                              .WORD   T$CODE
  (5)  021670  007006                              .WORD   READY
  (5)  021672  100000                              .WORD   100000
  (3)  021674                                10003$:
2457   021674                                      ELSE
  (4)  021674  000411                              BR      50255$
  (3)  021676                                50254$:
2458   021676                                      LET ERRTBL(R2) := ERRTBL(R2) + @1
  (7)  021676  005262  003050                      INC     ERRTBL(R2)
2459   021702                                      LET L$LUN := LUNIT
  (4)  021702  013737  002310  002074              MOV     LUNIT,L$LUN
2460   021710                                      ERRHRD 9,HANSWI
  (4)  021710  104456                              TRAP    C$ERHRD
  (5)  021712  000011                              .WORD   9
  (5)  021714  003503                              .WORD   HANSWI
  (5)  021716  000000                              .WORD   0
2461   021720                                      ENDIF
  (4)  021720                                50255$:
2462   021720                                  ENDINC
  (5)  021720  000654                              BR      50252$
  (4)  021722                                50253$:
2463                                       ;VERIFY OPERATION OF FRONT DOOR INTERLOCK SWITCH.
2464   021722                                  INCR LUNIT FROM @0 TO R1 BY @1
  (5)  021722  005037  002310                      CLR     LUNIT
  (7)  021726  000402                              BR      50256$
  (6)  021730                                50257$:
  (10) 021730  005237  002310                      INC     LUNIT
  (7)  021734                                50256$:
  (7)  021734  023701  002310                      CMP     LUNIT,R1
  (9)  021740  003107                              BGT     50260$
2465   021742                                      LET R2 := LUNIT SHIFT 1
  (5)  021742  013702  002310                      MOV     LUNIT,R2
  (8)  021746  006302                              ASL     R2
2466   021750                                      LET FLAG := @0
```

```
 (4)  021750  005037  002270                    CLR     FLAG
2467  021754                                    PRINTF  #DOORSW,LUNIT
 (8)  021754  013746  002310                    MOV     LUNIT,-(SP)
 (7)  021760  012746  023265                    MOV     #DOORSW,-(SP)
 (6)  021764  012746  000002                    MOV     #2,-(SP)
 (3)  021770  010600                            MOV     SP,R0
 (4)  021772  104417                            TRAP    C$PNTF
 (4)  021774  062706  000006                    ADD     #6,SP
2468  022000                                    PRINTF  #DOOSW1
 (7)  022000  012746  023342                    MOV     #DOOSW1,-(SP)
 (6)  022004  012746  000001                    MOV     #1,-(SP)
 (3)  022010  010600                            MOV     SP,R0
 (4)  022012  104417                            TRAP    C$PNTF
 (4)  022014  062706  000004                    ADD     #4,SP
2469  022020                                    GMANIL  READY, FLAG, 100000, YES
 (3)  022020  104443                            TRAP    C$GMAN
 (3)  022022  000404                            BR      10004$
 (4)  022024  002270                            .WORD   FLAG
 (5)  022026  000130                            .WORD   T$CODE
 (5)  022030  007006                            .WORD   READY
 (5)  022032  100000                            .WORD   100000
 (3)  022034                              10004$:
2470  022034                                    IF #BIT15 SETIN @LPCSR(R2) THEN
 (6)  022034  032772  100000  002352            BIT     #BIT15,@LPCSR(R2)
 (10) 022042  001431                            BEQ     50261$
2471  022044                                    PRINTF  #DOORDY,LUNIT
 (8)  022044  013746  002310                    MOV     LUNIT,-(SP)
 (7)  022050  012746  023372                    MOV     #DOORDY,-(SP)
 (6)  022054  012746  000002                    MOV     #2,-(SP)
 (3)  022060  010600                            MOV     SP,R0
 (4)  022062  104417                            TRAP    C$PNTF
 (4)  022064  062706  000006                    ADD     #6,SP
2472  022070                                    PRINTF  #DOORD1
 (7)  022070  012746  023441                    MOV     #DOORD1,-(SP)
 (6)  022074  012746  000001                    MOV     #1,-(SP)
 (3)  022100  010600                            MOV     SP,R0
 (4)  022102  104417                            TRAP    C$PNTF
 (4)  022104  062706  000004                    ADD     #4,SP
2473  022110                                    GMANIL  READY, FLAG, 100000, YES
 (3)  022110  104443                            TRAP    C$GMAN
 (3)  022112  000404                            BR      10005$
 (4)  022114  002270                            .WORD   FLAG
 (5)  022116  000130                            .WORD   T$CODE
 (5)  022120  007006                            .WORD   READY
 (5)  022122  100000                            .WORD   100000
 (3)  022124                              10005$:
2474  022124                                    ELSE
 (4)  022124  000411                            BR      50262$
 (3)  022126                              50261$:
2475  022126                                    LET ERRTBL(R2) := ERRTBL(R2) + #1
 (7)  022126  005262  003050                    INC     ERRTBL(R2)
2476  022132                                    LET L$LUN := LUNIT
 (4)  022132  013737  002310  002074            MOV     LUNIT,L$LUN
2477  022140                                    ERRHRD 10, DOOSWI
 (4)  022140  104456                            TRAP    C$ERHRD
 (5)  022142  000012                            .WORD   10
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  (5)  022144  003556                          .WORD   DOOSWI
  (5)  022146  000000                          .WORD   0
 2478  022150                                  ENDIF
  (4)  022150                              50262$:
 2479  022150                                  LET &LPCSR(R2) := #00
  (4)  022150  012772  000000  002352         MOV     #00,&LPCSR(R2)
 2480  022156                              ENDINC
  (5)  022156  000664                         BR      50257$
  (4)  022160                              50260$:
 2481  022160                                  LET CURCNT(R2) := #0
  (4)  022160  005062  002746                 CLR     CURCNT(R2)
 2482  022164                                  LET OUTBUF := #14
  (4)  022164  012737  000014  003114         MOV     #14,OUTBUF
 2483  022172                                  OUTPUT #OUTBUF,#1
 2484  022234  004737  005306                  JSR PC,QUIET
 2485  022240                                  EXIT TST
  (3)  022240  104432                         TRAP    C$EXIT
  (3)  022242  001232                         .WORD   L10017-.
 2486
 2487                                     .NLIST BEX
 2488
 2489  022244  042522  042101  020131  INTLK:  .ASCIZ  /READY LINE INTERLOCK TEST 8/<12>
 2490  022301     124  044510  020123  BLANK:  .ASCIZ  /THIS PAGE WILL BE FOLLOWED BY 3 BLANK PAGES/<12>
 2491  022356  047045  040445  043101  PAPRSW: .ASCIZ  /%N%AAFTER PRINTING STOPS - REMOVE ALL PAPER FROM BOTH PAPER TRAYS%N/
 2492  022462  040445  044527  044124  PAPSW1: .ASCIZ  /%AWITH EXCEPTION OF ONE PER TRAY ON LUNIT %D2%N/
 2493  022542  040445  047524  041440  PAPSW2: .ASCIZ  /%ATO CHECK PAPER OUT INTERLOCK.%N/
 2494  022604  047045  040445  042522  PAPRDY: .ASCIZ  /%N%ARESTORE PAPER, CLEAR, PLACE LUNIT %D2%A ON LINE.%N/
 2495  022673     040     012          PAPTST: .BYTE   40,12
 2496  022675     045  022516  040501  HANRSW: .ASCIZ  /%N%AAFTER PRINTING STOPS - TURN PAPER TRAY HANDLE COUNTER CLOCKWISE TO%
 2497  023006  040445  047510  044522  HANSW1: .ASCIZ  /%AHORIZONTAL POSITION UNTIL IT STOPS, ON LUNIT %D2%N/
 2498  023073     045  052101  020117  HANSW2: .ASCIZ  /%ATO CHECK INTERLOCK SWITCH.%N/
 2499  023132  047045  040445  042522  HANRDY: .ASCIZ  /%N%ARETURN PAPER TRAY HANDLE TO VERTICAL POSITION.%N/
 2500  023217     045  041501  042514  HANRD1: .ASCIZ  /%ACLEAR, PLACE LUNIT %D2%A ON LINE.%N/
 2501  023265     045  022516  047501  DOORSW: .ASCIZ  /%N%AOPEN FRONT DOOR ON LUNIT %D2%A TO CHECK /
 2502  023342  047045  040445  047111  DOOSW1: .ASCIZ  /%N%AINTERLOCK SWITCH.%N/
 2503  023372  047045  040445  046103  DOORDY: .ASCIZ  /%N%ACLOSE FRONT DOOR ON LUNIT %D2%A,%N/
 2504  023441     045  041501  042514  DOORD1: .ASCIZ  /%ACLEAR, PLACE ON LINE.%N/
 2505          023474                  .EVEN
 2506
 2507                                     .LIST BEX
 2508  023474                          ENDTST
  (3)  023474                          L10017:
  (3)  023474  104401                         TRAP    C$ETST
 2509
 2510  023476                          ENDMOD
 2511                                  .SBTTL  ABSOLUTE AND RELATIVE POSITIONING
 2512                                  ;MODULE ABREL.P11
 2513  023476                          BGNMOD
 2514
 2515                                  ;**
 2516                                  ;       THE OBJECT OF THIS TEST IS TO VERIFY THE CORRECT OPERATION OF
 2517                                  ;THE FUNCTIONS CALLED VERTICAL AND HORIZONTAL POSITION ABSOLUTE AND
 2518                                  ;RELATIVE.  THE TEST WILL DO THIS BY DRAWING A RECTANGULAR GRID USING
 2519                                  ;BOTH HORIZONTAL AND VERTICAL POSITIONING ESCAPE SEQUENCES.  IF THE
 2520                                  ;MACHINE HANDLES THE SEQUENCES PROPERLY THE GRID SHOULD HAVE THE FOL-
 2521                                  ;LOWING CHARACTERISTICS:
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                                ;       THE GRID'S UPPERMOST LEFT CORNER SHOULD BEGIN TWO INCHES FROM
                                ;       THE TOP AND LEFT EDGES OF THE PAPER.
                                ;       THE DIMENSIONS OF THE GRID SHOULD BE FOUR INCHES IN HEIGHT
                                ;       BY SEVEN INCHES IN LENGTH.
                                ;       EACH BLOCK CONTAINED WITHIN THE GRID SHOULD BE ONE INCH SQUARE.
                                ;THE MARGINS WILL BE SET AS FOLLOWS:
                                ;       TOP = 2 INCHES
                                ;       BOTTOM = 6 INCHES
                                ;       LEFT = 2 INCHES
                                ;       RIGHT = 9 INCHES
                                ;
                                ;THE GRID ITSELF WILL BE DRAWN USING THE "X" CHARACTER.  ALL "X"S WILL
                                ;BE INSIDE THE MARGIN BOUNDARIES.
                                ;
                                ;OUTSIDE THE MARGIN BOUNDARIES THE TEST WILL ATTEMPT TO PRINT THE "O"
                                ;CHARACTER 1/2 INCH OUTSIDE THE OUTER EDGES OF THE RECTANGLE.  IF THE
                                ;MARGINS ARE "HARD" THEN THE "O" SHOULD SUPERIMPOSE ALL THE "X"S ON
                                ;THE OUTER EDGES OF THE GRID.  IF THE MARGINS ARE "SOFT" THEN THE
                                ;"O"S WILL BE PRINTED 1/2 INCH OUTSIDE THE OUTER EDGES OF THE GRID.
                                ;THIS IS TRUE FOR TOP, BOTTOM AND LEFT MARGINS ONLY.  THE RIGHT MARGIN
                                ;FUNCTIONS DIFFERENTLY AND, THEREFORE, IS HANDLED DIFFERENTLY.  THE
                                ;RIGHT MARGIN WILL BE OVERPRINTED SO AS TO BE UNIFORM WITH THE OTHERS.
                                ;HOWEVER, IT IS NOT DONE IN THE SAME MANNER.
                                ;--


                                ;       GLOBALS REFERENCED:

000000                          .REPT   0
                                BEGIN TEST
                                :       SELECT DECIPOINTS AS SIZE UNIT
                                :       PRINT TEST ID
                                :       PRINT OPERATOR INSRUCTIONS ON PRINTER
                                :       SET TOP, BOTTOM, LEFT AND RIGHT MARGINS
                                :       WHILE VERTBL NE TO #0 DO                        ;DO FOR EACH ROW OF GRID
                                :               MOVE TO CORRECT VERTICAL POSITION
                                :               PRINT ONE LINE OF THE GRID
                                :       ENDDO
                                :       MOVE VERTICALLY TO 6 1/2 INCH SPOT
                                :       PRINT ROW OF "O"S BELOW BOTTOM MARGIN
                                :       MOVE VERTICALLY TO 1 1/2 INCH SPOT
                                :       PRINT ROW OF "O"S ABOVE TOP MARGIN
                                :       RESET DEFAULT PRINTER CONDITIONS
                                :       SELECT DECIPOINTS AS SIZE UNIT
                                :       DO FORM FEED
                                :       EXIT TEST
                                END TEST
                                .ENDR
```

```
2578
2579
2580
2581  023476                                        BGNTST  9.
 (3)  023476                                T9::
2582
2583  023476                                        OUTPUT #REINIT,#2
2584  023540                                        OUTPUT #SELDEC,#5                ; DECIPOINTS AS SIZE UNIT
2585  023602                                        OUTPUT #ABREL,#59.               ; TEST ID WITH CRLF
2586  023644                                        OUTPUT #INSTRC,#119.
2587  023706                                        OUTPUT #INSTR1,#110.             ; DESCRIPTIONS OF GRID
2588  023750                                        OUTPUT #TOPBOT,#12.              ; SET TOP AND BOTOM MARGINS
2589  024012                                        OUTPUT #LEFRI,#12.               ; SET LEFT AND RIGHT MARGINS
2590  024054                                        LET R4 := #VERTBL                ; SET UP TABLE OF VERTICAL SEQUENCES
 (4)  024054  012704  024642                      MOV     #VERTBL,R4
2591  024060                                        WHILE (R4) NE #0 DO              ; DO FOR EACH ENTRY IN TABLE
 (4)  024060                                50263$:
 (6)  024060  005714                              TST     (R4)
 (10) 024062  001471                              BEQ     50264$
2592  024064                                              OUTPUT (R4), #7.           ; MOVE TO CORRECT VERTICAL POS.
2593  024124                                              OUTPUT #GRID,#101.         ; PART 1 OF ONE LINE OF GRID
2594  024166  004737  005306                             JSR PC,QUIET
2595  024172                                              OUTPUT #GRID1,#37.         ; PART 2
2596  024234  004737  005306                             JSR PC,QUIET
2597  024240                                              LET R4 := R4 + #2
 (7)  024240  062704  000002                      ADD     #2,R4
2598  024244                                        ENDDO
 (4)  024244  000705                              BR      50263$
 (3)  024246                                50264$:
2599  024246                                        OUTPUT #VSIXHF,#7                ; MOVE VERTICALLY TO 6 1/2 INCH SPOT
2600  024310                                        OUTPUT #HILOSQ,#48.              ; PRINT "O"S BELOW BOTTOM MARGIN
2601  024352                                        OUTPUT #VONEHF,#7                ; MOVE VERTICALLY TO 1 1/2 INCH SPOT
2602  024414                                        OUTPUT #HILOSQ,#48.              ; PRINT "O"S ABOVE TOP MARGIN
2603  024456                                        LET OUTBUF :B= #14               ; FORM FEED
 (4)  024456  112737  000014  003114              MOVB    #14,OUTBUF
2604  024464                                        OUTPUT #OUTBUF,#1                ; DO THE FORM FEED
2605  024526                                        OUTPUT #REINIT,#2                ; GLOBAL, RESET DEFAULT STATE
2606  024570                                        OUTPUT #SELDEC,#5                ; DECIPOINTS AS SIZE UNIT
2607  024632  004737  005306                       JSR PC,QUIET                     ; GUARANTEE THE FORM FEED
2608  024636                                        EXIT TST
 (3)  024636  104432                              TRAP    C$EXIT
 (3)  024640  001062                              .WORD   L10020-.
2609                                     ;        DATA TABLES, MESSAGES, SEQUENCES, ETC.
2610
2611                                     .NLIST BEX
2612  024642  025364  025355  025411    VERTBL: .WORD   VTHREE,VTWO,VSIX,VFOUR,VFIVE,0
2613  024656  055433  030061  044155    ABREL:  .ASCII  <33>/[10mHORIZONTAL AND VERTICAL ABSOLUTE AND RELATIVE TEST 9/<15><12>
2614  024751     012  044124  020105    INSTRC: .ASCII  <12>/THE RECTANGULAR GRID WILL BEGIN APPROXIMATELY TWO INCHES FROM THE T
2615  025057     040  047101  020104            .ASCII  / AND TWO INCHES FROM THE LEFT EDGES OF THE PAPER/<12>
2616  025140  044124  020105  044504    INSTR1: .ASCII  /THE DIMENSIONS OF THE GRID WILL BE 4 INCHES HIGH/
2617  025220  040440  042116  033440            .ASCII  / AND 7 INCHES WIDE.  EACH BLOCK WITHIN WILL BE 1 INCH SQUARE./<12>
2618  025316     033     133     061    TOPBOT: .BYTE   33,133,61,64,64,60,73,64,63,62,60,162          ; SET TOP AND BOTTOM MAR
2619  025332     033     133     061    LEFRI:  .BYTE   33,133,61,64,64,60,73,66,70,64,60,163          ; SET LEFT AND RIGHT MAR
2620  025346     033     133     061    VONEHF: .BYTE   33,133,61,60,70,60,144                        ; VERTICAL MOVE TO 1 1/2
2621  025355     033     133     061    VTWO:   .BYTE   33,133,61,64,64,60,144                        ; VERTICAL MOVE TO 2 INC
2622  025364     033     133     062    VTHREE: .BYTE   33,133,62,61,66,60,144                        ; VERTICAL MOVE TO 3 INC
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```
2623  025373  033  133  062  VFOUR:  .BYTE  33,133,62,70,70,60,144                                  ; VERTICAL MOVE TO 4 INC
2624  025402  033  133  063  VFIVE:  .BYTE  33,133,63,66,60,60,144                                  ; VERTICAL MOVE TO 5 INC
2625  025411  033  133  064  VSIX:   .BYTE  33,133,64,63,62,60,144                                  ; VERTICAL MOVE TO 6 INC
2626  025420  033  133  064  VSIXHF: .BYTE  33,133,64,66,71,60,144                                  ; VERTICAL MOVE TO 6 1/2
2627  025427  033  133  062  HILOSQ: .BYTE  33,133,62,61,66,60,140,117,33,133,62,70,70,60,140,117   ; PRINTS "0"S FO
2628  025447  033  133  063          .BYTE  33,133,63,66,60,60,140,117,33,133,64,63,62,60,140,117
2629  025467  033  133  065          .BYTE  33,133,65,60,64,60,140,117,33,133,65,67,66,60,140,117
2630  025507  040  033  133  GRID:   .BYTE  40,33,133,61,60,70,60,140,117,33,133,66,64,70,60,140,130
2631  025530  033  133  061          .BYTE  33,133,61,64,64,60,140,33,133,65,60,64,60,141,117
2632  025547  033  133  066          .BYTE  33,133,66,70,64,60,140,152                    ; THIS HAS BEEN ADDED TO TEST AB
2633  025557  033  133  065          .BYTE  33,133,65,60,64,60,140,130,33,133,63,66,60,60,140
2634  025576  033  133  060          .BYTE  33,133,60,60,60,60,141,130,33,133,63,66,60,60,140
2635  025615  033  133  060          .BYTE  33,133,60,67,62,60,141,130,33,133,65,67,66,60,140,130
2636  025635  033  133  061          .BYTE  33,133,61,64,64,60,140,33,133,60,60,60,60,141,130
2637  025654  033  133  061  GRID1:  .BYTE  33,133,61,64,64,60,140,33,133,60,63,66,60,141
2638  025672  033  133  060          .BYTE  33,133,60,63,66,60,141,130,33,133,62,67,60,60,140,33,133,60,61,70,60,141
2639          025722               .EVEN
2640                               .LIST BEX
2641  025722                             ENDTST
 (3)  025722                       L10020:
 (3)  025722  104401                     TRAP    C$ETST
2642  025724                             ENDMOD
2643
2644
2645
2646
2647
2648
2649
2650
2651
2652
2655                               .SBTTL  NEWLINE MODE ENABLE-DISABLE TEST
2656                               ; MODULE LFNLMD.P11
2657
2658  025724                       BGNMOD
2659
2660
2661                          ;++
2662                          ; THIS TEST IS AN ALTERED VERSION OF LNMODE.P11 WHICH IS PART OF
2663                          ; THE TML LIBRARY.  THE ORIGINAL VERSION OF THIS TEST IS LOCATED
2664                          ; IN THE <TML.TESTS>  SUBDIRECTORY OF THE MILL20 DEVELOPMENT SYSTEM.
2665                          ; THIS VERSION IS ALTERED FOR USE ON THE LN01 ELECTRONIC PRINTER.
2666                          ; THIS IS A TEST OF THE TERMINALS ABILITY TO RECOGNIZE THE ESCAPE
2667                          ; SEQUENCES THAT ENABLE AND DISABLE NEWLINE MODE OF OPERATION.
2668                          ; OUTPUT WITH NEWLINE DISABLED SHOULD APPEAR AS:
2669                          ;       AAAAAAAAAA
2670                          ;                 AAAAAAAAAA
2671                          ;                           AAAAAAAAAA
2672                          ; OUTPUT WITH NEWLINE MODE ENABLED SHOULD APPEAR AS:
2673                          ;       AAAAAAAAAA
2674                          ;       AAAAAAAAAA
2675                          ;       AAAAAAAAAA
2676                          ;--
2677
2678          000000
```

```
                                BEGIN NLMODE
                                :   SELECT SIZE UNIT AS DECIPOINTS
                                :   SEND THE TEST NAME TO ALL TERMINALS
                                :   SKIP 2 LINES
                                :   SEND 'NEWLINE MODE BEING DISABLED' MESSAGE
                                :   SEND RMANL TO DISABLE NEWLINE MODE
                                :   REPEAT 3 TIMES
                                :   :   SEND 10 A'S
                                :   :   SEND A LINEFEED
                                :   ENDREPEAT
                                :   SKIP 2 LINES
                                :   SEND 'NEW LINE BEING ENABLED' MESSAGE
                                :   SEND SMANL TO ENABLE NEWLINE MODE
                                :   REPEAT 3 TIMES
                                :   :   SEND 10 A'S
                                :   :   SEND A LINEFEED
                                :   ENDREPEAT
                                :   SEND RMANL TO DISABLE NEWLINE MODE
                                :   DO FORM FEED
                                :   RESET THE PRINTER
                                :   SELECT SIZE UNIT AS DECIPOINTS
                                END TEST


2712  025724                        BGNTST  10.
 (3)  025724                T10::
2714  025724                        OUTPUT #REINIT,#2
2715  025766                        OUTPUT #SELDEC,#5                ; DECIPOINTS AS SIZE UNIT
2716  026030                        OUTPUT #NLMODE,#42.              ; IDENTIFY TEST
2717  026072                        OUTPUT #ACRLF,#2,,#2             ; SKIP 2 LINES
2718  026134                        OUTPUT #DISANL,#40.              ; DISABLING NL MESSAGE
2719  026176                        OUTPUT #RMANL,#5                 ; TURN T OFF NOW
2720  026240                        LET R5 := #OUTBUF
 (4)  026240  012705  003114        MOV     #OUTBUF,R5
2721  026244                        LET (R5)+ :B= #101               ; PUT AN "A" IN BUFFER
 (4)  026244  112725  000101        MOVB    #101,(R5)+
2722  026250                        LET (R5)+ :B= #12                ; PUT "LF" IN BUFFER
 (4)  026250  112725  000012        MOVB    #12,(R5)+
2723  026254                        LET (R5)+ :B= #14                ; FORM FEED
 (4)  026254  112725  000014        MOVB    #14,(R5)+
2724  026260                        DECR WORK FROM #2 TO #0 BY #1
 (5)  026260  012737  000002  003110    MOV     #2,WORK
 (7)  026266  000402                BR      50265$
 (6)  026270                50266$:
 (10) 026270  005337  003110        DEC     WORK
 (7)  026274                50265$:
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 (7)  026274  005737  003110                    TST     WORK
 (9)  026300  002443                             BLT     50267$
2725  026302                                        OUTPUT #OUTBUF,#1,,#10.       ; SEND TEN A'S
2726  026344                                        OUTPUT #OUTBUF+1,#1           ; THEN A LINEFEED
2727  026406                                    ENDDEC
 (5)  026406  000730                             BR      50266$
 (4)  026410                                50267$:
2728  026410                                    OUTPUT #ACRLF,#2,,#2              ; SKIP 2 LINES
2729  026452                                    OUTPUT #ENABNL,#52.               ; ENABLING NL MESSAGE
2730  026514                                    OUTPUT #SMANL,#5                  ; TURN IT ON NOW
2731  026556                                    DECR WORK FROM #2 TO #0 BY #1
 (5)  026556  012737  000002  003110            MOV     #2,WORK
 (7)  026564  000402                             BR      50270$
 (6)  026566                                50271$:
 (10) 026566  005337  003110                    DEC     WORK
 (7)  026572                                50270$:
 (7)  026572  005737  003110                    TST     WORK
 (9)  026576  002443                             BLT     50272$
2732  026600                                        OUTPUT #OUTBUF,#1,,#10.       ; SEND TEN A'S
2733  026642                                        OUTPUT #OUTBUF+1,#1           ; THEN A LINEFEED
2734  026704                                    ENDDEC
 (5)  026704  000730                             BR      50271$
 (4)  026706                                50272$:
2735  026706                                    OUTPUT #RMANL,#5                  ; TURN IT OFF
2736  026750                                    OUTPUT #OUTBUF+2,#1               ; DO FORM FEED
2737  027012                                    OUTPUT #REINIT,#2                 ; RESET TO DEFAULT CONDITIONS
2738  027054                                    OUTPUT #SELDEC,#5                 ; DECIPOINTS AS SIZE UNIT
2739  027116  004737  005306                    JSR PC,QUIET
2740  027122                                    EXIT TST
 (3)  027122  104432                             TRAP    C$EXIT
 (3)  027124  000230                             .WORD   L10021-.
2741
2742                                            .NLIST BEX
2743  027126  042516  020127  044514  DISANL:  .ASCIZ  /NEW LINE MODE DISABLED, LINEFEEDS ONLY/<15><12>
2744  027177     116  053505  046040  ENABNL:  .ASCIZ  /NEW LINE MODE ENABLED, LINEFEED CAUSES RETURN ALSO/<15><12>
2745  027264  055433  030061  047155  NLMODE:  .ASCIZ  <33>/[10mNEWLINE MODE ENABLE-DISABLE TEST 10/<15><12>
2746  027337     033     133     062  RMANL:   .BYTE   33,133,62,60,154,0
2747  027345     033     133     062  SMANL:   .BYTE   33,133,62,60,150,0
2748        027354                              .EVEN
2749                                            .LIST BEX
2750  027354                                        ENDTST
 (3)  027354                                L10021:
 (3)  027354  104401                             TRAP    C$ETST
2751  027356                                    ENDMOD
2752
2753
2754
2755
2756
2757
2758
2759
2760
2761
2763                                        .SBTTL  POWER UP DEFAULT TEST
2764                                        ;MODULE PUD.P11
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2765  027356                          BGNMOD
2766
2767                          ;**
2768                          ;                    FUNCTIONAL DESCRIPTION
2769                          ;
2770                          ;       THIS TEST VERIFIES THE SPECIFIED POWER UP DEFAULT
2771                          ;       CONDITIONS OF THE LN01 ELECTRONIC PRINTER.
2772                          ;       THE TEST IS DIVIDED INTO 3 BASIC PARTS.
2773                          ;       ONE OF THE BASIC PARTS IS SUBDIVIDED INTO 2 SECTIONS.
2774                          ;       THE BASIC PARTS AND SECTIONS THEREOF ARE AS FOLLOWS:
2775                          ;
2776                          ;       PART 1-         HORIZONTAL TAB DEFAULT
2777                          ;       PART 2-         VERTICAL TAB DEFAULT SECTION 1
2778                          ;                       VERTICAL TAB DEFAULT SECTION 2
2779                          ;       PART 3-         DEFAULT MARGINS
2780                          ;
2781                          ;
2782                          ;
2783                          ;       PART 1-         HORIZONTAL TAB SECTION
2784                          ;       PART 1 TESTS THE HORIZONTAL TAB DEFAULTS BY MEASURING THE DISTANCE ,IN CHARACTER
2785                          ;       BETWEEN EACH TAB.  THE TEST FIRST DOES 18 TABS AND PRINTS A "T" AT EACH TAB STOP
2786                          ;       THE NEXT LINE PRINTS A SCALE BY WHICH TO MEASURE THE DISTANCE BETWEEN THE "T"s.
2787                          ;       THE SCALE IS A PRINTING OF THE NUMBERS 1 THRU 8 REPEATEDLY ACROSS THE PAGE.
2788                          ;       THE "T"S IN THE ROW ABOVE SHOULD LINE UP OVER THE "8"S FOR THE FIRST 16 TABS.
2789                          ;       THE FINAL 2 "T"S SHOULD BE SIDE BY SIDE BECAUSE OF EXCEEDING THE RIGHT MOST TAB
2790                          ;       AFTER SKIPPING TWO LINES, PART 1 CONTINUES ON BY PRINTING 3 DIAMOND SHAPED PATTE
2791                          ;       WHICH WILL THOROUGHLY EXERCISE THE TAB FUNCTION IN DEFAULT MODE.  ANY THING PRIN
2792                          ;       OUTSIDE THE DIAMONDS WILL CONSTITUTE AN ERROR.  ANYTHING THAT APPEARS OUT OF THE
2793                          ;       ORDINARY INSIDE THE DIAMONDS WILL ALSO CONSTITUTE AN ERROR.
2794                          ;
2795                          ;       PART 2-         VERTICAL TAB SECTION 1
2796                          ;       PART 2, SECTION 1 VERIFIES THAT THE DEFAULT VERTICAL TAB IS SET FOR ONE TAB
2797                          ;       TO MOVE THE DISTANCE EQUIVALENT TO THAT OF A LINE FEED.  THIS IS ACCOMPLISHED BY
2798                          ;       AFTER PRINTING THE SECTION ID ON LINE #1, DOING 65 VERTICAL TABS AND PRINTING
2799                          ;       THE SECTION ID FOR EACH ONE.  THE RESULT SHOULD BE 66 LINES OF THE SECTION ID.
2800                          ;       THE REASON WHY THIS WILL WORK DESPITE THE FACT THAT THE MACHINE ONLY CAN
2801                          ;       HANDLE A TOTAL OF 32 TAB STOPS IS BECAUSE WHEN YOU EXCEED THE LIMIT OF 32
2802                          ;       THE MACHINE IS SUPPOSED TO TREAT EVERY EXTRA VERTICAL TAB AS THOUGH IT WAS
2803                          ;       A LINE FEED CHARACTER.  SO, BECAUSE THE DEFAULT VERTICAL TAB IS EQUAL TO
2804                          ;       A LINE FEED IN DISTANCE, THE RESULT SHOULD BE THE SAME.  THIS IS ACTUALLY
2805                          ;       A GOOD WAY TO TEST THE DISTANCE OF THE DEFAULT TAB AS COMPARED TO THE
2806                          ;       NORMAL LINE FEED CHARACTER.
2807                          ;       THIS SECTION ALSO VERIFIES THAT WHEN A VERTICAL TAB IS SENT WHEN THE MACHINE
2808                          ;       IS ALREADY AT LINE 66 THE MACHINE WILL RESPOND BY BRINGING YOU TO THE TOP MARGIN
2809                          ;       ON THE FOLLOWING PAGE, WHICH IN DEFAULT CONDITION SHOULD BE LINE #1.  THIS SETS
2810                          ;       UP THE FOLLOWING SECTION TO BEGIN ON LINE #1.
2811                          ;
2812                          ;                       VERTICAL TAB SECTION 2
2813                          ;       PART 2, SECTION 2 VERIFIES THE USE OF MULTIPLE VERTICAL TABS.  THIS IS ACCOM-
2814                          ;       PLISHED BY ,FIRST, PRINTING THE SECTION ID ON LINE #1 AND, THEN, DOING 5
2815                          ;       VERTICAL TABS THEN PRINTING THE SECTION ID AGAIN.  THIS IS REPEATED 6 TIMES.
2816                          ;       THE RESULT IS THE SECTION ID BEING PRINTED ON EVERY 5TH LINE BEGINNING WITH
2817                          ;       LINE #6 AND ENDING WITH LINE #31 (TTOTAL OF 30 TAB STOPS).  HOWEVER, EACH
2818                          ;       SUCCESSIVE PRINTING OF THE ID WILL BEGIN IN THE COLUMN FOLLOWING THE COLUMN
2819                          ;       IN WHICH THE PREVIOUS ONE ENDED.  THIS WILL VERIFY THAT THE USE OF VERTICAL
2820                          ;       TABS DOES NOT CHANGE THE ACTIVE COLUMN.(in effect it does not perform a carriage
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2821                            ;       return automatically).
2822                            ;
2823                            ;       PART 3-         MARGIN SECTION
2824                            ;       THE MARGIN SECTION VERIFIES THAT THE TOP, BOTTOM, LEFT AND RIGHT MARGIN
2825                            ;       DEFAULT SETTINGS ARE AS SPECIFIED.  IT ACCOMPLISHES THIS BY IDENTIFYING
2826                            ;       LINE #1 AND PRINTING THE CORRECT DISTANCE THIS SHOULD BE FROM THE TOP
2827                            ;       EDGE OF THE PAGE FOR OPERATOR VERIFICATION.  THE FOLLOWING LINE(#2) WILL
2828                            ;       PRINT A MESSAGE WHICH IDENTIFIES THE CORRECT DISTANCE FROM THE LEFT
2829                            ;       EDGE OF THE PAGE THAT THE FIRST CHARACTER ON EACH OF THE FOLLOWING 63 LINES
2830                            ;       SHOULD BE PRINTED AS WELL AS IDENTIFYING THE CORRECT DISTANCE FROM THE
2831                            ;       LEFT EDGE THAT THE LAST CHARACTER OF THE FOLLOWING 63 LINES SHOULD BE PRINTED.
2832                            ;       THE SECTION CONCLUDES BY IDENTIFYING LINE #66 AND PRINTING THE CORRECT
2833                            ;       DISTANCE THAT THE LINE SHOULD BE FROM THE TOP EDGE OF THE PAPER.
2834                            ;--
2835
2836                            ;                                       GLOBALS REFERENCED
2837                            ;       REINIT.
2838
2839            000000          .REPT 0
2840                            BEGINROUTINE    POWER UP DEFAULT TEST
2841                            :       RESET THE PRINTER
2842                            :       SELECT SIZE UNIT AS DECIPOINTS
2843                            :       TOGGLE THE PAPER OFFSET
2844                            :       PRINT THE TEST ID
2845                            :                       "HORIZONTAL TAB DEFAULT SECTION"
2846                            :       PRINT SECTION ID
2847                            :       INCREMENT COUNT FROM #1 TO #18. BY #1
2848                            :               DO HORIZONTAL TAB
2849                            :               PRINT "T"                               ; 18 HOR. TABS AND A "T"
2850                            :       ENDINCREMENT
2851                            :       DO A LINE FEED
2852                            :       INCR COUNT FROM #1 TO #17. BY #1                ; PRINTS 1-8 17 TIMES AC
2853                            :       :       PRINT 1-8                               ; MEASURES DEFAULT TAB S
2854                            :       ENDINC
2855                            :       SKIP 2 LINES
2856                            :       INCREMENT FROM ONE TO THREE BY 1                ; REPEAT THREE TIMES
2857                            :       :       PRINT TOTAL PATTERN                     ; DIAMOND SHAPED PATTERN
2858                            :       ENDINCREMENT
2859                            :       DO FORM FEED                                    ; END OF HORIZONTAL SECT
2860                            :                       "VERTICAL DEFAULT TAB SECTION"
2861                            :                       "FIRST PAGE OF VERTICAL SECTION"
2862                            :       PRINT SECTION 1 ID                              ; PRINT ID ON LINE 1
2863                            :       INCR COUNT FROM #1 TO #65. BY #1                ; PRINT ID ON LINES 2 TH
2864                            :       :       DO VERTICAL TAB
2865                            :       :       PRINT SECTION ID
2866                            :       ENDINC
2867                            :       DO VERTICAL TAB                                 ; SHOULD BRING YOU TO TO
2868                            :                       "SECOND PAGE OF VERTICAL SECTION"
2869                            :       PRINT SECTION 2 ID                              ; PRINT SECTION ID ON LI
2870                            :       INCR COUNT FROM #1 TO #6. BY #1                 ; PRINT ID ON EVERY 5TH
2871                            :       :       OUTPUT 5 VERTICAL TABS                  ; FROM LINE 6 TO LINE 31
2872                            :       :       PRINT SECTION ID                        ; TESTS MULTIPLE VER. TA
2873                            :       ENDINC
2874                            :       DO FORM FEED
2875                            :                               "MARGIN SECTION"
2876                            :       PRINT SECTION ID AND TOP EDGE MESSAGE(TEM)      ; IDENTIFIES FIRST LINE
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2877                                    :       PRINT LEFT RIGHT MESSAGE(LFM)                   ; DEFINES LEFT AND RIGHT
2878                                    :       INCR COUNT FROM #1 TO #63. BY #1                ; REPEAT FOLLOWING 63. T
2879                                    :       :       PRINT FULL LINE OF "M"                  ; PRINT 132 "M"s
2880                                    :       :       DO LINE FEED
2881                                    :       ENDINCREMENT
2882                                    :       PRINT BOTTOM EDGE MESSAGE(BEM)                  ; IDENTIFY LINE 66 AS BO
2883                                    :       DO FORM FEED
2884                                    :
2885                                    ENDROUTINE
2886                                    .ENDR
2887
2888
2889
2890
2891
2892
2893
2894
2895
2896
2897  027356                                    BGNTST 11.
 (3)  027356                            T11::
2898
2899  027356                                    OUTPUT #REINIT,#2                               ;RESET PRINTER TO DEFAUL
2900  027420                                    OUTPUT #SELDEC,#5                               ; DECIPOINTS AS SIZE UNI
2901  027462                                    OUTPUT #DECFIN,#5                               ; TOGGLE THE OFFSET
2902  027524                                    OUTPUT #PUD,#31.                                ;PRINT TEST ID
2903  027566                                    LET OUTBUF :B= #11                              ;HORIZONTAL TAB
 (4)  027566  112737  000011  003114           MOVB    #11,OUTBUF
2904  027574                                    LET OUTBUF+1 :B= #12                            ;LINE FEED
 (4)  027574  112737  000012  003115           MOVB    #12,OUTBUF+1
2905  027602                                    LET OUTBUF+2 :B= #13                            ;VERTICAL TAB
 (4)  027602  112737  000013  003116           MOVB    #13,OUTBUF+2
2906  027610                                    LET OUTBUF+3 :B= #14                            ;FORMFEED
 (4)  027610  112737  000014  003117           MOVB    #14,OUTBUF+3
2907  027616                                    LET OUTBUF+4 :B= #15                            ;CARRIAGE RETURN
 (4)  027616  112737  000015  003120           MOVB    #15,OUTBUF+4
2908  027624                                    LET OUTBUF+5 :B= #115                           ;"M" CHARACTER
 (4)  027624  112737  000115  003121           MOVB    #115,OUTBUF+5
2909  027632                                    LET OUTBUF+6 :B= #115                           ;"M" CHARACTER
 (4)  027632  112737  000115  003122           MOVB    #115,OUTBUF+6
2910  027640                                    LET OUTBUF+7 :B= #124                           ;"T"      "
 (4)  027640  112737  000124  003123           MOVB    #124,OUTBUF+7
2911                                    ;                       "HORIZONTAL TAB DEFAULT SECTION"
2912  027646                                    OUTPUT #HORDEF,#32.
2913  027710                                    INCR COUNT FROM #1 TO #18. BY #1                ;DO 18 HOR TABS AND PRIN
 (5)  027710  012737  000001  002276           MOV     #1,COUNT
 (7)  027716  000402                           BR      50273$
 (6)  027720                            50274$:
 (10) 027720  005237  002276                   INC     COUNT
 (7)  027724                            50273$:
 (7)  027724  023727  002276  000022           CMP     COUNT,#18.
 (9)  027732  003043                           BGT     50275$
2914  027734                                            OUTPUT #OUTBUF,#1                       ;DO HOR TAB
2915  027776                                            OUTPUT #OUTBUF+7                        ;PRINT A "T
2916  030040                                    ENDINC
```

```
  (5)  030040  000727                          BR      50274$
  (4)  030042                            50275$:
2917   030042                                  OUTPUT #OUTBUF+1,#1                    ;DO A LINE FEED
2918   030104                                  INCR COUNT FROM #1 TO #17. BY #1       ;PRINT 1-8 17 TIMES ACRO
  (5)  030104  012737  000001  002276          MOV     #1,COUNT
  (7)  030112  000402                          BR      50276$
  (6)  030114                            50277$:
  (10) 030114  005237  002276                  INC     COUNT
  (7)  030120                            50276$:
  (7)  030120  023727  002276  000021          CMP     COUNT,#17.
  (9)  030126  003022                          BGT     50300$
2919   030130                                  OUTPUT #SCALE,#8.
2920   030172                                  ENDINC
  (5)  030172  000750                          BR      50277$
  (4)  030174                            50300$:
2921   030174                                  OUTPUT #OUTBUF+1,#1,,#3                ;DO A LINE FEED AND THEN
2922          000001                    $BRJMP=1
2923   030236                                  INCR LOOP FROM #1 TO #3 BY #1          ;REPEAT PATTERNS 1 AND 2
  (5)  030236  012737  000001  033350          MOV     #1,LOOP
  (7)  030244  000402                          BR      50302$
  (6)  030246                            50301$:
  (8)  030246  005237  033350                  INC     LOOP
  (6)  030252                            50302$:
  (7)  030252  023727  033350  000003          CMP     LOOP,#3
  (9)  030260  003402                          BLE     50303$
  (7)  030262  000137  031372                  JMP     50304$
  (6)  030266                            50303$:
2924   030266                                  LET WORK1 := #0                        ;USED DURING PATTERN GEN
  (4)  030266  005037  003112                  CLR     WORK1
2925   030272                                  DECR WORK FROM #8. TO #1 BY #1
  (5)  030272  012737  000010  003110          MOV     #8.,WORK
  (7)  030300  000402                          BR      50306$
  (6)  030302                            50305$:
  (8)  030302  005337  003110                  DEC     WORK
  (6)  030306                            50306$:
  (7)  030306  023727  003110  000001          CMP     WORK,#1
  (9)  030314  002002                          BGE     50307$
  (7)  030316  000137  030634                  JMP     50310$
  (6)  030322                            50307$:
2926   030322                                          OUTPUT #OUTBUF,#1,,WORK        ;DO CORRECT NUMBER OF TA
2927   030364                                          OUTPUT #OUTBUF+7,#1            ;PRINT A "T"
2928   030426                                          INCR COUNT FROM #1 TO WORK1 BY #1
  (5)  030426  012737  000001  002276          MOV     #1,COUNT
  (7)  030434  000402                          BR      50312$
  (6)  030436                            50311$:
  (8)  030436  005237  002276                  INC     COUNT
  (6)  030442                            50312$:
  (7)  030442  023737  002276  003112          CMP     COUNT,WORK1
  (9)  030450  003402                          BLE     50313$
  (7)  030452  000137  030564                  JMP     50314$
  (6)  030456                            50313$:
2929   030456                                                  OUTPUT #OUTBUF,#1,,#2  ;DO TWO HOR. TABS
2930   030520                                                  OUTPUT #OUTBUF+7,#1    ;PRINT A "T"
2931   030562                                          ENDINC
  (4)  030562  000725                          BR      50311$
  (4)  030564                            50314$:
```

```
2932  030564                                                  LET WORK1 := WORK1 + #1
 (7)  030564  005237  003112          INC     WORK1
2933  030570                                                  OUTPUT #OUTBUF+1,#1                     ;DO LINE FEED
2934  030632                                                  ENDDEC
 (4)  030632  000623          BR      50305$
 (4)  030634                  50310$:
2935  030634                                                  LET WORK1 := #6                         ;USED DURING PATTERN GEN
 (4)  030634  012737  000006  003112  MOV     #6,WORK1
2936  030642                                                  INCR WORK FROM #2 TO #7. BY #1          ;PATTERN GENERATION LOOP
 (5)  030642  012737  000002  003110  MOV     #2,WORK
 (7)  030650  000402          BR      50316$
 (6)  030652                  50315$:
 (8)  030652  005237  003110          INC     WORK
 (6)  030656                  50316$:
 (7)  030656  023727  003110  000007  CMP     WORK,#7.
 (9)  030664  003402          BLE     50317$
 (7)  030666  000137  031204          JMP     50320$
 (6)  030672                  50317$:
2937  030672                                                  OUTPUT #OUTBUF,#1,,WORK                 ;DO CORRECT NUMBER OF HO
2938  030734                                                  OUTPUT #CJTBUF+7,#1                     ;PRINT FIRST "T"
2939  030776                                                  INCR COUNT FROM #1 TO WORK1 BY #1
 (5)  030776  012737  000001  002276  MOV     #1,COUNT
 (7)  031004  000402          BR      50322$
 (6)  031006                  50321$:
 (8)  031006  005237  002276          INC     COUNT
 (6)  031012                  50322$:
 (7)  031012  023737  002276  003112  CMP     COUNT,WORK1
 (9)  031020  003402          BLE     50323$
 (7)  031022  000137  031134          JMP     50324$
 (6)  031026                  50323$:
2940  031026                                                  OUTPUT #OUTBUF,#1,,#2                   ;DO TWO HOR. TABS
2941  031070                                                  OUTPUT #OUTBUF+7,#1                     ;PRINT A "T"
2942  031132                                                  ENDINC
 (4)  031132  000725          BR      50321$
 (4)  031134                  50324$:
2943  031134                                                  OUTPUT #OUTBUF+1,#1                     ;DO A LINE FEED
2944  031176                                                  LET WORK1 := WORK1 - #1                 ;REGULATES PATTERN GENER
 (7)  031176  005337  003112          DEC     WORK1
2945  031202                                                  ENDINC                                  ;FIRST PATTERN COMPLETE
 (4)  031202  000623          BR      50315$
 (4)  031204                  50320$:
2946  031204                                                  IF LOOP EQ #3 THEN
 (6)  031204  023727  033350  000003  CMP     LOOP,#3
 (8)  031212  001402          BEQ     .+6
 (9)  031214  000137  031366          JMP     50325$
2947  031220                                                  OUTPUT #OUTBUF,#1,,#8.                  ;DO 8 TABS
2948  031262                                                  OUTPUT #OUTBUF+7,#1                     ;PRINT LAST "T" IN PATTE
2949  031324                                                  OUTPUT #OUTBUF+1,#1                     ;LINE FEED
2950  031366                                                  ENDIF
 (4)  031366                  50325$:
2951  031366                  ENDINC
 (4)  031366  000137  030246          JMP     50301$
 (4)  031372                  50304$:
2952        000000            $BRJMP=0
2953  031372                  OUTPUT #OUTBUF+3,#1                                                     ;DO FORM FEED
2954
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```
                                                ;                 "VERTICAL DEFAULT TAB SECTION" (FIRST PAGE)
      031434                                            OUTPUT #VERDEF,#31.                       ;VERTICAL SECTION 1 ID
      031476                                            INCR COUNT FROM #1 TO #65. BY #1          ;PRINT SECTION ID ON LIN
(5)   031476  012737  000001  002276                    MOV     #1,COUNT
(7)   031504  000402                                    BR      50327$
(6)   031506                                    50326$:
(8)   031506  005237  002276                            INC     COUNT
(6)   031512                                    50327$:
(7)   031512  023727  002276  000101                    CMP     COUNT,#65.
(9)   031520  003402                                    BLE     50330$
(7)   031522  000137  031634                            JMP     50331$
(6)   031526                                    50330$:
      031526                                                    OUTPUT #OUTBUF+2,#1               ;DO VERTICAL TAB
      031570                                                    OUTPUT #VERDEF,#31.               ;PRINT SECTION ID
      031632                                            ENDINC
(4)   031632  000725                                    BR      50326$
(4)   031634                                    50331$:
      031634                                            OUTPUT #OUTBUF+2,#1                       ;DO VERTICAL TO TOP OF N

                                                ;                 "VERTICAL DEFAULT TAB SECTION" (SECOND PAGE)

      031676                                            OUTPUT #VERDE2,#9.                        ; SECTION 2 ID
      031740                                            INCR COUNT FROM #1 TO #13. BY #1          ; PRINT ID ON EVERY 5TH
(5)   031740  012737  000001  002276                    MOV     #1,COUNT
(7)   031746  000402                                    BR      50333$
(6)   031750                                    50332$:
(8)   031750  005237  002276                            INC     COUNT
(6)   031754                                    50333$:
(7)   031754  023727  002276  000015                    CMP     COUNT,#13.
(9)   031762  003402                                    BLE     50334$
(7)   031764  000137  032076                            JMP     50335$
(6)   031770                                    50334$:
      031770                                                    OUTPUT #OUTBUF+2,#1,,#5.          ; DO 5 VERTICAL TABS
      032032                                                    OUTPUT #VERDE2,#9.                ; PRINT SECTION 2 ID
      032074                                            ENDINC
(4)   032074  000725                                    BR      50332$
(4)   032076                                    50335$:
      032076                                            OUTPUT #OUTBUF+3,#1                       ; DO FORM FEED AND END S

                                                ;                 "MARGIN SECTION"

      032140                                            OUTPUT #MARDEF,#102.                      ; SECTION ID PLUS TOP ED
      032202                                            OUTPUT #LFM,#113.                         ; IDENTIFIES LEFT AND RI
      032244                                            INCR COUNT FROM #1 TO #63. BY #1          ; REPEAT THE FOLLOWING 6
(5)   032244  012737  000001  002276                    MOV     #1,COUNT
(7)   032252  000402                                    BR      50337$
(6)   032254                                    50336$:
(8)   032254  005237  002276                            INC     COUNT
(6)   032260                                    50337$:
(7)   032260  023727  002276  000077                    CMP     COUNT,#63.
(9)   032266  003402                                    BLE     50340$
(7)   032270  000137  032406                            JMP     50341$
(6)   032274                                    50340$:
      032274                                                    OUTPUT #OUTBUF+5,#2,,#66.         ; PRINT FULL LINE OF "M"
      032336                                                    OUTPUT #OUTBUF+1,#1               ; DO LINE FEED
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2980  032400  004737  005306                        JSR PC, QUIET
2981  032404                              ENDINC
 (4)  032404  000723                      BR      50336$
 (4)  032406                        50341$:
2982  032406                              OUTPUT #BEM,#79.                    ; IDENTIFIES LINE 66 AS
2983  032450                              OUTPUT #OUTBUF+3,#1                 ; DO FORM AND END TEST
2984  032512  004737  005306              JSR PC, QUIET
2985  032516                              EXIT TST
 (3)  032516  104432                      TRAP    C$EXIT
 (3)  032520  000632                      .WORD   L10022-.
2986                                ;             LOCAL VARIABLES, MESSAGES, TABLES
2987
2988                                .NLIST BEX
2989  032522  055433  030061  050155  PUD:    .ASCIZ  <33>/[10mPOWER UP DEFAULT TEST 11/<12><12>
2990  032562  047510  044522  047532  HORDEF: .ASCII  /HORIZONTAL TAB DEFAULT SECTION/<12><12>          ;32 CHAR
2991  032622  042526  052122  041511  VERDEF: .ASCII  /VERTICAL DEFAULT TAB SECTION 1/<15>             ;32 CHAR
2992  032661     123  041505  044524  VERDE2: .ASCII  /SECTION 2/                                      ; 9 CHAR
2993  032672  042504  040506  046125  MARDEF: .ASCII  /DEFAULT MARGIN SECTION    /
2994  032724  044514  042516  021440  TEM:    .ASCII  /LINE #1___THIS LINE SHOULD BE APPROXIMATELY .4 INCH FROM TOP EDGE OF PA
2995  033040  044124  020105  047506  LFM:    .ASCII  /THE FOLLOWING 63 LINES SHOULD BEGIN APPROXIMATELY .66 INCH FROM THE LEF
2996  033221     114  047111  020105  BEM:    .ASCII  /LINE #66___THIS LINE SHOULD BE APPROXIMATELY 8.10 INCHES FROM TOP EDGE
2997  033340  031061  032063  033065  SCALE:  .ASCII  /12345678/                                      ;PROVIDE
2998                                .EVEN
2999                                .LIST BEX
3000  033350  000000                LOOP:   .WORD   0
3001  033352                              ENDTST
 (3)  033352                        L10022:
 (3)  033352  104401                      TRAP    C$ETST
3002
3003
3004
3005
3006
3007
3008
3009
3010
3011
3014  033354                              ENDMOD
3015                                .SBTTL  TABS TEST
3016                                ;MODULE TABS.P11
3017  033354                              BGNMOD
3018
3019                                ;++                   FUNCTIONAL DESCRIPTION
3020                                ;
3021                                ;       THE TABS TEST IS A COMPREHENSIVE TEST OF ALL HORIZONTAL AND VERTICAL
3022                                ; TAB FUNCTIONS ON THE LNO1 ELECTRONIC PRINTER.
3023                                ; IT TESTS THE HORIZONTAL AND VERTICAL SETTING AND CLEARING OF TABS AS WELL
3024                                ; AS THE ABILITY TO USE THE TAB FUNCTION ITSELF. IT ASSURES THAT ALL TABS
3025                                ; CAN BE SET OR CLEARED INDEPENDENT OF ONE ANOTHER.  IT ALSO ASSURES THAT
3026                                ; TABS CAN BE SET OR CLEARED REGARDLESS OF MARGIN SETTINGS.  IT FURTHER
3027                                ; ASSURES THAT A TOTAL OF 32 VERTICAL AND 32 HORIZONTAL TAB SETTINGS CAN
3028                                ; BE USED AND THAT IF ANY ARE SET OVER AND ABOVE THE 32 LIMIT THAT THE HIGHEST
3029                                ; ORDER SETTING WILL BE ELIMINATED IN FAVOR OF THE LOWER SETTING.
3030                                ;
3031                                ;       THE TEST ACCOMPLISHES THESE RESULTS BY DRAWING A RECTANGLE 6 1/2 INCHES
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3032                            ; IN HEIGHT AND 9 INCHES WIDE, WITH AN ASTERISK IN THE CENTER OF THE RECTANGLE
3033                            ; WHICH WILL ALSO BE THE CENTER OF THE PAGE.
3034                            ; THE RECTANGLE WILL BEGIN 1 INCH FROM THE TOP EDGE OF THE PAPER AND 1 INCH
3035                            ; FROM THE LEFT EDGE OF THE PAPER.  IT WILL END 1 INCH FROM THE BOTTOM EDGE
3036                            ; OF THE PAPER (7 1/2 INCHES FROM TOP EDGE OF PAPER) AND 1 INCH FROM THE RIGHT
3037                            ; EDGE OF THE PAPER (10 INCHES FROM THE LEFT EDGE OF PAPER).
3038                            ; THE EDGES OF THE RECTANGLE WILL BE IDENTIFIED BY ASTERISKS BEING PRINTED AT
3039                            ; FIXED INTERVALS.  THE INTERVALS WILL BE 1/2 INCH FOR BOTH HORIZONTAL AND
3040                            ; VERTICAL BOUNDARIES.  THE ONLY THING APPEARING INSIDE THE RECTANGLE WILL BE
3041                            ; THE ASTERISK PRINTED IN THE CENTER.  THE CENTER ASTERISK SHOULD BE LOCATED
3042                            ; 4 1/4 INCHES FROM THE TOP EDGE OF THE PAPER (NOT THE EDGE OF THE RECTANGLE)
3043                            ; AND 5 1/2 INCHES FROM THE LEFT EDGE OF THE PAPER (NOT THE LEFT EDGE OF THE
3044                            ; RECTANGLE).  THIS WILL PLACE THE CENTER OF THE ASTERISK AT THE CENTER OF THE
3045                            ; PAPER AS WELL AS THE CENTER OF THE RECTANGLE.
3046                            ;
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3048                            ;       ANY OTHER MARKINGS ON THE PAGE EXCEPT THE TEST ID WHICH WILL BE PRINTED
3049                            ;       ABOVE THE RECTANGLE WILL CONSTITUTE AN ERROR.
3050                            ;
3051                            ;       THE FOLLOWING IS A NON SCALE REPRESENTATION OF THE RECTANGLE'S APPEARANCE.
3052                            ;
3053                            ;       * * * * * * * * * * * * * * * * * * * * *
3054                            ;
3055                            ;       *                                       *
3056                            ;
3057                            ;       *                                       *
3058                            ;
3059                            ;       *                                       *
3060                            ;
3061                            ;       *                                       *
3062                            ;
3063                            ;       *                                       *
3064                            ;
3065                            ;       *                                       *
3066                            ;       *
3067                            ;       *                                       *
3068                            ;
3069                            ;       *                                       *
3070                            ;
3071                            ;       *                                       *
3072                            ;
3073                            ;       *                                       *
3074                            ;
3075                            ;       *                                       *
3076                            ;
3077                            ;       *                                       *
3078                            ;
3079                            ;       * * * * * * * * * * * * * * * * * * * * *
3080                            ;
3081                            ;--
3082
3083
3084
3085
3086
3087
3088
3089
3090
3091
3092
3093    000000                  .REPT 0
3094
3095                            ;                               GLOBALS REFERENCED
3096                            ;       REINIT,
3097
3098                            BEGIN ROUTINE
3099                            :       PRINT TEST ID
3100                            :       SEND RESET SEQUENCE
3101                            :       CLEAR ALL TABS
3102                            :       SET MARGINS                             ; TO TEST SETTING TABS OUTSIDE MARGINS
3103                            :       SET 16 VERTICAL TAB STOPS
```

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3104                                    :       SET 16 MORE VERTICAL TAB STOPS          ; CHECKS ABILITY TO SET INDEPENDENTLY
3105                                    :       SET EXTRA VERTICAL TAB STOP             ; CHECKS FOR ELIMINATION OF HIGHEST ORDE
3106                                    :       SET 16 HORIZONTAL TAB STOPS
3107                                    :       SET 16 MORE HORIZONTAL TAB STOPS        ; CHECKS ABILITY TO SET INDEPENDENTLY
3108                                    :       SET EXTRA HORIZONTAL TAB STOP           ; CHECKS FOR ELIMINATION OF HIGHEST ORDE
3109                                    :       SET MARGINS BACK TO DEFAULT SETTINGS    ; ALLOWS YOU TO USE ALL TAB STOPS
3110                                    :       PRINT TOP LINE OF RECTANGLE
3111                                    :       CLEAR ALL HORIZONTAL TABS               ; CHECKS ABILITY TO CLEAR HORIZONTAL TAB
3112                                    :       SET HORIZONTAL TABS                     ; 3 STOPS ONLY
3113                                    :       PRINT TOP SECTION OF RECTANGLE          ; STOP AT CENTER LINE
3114                                    :       PRINT CENTER LINE
3115                                    :       PRINT BOTTOM SECTION OF RECTANGLE       ; EXCEPT BOTTOM LINE
3116                                    :       SET HORIZONTAL TABS                     ; SET TABS FOR BOTTOM LINE (SAME AS TOP
3117                                    :       PRINT BOTTOM LINE OF RECTANGLE          ; RECTANGLE COMPLETE
3118                                    :       SEND RESET SEQUENCE                     ; RETURN TO DEFAULT SETTINGS
3119                                    :       DO FORM FEED
3120                                    END ROUTINE
3121                                    .ENDR
3122
3123
3124
3125
3126
3127
3128
3129
3130
3131
3132
3133
3134  033354                                    BGNTST  12.
 (3)  033354                            T12::
3135  033354                            LET OUTBUF :B= #13                              ; VERTICAL TAB CODE
 (4)  033354  112737  000013  003114             MOVB    #13,OUTBUF
3136  033362                            LET OUTBUF+1 :B= #13                            ;       "
 (4)  033362  112737  000013  003115             MOVB    #13,OUTBUF+1
3137  033370                            LET OUTBUF+2 :B= #14                            ; FORM FEED CODE
 (4)  033370  112737  000014  003116             MOVB    #14,OUTBUF+2
3138  033376                            LET OUTBUF+3 :B= #11                            ; CODE FOR HORIZONTAL TAB
 (4)  033376  112737  000011  003117             MOVB    #11,OUTBUF+3
3139  033404                            LET OUTBUF+4 :B= #11                            ;       "
 (4)  033404  112737  000011  003120             MOVB    #11,OUTBUF+4
3140  033412                            LET OUTBUF+5 :B= #52                            ; CODE FOR ASTERISK
 (4)  033412  112737  000052  003121             MOVB    #52,OUTBUF+5
3141  033420                            LET OUTBUF+6 :B= #15                            ; CARRIAGE RETURN
 (4)  033420  112737  000015  003122             MOVB    #15,OUTBUF+6
3142  033426                            OUTPUT #REINIT,#2
3143  033470                            OUTPUT #SELDEC,#5                               ; DECIPOINTS
3144  033532                            OUTPUT #TABTST,#20.                             ; TEST ID
3145  033574                            OUTPUT #CLRVER,#4                               ; CLEAR ALL VERTICAL TABS
3146  033636                            OUTPUT #CLRHOR,#4                               ; CLEAR ALL HORIZONTAL TABS
3147  033700                            OUTPUT #TBMAR1,#8.                              ; SET MARGINS TO TEST LN01 ABILI
3148  033742                            OUTPUT #LRMAR1,#12.                             ;       "
3149  034004                            OUTPUT #VERTB1,#82.                             ; SET FIRST 16 VERTICAL TAB STOP
3150  034046                            OUTPUT #VERTB2,#84.                             ; SET SECOND 16 VERTICAL TAB STO
3151  034110                            OUTPUT #XVER,#7                                 ; SET EXTRA VERTICAL STOP
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3152  034152                          OUTPUT #HORTB1,#82.                     ; SET FIRST 16 HORIZONTAL TAB ST
3153  034214                          OUTPUT #HORTB2,#84.                     ; SET SECOND 16 HORIZONTAL TAB S
3154  034256                          OUTPUT #XHOR,#7                         ; SET EXTRA HORIZONTAL STOP
3155  034320                          OUTPUT #DEFMR1,#8.                      ; SET DEFAULT TOP BOTTOM MARGINS
3156  034362                          OUTPUT #DEFMR2,#11.                     ; "     "    LEFT RIGHT     "
3157  034424                          OUTPUT #OUTBUF,#1                       ; MOVE VERTICALLY TO TOP LINE (O
3158  034466                          OUTPUT #OUTBUF+6,#1                     ; CARRIAGE RETURN
3159  034530                          OUTPUT #OUTBUF+4,#2                     ; DO HORIZONTAL TAB AND PRINT AS
3160  034572                          INCR COUNT FROM #1 TO #13. BY #1        ; PRINT TOP LINE OF ASTERISKS
 (5)  034572  012737  000001  002276          MOV     #1,COUNT
 (7)  034600  000402                          BR      50343$
 (6)  034602                      50342$:
 (8)  034602  005237  002276              INC     COUNT
 (6)  034606                      50343$:
 (7)  034606  023727  002276  000015          CMP     COUNT,#13.
 (9)  034614  003402                          BLE     50344$
 (7)  034616  000137  034666                  JMP     50345$
 (6)  034622                      50344$:
3161  034622                              OUTPUT #OUTBUF+3,#3                 ; TWO HOR TABS AND AN ASTERISK
3162  034664                          ENDINC
 (4)  034664  000746                        BR      50342$
 (4)  034666                      50345$:
3163  034666                          INCR COUNT FROM #1 TO #5 BY #1          ; PRINT REST OF TOP LINE OF ASTE
 (5)  034666  012737  000001  002276          MOV     #1,COUNT
 (7)  034674  000402                          BR      50347$
 (6)  034676                      50346$:
 (8)  034676  005237  002276              INC     COUNT
 (6)  034702                      50347$:
 (7)  034702  023727  002276  000005          CMP     COUNT,#5
 (9)  034710  003402                          BLE     50350$
 (7)  034712  000137  034762                  JMP     50351$
 (6)  034716                      50350$:
3164  034716                              OUTPUT #OUTBUF+4,#2                 ; ONE HOR TAB AND AN ASTERISK
3165  034760                          ENDINC
 (4)  034760  000746                        BR      50346$
 (4)  034762                      50351$:
3166  034762                          OUTPUT #OUTBUF+6,#1                     ; DO CARRIAGE RETURN
3167  035024                          OUTPUT #CLRHOR,#4                       ; CLEAR HORIZONTAL TABS
3168  035066                          OUTPUT #STOPS3,#16.                     ; SET THREE HORIZONTAL TAB STOPS
3169  035130                          INCR COUNT FROM #1 TO #6 BY #1          ; PRINT TOP SECTION OF RECTANGLE
 (5)  035130  012737  000001  002276          MOV     #1,COUNT
 (7)  035136  000402                          BR      50353$
 (6)  035140                      50352$:
 (8)  035140  005237  002276              INC     COUNT
 (6)  035144                      50353$:
 (7)  035144  023727  002276  000006          CMP     COUNT,#6
 (9)  035152  003402                          BLE     50354$
 (7)  035154  000137  035266                  JMP     50355$
 (6)  035160                      50354$:
3170  035160                              OUTPUT #OUTBUF,#2                   ; DO TWO VERTICAL TABS
3171  035222                              OUTPUT #TOPSEC,#6                   ; DO THREE TABS AND PRINT 2 ASTE
3172  035264                          ENDINCR
 (4)  035264  000725                        BR      50352$
 (4)  035266                      50355$:
3173  035266                          OUTPUT #OUTBUF,#1                       ; MOVE VERTICALLY TO CENTER LINE
3174  035330                          OUTPUT #MIDSEC,#4                       ; DO TWO TABS AND 1 ASTERISK (CE
```

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3175  035372                          OUTPUT #OUTBUF,#1                 ; MOVE VERTICALLY TO NEXT PRINTA
3176  035434                          OUTPUT #BOTSEC,#6                 ; FIRST LINE OF BOTTOM SECTION
3177  035476                          INCR COUNT FROM #1 TO #5 BY #1    ; PRINT REST OF BOTTOM SECTION (
 (5)  035476  012737  000001  002276          MOV     #1,COUNT
 (7)  035504  000402                          BR      50357$
 (6)  035506                          50356$:
 (8)  035506  005237  002276                  INC     COUNT
 (6)  035512                          50357$:
 (7)  035512  023727  002276  000005          CMP     COUNT,#5
 (9)  035520  003402                          BLE     50360$
 (7)  035522  000137  035634                  JMP     50361$
 (6)  035526                          50360$:
3178  035526                                  OUTPUT #OUTBUF,#2         ; DO TWO VERTICAL TABS
3179  035570                                  OUTPUT #BOTSEC,#6         ; THREE TABS, TWO ASTERISKS AND
3180  035632                          ENDINC
 (4)  035632  000725                          BR      50356$
 (4)  035634                          50361$:
3181  035634                          OUTPUT #OUTBUF,#1,,#7             ; MOVE VERTICALLY TO BOTTOM LINE
3182  035676                          OUTPUT #HORTB1,#82.               ; SET FIRST 16 HORIZONTAL TAB ST
3183  035740                          OUTPUT #HORTB2,#84.               ; SET SECOND 16 HORIZONTAL TAB S
3184  036002                          OUTPUT #XHOR,#7                   ; SET EXTRA HORIZONTAL STOP
3185  036044                          OUTPUT #OUTBUF+4,#2               ; DO HORIZONTAL TAB AND PRINT AS
3186  036106                          INCR COUNT FROM #1 TO #13. BY #1  ; PRINT BOTTOM LINE OF ASTERISKS
 (5)  036106  012737  000001  002276          MOV     #1,COUNT
 (7)  036114  000402                          BR      50363$
 (6)  036116                          50362$:
 (8)  036116  005237  002276                  INC     COUNT
 (6)  036122                          50363$:
 (7)  036122  023727  002276  000015          CMP     COUNT,#13.
 (9)  036130  003402                          BLE     50364$
 (7)  036132  000137  036202                  JMP     50365$
 (6)  036136                          50364$:
3187  036136                                  OUTPUT #OUTBUF+3,#3       ; TWO HOR TABS AND AN ASTERISK
3188  036200                          ENDINC
 (4)  036200  000746                          BR      50362$
 (4)  036202                          50365$:
3189  036202                          INCR COUNT FROM #1 TO #5 BY #1    ; PRINT REST OF BOTTOM LINE OF A
 (5)  036202  012737  000001  002276          MOV     #1,COUNT
 (7)  036210  000402                          BR      50367$
 (6)  036212                          50366$:
 (8)  036212  005237  002276                  INC     COUNT
 (6)  036216                          50367$:
 (7)  036216  023727  002276  000005          CMP     COUNT,#5
 (9)  036224  003402                          BLE     50370$
 (7)  036226  000137  036276                  JMP     50371$
 (6)  036232                          50370$:
3190  036232                                  OUTPUT #OUTBUF+4,#2       ; ONE HOR TAB AND AN ASTERISK
3191  036274                          ENDINC
 (4)  036274  000746                          BR      50366$
 (4)  036276                          50371$:
3192  036276                          OUTPUT #OUTBUF+6,#1               ; DO CARRIAGE RETURN
3193  036340                          OUTPUT #DECFIN,#5                 ; TOGGLE THE OFFSET
3194  036402                          OUTPUT #OUTBUF+2,#1               ; FORM FEED
3195  036444                          OUTPUT #REINIT,#2                 ; RESET DEFAULT CONDITIONS
3196  036506                          OUTPUT #SELDEC,#5                 ; DECIPOINTS
3197  036550  004737  005306          JSR PC,QUIET                      ; GUARANTEE THE FORM FEED
```

```
3198
3199
3200
3201  036554                                  EXIT TST
 (3)  036554  104432                         TRAP    C$EXIT
 (3)  036556  000700                         .WORD   L10023-.
3202
3203                                  ;                          LOCAL VARIABLES, MESSAGES AND DATA TABLES
3204
3205                                  .NLIST BEX
3206  036560  006412  055433  030061  TABTST: .ASCII  <12><15><33>/[10mTABS TEST 12/<15>
3207  036604     033     133     064  CLRVER: .BYTE   33,133,64,147
3208  036610     033     133     063  CLRHOR: .BYTE   33,133,63,147
3209  036614     033     133     073  TBMAR1: .BYTE   33,133,73,63,66,60,60,162                                  ; SET BO
3210  036624     033     133     063  LRMAR1: .BYTE   33,133,63,66,60,60,73,64,63,62,60,163
3211  036640     033     133     067  VERTB1: .BYTE   33,133,67,62,60,73,71,60,60,73,61,60,70,60,73,61,62,66,60,73
3212  036664     061     064     064          .BYTE   61,64,64,60,73,61,66,62,60,73,61,70,60,60,73,61,71,70,60,166
3213  036710     033     133     062          .BYTE   33,133,62,61,66,60,73,62,63,64,60,73,62,65,62,60,73,62,67,60,60
3214  036735     073     062     070          .BYTE   73,62,70,70,60,73,63,60,66,60,73,63,62,64,60,73,63,64,62,60,166
3215  036762     033     133     063  VERTB2: .BYTE   33,133,63,66,60,60,73,63,67,70,60,73,63,71,66,60,73,64,61,64,60,73
3216  037010     064     063     062          .BYTE   64,63,62,60,73,64,65,60,60,73,64,66,70,60,73,64,70,66,60,166
3217  037034     033     133     065          .BYTE   33,133,65,60,64,60,73,65,61,65,60,73,65,62,60,60,73,65,62,65,60,73
3218  037062     065     063     060          .BYTE   65,63,60,60,73,65,63,65,60,73,65,64,60,60,73,65,67,66,60,166
3219  037106     033     133     065  XVER:   .BYTE   33,133,65,62,62,65,166
3220  037115     033     133     067  HORTB1: .BYTE   33,133,67,62,60,73,71,60,60,73,61,60,70,60,73,61,62,66,60,73
3221  037141     061     064     064          .BYTE   61,64,64,60,73,61,66,62,60,73,61,70,60,60,73,61,71,70,60,165
3222  037165     033     133     062          .BYTE   33,133,62,61,66,60,73,62,63,64,60,73,62,65,62,60,73,62,67,60,60
3223  037212     073     062     070          .BYTE   73,62,70,70,60,73,63,60,66,60,73,63,62,64,60,73,63,64,62,60,165
3224  037237     033     133     063  HORTB2: .BYTE   33,133,63,66,60,60,73,63,67,70,60,73,63,71,66,60,73,64,61,64,60,73
3225  037265     064     063     062          .BYTE   64,63,62,60,73,64,65,60,60,73,64,66,70,60,73,64,70,66,60,165
3226  037311     033     133     065          .BYTE   33,133,65,60,64,60,73,65,62,62,60,73,65,67,66,60,73,66,61,62,60,73
3227  037337     066     064     070          .BYTE   66,64,70,60,73,66,70,64,60,73,67,62,60,60,73,67,63,70,60,165
3228  037363     033     133     065  XHOR:   .BYTE   33,133,65,64,60,60,165
3229  037372     033     133     073  DEFMR1: .BYTE   33,133,73,65,70,63,62,162                                  ; DEFAUL
3230  037402     033     133     064  DEFMR2: .BYTE   33,133,64,67,65,73,67,64,64,65,163
3231  037415     033     133     067  STOPS3: .BYTE   33,133,67,62,60,73,63,71,66,60,73,67,62,60,60,165
3232  037435     011     052     011  TOPSEC: .BYTE   11,52,11,11,52,12                                          ; LINE USED FOR TOP SECT
3233  037443     011     011     052  MIDSEC: .BYTE   11,11,52,12
3234  037447     011     052     011  BOTSEC: .BYTE   11,52,11,11,52,12                                          ; LINE USED FOR BOTTOM S
3235          037456                  .EVEN
3236                                  .LIST BEX
3237  037456                                  ENDTST
 (3)  037456                          L10023:
 (3)  037456  104401                         TRAP    C$ETST
3238
3239  037460                                  ENDMOD
3240                                  .SBTTL  MARGINS TEST
3241                                  ;MODULE TSTMAR.P11
3242
3243  037460                                  BGNMOD
3244
3245                                  ;++
3246                                  ;
3247                                  ;                                  FUNCTIONAL DESCRIPTION
3248                                  ;
3249                                  ;       THE MARGINS TEST IS DESIGNED TO TEST ALL STATED FUNCTIONS OF BOTH TOP AND
```

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                                ;       BOTTOM MARGIN ESCAPE SEQUENCES AND LEFT AND RIGHT MARGIN SEQUENCES.  IT
                                ;       WILL VERIFY THE ABILITY TO SET MARGINS TO THE DESIRED PARAMETERS AND ALSO
                                ;       WILL VERIFY THAT THE PRINTER WILL RESPOND BY OPERATING WITHIN THE MARGINS
                                ;       SPECIFIED EXCEPT UNDER SPECIFIED CIRCUMSTANCES, SUCH AS WHEN USING THE DRAW
                                ;       RULE COMMAND.
                                ;       THE FUNCTIONS STATED IN THE LN01 FUNCTIONAL SPECIFICATION ARE AS FOLLOWS:
                                ;               1:      SET TOP AND BOTTOM MARGINS
                                ;                       A: SET BOTH TOP AND BOTTOM MARGINS
                                ;                       B: SET TOP AND DO NOT CHANGE BOTTOM
                                ;                       C: SET BOTTOM AND DO NOT CHANGE TOP
                                ;                       D: BOTH PARAMETERS LEFT OUT CAUSES NO CHANGE IN MARGINS
                                ;                       E: BOTH PARAMETERS EQUAL TO ZERO CAUSES NO CHANGE IN MAR
                                ;                       F: REPOSITIONING ACTIVE LINE WHEN CURRENT ACTIVE LINE IS
                                ;                       G: ESCAPE SEQUENCES IGNORED IF PARAMETERS DO NOT CONFORM
                                ;
                                ;               2:      SET LEFT AND RIGHT MARGINS
                                ;                       A: SET BOTH LEFT AND RIGHT MARGINS
                                ;                       B: SET LEFT AND DO NOT CHANGE RIGHT
                                ;                       C: SET RIGHT AND DO NOT CHANGE LEFT
                                ;                       D: BOTH PARAMETERS LEFT OUT CAUSES NO CHANGE IN MARGINS
                                ;                       E: BOTH PARAMETERS EQUAL TO ZERO CAUSES NO CHANGE IN MAR
                                ;                       F: REPOSITIONING OF ACTIVE COLUMN TO EQUAL NEW LEFT MARG
                                ;                       G: ESCAPE SEQUENCES IGNORED IF PARAMETERS DO NOT CONFORM
                                ;
                                ;               3:      SET PHYSICAL LINES PER PAGE
                                ;                       A: SETTING PHYSICAL LINES PER PAGE CHANGES TOP MARGIN TO
                                ;                       B: SETTING PHYSICAL LINES PER PAGE CHANGES BOTTOM MARGIN
                                ;--
                                ;               GLOBALS REFERENCED:
                                ;       REINIT.COUNT
000000                          .REPT   0


                                        "STEP BY STEP BREAKDOWN OF EACH SECTION OF THE TEST"


                                BEGIN ROUTINE
                                :                                       LEFT RIGHT MARGIN SECTION
                                :
                                :       SELECT SIZE UNIT AS DECIPOINTS
                                :       TOGGLE PAPER OFFSET
                                :       PRINT TEST ID
                                :       SKIP A LINE
                                :       PRINT REFERENCE LINE OF "M"S                            ; FROM ONE INCH TO TENTH
                                :       DO A LINE FEED
                                :       REPEAT 7 TIMES
                                :       :       SET LRMARGINS AT "A" AND "B"                    ; "A" STARTS AT "1" (INC
                                :       :       OUTPUT 100 ASTERISKS                            ; ONLY 13 SHOULD BE PRIN
                                :       :       DO A LINE FEED
                                :       :       ADD 1 TO "A" AND TO "B"                         ; MOVES MARGINS ONE INCH
                                :       END REPEAT
                                :       LET R3 EQUAL ATBL                                       ; 1ST TABLE OF SEQUENCES
                                :       LET R4 EQUAL APTBL                                      ; TABLE OF BYTE COUNTS F
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```
3306                    :       WHILE (R3) NE #0 DO                                     ; DO FOR ALL ENTRIES IN
3307                    :       :       OUTPUT (R3)+,(R4)+                              ; OUTPUT THE ENTRY
3308                    :       ENDDO
3309                    :       LET R3 EQUAL BTBL                                       ; 2ND TABLE OF SEQS AND
3310                    :       LET R4 EQUAL BPTBL                                      ;       "       BYTE COUN
3311                    :       WHILE (R3) NE TO #0 DO                                  ; DO FOR ALL ENTRIES
3312                    :       :       OUTPUT (R3)+,(R4)+                              ; OUTPUT ENTRY
3313                    :       ENDDO
3314                    :       SET LEFT AND RIGHT MARGIN TO 1 AND 10 INCHES RESPECTIVELY
3315                    :       DO A LINE FEED
3316                    :       PRINT LINE OF ASTERISKS
3317                    :       DO A LINE FEED
3318                    :       LET R3 EQUAL IGTBL                                      ; TABLE OF IGNORED SEQUE
3319                    :       LET R4 EQUAL IGTBLP                                     ; BYTE COUNTS
3320                    :       WHILE (R3) NE #0 DO                                     ; DO FOR EACH ENTRY
3321                    :       :       OUTPUT (R3)+,(R4)+                              ; OUTPUT THE ENTRY
3322                    :       :       DO CARRIAGE RETURN
3323                    :       :       PRINT LINE OF ASTERISKS
3324                    :       :       DO A LINE FEED
3325                    :       ENDDO
3326                    :       DO A LINE FEED
3327                    :
3328                    :                               TOP BOTTOM MARGIN SECTION
3329                    :
3330                    :       LET R3 EQUAL CTBL                                       ; TABLE OF SEQUENCES AND
3331                    :       LET R4 EQUAL CPTBL                                      ; BYTE COUNTS
3332                    :       WHILE (R3) NE #0 DO                                     ; DO ALL ENTRIES
3333                    :       :       OUTPUT (R3)+,(R4)+                              ; OUTPUT THE ENTRY
3334                    :       ENDDO
3335                    :       LET R3 EQUAL DTBL                                       ; MORE TOP BOTTOM SEQS A
3336                    :       LET R4 EQUAL DPTBL                                      ; TABLE OF BYTE COUNTS
3337                    :       WHILE (R3) NE #0 DO                                     ; DO FOR ALL ENTRIES
3338                    :       :       OUTPUT (R3)+,(R4)+                              ; OUTPUT THE ENTRY
3339                    :       ENDDO
3340                    :
3341                    :                               PHYSICAL LINES PER PAGE SECTION
3342                    :
3343                    :       SET PHYSICAL LINES PER PAGE TO 8 INCHES
3344                    :       DO FORM FEED
3345                    :       INCREMENT COUNT FROM 1 TO 69 BY 1
3346                    :       :       PRINT PLP MESSAGE
3347                    :       :       DO LINE FEED
3348                    :       END INCREMENT
3349                    :       PRINT END OF SECTION MESSAGE
3350                    :
3351                    :                               IGNORED SEQUENCE SECTION
3352                    :
3353                    :       SET TOP AND BOTTOM MARGINS AT 1 AND 7 INCHES
3354                    :       DO FORM FEED
3355                    :       LET R3 EQUAL IGNTBL                                     ; IGNORED SEQUENCE TABLE
3356                    :       LET R4 EQUAL IGNTBP                                     ; BYTE COUNTS
3357                    :       WHILE (R3) NE #0 DO                                     ; DO FOR ALL ENTRIES
3358                    :       :       OUTPUT (R3)+,(R4)+                              ; OUTPUT THE ENTRY
3359                    :       ENDDO
3360                    :       INCREMENT COUNT FROM 1 TO 52 BY 1
3361                    :       :       OUTPUT IGNORED SECTION MESSAGE
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                                        :       END INCREMENT
                                        :       OUTPUT END OF SECTION MESSAGE
                                        :       OUTPUT END OF TEST MESSAGE
                                        :       DO A FORM FEED
                                        :       DO RESET                        ; RETURN TO ALL DEFAULT
                                        :       SELECT SIZE UNIT AS DECIPOINTS
                                        :       EXIT TEST
                                        END ROUTINE
                                        .ENDR
                                        ;               SOURCE CODE IN SPMACJ
3388  037460                                    BGNTST  13.
 (3)  037460                            T13::
3389
3390  037460                            LET OUTBUF :B= #11                      ; CODE FOR HOR. TAB
 (4)  037460  112737  000011  003114          MOVB    #11,OUTBUF
3391  037466                            LET OUTBUF+1 :B= #115                   ; UPPER CASE "M"
 (4)  037466  112737  000115  003115          MOVB    #115,OUTBUF+1
3392  037474                            LET OUTBUF+2 :B= #12                    ; LINE FEED
 (4)  037474  112737  000012  003116          MOVB    #12,OUTBUF+2
3393  037502                            LET OUTBUF+3 :B= #15                    ; CARRIAGE RETURN
 (4)  037502  112737  000015  003117          MOVB    #15,OUTBUF+3
3394  037510                            LET OUTBUF+4 :B= #13                    ; VERTICAL TAB
 (4)  037510  112737  000013  003120          MOVB    #13,OUTBUF+4
3395  037516                            LET OUTBUF+5 :B= #14                    ; FORM FEED
 (4)  037516  112737  000014  003121          MOVB    #14,OUTBUF+5
3396  037524                            LET OUTBUF+6 :B= #73                    ; SEMI COLON FOR SEPARAT
 (4)  037524  112737  000073  003122          MOVB    #73,OUTBUF+6
3397  037532                            LET OUTBUF+7 :B= #52                    ; CODE FOR ASTERISK
 (4)  037532  112737  000052  003123          MOVB    #52,OUTBUF+7
3398  037540                            LET OUTBUF+10 :B= #40                   ; SPACE
 (4)  037540  112737  000040  003124          MOVB    #40,OUTBUF+10
3399  037546                            LET OUTBUF+11 :B= #77                   ; QUESTION MARK CHARACTE
 (4)  037546  112737  000077  003125          MOVB    #77,OUTBUF+11
3400  037554                            LET OUTBUF+12 :B= #137                  ; UNDERLINE      "
 (4)  037554  112737  000137  003126          MOVB    #137,OUTBUF+12
3401  037562                            LET OUTBUF+13 :B= #41                   ; EXCLAMATION    "
 (4)  037562  112737  000041  003127          MOVB    #41,OUTBUF+13
3402  037570                            LET OUTBUF+14 :B= #53                   ; PLUS SIGN      "
 (4)  037570  112737  000053  003130          MOVB    #53,OUTBUF+14
3403  037576                            LET OUTBUF+15 :B= #75                   ; EQUAL          "
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 (4)  037576  112737  000075  003131          MOVB    #75,OUTBUF+15
3404  037604                          LET OUTBUF+16 :B= #133                  ; LEFT SQUARE BRACKET
 (4)  037604  112737  000133  003132          MOVB    #133,OUTBUF+16
3405  037612                          LET OUTBUF+17 :B= #135                  ; RIGHT  "      "
 (4)  037612  112737  000135  003133          MOVB    #135,OUTBUF+17
3406
3407                                ;                   LEFT RIGHT MARGIN SECTION
3408  037620                        OUTPUT #REINIT,#2
3409  037662                        OUTPUT #SELDEC,#5                       ; DECIPOINTS
3410  037724                        OUTPUT #DECFIN,#5                       ; TOGGLE PAPER OFFSET
3411  037766                        OUTPUT #TSTMRA,#30.                     ; TEST ID ON LINE 1 (DEF
3412  040030                        OUTPUT #TABMS,#48.                      ; CLEAR DEFAULT TABS THE
3413  040072                        INCR COUNT FROM #1 TO #8. BY #1         ; DO TEN TIMES
 (5)  040072  012737  000001  002276          MOV     #1,COUNT
 (7)  040100  000402                          BR      50373$
 (6)  040102                        50372$:
 (8)  040102  005237  002276                  INC     COUNT
 (6)  040106                        50373$:
 (7)  040106  023727  002276  000010          CMP     COUNT,#8.
 (9)  040114  003402                          BLE     50374$
 (7)  040116  000137  040230                  JMP     50375$
 (6)  040122                        50374$:
3414  040122                                OUTPUT #OUTBUF,#1                 ; DO A HORIZONTAL TAB
3415  040164                                OUTPUT #OUTBUF+1,#1               ; PRINT AN "M"
3416  040226                        ENDINC                                    ; REFERENCE LINE OF "M"S
 (4)  040226  000725                          BR      50372$
 (4)  040230                        50375$:
3417  040230                        OUTPUT #OUTBUF+2,#1                     ; DO LINE FEED
3418  040272                        LET R3 := #PARTBL                       ; SETUP R3 AS INDEX TO T
 (4)  040272  012703  044140                  MOV     #PARTBL,R3
3419  040276                        WHILE (R3) NE #0 DO                     ; DO FOR EACH ENTRY IN T
 (4)  040276                        50376$:
 (6)  040276  005713                          TST     (R3)
 (8)  040300  001002                          BNE     .+6
 (9)  040302  000137  040454                  JMP     50377$
3420  040306                                OUTPUT (R3)+,#12.
3421  040346                                OUTPUT #OUTBUF+7,#1,,#100.        ; TRY AND PRINT 100 ASTE
3422                                                                          ; THE LEFT AND RIGHT MAR
3423  040410                                OUTPUT #OUTBUF+2,#1               ; DO A LINE FEED
3424  040452                        ENDDO
 (3)  040452  000711                          BR      50376$
 (3)  040454                        50377$:
3425  040454                        LET R3 := #ATBL                         ; FIRST TABLE OF SEQUENC
 (4)  040454  012703  044160                  MOV     #ATBL,R3
3426  040460                        LET R4 := #APTBL                        ; FIRST TABLE OF BYTE CO
 (4)  040460  012704  044254                  MOV     #APTBL,R4
3427  040464                        WHILE (R3) NE #0 DO
 (4)  040464                        50400$:
 (6)  040464  005713                          TST     (R3)
 (8)  040466  001002                          BNE     .+6
 (9)  040470  000137  040534                  JMP     50401$
3428  040474                                OUTPUT (R3)+,(R4)+              ; DO FOR ALL ENTRIES
3429  040532                        ENDDO
 (3)  040532  000754                          BR      50400$
 (3)  040534                        50401$:
3430  040534  004737  005306        JSR PC,QUIET
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3431  040540                        LET R3 := @BTBL
 (4)  040540  012703  044346                MOV     @BTBL,R3
3432  040544                        LET R4 := @BPTBL
 (4)  040544  012704  044422                MOV     @BPTBL,R4
3433  040550                        WHILE (R3) NE #0 DO                    ; DO FOR EACH ENTRY IN T
 (4)  040550                        50402$:
 (6)  040550  005713                        TST     (R3)
 (8)  040552  001002                        BNE     .+6
 (9)  040554  000137  040620                JMP     50403$
3434  040560                                OUTPUT (R3)+,(R4)+             ; OUTPUT THE ENTRY
3435  040616                        ENDDO
 (3)  040616  000754                        BR      50402$
 (3)  040620                        50403$:
3436  040620  004737  005306        JSR PC,QUIET
3437  040624                        OUTPUT #ONETEN,#12.                    ; SETS LRMAR TO 1 AND 10
3438  040666                        OUTPUT #OUTBUF+2,#1                    ; LINE FEED
3439  040730                        OUTPUT #OUTBUF+7,#1,,#150.             ; PRINT ASTERISKS ACROSS
3440  040772                        OUTPUT #OUTBUF+2,#1                    ; LINE FEED
3441  041034                        LET R3 := #IGTBL                       ; TABLE OF IGNORE SEQS
 (4)  041034  012703  044474                MOV     #IGTBL,R3
3442  041040                        LET R4 := #IGTBLP                      ;       "  PARAMETERS
 (4)  041040  012704  044514                MOV     #IGTBLP,R4
3443  041044                        WHILE (R3) NE #0 DO                    ; DO FOR EACH ENTRY
 (4)  041044                        50404$:
 (6)  041044  005713                        TST     (R3)
 (8)  041046  001002                        BNE     .+6
 (9)  041050  000137  041320                JMP     50405$
3444  041054                                OUTPUT (R3)+,(R4)+             ; OUTPUT THE ENTRY
3445  041112                                OUTPUT #OUTBUF+3,#1            ; CARRIAGE RETURN
3446  041154                                INCR COUNT FROM #1 TO #150. BY #1
 (5)  041154  012737  000001  002276        MOV     #1,COUNT
 (7)  041162  000402                        BR      50407$
 (6)  041164                        50406$:
 (8)  041164  005237  002276                INC     COUNT
 (6)  041170                        50407$:
 (7)  041170  023727  002276  000226        CMP     COUNT,#150.
 (9)  041176  003402                        BLE     50410$
 (7)  041200  000137  041250                JMP     50411$
 (6)  041204                        50410$:
3447  041204                                OUTPUT #OUTBUF+7,#1                    ; PRINT ACROSS PAGE
3448  041246                                ENDINC
 (4)  041246  000746                        BR      50406$
 (4)  041250                        50411$:
3449  041250  004737  005306                JSR PC, QUIET
3450  041254                                OUTPUT #OUTBUF+2,#1                    ; LINE FEED
3451  041316                        ENDDO
 (3)  041316  000652                        BR      50404$
 (3)  041320                        50405$:
3452  041320                        LET R3 := #CTBL
 (4)  041320  012703  044554                MOV     #CTBL,R3
3453  041324                        LET R4 := #CPTBL
 (4)  041324  012704  044646                MOV     #CPTBL,R4
3454  041330                        WHILE (R3) NE #0 DO                    ; DO FOR EACH ENTRY IN T
 (4)  041330                        50412$:
 (6)  041330  005713                        TST     (R3)
 (8)  041332  001002                        BNE     .+6
```

```
 (9)  041334  000137  041400              JMP     50413$
3455  041340                              OUTPUT (R3)+,(R4)+                    ; ALL ENTRIES HANDLED NO
3456  041376                          ENDDO
 (3)  041376  000754                      BR      50412$
 (3)  041400                          50413$:
3457  041400  004737  005306          JSR PC,QUIET
3458  041404                          LET R3 := @DTBL
 (4)  041404  012703  044740              MOV     @DTBL,R3
3459  041410                          LET R4 := @DPTBL
 (4)  041410  012704  045010              MOV     @DPTBL,R4
3460  041414                          WHILE (R3) NE @0 DO                       ; DO FOR EACH ENTRY IN 4
 (4)  041414                          50414$:
 (6)  041414  005713                      TST     (R3)
 (8)  041416  001002                      BNE     .+6
 (9)  041420  000137  041464              JMP     50415$
3461  041424                              OUTPUT (R3)+,(R4)+                    ; ALL ENTRIES HANDLED NO
3462  041462                          ENDDO
 (3)  041462  000754                      BR      50414$
 (3)  041464                          50415$:
3463
3464                                  ;                   PHYSICAL LINES PER PAGE SECTION
3465
3466  041464                          OUTPUT @PLP8,@7                           ; PLP SEQUENCE TO 8 INCHES
3467  041526                          OUTPUT @OUTBUF+5,@1                       ; FORM FEED
3468  041570                          OUTPUT @PLP,@32...@69.                    ; PLP MESSAGE 69 TIMES
3469  041632  004737  005306          JSR PC, QUIET
3470  041636                          OUTPUT @EOPLP,@60.                        ; END OF PLP SECTION MESSAGE
3471
3472                                  ;                   IGNORE SEQUENCE SECTION
3473
3474  041700                          OUTPUT @ONESVN,@12.                       ; SET TBMAR AT ONE AND SEVEN
3475  041742                          OUTPUT @OUTBUF+5,@1                       ; FORM FEED
3476  042004                          LET R3 := @IGNTBL                         ; TABLE OF IGNOR SEQUENCES
 (4)  042004  012703  044532              MOV     @IGNTBL,R3
3477  042010                          LET R4 := @IGNTBP
 (4)  042010  012704  044544              MOV     @IGNTBP,R4
3478  042014                          WHILE (R3) NE @0 DO
 (4)  042014                          50416$:
 (6)  042014  005713                      TST     (R3)
 (8)  042016  001002                      BNE     .+6
 (9)  042020  000137  042126              JMP     50417$
3479  042024                              OUTPUT (R3)+,(R4)+                    ; SEND IGNORE SEQ
3480  042062                              OUTPUT @ENDTBM,@1                     ; FINAL CHAR FOR TBMAR
3481  042124                          ENDDO
 (3)  042124  000733                      BR      50416$
 (3)  042126                          50417$:
3482  042126  004737  005306          JSR PC, QUIET
3483  042132                          INCR COUNT FROM @1 TO @52. BY @1
 (5)  042132  012737  000001  002276      MOV     @1,COUNT
 (7)  042140  000402                      BR      50421$
 (6)  042142                          50420$:
 (8)  042142  005237  002276              INC     COUNT
 (6)  042146                          50421$:
 (7)  042146  023727  002276  000064      CMP     COUNT,@52.
 (9)  042154  003402                      BLE     50422$
 (7)  042156  000137  042226              JMP     50423$
```

```
 (6)  042162                          50422$:
3484  042162                                OUTPUT #IGSEC,#25.                    ; SECTION MESSAGE
3485  042224                          ENDINC
 (4)  042224  000746                        BR      50420$
 (4)  042226                          50423$:
3486  042226  004737  005306          JSR PC, QUIET
3487  042232                          OUTPUT #EOIGN,#73.                        ; END OF IGNORE SECTION
3488  042274                          OUTPUT #ENDTS,#12.                        ; END OF TEST MESSAGE
3489  042336                          OUTPUT #OUTBUF+5,#1                       ; FORM FEED
3490  042400                          OUTPUT #REINIT,#2
3491  042442                          OUTPUT #SELDEC,#5                         ; DECIPOINTS
3492  042504  004737  005306          JSR PC, QUIET
3493  042510                                EXIT TST
 (3)  042510  104432                        TRAP    C$EXIT
 (3)  042512  002360                        .WORD   L10024-.
3494
3495                                  ;               LOCAL VARIABLES, TABLES, MESSAGES
3496
3497                                  .NLIST BEX
3498  042514  055433  030061  046555  TSTMRA: .ASCII  <33>/[10mMARGINS TEST 13  PAGE 1/<12><12>                ; TEST I
3499  042552  044124  051511  051440  TSTMRB: .ASCII  /THIS SHOULD BE AT APPROX. 1 INCH MARK OF SECOND PAGE/
3500  042636  044120  051531  041511  PLP:    .ASCII  /PHYSICAL LINES PER PAGE SECTION/<12>
3501  042676  044124  051511  051440  EOPLP:  .ASCII  /THIS SHOULD BE 2ND LINE OF 2ND PAGE AND END OF PLP SECTION./<12>
3502  042772  044124  051511  051440  EOIGN:  .ASCII  /THIS SHOULD BE 2ND LINE OF 2ND PAGE AND END OF IGNORED SEQUENCE SECTION
3503  043103     111  047107  051117  IGSEC:  .ASCII  /IGNORED SEQUENCE SECTION/<12>
3504  043134     033     133     062  PLP3:   .BYTE   33,133,62,61,66,60,164
3505  043143     033     133     063  PLP5:   .BYTE   33,133,63,66,60,60,164
3506  043152     033     133     065  PLP8:   .BYTE   33,133,65,67,66,60,164
3507  043161     033     133     066  PLP9:   .BYTE   33,133,66,64,70,60,164
3508  043170     033     133     063  CLRTAB: .BYTE   33,133,63,147                                              ; CLEAR
3509  043174     033     133     063  TABMS:  .BYTE   33,133,63,147,33,133,61,64,64,60,73,62,61,66,60,73      ; CLEARS HTABS A
3510  043214     062     070     070          .BYTE   62,70,70,60,73,63,66,60,60,73,64,63,62,60,73,65,60,64,60,165
3511  043240     033     133     065          .BYTE   33,133,65,67,66,60,73,66,64,70,60,165
3512  043254     033     133          BGNSEQ: .BYTE   33,133                                                    ; BEGINS
3513  043256     033     133     060  PARAM1: .BYTE   33,133,60,67,62,60,73,61,64,64,60,163                     ; LEFT =
3514  043272     033     133     061  PARAM2: .BYTE   33,133,61,64,64,60,73,62,61,66,60,163                     ;
3515  043306     033     133     062  PARAM3: .BYTE   33,133,62,61,66,60,73,62,70,70,60,163                     ;
3516  043322     033     133     062  PARAM4: .BYTE   33,133,62,70,70,60,73,63,66,60,60,163                     ;
3517  043336     033     133     063  PARAM5: .BYTE   33,133,63,66,60,60,73,64,63,62,60,163                     ;
3518  043352     033     133     064  PARAM6: .BYTE   33,133,64,63,62,60,73,65,60,64,60,163                     ;
3519  043366     033     133     065  PARAM7: .BYTE   33,133,65,60,64,60,73,65,67,66,60,163                     ;
3520  043402     033     133     065  PARAM8: .BYTE   33,133,65,67,66,60,73,66,64,70,60,163                     ;
3521  043416     033     133     066  PARAM9: .BYTE   33,133,66,64,70,60,73,67,62,60,60,163                     ;
3522  043432     033     133     067  PRAM10: .BYTE   33,133,67,62,60,60,73,67,65,66,60,163                     ;
3523  043446     033     133     067  PARM10: .BYTE   33,133,67,62,60,60                                        ; 10  IN
3524  043454     033     133     061  PAR2:   .BYTE   33,133,61,64,64,60,73,62,61,66,60,163                     ;
3525  043470     033     133     062  PAR3:   .BYTE   33,133,62,61,66,60,73,63,66,60,60,163                     ;
3526  043504     033     133     063  PAR5:   .BYTE   33,133,63,66,60,60,73,66,64,70,60,163                     ;
3527  043520     033     133     060  ONETEN: .BYTE   33,133,60,67,62,60,73,67,62,60,60,163
3528  043534     033     133     060  ONESVN: .BYTE   33,133,60,67,62,60,73,65,60,64,60,162
3529  043550     033     133     073  EXRMAR: .BYTE   33,133,73,61,60,70,60,60,163                            ; SETS R
3530  043561     073          MIDSEQ: .BYTE   73                                                               ; SEMI C
3531  043562     163          ENDLRM: .BYTE   163                                                              ; FINAL
3532  043563     162          ENDTBM: .BYTE   162                                                              ; FINAL
3533  043564     165          ENDMT:  .BYTE   165                                                              ; FINAL
3534  043565     141          ENDMR:  .BYTE   141                                                              ; FINAL
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G8


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      043566      140                     ENDHAB:  .BYTE   140                                                     ; FINAL
      043567      144                     ENDVAB:  .BYTE   144                                                     ; FINAL
      043570      164                     ENDPLP:  .BYTE   164                                                     ; FINAL
      043571      033     133     163     IGNOR1:  .BYTE   33,133,163,33,133,73,163,33,133,60,73,60,163            ; THESE SEQUENCE
      043606      033     133     163     IGNORA:  .BYTE   33,133,163
      043611      033     133     073     IGNORB:  .BYTE   33,133,73,163
      043615      033     133     060     IGNORC:  .BYTE   33,133,60,73,60,163
      043623      033     133     065     IGNOR2:  .BYTE   33,133,65,60,64,60,73,64,63,62,60                       ; SETS M
      043636      033     133     061     DRULE1:  .BYTE   33,133,61,73,61,62,67,65,73,63,60,60,73,62,67,60,60,73,63,65,41,174
                                                                                                                   ; AND 1
      043664      033     133     060     DRULE2:  .BYTE   33,133,60,73,61,62,67,65,73,61,66,65,60,73,61,62,60,60,73,63,65,41,174
                                                                                                                   ; INCHES
      043713      033     133     073     DEFMAR:  .BYTE   33,133,73,65,70,63,62,162,33,133,64,67,65,73,67,64,64,65,163  ; SEQ TO
      043736   047524  020120  040515     TOPMAR:  .ASCII  /TOP MARGIN. INCHES FROM THE TOP SHOULD EQUAL APPROX. /
      044023      102  052117  047524     BOTMAR:  .ASCII  /BOTTOM MARGIN. INCHES FROM THE TOP SHOULD EQUAL APPROX. /
      044113      105  042116  047440     ENDTS:   .ASCII  /END OF TEST/<12>
      044127      066  031061  032463     TOPNUM:  .ASCII  /612357/                                                ; TABLE
      044135      067     070             BOTNUM:  .ASCII  /78/                                                    ;   "
               044140                     .EVEN
      044140   043272  043306  043322     PARTBL:  .WORD   PARAM2,PARAM3,PARAM4,PARAM5,PARAM6,PARAM7,PARAM8,0      ; TABLE OF PARAM
      044160   043272  003124  043256     ATBL:    .WORD   PARAM2,OUTBUF+10,PARAM1,ENDHAB,OUTBUF+7,PARAM3,ENDHAB,OUTBUF+12,OUTBUF+2
      044202   043306  003123  043272              .WORD   PARAM3,OUTBUF+7,PARAM2,ENDHR,OUTBUF+12,OUTBUF+2,PARAM4,OUTBUF+7,PARAM5,E
      044232   043336  043366  043566              .WORD   PARAM5,PARAM7,ENDHAB,OUTBUF+14,PARAM5,ENDHAB,OUTBUF+7,OUTBUF+2,0
      044254   000014  000001  000006     APTBL:   .WORD   12.,1,6,1,1,6,1,1,1,12.,1,6,1,1,1,12.,1,6               ; FIRST TABLE OF
      044320   000001  000001  000001              .WORD   1,1,1,12.,6,1,1,6,1,1,1
      044346   043352  003123  003116     BTBL:    .WORD   PARAM6,OUTBUF+7,OUTBUF+2,PARAM7,OUTBUF+7,PARM10,ENDHAB  ; 2ND TABLE OF S
      044364   003123  043366  003123              .WORD   OUTBUF+7,PARAM7,OUTBUF+7,OUTBUF+2,PARAM8,OUTBUF+7,OUTBUF+2,PARAM9,OUTBUF
      044410   043336  004036  043636              .WORD   PARAM5,SELPIX,DRULE1,SELDEC,0
      044422   000014  000001  000001     BPTBL:   .WORD   12.,1,1,12.,1,6,1,1,12.,1,1,12.,1,1,12.,1,1,12.,5,22.,5   ; 2ND TA
      044474   043520  043606  043520     IGTBL:   .WORD   ONETEN,IGNORA,ONETEN,IGNORB,ONETEN,EXRMAR,ONETEN,0      ; IGNORE
      044514   000014  000003  000014     IGTBLP:  .WORD   12.,3,12.,4,12.,9.,12.
      044532   043606  043611  043615     IGNTBL:  .WORD   IGNORA,IGNORB,IGNORC,EXRMAR,0
      044544   000002  000003  000005     IGNTBP:  .WORD   2,3,5,8.                                                ; BYTE C
      044554   043713  043352  043563     CTBL:    .WORD   DEFMAR,PARAM6,ENDTBM,BGNSEQ,MIDSEQ,PARAM6+7,ENDTBM,TOPMAR,TOPNUM
      044576   003117  004036  043664              .WORD   OUTBUF+3,SELPIX,DRULE2,SELDEC,PARAM1,ENDTBM,PARAM7,ENDVAB,BOTMAR,BOTNUM
      044622   003116  042552  003116              .WORD   OUTBUF+2,TSTMRB,OUTBUF+2,DEFMAR,PARAM2,ENDTBM
      044636   043736  044131  003116              .WORD   TOPMAR,TOPNUM+2,OUTBUF+2,0
      044646   000023  000006  000001     CPTBL:   .WORD   19.,6,1,2,1,4,1,53.,1,1,5,23.,5,6,1,6,1,56.,1,1,52.,1,8.,6
      044726   000001  000065  000001              .WORD   1,53.,1,1,0
      044740   043306  043563  043736     DTBL:    .WORD   PARAM3,ENDTBM,TOPMAR,TOPNUM+3,OUTBUF+2,PARAM5,ENDTBM,TOPMAR   ; 4TH TA
      044760   044133  003116  043366              .WORD   TOPNUM+4,OUTBUF+2,PARAM7,ENDTBM,TOPMAR,TOPNUM+5,OUTBUF+2
      044776   043402  043567  044023              .WORD   PARAM8,ENDVAB,BOTMAR,BOTNUM+1,0
      045010   000006  000001  000065     DPTBL:   .WORD   6,1,53.,1,1,6,1,53.,1,1,6,1,53.,1,1,6,1,56.,1,0
      045060   043134  043143  043152     PLPTBL:  .WORD   PLP3,PLP5,PLP8,PLP9,0
                                          .EVEN
                                          .LIST BEX
      045072                                       ENDTST
 (3)  045072                              L10024:
 (3)  045072   104401                              TRAP    C$ETST
      045074                                       ENDMOD
```

```
3589
3590
3591
3592
3594                                    .SBTTL  AUTO-UNDERLINE-MODE TEST
3595                                            ;MODULE NAME: UNDLIN.P11 6/20/82
3596  045074                                    BGNMOD
3597
3598                                    ;               GLOBALS REFERENCED
3599                                    ;       REINIT,ACRLF
3600
3601                                    ;**
3602                                    ; THIS VERSION OF THE AUTO-UNDERLINE TEST HAS BEEN ALTERED FOR USE IN LNO1 DIAGNOSTIC.
3603                                    ; THE ORIGINAL VERSION WAS WRITTEN FOR HARD COPY TERMINALS USING SERIAL INTERFACE(DZ11)
3604                                    ; THE ORIGINAL VERSION STILL EXISTS IN THE TML LIBRARY AND IS CALLED AUTUND.NEW.
3605                                    ; THE LNO1 DIAGNOSTIC HAS DRIVERS FOR A PARALLEL INTERFACE(LP11,M7258).
3606                                    ; THIS TEST IS DESIGNED TO EXERCISE THE LNO1'S AUTO-UNDERLINING CAPABILITY.
3607                                    ; MESSAGES ARE PRINTED WITH UNDERLINING AND WITHOUT.
3608                                    ;--
3609            000000                  .REPT 0
3610
3611                                    BEGINTEST
3612
3613                                            :   SEND "OFF" ESCAPE SEQUENCE (CLRUND)
3614                                            :   PRINT "AUTO UNDERLINE MODE TEST" (UNDTTL)
3615                                            :   SKIP TWO LINES ((ACRLF)X2)
3616                                            :   PRINT "THIS MESSAGE SHOULD NOT BE UNDERLINED" (NOTUND)
3617
3618
3619                                            :   SEND "ON" ESCAPE SEQUENCE (UNDON)
3620                                            :   PRINT "THIS MESSAGE SHOULD BE UNDERLINED" (UNDMSG)
3621                                            :   PRINT CHARACTER SET (ATHRUZ)
3622
3623
3624                                        :   PRINT "TABS:    "               (TABS)
3625                                        :   CLR TABS
3626                                        :   SET TABS
3627                                        :   INCREMENT COUNT FROM 1 TO 8 BY 1
3628                                        :   :    DO A TAB
3629                                        :   :   PRINT A "T"
3630                                        :   ENDINCREMENT
3631                                        :   SKIP 2 LINES
3632
3633
3634                                        :   PRINT "SPACES:    "             (SPACES)
3635                                        :   PRINT A "S"
3636                                        :   INCREMENT COUNT FROM 1 TO 14 BY 1
3637                                        :   :   SEND A SPACE "COUNT" TIMES
3638                                        :   :   PRINT A "S"
3639                                        :   ENDINCREMENT
3640
3641
3642                                        :   SEND UNDERLINE OF UNDERLINE-CHARACTER MESSAGE (UNDUND)
3643                                        :   PRINT A LINE OF '_'
3644                                        :   SKIP 2 LINES (ACRLF X 2)
3645
```

```
                                                      ;       INCREMENT COUNT FROM 1 TO 16 BY 1    ; NOTE: CURRENT CODE ONLY DOES 11 DUE TO
                                                      ;       :    TURN ON UNDERLINE
                                                      ;       :    PRINT "ON" AND A SPACE
                                                      ;       :    TURN OFF UNDERLINE
                                                      ;       :    PRINT "OFF" AND A SPACE
                                                      ;       END INCREMENT
                                                      ;       SKIP 2 LINES

                                                      ;       SEND "OFF" ESCAPE SEQUENCE (CLRUND)
                                                      ;       PRINT "THIS MESSAGE SHOULD NOT BE UNDERLINED" (NOTUND)
                                                      ;       DO A RESET OF PRINTER DEFAULT CONDITIONS
                                                      ;       DO A FORM FEED

                                              ENDTEST
                                              .ENDR

     045074                                           BGNTST 14.
(3)  045074                                   T14::
     045074                                           LET OUTBUF :B= #11                       ; HOR TAB CODE
(4)  045074  112737  000011  003114                   MOVB    #11,OUTBUF
     045102                                           LET OUTBUF+1 :B= #12                     ; LINE FEED CODE
(4)  045102  112737  000012  003115                   MOVB    #12,OUTBUF+1
     045110                                           LET OUTBUF+2 :B= #14                     ; FORM FEED CODE
(4)  045110  112737  000014  003116                   MOVB    #14,OUTBUF+2
     045116                                           LET OUTBUF+3 :B= #15                     ; CARRIAGE RETURN CODE
(4)  045116  112737  000015  003117                   MOVB    #15,OUTBUF+3
     045124                                           LET OUTBUF+4 :B= #40                     ; SPACE CODE
(4)  045124  112737  000040  003120                   MOVB    #40,OUTBUF+4
     045132                                           LET OUTBUF+5 :B= #123                    ; UPPER CASE "S" CODE
(4)  045132  112737  000123  003121                   MOVB    #123,OUTBUF+5
     045140                                           LET OUTBUF+6 :B= #124                    ; "T" CODE
(4)  045140  112737  000124  003122                   MOVB    #124,OUTBUF+6
     045146                                           LET OUTBUF+7 :B= #137                    ; UNDERLINE (_) CODE
(4)  045146  112737  000137  003123                   MOVB    #137,OUTBUF+7
     045154                                           OUTPUT #REINIT,#2
     045216                                           OUTPUT #SELDEC,#5                        ; DECIPOINTS
     045260                                           OUTPUT #UNDON,#4                         ; SEQUENCE TO TURN UNDERLINE ON
     045322                                           OUTPUT #NOUND,#5                         ;    "       "       "     OFF
     045364                                           OUTPUT #UNDTTL,#36.                      ; TEST ID
     045426                                           OUTPUT #NOTUND,#40.                      ; MESSAGE SAYING "NOT UNDERLINED
                                                      ;
     045470                                           OUTPUT #UNDON,#4                         ; SEQ TURNING UNDERLINE ON
     045532                                           OUTPUT #UNDMSG,#60.                      ; MESSAGE SAYING "UNDERLINED"
     045574                                           OUTPUT #ATHRUZ,#29.
                                                      ;
```

```
3693  045636                                   OUTPUT #TABS,#7                  ;SEND TABS MESSAGE
3694  045700                                   OUTPUT #NOTAB,#4                 ;CLR ALL TABS
3695  045742                                   OUTPUT #STTAB,#41.               ;SET TABS AT 1,1 1/2,2,3,4,5,7,1
3696  046004                                   INCR WORK FROM #1 TO #8. BY #1
 (5)  046004  012737  000001  003110           MOV     #1,WORK
 (7)  046012  000402                           BR      50425$
 (6)  046014                         50424$:
 (8)  046014  005237  003110                   INC     WORK
 (6)  046020                         50425$:
 (7)  046020  023727  003110  000010           CMP     WORK,#8.
 (9)  046026  003402                           BLE     50426$
 (7)  046030  000137  046142                   JMP     50427$
 (6)  046034                         50426$:
3697  046034                                           OUTPUT #OUTBUF,#1        ;DO TAB
3698  046076                                           OUTPUT #OUTBUF+6,#1      ; "T"
3699  046140                                   ENDINCR                          ;DO FOR ALL TAB SETTINGS
 (4)  046140  000725                           BR      50424$
 (4)  046142                         50427$:
3700  046142                                   OUTPUT #NOTAB,#4                 ;CLR TABS
3701  046204                                   OUTPUT #ACRLF,#2                 ; CR, LF
3702  046246                                   OUTPUT #ACRLF,#2                 ; CR, LF
3703                                           ;
3704  046310                                   OUTPUT #SPACES,#9.               ;SEND SPACE MESSAGE
3705  046352                                   OUTPUT #OUTBUF+5,#1              ;SEND "S"
3706  046414                                   INCR WORK FROM #1 TO #14. BY #1
 (5)  046414  012737  000001  003110           MOV     #1,WORK
 (7)  046422  000402                           BR      50431$
 (6)  046424                         50430$:
 (8)  046424  005237  003110                   INC     WORK
 (6)  046430                         50431$:
 (7)  046430  023727  003110  000016           CMP     WORK,#14.
 (9)  046436  003402                           BLE     50432$
 (7)  046440  000137  046556                   JMP     50433$
 (6)  046444                         50432$:
3707  046444                                           OUTPUT #OUTBUF+4,#1,,WORK ;SEND SPACE WORK TIMES
3708  046506  004737  005306                           JSR PC,QUIET
3709  046512                                           OUTPUT #OUTBUF+5,#1      ;SEND "S"
3710  046554                                   ENDINCR
 (4)  046554  000723                           BR      50430$
 (4)  046556                         50433$:
3711  046556                                   OUTPUT #ACRLF,#2                 ; CR, LF
3712  046620                                   OUTPUT #ACRLF,#2                 ; CR, LF
3713                                           ;
3714  046662                                   OUTPUT #UNDUND,#36.              ;UNDERLINE THE UNDERLINE MESSAGE
3715  046724                                   INCR COUNT FROM #1 TO #132. BY #1 ; DO IT 132 TIMES
 (5)  046724  012737  000001  002276           MOV     #1,COUNT
 (7)  046732  000402                           BR      50435$
 (6)  046734                         50434$:
 (8)  046734  005237  002276                   INC     COUNT
 (6)  046740                         50435$:
 (7)  046740  023727  002276  000204           CMP     COUNT,#132.
 (9)  046746  003402                           BLE     50436$
 (7)  046750  000137  047020                   JMP     50437$
 (6)  046754                         50436$:
3716  046754                                           OUTPUT #OUTBUF+7,#1      ; UNDERLINE  CHARACTER
3717  047016                                   ENDINC
```

```
(4)  047016  000746                        BR      50434$
(4)  047020                          50437$:
3718 047020  004737  005306                JSR PC,QUIET
3719 047024                                OUTPUT #ACRLF,#2
3720 047066                                OUTPUT #ACRLF,#2
3721 047130                                INCR COUNT FROM #1 TO #11. BY #1                ;. NOTE: THIS SHOULD BE 16 BUT M
(5)  047130  012737  000001  002276        MOV     #1,COUNT
(7)  047136  000402                        BR      50441$
(6)  047140                          50440$:
(8)  047140  005237  002276                INC     COUNT
(6)  047144                          50441$:
(7)  047144  023727  002276  000013        CMP     COUNT,#11.
(9)  047152  003402                        BLE     50442$
(7)  047154  000137  047372                JMP     50443$
(6)  047160                          50442$:
3722 047160                                OUTPUT #UNDON,#4                        ; TURN ON UNDERLINE
3723 047222                                OUTPUT #OUN,#3                          ; PRINT ON AND A SPACE
3724 047264                                OUTPUT #CLRUND,#4                       ; TURN OFF UNDERLINE
3725 047326                                OUTPUT #FUN,#4                  ; PRINT OFF AND A SPACE
3726 047370                                ENDINC
(4)  047370  000663                        BR      50440$
(4)  047372                          50443$:
3727 047372                                OUTPUT #ACRLF,#2
3728 047434                                OUTPUT #ACRLF,#2
3729                                       ;
3730 047476                                OUTPUT #CLRUND,#4                       ; UNDERLINE MODE OFF
3731 047540                                OUTPUT #NOTUND,#40.                     ; NOT UNDERLINED MSG
3732 047602                                OUTPUT #OUTBUF+2,#1                     ; DO FORM FEED
3733 047644                                OUTPUT #REINIT,#2                       ; RESET DEFAULT CONDITIONS
3734 047706                                OUTPUT #SELDEC,#5                       ; DECIPOINTS
3735 047750  004737  005306                JSR PC, QUIET                           ; WAIT TILL DONE
3736 047754                                EXIT    TST
(3)  047754  104432                        TRAP    C$EXIT
(3)  047756  000442                        .WORD   L10025-.
3737
3738                                 .NLIST BEX
3739 047760     033     133     060  CLRUND: .BYTE   33,133,60,155                          ;ESC [ 0 m
3740 047764     033     133     064  UNDON:  .BYTE   33,133,64,155                          ;ESC [ 4 m
3741 047770     033     133     062  NOUND:  .BYTE   33,133,62,64,155                       ;ESC [ 2 4 m
3742 047775     033     133     067  STTAB:  .BYTE   33,133,67,62,60,73,61,60,70,60,73,61,64,64,60,73,62,61,66,60,73,62,70,70
3743 050027     063     066     060          .BYTE   63,66,60,60,73,65,60,64,60,73,67,62,60,60,165   ;SET TABS AT 1,1 1/2,2,3
3744 050046     033     133     063  NOTAB:  .BYTE   33,133,63,147                          ; CLEAR ALL HOR TABS
3745 050052  055433  030061  040555  UNDTTL: .ASCIZ  <33>/[10mAUTO-UNDERLINE-MODE TEST 14/<15><12><12><12>
3746 050117     124  044510  020123  NOTUND: .ASCIZ  /THIS MESSAGE SHOULD NOT BE UNDERLINED./<15><12>
3747 050170  044124  051511  046440  UNDMSG: .ASCII  /THIS MESSAGE SHOULD BE UNDERLINED /
3748 050232  047111  040440  052125          .ASCIZ  /IN AUTO-UNDERLINE MODE./<15><12><12>
3749 050265     125  042116  051105  UNDUND: .ASCIZ  /UNDERLINE OF UNDERLINE-CHARACTERS:/<15><12>
3750 050332  050123  041501  051505  SPACES: .ASCIZ  /SPACES:/<12><15>
3751 050344  040524  051502  006472  TABS:   .ASCIZ  /TABS:/<15><12>
3752 050354  041101  042103  043105  ATHRUZ: .ASCII  /ABCDEFGHIJKLMNOPQRSTUVWXYZ/<15><12><12>        ; 29 CHARACTERS
3753 050411     117  020116          OUN:    .ASCII  /ON /
3754 050414  043117  020106          FUN:    .ASCII  /OFF /
3755
3756                                       .EVEN
3757                                 .LIST BEX
3758
```

```
 3759  050420                                  ENDTST
  (3)  050420                            L10025:
  (3)  050420  104401                           TRAP    C$ETST
 3760  050422                                  ENDMOD
 3761
 3762
 3763
 3764
 3765
 3766
 3767
 3768
 3769
 3770
 3772                                  .SBTTL  PARTIAL LINE UP/DOWN TEST
 3773                                  ; MODULE NAME: NEWPLU.P11
 3774
 3775  050422                                  BGNMOD
 3776
 3777                                  ;**
 3778                                  ;
 3779                                  ; THIS TEST IS AN ADAPTATION OF THE PARTIAL LINE UP, PARTIAL LINE DOWN
 3780                                  ; TEST USED ON HARDCOPY TERMINALS.  THE ORIGINAL VERSION OF THIS TEST
 3781                                  ; IS DESIGNED FOR USE ON TERMINALS USING THE DZ11 SERIAL INTERFACE.
 3782                                  ; THE ORIGINAL IS CALLED PTLINE.P11, AND, IS LOCATED IN THE TML LIBRARY
 3783                                  ; ON THE MILL20 DEVELOPMENT SYSTEM IN A SUBDIRECTORY CALLED TML.TESTS.
 3784                                  ; THIS COPY, WHICH HAS BEEN NAMED PLUP.P11, IS FOR USE ON THE LN01
 3785                                  ; ELECTRONIC PRINTER ONLY. IT IS DESIGNED FOR USE ON PRINTERS USING THE
 3786                                  ; LP11 (M7258) INTERFACE. A COPY OF PLUP.P11 IS LOCATED ON MILL20 <TML.G>
 3787                                  ; THIS TEST WILL EXERCISE THE TERMINALS CAPABILITY TO EXECUTE
 3788                                  ; THE ANSI PARTIAL LINE UP AND PARTIAL LINE DOWN ESCAPE SEQUENCES.
 3789                                  ; OTHER THINGS TESTED INCLUDE THE MACHINES ABILITY TO PERFORM MULTIPLE
 3790                                  ; PLU, PLD FUNCTIONS ON ONE LINE, AND, THE STATED FACT THAT USING THE
 3791                                  ; PLU, PLD FUNCTIONS TAKES UP ONE LINE SPACE APIECE IN THE LN01'S PAGE
 3792                                  ; BUFFER.
 3793                                  ;
 3794                                  ;--
 3795
 3796  000000                          .REPT 0
 3797                                  BGN PTLINE TEST
 3798                                  :   SKIP 3 LINES
 3799                                  :   PRINT THE TEST ID
 3800                                  :   SKIP 3 MORE LINES
 3801                                  :   INCREMENT WORK FROM 1 TO 9 BY 1
 3802                                  :   :   DO FOR COUNT = 5 DOWN TO 0 BY 1
 3803                                  :   :   :       SELECT LOGICAL FONT #10
 3804                                  :   :   :       SEND '000'
 3805                                  :   :   :       SEND PLU 1 PLD
 3806                                  :   :   :       SEND '000'
 3807                                  :   :   :       SEND PLD 1 PLU
 3808                                  :   :   ENDDO
 3809                                  :   END INCREMENT
 3810                                  :   SEND '000'
 3811                                  :   SKIP 2 LINES
 3812                                  :   PRINT END OF TEST MESSAGE
 3813                                  :   TOGGLE PAPER OFFSET
```

```
3814                                    :   DO FORM FEED
3815                                    :   RESET THE PRINTER
3816                                    :   SELECT SIZE UNIT AS DECIPOINTS
3817                                    END TEST
3818
3819                                    EXAMPLE OF OUTPUT:
3820
3821
3822                                       1       1       1       1
3823                                    000 000 000 000 000 000 000 000
3824                                          1       1       1
3825
3826                                    WHERE SUBSCRIPTS AND SUPERSCRIPTS ARE OFFSET BY A PARTIAL LINE.
3827
3828
3829                                    .ENDR
3830
3831
3832
3833
3834
3835
3836
3837
3838
3839
3840  050422                                  BGNTST  15.
 (3)  050422                            T15::
3841                                                    ;**** SELECT PORTRAIT FONT ****;
3842  050422                                    OUTPUT #REINIT,#2
3843  050464                                    OUTPUT #SELDEC,#5                       ; DECIPOINTS
3844  050526                                    OUTPUT #SKIP3,#4                        ; SKIP 3 LINES
3845  050570                                    OUTPUT #PTLINE,#35.                     ; PRINT TEST ID
3846  050632                                    OUTPUT #SKIP3,#4                        ; SKIP 3 MORE LINES
3847  050674                                    LET OUTBUF :B= #12
 (4)  050674  112737  000012  003114            MOVB    #12,OUTBUF
3848  050702                                    INCR WORK FROM #1 TO #9. BY #1          ; DO 9 LINES OF THE CODE
 (5)  050702  012737  000001  003110            MOV     #1,WORK
 (7)  050710  000402                            BR      50445$
 (6)  050712                            50444$:
 (8)  050712  005237  003110                    INC     WORK
 (6)  050716                            50445$:
 (7)  050716  023727  003110  000011            CMP     WORK,#9.
 (9)  050724  003402                            BLE     50446$
 (7)  050726  000137  051346                    JMP     50447$
 (6)  050732                            50446$:
3849  050732                                    DECR COUNT FROM #5 TO #1 BY #1
 (5)  050732  012737  000005  002276            MOV     #5,COUNT
 (7)  050740  000402                            BR      50451$
 (6)  050742                            50450$:
 (8)  050742  005337  002276                    DEC     COUNT
 (6)  050746                            50451$:
 (7)  050746  023727  002276  000001            CMP     COUNT,#1
 (9)  050754  002002                            BGE     50452$
 (7)  050756  000137  051236                    JMP     50453$
 (6)  050762                            50452$:
```

```
3850  050762                                        OUTPUT #DECLCS,#5          ; SELECT LOGICAL FONT #10
3851  051024                                        OUTPUT #PL1,#3             ; PRINT '000'
3852  051066                                        OUTPUT #PL2,#5             ; DO SUPERSCRIPTS
3853  051130                                        OUTPUT #PL1,#3             ; PRINT '000'
3854  051172                                        OUTPUT #PL3,#5             ; DO SUBSCRIPTS
3855  051234                                    ENDDEC
 (4)  051234  000642                          BR     50450$
 (4)  051236                              50453$:
3856  051236                                        OUTPUT #PL1,#3             ; PRINT '000'
3857  051300                                        OUTPUT #OUTBUF,#1          ; LINE FEED
3858  051342                                    ENDINC
 (4)  051342  000137  050712                  JMP    50444$
 (4)  051346                              50447$:
3859  051346                                    OUTPUT #OUTBUF,#1,,#2          ; SKIP 2 LINES
3860  051410                                    OUTPUT #TDONE,#14.             ; TEST COMPLETE MESSAGE
3861  051452  004737  005306                    JSR PC,QUIET
3862  051456                                    OUTPUT #DECFIN,#5              ; TOGGLE PAPER OFFSET
3863  051520                                    LET OUTBUF :B= #14             ; CODE FOR FORM FEED
 (4)  051520  112737  000014  003114            MOVB   #14,OUTBUF
3864  051526                                    OUTPUT #OUTBUF,#1              ; DO THE FORM FEED
3865  051570                                    OUTPUT #REINIT,#2              ; RESET DEFAULT CONDITIONS
3866  051632                                    OUTPUT #SELDEC,#5              ; DECIPOINTS
3867  051674  004737  005306                    JSR PC,QUIET
3868  051700                                    EXIT   TST
 (3)  051700  104432                            TRAP   C$EXIT
 (3)  051702  000112                            .WORD  L10026-.
3869
3870                                       .NLIST BEX
3871  051704     033     133     061      DECLCS: .BYTE   33,133,61,60,155          ; SEQ TO SELECT LOG FONT #10 (DEFAULT)
3872  051711     012  015415  030533      PTLINE: .ASCIZ  <12><15><33>/[10mPARTIAL LINE UP-DOWN TEST 15/
3873  051755     124  051505  020124      TDONE:  .ASCII  /TEST COMPLETE/<12>
3874  051773     060  030060     000      PL1:    .ASCIZ  /000/
3875  051777     033  030514  045433      PL2:    .ASCIZ  <33>/L1/<33>/K/
3876  052005     033  030513  046033      PL3:    .ASCIZ  <33>/K1/<33>/L/
3877          052014                      .EVEN
3878                                      .LIST BEX
3879  052014                                    ENDTST
 (3)  052014                              L10026:
 (3)  052014  104401                            TRAP   C$ETST
3880  052016                                    ENDMOD
3881
3882
3883
3884
3885
3886
3887
3888
3889
3890
3892                                      .SBTTL  DRAW VECTORS TEST
3893                                      ;MODULE DRWVEC.P11
3894
3895  052016                                    BGNMOD
3896
3897                                      ;++
```

```
3898                                    ;          FUNCTIONAL DESCRIPTION
3899                                    ;     THIS TEST IS DESIGNED TO TEST THE DRAW VECTOR (SOMETIMES CALLED DRAW RULE) FUNCT
3900                                    ;     OF THE LN01 ELECTRONIC PRINTER.  THE DRAW VECTOR FUNCTION, CALLED "DECVEC",  DRA
3901                                    ;     A LINE OF VARIABLE THICKNESS.  THE X DIRECTION IS PARALLEL TO PHYSICAL PAGE MOVE
3902                                    ;     THE Y DIRECTION IS PARALLEL TO THE LASER SCAN.  THE LINE'S ORIENTATION, POINT OF
3903                                    ;     ORIGIN, DISTANCE AND WIDTH MAY BE DEFINED BY SPECIFYING CERTAIN PARAMETERS IN TH
3904                                    ;     AFTER USING THE DRAW VECTOR COMMAND, THE ACTIVE POSITION IS RETURNED TO THE ACTI
3905                                    ;     POSITION PREVIOUS TO GIVING THE COMMAND.
3906                                    ;          EXAMPLE:
3907                                    ;               SUPPOSE THAT "BEFORE" A DRAW VECTOR COMMAND: ACTIVE POSITIONS AR
3908                                    ;                                                            VERTICAL     = 1 INCH FROM TOP O
3909                                    ;                                                            HORIZONTAL   = 5 INCHES FROM LEF
3910                                    ;
3911                                    ;               THEN A COMMAND IS GIVEN TO DRAW VECTOR FROM 3 INCHES HORIZONTALL
3912                                    ;               HORIZONTALLY, VERTICAL ORIGIN IS 4 INCHES, WIDTH IS 1/2 INCH.
3913                                    ;
3914                                    ;               "AFTER" EXECUTING THE COMMAND:  ACTIVE POSITIONS SHOULD STILL BE
3915                                    ;                                                            VERTICAL     = 1 INCH FROM TOP OF
3916                                    ;                                                            HORIZONTAL   = 5 INCHES FROM LEFT
3917                                    ;
3918                                    ;          NOTE:   CURRENT POSITION IS IDENTICAL AFTER DRAW RULE COMMAND AS BEFORE.
3919
3920                                    ;
3921                                    ;     THE TEST VERIFIES THESE FUNCTIONS BY PRINTING THE TEST ID AND THEN
3922                                    ;     BELOW THE ID DRAWING A RECTANGLE 3 INCHES IN HEIGHT AND 9 INCHES IN WIDTH.  THE
3923                                    ;     CENTER LINE DRAWN HORIZONTALLY THROUGH IT.  IT WILL ALSO HAVE 8 VERTICAL LINES
3924                                    ;     DRAWN AT 1 INCH INTERVALS INSIDE THE RECTANGLE.  THE RECTANGLE WILL ALSO CONTAIN
3925                                    ;     THE LETTERS WILL BE ARRANGED IN SUCH A WAY SO AS TO SPELL OUT "LN01" ON THE UPPE
3926                                    ;     THE RECTANGLE AND TO SPELL OUT "DIGITAL" IN THE LOWER HALF.
3927                                    ;     THE TEST WILL CONCLUDE BY PRINTING THE TEST ID BELOW THE RECTANGLE.
3928                                    ;     THE RECTANGLE WILL BE HANDLED BY, FIRST, DRAWING THE UPPER AND LOWER OUTSIDE
3929                                    ;     BORDERS OF THE RECTANGLE USING THE DRAW VECTOR COMMAND.  THESE LINES WILL BE
3930                                    ;     1/2 INCH THICK.  SECOND, THE TEST WILL MOVE THE ACTIVE POSITION TO THE CORRECT
3931                                    ;     LOCATION OF THE FIRST LETTER (L) TO BE PRINTED.  HOWEVER, THE LETTER WILL NOT BE
3932                                    ;     PRINTED YET.  BEFORE PRINTING IT A DRAW VECTOR COMMAND WILL BE GIVEN TO THE
3933                                    ;     PRINTER TO DRAW THE LEFT OUTSIDE BORDER OF THE RECTANGLE. THE THICKNESS OF THIS
3934                                    ;     BORDER WILL ALSO BE 1/2 INCH.  AFTER DRAWING THE BORDER THE ACTIVE POSITION
3935                                    ;     SHOULD AUTOMATICALLY RETURN TO THE POSITION OF THE FIRST LETTER.  THE LETTER
3936                                    ;     WILL THEN BE PRINTED.  THIS SAME CONCEPT OF POSITIONING THE ACTIVE COLUMN
3937                                    ;     TO THE PROPER LETTER POSITION AND THEN DRAWING A VECTOR BEFORE PRINTING THE
3938                                    ;     LETTER WILL BE USED TO COMPLETE THE RECTANGLE,  INCLUDING THE LETTERS.
3939                                    ;     THE VERTICAL LINES WITHIN THE RECTANGLE WILL BE A DIFFERENT WIDTH THAN
3940                                    ;     THE BOUNDARIES.  THE CENTER LINE WILL BE STILL A DIFFERENT WIDTH THAN
3941                                    ;     THE BOUNDARIES AND THE VERTICAL LINES.  THIS WILL TEST THE VARIABLE
3942                                    ;     WIDTH FUNCTION.  THE DRAW VECTOR COMMAND'S ABILITY TO DRAW OUTSIDE
3943                                    ;     EXISTING MARGINS IS CURRENTLY BEING TESTED IN THE MARGINS TEST, AND,
3944                                    ;     WILL NOT BE EXERCISED IN THIS TEST.
3945                                    ;
3946                                    ;--
3947
3948                                    ;          GLOBALS REFERENCED:
3949                                    ;     REINIT,QUIET
3950
3951  000000                            .REPT 0
3952
3953
```

```
                                                PDL

                                BEGIN ROUTINE
                                :       MOVE VERTICALLY TO ABSOLUTE 1 INCH MARK
                                :       PRINT TEST ID
                                :       DRAW VECTOR FOR TOP LINE OF RECTANGLE           ; FROM 2ND INCH VERTICAL
                                :                                                       ; TO 10TH INCH HORIZONTA
                                :       DO FOR EACH ENTRY IN TABLE                      ; TABLE OF SEQUENCES TO
                                :       :       MOVE TO CORRECT POSITION FOR NEXT LETTER
                                :       :       DRAW NEXT VECTOR
                                :       :       PRINT NEXT LETTER                       ; SHOULD BE IN CORRECT P
                                :       ENDDO
                                :       MOVE VERTICALLY TO 7 INCH MARK
                                :       PRINT TEST ID                                   ; CENTER JUSTIFIED
                                :       RESET THE PRINTER
                                :       DO FORM FEED
                                :       SELECT SIZE UNIT AS DECIPOINTS
                                :       CALL QUIET ROUTINE
                                END ROUTINE

                                .ENDR














     052016                             BGNTST  16.
 (3) 052016                     T16::
     052016                     OUTPUT #VERPO1,#6                       ; MOVE VERTICALLY TO 1 INCH MARK
     052060                     OUTPUT #DRWVEC,#22.                     ; TEST ID
     052122                     OUTPUT #UNDER,#4                        ; TURN ON UNDERLINE
     052164                     OUTPUT #TOPVEC,#31.                     ; DRAW TOP LINE OF RECTANGLE
     052226                     OUTPUT #VERPO3,#7                       ; MOVE VERTICALLY TO 3 INCH MARK
     052270                     LET R3 := #LETTBL                       ; SET UP TABLE OF SEQUENCES TO P
 (4) 052270 012703 052750               MOV     #LETTBL,R3
     052274                     LET R4 := #BYTTBL                       ; BYTE COUNTS OF SEQUENCES IN TA
 (4) 052274 012704 053000               MOV     #BYTTBL,R4
     052300                     WHILE (R3) NE #0 DO                     ; DO FOR EACH ENTRY IN LETTER TA
 (4) 052300                     50454$:
 (6) 052300 005713                      TST     (R3)
 (8) 052302 001002                      BNE     .+6
 (9) 052304 000137 052350               JMP     50455$
     052310                             OUTPUT (R3)+,(R4)+              ; MOVE TO LETTER POSITION, DRAW
     052346                     ENDDO
 (3) 052346 000754                      BR      50454$
 (3) 052350                     50455$:
     052350                     OUTPUT #VERPO7,#8.                      ; MOVE VERTICALLY TO 8 INCH MARK
     052412                     OUTPUT #UNDROF,#4
     052454                     OUTPUT #DRWVEC,#28.                     ; SEND TEST ID FOLLOWED BY A FOR
     052516                     OUTPUT #REINIT,#2                       ; RESET TO DEFAULT CONDITIONS
     052560                     OUTPUT #SELDEC,#5                       ; SELECT DECIPOINTS
```

```
4001  052622  004737  005306          JSR PC,QUIET                                    ; GUARANTEE THE FORM FEED
4002  052626                                  EXIT TST
 (3)  052626  104432                           TRAP    C$EXIT
 (3)  052630  001240                           .WORD   L10027 .
4003
4004                                  .NLIST BEX
4005                                  ;               LOCAL VARIABLES, TABLES, MESSAGES
4006  052632  055433  030061  042155  DRWVEC: .ASCII  <33>/[10mDRAW VECTORS TEST 16/<15><12><14>      ; TEST ID. FIRST 22 CHAR
4007  052666  044124  051511  050040  OFFSET: .ASCII  /THIS PAGE SHOULD BE OFFSET FROM THE PREVIOUS PAGE/
4008          052750                  .EVEN
4009  052750  053133  053203  053253  LETTBL: .WORD   LVEC,NVEC,VEC0,VEC1,DVEC,IVEC,GVEC,IVEC2,TVEC,AVEC,LVEC2,0      ; TBL OF
4010  053000  000050  000050  000075  BYTTBL: .WORD   40.,40.,61.,39.,46.,40.,40.,40.,40.,40.,40.,0                    ; BYTE C
4011  053030     033     133     064  UNDER:  .BYTE   33,133,64,155                                ; UNDERLINE ON
4012  053034     033     133     060  UNDROF: .BYTE   33,133,60,155                                ;       "   OFF
4013  053040     033     133     067  VERPO1: .BYTE   33,133,67,62,60,144                          ; VERTICAL POSITION FOR
4014  053046     033     133     062  VERPO3: .BYTE   33,133,62,61,66,60,144                       ;       "
4015  053055     033     133     063  VERPO5: .BYTE   33,133,63,66,60,60,144                       ;       "
4016  053064     033     133     065  VERPO7: .BYTE   33,133,65,60,64,60,144,15                    ;       "
4017  053074     033     133     067  TOPVEC: .BYTE   33,133,67,40,111,33,133,61,73,66,60,60,73,63,60,60,73          ; DRAW V
4018  053115     062     067     060          .BYTE   62,67,60,60,73,63,67,41,174,33,133,62,40,111
4019  053133     033     133     061  LVEC:   .BYTE   33,133,61,70,60,60,140,33,133,67,40,111,33,133,61,73,61,70,60,60,73
4020  053160     063     060     060          .BYTE   63,60,60,73,62,67,63,67,73,63,67,41,174,33,133,62,40,111,114
4021  053203     033     133     063  NVEC:   .BYTE   33,133,63,62,64,60,140,33,133,67,40,111,33,133,61,73,61,62,60,60,73
4022  053230     063     060     060          .BYTE   63,60,60,73,62,67,60,60,73,61,70,41,174,33,133,62,40,111,116
4023  053253     033     133     064  VEC0:   .BYTE   33,133,64,66,70,60,140,33,133,67,40,111,33,133,60,73,66,60,60,73
4024  053277     063     060     060          .BYTE   63,60,60,73,61,62,60,60,73,63,67,41,174,33,133
4025  053316     060     073     066          .BYTE   60,73,66,60,60,73,63,60,60,60,73,61,62,60,60,73
4026  053336     063     067     041          .BYTE   63,67,41,174,33,133,62,40,111,60
4027  053350     033     133     066  VEC1:   .BYTE   33,133,66,61,62,60,140,33,133,67,40,111,33,133,60,73,66,60,60,73
4028  053374     066     060     060          .BYTE   66,60,60,73,61,62,60,60,73,63,67,41,174,33,133,62,40,111,61
4029  053417     033     133     063  DVEC:   .BYTE   33,133,63,66,60,60,144,33,133,61,70,60,60,140,33,133,67,40,111
4030  053442     033     133     060          .BYTE   33,133,60,73,66,60,60,73,71,60,60,73,61,62,60,60
4031  053462     073     063     067          .BYTE   73,63,67,41,174,33,133,62,40,111,144
4032  053475     033     133     062  IVEC:   .BYTE   33,133,62,65,62,60,140,33,133,67,40,111,33,133,60,73,66,60,60,73
4033  053521     061     062     060          .BYTE   61,62,60,60,73,61,62,60,60,73,63,67,41,174,33,133,62,40,111,151
4034  053545     033     133     063  GVEC:   .BYTE   33,133,63,62,64,60,140,33,133,67,40,111,33,133,60,73,66,60,60,73
4035  053571     061     065     060          .BYTE   61,65,60,60,73,61,62,60,60,73,63,67,41,174,33,133,62,40,111,147
4036  053615     033     133     063  IVEC2:  .BYTE   33,133,63,71,66,60,140,33,133,67,40,111,33,133,60,73,66,60,60,73
4037  053641     061     070     060          .BYTE   61,70,60,60,73,61,62,60,60,73,63,67,41,174,33,133,62,40,111,151
4038  053665     033     133     064  TVEC:   .BYTE   33,133,64,66,70,60,140,33,133,67,40,111,33,133,60,73,66,60,60,73
4039  053711     062     061     060          .BYTE   62,61,60,60,73,61,62,60,60,73,63,67,41,174,33,133,62,40,111,164
4040  053735     033     133     065  AVEC:   .BYTE   33,133,65,64,60,60,140,33,133,67,40,111,33,133,60,73,66,60,60,73
4041  053761     062     064     060          .BYTE   62,64,60,60,73,61,62,60,60,73,63,67,41,174,33,133,62,40,111,141
4042  054005     033     133     066  LVEC2:  .BYTE   33,133,66,61,62,60,140,33,133,67,40,111,33,133,60,73,66,60,60,73
4043  054031     062     067     060          .BYTE   62,67,60,60,73,61,62,60,60,73,63,67,41,174,33,133,62,40,111,154
4044  054055     033     133     062  JUSTON: .BYTE   33,133,62,40,106                                  ; BEGIN JUSTIFY
4045  054062     033     133     060  JUSTOF: .BYTE   33,133,60,40,106                                  ; END JUSTIFY
4046          054070                  .EVEN
4047                                  .LIST BEX
4048  054070                                  ENDTST
 (3)  054070                           L10027:
 (3)  054070  104401                           TRAP    C$ETST
4049  054072                                  ENDMOD
4050
4051
4052
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```
                                .SBTTL  JUSTIFY TEST
                                ;MODULE JUSTIF.P11

054072                                  BGNMOD

                                ;**
                                ;               FUNCTIONAL DESCRIPTION
                                ;
                                ; THIS IS A TEST OF THE STATED FUNCTIONS OF THE JUSTIFY COMMAND ON LN01
                                ; ELECTRONIC PRINTER. THE JUSTIFY COMMAND AS DEFINED IN THE LN01 FUNCTIONAL
                                ; SPECIFICATION IS SUPPOSED TO FUNCTION IN THE FOLLOWING WAY:
                                ;       IT JUSTIFIES TEXT LINES WITHIN THE LEFT AND RIGHT MARGINS BY VARYING THE
                                ;       SPACE BETWEEN WORDS.  INTERWORD SPACING IS ADJUSTED SUCH THAT THE FIRST
                                ;       WORD STARTS AT THE LEFT MARGIN AND THE LAST WORD ENDS AT THE RIGHT MARGIN.
                                ;       THE SPACE IS EVENLY DISTRIBUTED BETWEEN WORDS OF JUSTIFIED TEXT.
                                ;       THE MINIMUM AND MAXIMUM DISTANCE BETWEEN WORDS WILL NOT BE LESS THAN
                                ;       60% NOR GREATER THAN 200% OF THE WIDTH OF THE SPACE CHARACTER.
                                ;       NO JUSTIFICATION WILL OCCUR IF THESE LIMITATIONS ARE EXCEEDED.
                                ;       JUSTIFICATION WILL OCCUR ON ALL TEXT BETWEEN A START AND STOP
                                ;       JUSTIFY COMMAND.
                                ;
                                ;       A START JUSTIFY DETECTED WITHIN A LINE WILL DETERMINE THE LEFT
                                ;       JUSTIFY POINT FOR THAT LINE.  A STOP JUSTIFY DETECTED WITHIN A
                                ;       LINE DETERMINES THE RIGHT JUSTIFY POINT FOR THAT LINE.
                                ;       TO JUSTIFY ACCORDING TO THE LEFT AND RIGHT MARGIN, THE START
                                ;       AND STOP JUSTIFY COMMANDS MUST ENCOMPASS THE LINE BEGINNING AND
                                ;       END POINTS.
                                ;       IF JUSTIFICATION HAS BEEN TURNED ON AND OFF WITHIN A TEXT LINE
                                ;       THE SPACE CHARACTERS OUTSIDE THE SEQUENCE USE THE NORMAL WIDTH
                                ;       OF A SPACE CHARACTER.
                                ;
                                ; THE JUSTIFY TEST WILL EXERCISE THESE FUNCTIONS AND PROVIDE A MEANS
                                ; FOR VISUALLY VERIFYING CORRECT OPERATION AND LIMITATIONS.
                                ;
                                ;--

                                ;               GLOBALS REFERENCED:
                                ;       MESSAGES, VARIABLES, SUBROUTINES
                                ; REINIT,COUNT,OUTBUF,QUIET

000000                          .REPT   0

                                                PDL

                                BEGIN ROUTINE
                                :       SEND RESET SEQUENCE                             ; RESET PRINTER TO DEFAU
                                :       PRINT JUSTIF                                    ; TEST ID
                                :       SKIP A LINE
                                :                       SECTION 1
```

```
4111                    :
4112                    :       TURN ON JUSTIFY
4113                    :       PRINT EXPLANATION OF SECTION 1
4114                    :       TURN OFF JUSTIFY
4115                    :       SKIP A LINE
4116                    :       INCREMENT COUNT FROM #1 TO #17. BY #1                   ; DO NEXT CODE 17 TIMES
4117                    :               SEND "JUSTFY"                                   ; PRINT WORD "JUSTIFY"
4118                    :               SEND "SPAJUS",COUNT TIMES                       ; SPACE AND WORD JUSTIFY
4119                    :               DO A CARRIAGE RETURN AND LINE FEED
4120                    :       ENDINC
4121                    :       SKIP A LINE
4122                    :
4123                    :       TURN JUSTIFY ON
4124                    :       INCREMENT COUNT FROM #1 TO #17. BY #1
4125                    :               IF COUNT EQ #14. THEN
4126                    :                       TURN UNDERLINE ON
4127                    :               ENDIF
4128                    :               IF COUNT EQ #17. THEN
4129                    :                       TURN OFF UNDERLINE
4130                    :               ENDIF
4131                    :               SEND "JUSTFY"                                   ; PRINT WORD "JUSTIFY"
4132                    :               SEND "SPAJUS",COUNT TIMES                       ; SPACE AND WORD JUSTIFY
4133                    :               SEND A CARRIAGE RETURN, LINE FEED
4134                    :       ENDINC
4135                    :       TURN JUSTIFY OFF
4136                    :       SKIP A LINE
4137                    :
4138                    :       INCREMENT COUNT FROM 1 TO 17. BY 1
4139                    :               IF COUNT EQ 14. THEN
4140                    :                       TURN UNDERLINE ON
4141                    :               ENDIF
4142                    :               IF COUNT EQ 17. THEN
4143                    :                       TURN OFF UNDERLINE
4144                    :               ENDIF
4145                    :               TURN ON JUSTIFY
4146                    :               SEND "JUSTFY"                                   ; PRINT WORD "JUSTIFY"
4147                    :               SEND "SPAJUS",COUNT TIMES                       ; SPACE AND WORD JUSTIFY
4148                    :               TURN JUSTIFY OFF
4149                    :               CARRIAGE RETURN, LINE FEED
4150                    :       ENDINC
4151                    :
4152                    :                       SECTION 2
4153                    :
4154                    :       TOGGLE PAPER OFFSET
4155                    :       DO FORM FEED
4156                    :       PRINT EXPLANATION OF SECTION 2
4157                    :       TURN ON JUSTIFY
4158                    :       LET R3 EQUAL TEXTBL                                     ; TABLE OF TEXT LINES
4159                    :       LET R4 EQUAL TEXTBP                                     ; BYTE COUNTS FOR TEXT T
4160                    :       WHILE (R3) NOT EQUAL TO 0 DO                            ; DO FOR ALL ENTRIES
4161                    :               SEND (R3)+,(R4)+                                ; OUTPUT THE ENTRY
4162                    :       ENDDO
4163                    :       SKIP 3 LINES
4164                    :       TURN JUSTIFY OFF
4165                    :       LET R3 EQUAL TEXTBL
4166                    :       LET R4 EQUAL TEXTBP
```

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4167                                    :       WHILE (R3) NOT EQUAL TO 0 DO
4168                                    :           SEND (R3)+,(R4)+                    ; OUTPUT THE ENTRY
4169                                    :       ENDDO
4170                                    :       SKIP 3 LINES
4171                                    :       PRINT END OF TEST MESSAGE
4172                                    :       DO A FORM FEED
4173                                    :       RESET THE PRINTER
4174                                    :       SELECT SIZE UNIT AS DECIPOINTS
4175                                    END ROUTINE
4176                                    :
4177                                    .ENDR
4178
4179
4180
4181
4182
4183
4184
4185
4186
4187
4188  054072                                    BGNTST  17.
 (3)  054072                            T17::
4189
4190                                    ;                   SOURCE CODE
4191
4192  054072                            LET OUTBUF :B= #15                            ; CARRIAGE RETURN
 (4)  054072  112737  000015  003114          MOVB    #15,OUTBUF
4193  054100                            LET OUTBUF+1 :B= #12                          ; LINE FEED
 (4)  054100  112737  000012  003115          MOVB    #12,OUTBUF+1
4194  054106                            LET OUTBUF+2 :B= #14                          ; FORM FEED
 (4)  054106  112737  000014  003116          MOVB    #14,OUTBUF+2
4195  054114                            LET OUTBUF+3 :B= #40                          ; SPACE
 (4)  054114  112737  000040  003117          MOVB    #40,OUTBUF+3
4196  054122                            LET OUTBUF+4 := #55                           ; DASH
 (4)  054122  012737  000055  003120          MOV     #55,OUTBUF+4
4197  054130                            OUTPUT #REINIT,#2                             ; RESET THE PRINTER
4198  054172                            OUTPUT #SELDEC,#5                             ; DECIPOINTS
4199  054234                            OUTPUT #JUSTIF,#22.                           ; TEST ID
4200  054276                            OUTPUT #OUTBUF+1,#1                           ; SKIP A LINE
4201
4202                                    ;                           SECTION 1
4203
4204  054340                            OUTPUT #ONJUST,#5                             ; TURN JUSTIFY ON
4205  054402                            OUTPUT #EXP,#136.                             ; EXPLAINS FIRST SECTION
4206  054444                            OUTPUT #EXP1,#143.
4207  054506                            OUTPUT #EXP2,#145.
4208  054550                            OUTPUT #EXP3,#142.
4209  054612                            OUTPUT #EXP4,#40.
4210  054654  004737  005306            JSR PC,QUIET
4211  054660                            OUTPUT #OFFJUS,#5                             ; TURN JUSTIFY OFF
4212  054722                            OUTPUT #OUTBUF+1,#1                           ; SKIP A LINE
4213  054764                            INCR COUNT FROM #1 TO #17. BY #1              ; DO THIS CHUNK OF CODE
 (5)  054764  012737  000001  002276          MOV     #1,COUNT
 (7)  054772  000402                          BR      50457$
 (6)  054774                            50456$:
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```
  (8)  054774  005237  002276          INC     COUNT
  (6)  055000                  50457$:
  (7)  055000  023727  002276  000021  CMP     COUNT,#17.
  (9)  055006  003402          BLE     50460$
  (7)  055010  000137  055164          JMP     50461$
  (6)  055014                  50460$:
4214   055014                          OUTPUT #JUSTFY,#7.                      ; WORD "JUSTIFY"
4215   055056                          OUTPUT #SPAJUS,#8.,,COUNT               ; SPACE AND WORD 'JUSTIF
4216   055120                          OUTPUT #OUTBUF+1,#1                     ; CRLF
4217   055162                  ENDINC
  (4)  055162  000704          BR      50456$
  (4)  055164                  50461$:
4218   055164                  OUTPUT #OUTBUF+1,#1                             ; SKIP A LINE
4219   055226                  OUTPUT #ONJUST,#5                               ; TURN JUSTIFY ON
4220   055270                  INCR COUNT FROM #1 TO #17. BY #1                ; DO THIS CHUNK OF CODE
  (5)  055270  012737  000001  002276  MOV     #1,COUNT
  (7)  055276  000402          BR      50463$
  (6)  055300                  50462$:
  (8)  055300  005237  002276          INC     COUNT
  (6)  055304                  50463$:
  (7)  055304  023727  002276  000021  CMP     COUNT,#17.
  (9)  055312  003402          BLE     50464$
  (7)  055314  000137  055624          JMP     50465$
  (6)  055320                  50464$:
4221   055320                          IF COUNT EQ #14. THEN
  (6)  055320  023727  002276  000016  CMP     COUNT,#14.
  (8)  055326  001402          BEQ     .+6
  (9)  055330  000137  055376          JMP     50466$
4222   055334                          OUTPUT #UNON,#4                         ; TURN ON UNDERLINE
4223   055376                          ENDIF
  (4)  055376                  50466$:
4224   055376                          IF COUNT EQ #17. THEN
  (6)  055376  023727  002276  000021  CMP     COUNT,#17.
  (8)  055404  001402          BEQ     .+6
  (9)  055406  000137  055454          JMP     50467$
4225   055412                          OUTPUT #UNOF,#4
4226   055454                          ENDIF
  (4)  055454                  50467$:
4227   055454                          OUTPUT #JUSTFY,#7.                      ; WORD "JUSTIFY"
4228   055516                          OUTPUT #SPAJUS,#8.,,COUNT               ; SPACE AND WORD "JUSTIF
4229   055560                          OUTPUT #OUTBUF+1,#1                     ; CRLF
4230   055622                  ENDINC
  (4)  055622  000626          BR      50462$
  (4)  055624                  50465$:
4231   055624                  OUTPUT #UNOF,#4                                 ; UNDERLINE OFF
4232   055666                  OUTPUT #OFFJUS,#5                               ; TURN JUSTIFY OFF
4233   055730                  OUTPUT #OUTBUF+1,#1                             ; SKIP A LINE
4234   055772                  INCR COUNT FROM #1 TO #17. BY #1
  (5)  055772  012737  000001  002276  MOV     #1,COUNT
  (7)  056000  000402          BR      50471$
  (6)  056002                  50470$:
  (8)  056002  005237  002276          INC     COUNT
  (6)  056006                  50471$:
  (7)  056006  023727  002276  000021  CMP     COUNT,#17.
  (9)  056014  003402          BLE     50472$
  (7)  056016  000137  056434          JMP     50473$
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 (6)  056022                          50472$:
4235  056022                                IF COUNT EQ #14. THEN
 (6)  056022  023727  002276  000016        CMP     COUNT,#14.
 (8)  056030  001402                        BEQ     .+6
 (9)  056032  000137  056100                JMP     50474$
4236  056036                                OUTPUT #UNON,#4                    ; UNDERLINE ON
4237  056100                                ENDIF
 (4)  056100                          50474$:
4238  056100                                IF COUNT EQ #17. THEN
 (6)  056100  023727  002276  000021        CMP     COUNT,#17.
 (8)  056106  001402                        BEQ     .+6
 (9)  056110  000137  056156                JMP     50475$
4239  056114                                OUTPUT #UNOF,#4
4240  056156                                ENDIF
 (4)  056156                          50475$:
4241  056156                                OUTPUT #ONJUST,#5
4242  056220                                OUTPUT #JUSTFY,#7.                 ; WORD "JUSTIFY"
4243  056262                                OUTPUT #SPAJUS,#8...COUNT          ; SPACE AND WORD "JUSTIF
4244  056324                                OUTPUT #OFFJUS,#5
4245  056366                                OUTPUT #OUTBUF+1,#1                ; CRLF
4246  056430                          ENDINC
 (4)  056430  000137  056002                JMP     50470$
 (4)  056434                          50473$:
4247  056434                          OUTPUT #UNOF,#4                          ; UNDERLINE OFF
4248
4249
4250                                  ;                       SECTION 2
4251
4252  056476                          OUTPUT #DECFIN,#5                        ; TOGGLE PAPER OFFSET
4253  056540                          OUTPUT #OUTBUF+2,#1                      ; FORM FEED
4254  056602                          OUTPUT #EXPL,#133.                       ; EXPLAINS THE SECTION
4255  056644                          OUTPUT #EXPL1,#58.                       ; 2ND PART OF EXPLANATIO
4256  056706                          OUTPUT #EXPL2,#98.                       ; 3RD PART
4257  056750                          OUTPUT #SKIP3,#4
4258  057012                          OUTPUT #ONJUST,#5                        ; TURN ON JUSTIFY
4259  057054                          LET R3 := #TEXTBL
 (4)  057054  012703  063506              MOV     #TEXTBL,R3
4260  057060                          LET R4 := #TEXTBP
 (4)  057060  012704  063526              MOV     #TEXTBP,R4
4261  057064                          WHILE (R3) NE #0 DO
 (4)  057064                          50476$:
 (6)  057064  005713                        TST     (R3)
 (8)  057066  001002                        BNE     .+6
 (9)  057070  000137  057140                JMP     50477$
4262  057074                                OUTPUT (R3)+,(R4)+                 ; OUTPUT THE ENTRY
4263  057132  004737  005306                JSR PC, QUIET
4264  057136                          ENDDO
 (3)  057136  000752                        BR      50476$
 (3)  057140                          50477$:
4265  057140                          OUTPUT #SKIP3,#4                         ; SKIP 3 LINES
4266  057202                          OUTPUT #OFFJUS,#5                        ; TURN OFF JUSTIFY
4267  057244                          LET R3 := #TEXTBL
 (4)  057244  012703  063506              MOV     #TEXTBL,R3
4268  057250                          LET R4 := #TEXTBP
 (4)  057250  012704  063526              MOV     #TEXTBP,R4
4269  057254                          WHILE (R3) NE #0 DO
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 (4)  057254                          50500$:
 (6)  057254  005713                         TST     (R3)
 (8)  057256  001002                         BNE     .+6
 (9)  057260  000137  057330                 JMP     50501$
4270  057264                               OUTPUT (R3)+,(R4)+
4271  057322  004737  005306                 JSR PC, QUIET
4272  057326                               ENDDO
 (3)  057326  000752                         BR      50500$
 (3)  057330                          50501$:
4273  057330                          OUTPUT #SKIP3,#4                        ; SKIP 3 LINES
4274
4275  057372                          OUTPUT #ENJUS,#11.                      ; END OF TEST MESSAGE
4276  057434                          OUTPUT #OUTBUF+2,#1                     ; FORM FEED
4277  057476                          OUTPUT #REINIT,#2                       ; DO A RESET PRINTER TO
4278  057540                          OUTPUT #SELDEC,#5                       ; DECIPOINTS
4279  057602  004737  005306          JSR PC, QUIET                          ; GUARANTEE THE FORM FEE
4280  057606                               EXIT TST
 (3)  057606  104432                         TRAP    C$EXIT
 (3)  057610  003774                         .WORD   L10030-.
4281
4282                                  .NLIST BEX
4283                                  ;               LOCAL VARIABLES, TABLES, MESSAGES
4284  057612  047440  043106          SPAOFF: .ASCII  / OFF/                          ; 4 CHARS
4285  057616  052512  052123  043111  JUSSPA: .ASCII  /JUSTIFY /                      ; 8 CHARS
4286  057626  045040  051525  044524  SPAJUS: .ASCII  / JUSTIFY/
4287  057636  052512  052123  043111  JUSTFY: .ASCII  /JUSTIFY/
4288  057645     117  043106     040  OFFSPA: .ASCII  /OFF /                          ; 4 CHARS
4289  057651     117  020116          ONSPA:  .ASCII  /ON /                           ; 3 CHARS
4290  057654  047117                  ON:     .ASCII  /ON/
4291  057656  047516     040          NOSPA:  .ASCII  /NO /
4292  057661     116     117          NO:     .ASCII  /NO/
4293  057663     112  051525  044524  CHAR44: .ASCII  /JUSTIFY IS TURNED OFF  JUSTIFY IS TURNED OFF/  ; 44 CHARS
4294  057737     112  051525  044524  CHAR24: .ASCII  /JUSTIFY IS NOW TURNED ON/                      ; 24 CHARS
4295  057767     033  030533  066460  JUSTIF: .ASCII  <33>/[10mJUSTIFY TEST 17/<15><12>               ; 17 CHARS
4296  060015     124  044510  020123  EXP:    .ASCII  /THIS PAGE WILL DEMONSTRATE AT WHAT POINT JUSTIFY OCCURS.  IT SHOULD OCC
4297  060126  053440  044510  042514          .ASCII  / WHILE THE SPACE BETWEEN WORDS IS LESS THAN 200% AND MORE THAN/<12>
4298  060225     066  022460  047440  EXP1:   .ASCII  /60% OF THE NORMAL SIZE OF THE SPACE CHARACTER IN THE CURRENTLY SELECTED
4299  060334  043040  047117  027124          .ASCII  / FONT.  THE LINES THAT ARE UNDERLINED ARE JUSTIFIED.  THE FIRST SECTION
4300  060444  051511  042040  047117  EXP2:   .ASCII  /IS DONE WITHOUT JUSTIFY ON.  THE SECOND AND THIRD SECTIONS ARE DONE WIT
4301  060555     112  051525  044524          .ASCII  /JUSTIFY TURNED ON.  THE DIFFERENCE BETWEEN THE SECOND AND THIRD SECTION
4302  060665     111  020123  044124  EXP3:   .ASCII  /IS THAT THE SECOND SECTION LEAVES JUSTIFY ON FOR THE ENTIRE SECTION AND
4303  061001     124  044510  042122          .ASCII  /THIRD TURNS IT ON AND OFF FOR EACH LINE WITH JUSTIFY BEING TURNED/<12>
4304  061103     117  043106  044440  EXP4:   .ASCII  /OFF IMMEDIATELY PRIOR TO THE LINE FEED./<12>
4305  061153     124  042510  043040  EXPL:   .ASCII  /THE FOLLOWING TWO PARAGRAPHS WILL DEMONSTRATE THE DIFFERENCE WHEN PRINT
4306  061265     040  042524  052130          .ASCII  / TEXT WITH JUSTIFY ON AND JUSTIFY OFF./<12>/PARAGRAPH 1 IS DONE /
4307  061360  044527  044124  045040  EXPL1:  .ASCII  /WITH JUSTIFY ON AND PARAGRAPH 2 IS DONE WITH JUSTIFY OFF./<12>
4308  061452  047516  042524  052040  EXPL2:  .ASCII  /NOTE THE EVEN RIGHT MARGIN IN PARAGRAPH 1.  NOTE THE UNEVEN MARGIN AND
4309  061614  044124  020105  047114  TEXT:   .ASCII  /THE LN01 PRINTER JUSTIFIES TEXT LINES WITHIN THE CURRENTLY DEFINED LEFT
4310  061724  047101  020104  044522          .ASCII  /AND RIGHT MARGINS BY VARYING THE SPACING BETWEEN WORDS./<12>/THE LN01 D
4311  062031     040  047516  020124  TEXT1:  .ASCII  / NOT DETERMINE THE END OF LINE NOR DOES IT MAKE HYPHENATION DECISIONS.
4312  062141     111  052116  051105          .ASCII  /INTERWORD SPACING WITHIN A LINE OF TEXT IS ADJUSTED SUCH/<12>/THAT THE
4313  062251     103  040510  040522  TEXT2:  .ASCII  /CHARACTER OF THE FIRST WORD STARTS ON THE LEFT MARGIN, THE LAST CHARACT
4314  062363     117  020106  044124          .ASCII  /OF THE LAST WORD ENDS ON THE RIGHT MARGIN.  THE SPACE/<12>/BETWEEN WORD
4315  062476  052512  052123  043111  TEXT3:  .ASCII  /JUSTIFIED TEXT LINE IS EVENLY DISTRIBUTED.  THE MINIMUM AND MAXIMUM/
4316  062601     040  044504  052123          .ASCII  / DISTANCE BETWEEN WORDS WILL NOT BE GREAT-/<12>/ER THAN 200% OF THE /
4317  062700  044527  052104  020110  TEXT4:  .ASCII  /WIDTH OF THE SPACE CHARACTER NOR LESS THAN 60% OF THE SPACE CHARACTER /
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 4318  063006  047111  052040  042510              .ASCII  /IN THE FONT FROM WHICH THE WORD CHARAC-/<12>/TERS ARE DERIVED.  A LINE
 4319  063110  043117  052040  054105  TEXT5:      .ASCII  /OF TEXT WILL NOT BE JUSTIFIED IF THE MAXIMUM OR /
 4320  063170  044515  044516  052515              .ASCII  /MINIMUM SPACE SIZE RESTRICTIONS CANNOT BE HONORED./<12>/THE /
 4321  063257     112  051525  044524  TEXT6:      .ASCII  /JUSTIFICATION OPERATION WILL BE PERFORMED ON ALL TEXT WHICH OCCURS /
 4322  063362  042502  053524  042505              .ASCII  /BETWEEN A START OF JUSTIFICATION AND AN END OF JUSTIFICATION SE-/<12>/Q
 4323  063472  047105  020104  043117  ENJUS:      .ASCII  /END OF TEST/
 4324          063506                  .EVEN
 4325  063506  061614  062031  062251  TEXTBL:     .WORD   TEXT,TEXT1,TEXT2,TEXT3,TEXT4,TEXT5,TEXT6,0
 4326  063526  000215  000220  000225  TEXTBP:     .WORD   141.,144.,149.,130.,136.,103.,139.
 4327  063544     033     133     062  ONJUST:     .BYTE   33,133,62,40,106                                    ; 5 CHARS
 4328  063551     033     133     060  OFFJUS:     .BYTE   33,133,60,40,106                                    ;    "
 4329  063556     033     133     064  UNON:       .BYTE   33,133,64,155                                  ; UNDERLINE ON
 4330  063562     033     133     060  UNOF:       .BYTE   33,133,60,155                                  ;      "   OFF
 4331  063566     033     133     062  ABS3:       .BYTE   33,133,62,66,63,65,140                         ; ABSOLUTE TO 3.66 INCH
 4332  063575     033     133     065  ABS7:       .BYTE   33,133,65,62,67,67,140                         ;          "     7.33
 4333                                  .EVEN
 4334                                  .LIST BEX
 4335  063604                                      ENDTST
  (3)  063604                          L10030:
  (3)  063604  104401                             TRAP    C$ETST
 4336  063606                                      ENDMOD
 4337
 4338
 4339
 4340
 4341
 4342
 4343
 4344
 4345
 4346
 4349                                  .SBTTL  PORTRAIT TEST
 4350                                  ;MODULE PORT.P11
 4351
 4352  063606                                  BGNMOD
 4353
 4354                                  ;**
 4355                                  ;               FUNCTIONAL DESCRIPTION
 4356                                  ;
 4357                                  ;       THE PORTRAIT TEST IS DESIGNED TO "VERIFY" THE EXTENDED FUNCTIONALITY OF
 4358                                  ;THE LN01 IN PORTRAIT ORIENTATION USING THE RESIDENT PORTRAIT FONT.
 4359                                  ;       DUE TO THE FACT THAT THE LN01 DEFAULT FONT IS LANDSCAPE, THE MAJORITY
 4360                                  ;OF TESTING OF BOTH BASIC AND EXTENDED FUNCTIONALITY IS DONE IN DEFAULT LANDSCAPE
 4361                                  ;ORIENTATION.  THE PURPOSE OF THE "PORTRAIT TEST" IS TO "VERIFY" THE FUNCTIONALITY
 4362                                  ;OF EXTENDED FUNCTIONS IN PORTRAIT ORIENTATION.
 4363                                  ;       THIS TEST WILL USE ONLY ONE SHEET OF PAPER, AND, WILL IDENTIFY ITS OWN
 4364                                  ;FUNCTIONAL SECTIONS.  THIS WILL BE A "QUICK VERIFY" ONLY OF THE EXTENDED FUNCTIONS
 4365                                  ;LISTED BELOW.  COMPREHENSIVE TESTING OF THE EXTENDED FUNCTIONS IS ACCOMPLISHED IN
 4366                                  ;THE TESTS DESIGNED SPECIFICALLY FOR EACH PARTICULAR FUNCTION.
 4367                                  ;       FONT LOADING, ASSIGNING AND SELECTING WILL NOT BE TESTED IN THIS TEST.
 4368                                  ;THESE FUNCTIONS WILL BE TESTED IN THE "FONT TEST".
 4369                                  ;
 4370                                  ;       THE FUNCTIONS VERIFIED INCLUDE:
 4371                                  ;               1 MARGINS
 4372                                  ;               2 TABS
 4373                                  ;               3 UNDERLINE
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```
                        ;               4 SUPERSCRIPT AND SUBSCRIPT
                        ;               5 HORIZONTAL AND VERTICAL POSITION ABSOLUTE
                        ;               6 HORIZONTAL AND VERTICAL POSITION RELATIVE
                        ;               7 DRAW VECTORS
                        ;               9 SIZE UNIT SELECT
                        ;
                        ;--
                        ;               GLOBALS REFERENCED:
                        ;       MESSAGES, VARIABLES, SUBROUTINES

000000                  .REPT   0

                        BEGIN PORTRAIT TEST
                        :                       SECTION 0
                        :
                        :       SET OUTPUT BUFFER WITH OCTAL CODES TO BE SENT DURING TEST
                        :       DO RESET
                        :       LET R3 EQ ADDRESS OF TABLE SECO                 ; TABLE OF OUTPUTS FOR T
                        :       LET R4 EQ ADDRESS OF TABLE SECCNT               ; TABLE OF BYTE COUNTS F
                        :       WHILE (R3) NE #0 DO                             ; DO FOR EACH ENTRY IN S
                        :               OUTPUT (R3)+,(R4)+                      ; OUTPUT CURRENT ENTRY
                        :       ENDDO
                        :
                        :                       SECTION 1
                        :
                        :       MOVE TO VERTICAL 3 INCH MARK
                        :       SET MARGINS
                        :       PRINT SECTION ID
                        :       LET R3 EQ ADDRESS OF TABLE MARTBL               ; TABLE OF MARGIN SETTIN
                        :       WHILE (R3) NE #0 DO
                        :               OUTPUT ENTRY
                        :               PRINT LETTER "M"
                        :               OUTPUT #ABMAR                           ; SEQUENCE TO TRY AND MO
                        :               PRINT LETTER "M"
                        :       ENDDO
                        :
                        :                       SECTION 2
                        :
                        :       LET R3 EQ ADDRESS OF TABLE TABUND               ; TBL OF SEQS TO SET TAB
                        :       LET R4 EQ ADDRESS OF TABLE TABUCT               ; BYTE COUNTS
                        :       WHILE (R3) NE #0 DO
                        :               OUTPUT (R3)+,(R4)+                      ; OUTPUT NEXT ENTRY OF T
                        :       ENDDO
                        :
                        :                       SECTION 3
                        :
                        :       MOVE VERTICALLY TO 5 INCH MARK
                        :       PRINT SECTION ID
                        :       PRINT LETTER "S"
                        :       INCR FROM 1 TO 2 BY 1                   ; DO THIS CHUNK OF CODE TWICE
                        :               OUTPUT #S1                      ; HT,SUBSCRIPT AND "S"
                        :               OUTPUT #S2                      ; HT,SUPERSCRIPT AND "S"
                        :               OUTPUT #S2                      ;       "
                        :               OUTPUT #S1                      ; HT,SUBSCRIPT AND 'S'
                        :       ENDINC
```

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4430                                    ;       DO A LINE FEED
4431                                    ;
4432                                    ;                       SECTION 4
4433                                    ;
4434                                    ;       MOVE VERTICALLY TO 6 INCH MARK
4435                                    ;       PRINT SECTION ID
4436                                    ;       LET R3 EQ ADDRESS OF TABLE #ABTBL               ; TABLE OF ABSOLUTE AND RELATIVE
4437                                    ;       LET R4 EQ ADDRESS OF TABLE #ABTBCT              ; BYTE COUNTS FOR ABTBL TABLE
4438                                    ;       PRINT "H"                                       ; FIRST H AT LEFT MARGIN
4439                                    ;       SELECT PIXELS AS NEW SIZE UNIT
4440                                    ;       WHILE (R3) NE #0 DO                             ; DO FOR EACH ENTRY IN MOVE TABL
4441                                    ;               OUTPUT (R3),(R4)                        ; NEXT MOVE
4442                                    ;               PRINT "H"
4443                                    ;       ENDDO
4444                                    ;       SELECT DECIPOINTS AS SIZE UNIT
4445                                    ;       DO LINE FEED
4446                                    ;
4447                                    ;                       SECTION 5
4448                                    ;
4449                                    ;       LET R3 EQ ADDRESS OF TABLE #IDVEC               ; TABLE FOR SECTION ID,POSITIONI
4450                                    ;       LET R4 EQ ADDRESS OF TABLE #IDVCNT              ; BYTE COUNTS FOR TABLE IDVEC
4451                                    ;       WHILE (R3) NE #0 DO                             ; DO FOR EACH ENTRY OF TABLE
4452                                    ;               OUTPUT (R3)+,(R4)+                      ; NEXT ENTRY
4453                                    ;       ENDDO
4454                                    ;       LET R3 EQ ADDRESS OF TABLE #LN01TB              ; TABLE TO POSITION FOR AND PRIN
4455                                    ;               OUTPUT (R3)+                            ; NEXT ENTRY
4456                                    ;       ENDDO
4457                                    ;       DO FORM FEED
4458                                    ;       DO RESET
4459                                    ;
4460                                    END PORTRAIT TEST
4461                                    .ENDR
4462
4463
4464
4465
4466
4467
4468
4469
4470
4471
4472  063606                                    BGNTST  18.
 (3)  063606                            T18::
4473
4474
4475                                    ;                       SECTION 0
4476
4477  063606                            LET OUTBUF :B= #11                                      ; HOR TAB
 (4)  063606  112737  000011  003114              MOVB    #11,OUTBUF
4478  063614                            LET OUTBUF+1 :B= #12                                    ; LINE FEED
 (4)  063614  112737  000012  003115              MOVB    #12,OUTBUF+1
4479  063622                            LET OUTBUF+2 :B= #13                                    ; VER TAB
 (4)  063622  112737  000013  003116              MOVB    #13,OUTBUF+2
4480  063630                            LET OUTBUF+3 :B= #14                                    ; FORM FEED
 (4)  063630  112737  000014  003117              MOVB    #14,OUTBUF+3
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4481  063636                    LET OUTBUF+4 :B= #15                    ; CARRIAGE RETURN
 (4)  063636  112737  000015  003120          MOVB    #15,OUTBUF+4
4482  063644                    LET OUTBUF+5 :B= #115                   ; UPPER CASE "M"
 (4)  063644  112737  000115  003121          MOVB    #115,OUTBUF+5
4483  063652                    LET OUTBUF+6 :B= #123                   ;       "    "S"
 (4)  063652  112737  000123  003122          MOVB    #123,OUTBUF+6
4484  063660                    LET OUTBUF+7 :B= #110                   ;       "    "H"
 (4)  063660  112737  000110  003123          MOVB    #110,OUTBUF+7
4485  063666                    LET OUTBUF+10 :B= #114                  ; UPPER CASE "L"
 (4)  063666  112737  000114  003124          MOVB    #114,OUTBUF+10
4486  063674                    LET OUTBUF+11 :B= #152                  ; ASTERISK
 (4)  063674  112737  000152  003125          MOVB    #152,OUTBUF+11
4487  063702                    OUTPUT #REINIT,#2
4488  063744                    OUTPUT #SELDEC,#5
4489  064006                    LET R3 := #SECO                         ; DECIPOINTS AS SIZE UNITS
 (4)  064006  012703  066554          MOV     #SECO,R3
4490  064012                    LET R4 := #SECCNT                       ; NAME OF TABLE OF OUTPUTS FOR T
 (4)  064012  012704  066566          MOV     #SECCNT,R4
4491  064016                    WHILE (R3) NE #0 DO                     ; TABLE OF BYTE COUNTS FOR OUTPU
 (4)  064016                    50502$:
 (6)  064016  005713                  TST     (R3)                    ; DO FOR EACH ENTRY IN TABLE
 (8)  064020  001002                  BNE     .+6
 (9)  064022  000137  064066          JMP     50503$
4492  064026                          OUTPUT (R3)+,(R4)+              ; SEND THE ENTRY
4493  064064                    ENDDO
 (3)  064064  000754                  BR      50502$
 (3)  064066                    50503$:
4494
4495                            ;                       SECTION 1
4496  064066                    OUTPUT #VER2,#7                         ; MOVE VERTICALLY TO 2 INCH MARK
4497  064130                    OUTPUT #NORMAR,#12.                     ; NORMAL MARGINS FOR THIS TEST
4498  064172                    OUTPUT #PORT,#17.                       ; TEST ID
4499  064234                    OUTPUT #VER3,#7                         ; MOVE VERTICALLY TO 3 INCH MARK
4500  064276                    OUTPUT #SEC1,#11.                       ; PRINT SECTION ID AND 2 LINE FE
4501  064340                    LET R3 := #MARTBL                       ; TABLE OF MARGIN SETTING SEQUEN
 (4)  064340  012703  067036          MOV     #MARTBL,R3
4502  064344                    WHILE (R3) NE #0 DO                     ; DO FOR EACH ENTRY IN MARTBL
 (4)  064344                    50504$:
 (6)  064344  005713                  TST     (R3)
 (8)  064346  001002                  BNE     .+6
 (9)  064350  000137  064564          JMP     50505$
4503  064354                          OUTPUT (R3)+,#12.               ; OUTPUT NEXT ENTRY
4504  064414                          OUTPUT #OUTBUF+5,#1             ; PRINT LETTER "M"
4505  064456                          OUTPUT #ABMAR,#7                ; SEQUENCE TO TRY AND MOVE TO "N
4506  064520                          OUTPUT #OUTBUF+11,#1            ; PRINT ASTERISK
4507  064562                    ENDDO
 (3)  064562  000670                  BR      50504$
 (3)  064564                    50505$:
4508  064564                    OUTPUT #OUTBUF+1,#1                     ; LINE FEED
4509  064626                    OUTPUT #NORMAR,#12.                     ; NORMAL MARGIN SETTING SEQUENCE
4510
4511                            ;                       SECTION 2
4512
4513
4514  064670                    LET R3 := #TABUND                       ; TABLE OF SEQUENCES TO SET TABS
 (4)  064670  012703  067246          MOV     #TABUND,R3
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4515   064674                             LET R4 := #TABUCT                                    ; TABLE OF BYTE COUNTS FOR TABUN
 (4)   064674  012704  067274                     MOV     #TABUCT,R4
4516   064700                             WHILE (R3) NE #0 DO
 (4)   064700                             50506$:
 (6)   064700  005713                             TST     (R3)
 (8)   064702  001002                             BNE     .+6
 (9)   064704  000137  064750                     JMP     50507$
4517   064710                                     OUTPUT (R3)+,(R4)+                           ; OUTPUT NEXT ENTRY
4518   064746                             ENDDO
 (3)   064746  000754                             BR      50506$
 (3)   064750                             50507$:
4519
4520                                      ;                         SECTION 3
4521
4522   064750                             OUTPUT #VER5,#7                                      ; ABSOLUTE 5 INCH VERTICAL
4523   065012                             OUTPUT #SEC3,#29.                                    ; 3RD SECTION ID AND 2 LINE FEED
4524   065054                             OUTPUT #OUTBUF+6,#1                                  ; PRINT LETTER "S"
4525   065116                             INCR COUNT FROM #1 TO #2 BY #1                       ; DO THIS CHUNK OF CODE TWICE
 (5)   065116  012737  000001  002276             MOV     #1,COUNT
 (7)   065124  000402                             BR      50511$
 (6)   065126                             50510$:
 (8)   065126  005237  002276                     INC     COUNT
 (6)   065132                             50511$:
 (7)   065132  023727  002276  000002             CMP     COUNT,#2
 (9)   065140  003402                             BLE     50512$
 (7)   065142  000137  065360                     JMP     50513$
 (6)   065146                             50512$:
4526   065146                                     OUTPUT #S1,#4                                ; HT,SUBSCRIPT AND "S"
4527   065210                                     OUTPUT #S2,#4                                ; HT,SUPERSCRIPT AND "S" (BACK U
4528   065252                                     OUTPUT #S2,#4                                ; HT,SUPERSCRIPT AND "S"
4529   065314                                     OUTPUT #S1,#4                                ; HT,SUBSCRIPT AND "S" (BACK DOW
4530   065356                             ENDINC
 (4)   065356  000663                             BR      50510$
 (4)   065360                             50513$:
4531   065360                             OUTPUT #OUTBUF+1,#1                                  ; LINE FEED
4532
4533
4534                                      ;                         SECTION 4
4535
4536   065422                             OUTPUT #VER6,#13.                                    ; VERTICAL TO 6 INCHES USING ABS
4537   065464                             OUTPUT #SEC4,#23.                                    ; SECTION 4 ID AND 2 LINE FEEDS
4538   065526                             LET R3 := #ABTBL                                     ; TBL OF ABSOLUTE AND RELATIVE M
 (4)   065526  012703  067512                     MOV     #ABTBL,R3
4539   065532                             LET R4 := #ABTBCT                                    ; BYTE COUNTS FOR ABTBL TABLE
 (4)   065532  012704  067534                     MOV     #ABTBCT,R4
4540   065536                             OUTPUT #OUTBUF+7,#1                                  ; PRINT FIRST H AT LEFT MARGIN
4541   065600                             OUTPUT #PSSU,#5                                      ; SELECTS SIZE UNIT AS PIXELS RA
4542   065642                             WHILE (R3) NE #0 DO
 (4)   065642                             50514$:
 (6)   065642  005713                             TST     (R3)
 (8)   065644  001002                             BNE     .+6
 (9)   065646  000137  065754                     JMP     50515$
4543   065652                                     OUTPUT (R3)+,(R4)+                           ; MAKE NEXT MOVE
4544   065710                                     OUTPUT #OUTBUF+7,#1                          ; PRINT "H"
4545   065752                             ENDDO
 (3)   065752  000733                             BR      50514$
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 (3)  065754                                50515$:
4546  065754                                OUTPUT #DSSU,#5                    ; RETURNS SIZE UNIT TO DECIPOINT
4547  066016                                OUTPUT #OUTBUF+1,#1                ; LINE FEED
4548
4549                                        ;                    SECTION 5
4550
4551
4552  066060                                LET R3 := #IDVEC                   ; TABLE FOR SECTION ID, POSITION
 (4)  066060  012703  067666                       MOV     #IDVEC,R3
4553  066064                                LET R4 := #IDVCNT                  ; TABLE OF BYTE COUNTS FOR IDVEC
 (4)  066064  012704  067712                       MOV     #IDVCNT,R4
4554  066070                                WHILE (R3) NE #0 DO
 (4)  066070                                50516$:
 (6)  066070  005713                               TST     (R3)
 (8)  066072  001002                               BNE     .+6
 (9)  066074  000137  066140                       JMP     50517$
4555  066100                                      OUTPUT (R3)+,(R4)+             ; OUTPUT NEXT ENTRY IN TABLE
4556  066136                                ENDDO
 (3)  066136  000754                               BR      50516$
 (3)  066140                                50517$:
4557  066140                                LET R3 := #LN01TB                  ; TABLE TO POSITION FOR AND PRIN
 (4)  066140  012703  070212                       MOV     #LN01TB,R3
4558  066144                                WHILE (R3) NE #0 DO
 (4)  066144                                50520$:
 (6)  066144  005713                               TST     (R3)
 (8)  066146  001002                               BNE     .+6
 (9)  066150  000137  066216                       JMP     50521$
4559  066154                                      OUTPUT (R3)+,#8.               ; DO NEXT ENTRY IN TABLE
4560  066214                                ENDDO
 (3)  066214  000753                               BR      50520$
 (3)  066216                                50521$:
4561  066216                                OUTPUT #OUTBUF+3,#1                ; FORM FEED
4562  066260                                OUTPUT #REINIT,#2                  ; RESET THE DEFAULTS IN THE PRIN
4563  066322                                OUTPUT #SELDEC,#5                  ; DECIPOINTS AS SIZE UNITS
4564  066364  004737  005306                JSR PC,QUIET                       ; GUARANTEE THE FORM FEED
4565  066370                                      EXIT TST
 (3)  066370  104432                               TRAP    C$EXIT
 (3)  066372  001660                               .WORD   L10031-.
4566
4567                                        .NLIST BEX
4568                                        ;                    LOCAL VARIABLES, TABLES, MESSAGES
4569  066374  047520  052122  040522  PORT:   .ASCII  /PORTRAIT TEST 18/<12>                    ; TEST ID AND LINE FEED
4570  066415     115  051101  044507  SEC1:   .ASCII  /MARGINS :/<12><12>                      ; SECTION ID AND 2 LF
4571  066430  052015  041101  020123  SEC2:   .ASCII  <15>/TABS AND UNDERLINE :/<12>           ; SECTION ID AND LINE FE
4572  066456  052523  042520  051522  SEC3:   .ASCII  /SUPERSCRIPT AND SUBSCRIPT :/<12><12>   ; SECTION ID AND 2 LINE FEEDS
4573  066513     110  051117  055111  SEC4:   .ASCII  /HORIZONTAL POSITION :/<12><12>          ; SECTION ID AND 2 LINE FEEDS
4574  066542  042526  052103  051117  SEC5:   .ASCII  /VECTORS :/<12>                         ; SECTION ID AND LINE FE
4575                                        .EVEN
4576  066554  066576  004036  066707  SECO:   .WORD   PORSEQ,SELPIX,FRAME,SELDEC,0           ; TABLE FOR SECTION 0
4577  066566  000033  000005  000126  SECCNT: .WORD   27.,5,86.,5                            ; BYTE COUNTS FOR SECO TABLE
4578  066576     033     120     061  PORSEQ: .BYTE   33,120,61,73,61,61,175,104,105,124,151 ; SEQS TO ASSIGN AND SELECT PORT
4579  066611     164     141     156          .BYTE   164,141,156,61,60,55,122,33,134,33,133,61,61,155
4580  066627     033     133     061  VER2:   .BYTE   33,133,61,64,64,60,144                 ; VERTICAL POSITION ABSO
4581  066636     033     133     062  IDMAR:  .BYTE   33,133,62,64,63,60,73,63,67,70,60,163   ; LR MARGINS AT 3 1/4 AN
4582  066652     033     133     060  ONJU:   .BYTE   33,133,60,40,106                       ; TURN ON JUSTIFY
4583  066657     033     133     062  OFFJU:  .BYTE   33,133,62,40,106                       ; TURN OFF JUSTIFY
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4584  066664    033    133    062  VER3:    .BYTE  33,133,62,61,66,60,144                                    ; ABSOLUTE VER POS 3 INC
4585  066673    033    133    061  NORMAR:  .BYTE  33,133,61,70,60,60,73,65,64,60,60,163                      ; NORMAL MARGINS FOR THI
4586  066707    033    133    061  FRAME:   .BYTE  33,133,61,73,63,60,60,73,63,60,60,73,62,67,60,60,73
4587  066730    062    060    041             .BYTE  62,60,41,174,33,133,61,73,62,62,65,60,73,63,60,60,73
4588  066751    062    067    060             .BYTE  62,67,60,60,73,62,60,41,174,33,133,60,73,63,60,60,73
4589  066772    063    060    060             .BYTE  63,60,60,73,61,71,65,60,73,62,60,41,174
4590  067007    033    133    060             .BYTE  33,133,60,73,63,60,60,73,63,60,60,60,73,61,71,67,60,73
4591  067031    062    060    041             .BYTE  62,60,41,174                                            ; SEQUENCES TO DRAW FRAM
4592                                                                                                          ; ON ALL FOUR SIDES.
4593          067036                 .EVEN
4594  067036  067062  067076  067112  MARTBL:  .WORD  AMAR,BMAR,CMAR,DMAR,EMAR,FMAR,GMAR,HMAR,IMAR,0          ; TABLE OF LR MARGIN SET
4595  067062    033    133    061  AMAR:    .BYTE  33,133,61,70,60,60,73,62,61,66,60,163                      ; LEFT  2 1/2,  RIGHT
4596  067076    033    133    062  BMAR:    .BYTE  33,133,62,61,66,60,73,62,65,62,60,163                      ;       3
4597  067112    033    133    062  CMAR:    .BYTE  33,133,62,65,62,60,73,62,70,70,60,163                      ;       3 1/2
4598  067126    033    133    062  DMAR:    .BYTE  33,133,62,70,70,60,73,63,62,64,60,163                      ;       4
4599  067142    033    133    063  EMAR:    .BYTE  33,133,63,62,64,60,73,63,66,60,60,163                      ;       4 1/2
4600  067156    033    133    063  FMAR:    .BYTE  33,133,63,66,60,60,73,63,71,66,60,163                      ;       5
4601  067172    033    133    063  GMAR:    .BYTE  33,133,63,71,66,60,73,64,63,62,60,163                      ;       5 1/2
4602  067206    033    133    064  HMAR:    .BYTE  33,133,64,63,62,60,73,64,66,70,60,163                      ;       6
4603  067222    033    133    064  IMAR:    .BYTE  33,133,64,66,70,60,73,65,60,64,60,163                      ;       6 1/2
4604  067236    033    133    065  ABMAR:   .BYTE  33,133,65,64,60,60,140                                     ; SEQ TRYING TO MOVE TO
4605          067246                 .EVEN
4606  067246  067320  003116  066430  TABUND:  .WORD  STVER4,OUTBUF+2,SEC2,OUTBUF+1,CLEART,TSET,ONUN
4607  067264  067415  003115  067437           .WORD  UNDERL,OUTBUF+1,OFFUN,0                                 ; TABLE OF SEQ TO SET TA
4608  067274  000013  000001  000026  TABUCT:  .WORD  11.,1,22.,1,4,42.,4,18.,1,4                            ; BYTE COUNTS FOR TABUND
4609  067320    033    133    064  STVER4:  .BYTE  33,133,64,147,33,133,62,70,70,60,166                       ; CLEAR ALL VER TABS AND
4610  067333    033    133    063  CLEART:  .BYTE  33,133,63,147                                              ; CLEAR ALL HOR TABS
4611  067337    033    133    062  TSET:    .BYTE  33,133,62,61,66,60,73,62,65,62,60,73,62,70,70,60,73
4612  067360    063    062    064             .BYTE  63,62,64,60,73,63,66,60,60,73,63,71,66,60,73
4613  067377    064    063    062             .BYTE  64,63,62,60,73,64,66,70,60,165                          ; SET HTABS AT 3,3 1/2,4
4614  067411    033    133    064  ONUN:    .BYTE  33,133,64,155                                           ; TURNS UNDERLINING ON
4615  067415    125    011    116  UNDERL:  .BYTE  125,11,116,11,104,11,105,11,122,11,114,11,111,11,116,11,105,12  ; PRINT
4616  067437    033    133    060  OFFUN:   .BYTE  33,133,60,155                                           ; TURNS UNDERLINING OFF
4617  067443    033    133    063  VER5:    .BYTE  33,133,63,66,60,60,144                                  ; MOVE TO ABSOLUTE VER P
4618  067452    011    033    113  S1:      .BYTE  11,33,113,123                                           ; HT.   SUBSCRIPT AND "S
4619  067456    011    033    114  S2:      .BYTE  11,33,114,123                                           ; "     SUPERSCRIPT "
4620  067462    033    133    063  VER6:    .BYTE  33,133,63,66,60,60,144,33,133,67,62,60,145              ; VER 6 INCH MARK USING
4621  067477    033    133    067  PSSU:    .BYTE  33,133,67,40,111                                        ; SELECT SIZE UNIT AS PI
4622  067504    033    133    062  DSSU:    .BYTE  33,133,62,40,111                                        ; SELECT SIZE UNIT AS DE
4623          067512                 .EVEN
4624  067512  067554  067562  067571  ABTBL:   .WORD  HORA,HORB,HORC,HORD,HORE,HORF,HORG,HORH,0               ; TABLE TO MOVE HOR ABSO
4625  067534  000006  000007  000007  ABTBCT:  .WORD  6,7,7,7,13.,13.,13.,7                                  ; BYTE COUNTS FOR ABTBL
4626  067554    033    133    071  HORA:    .BYTE  33,133,71,60,60,140                                     ; ABSOLUTE 3 INCHES IN P
4627  067562    033    133    061  HORB:    .BYTE  33,133,61,60,65,60,140                                  ;          3 1/2
4628  067571    033    133    061  HORC:    .BYTE  33,133,61,62,60,60,140                                  ;          4
4629  067600    033    133    061  HORD:    .BYTE  33,133,61,63,65,60,140                                  ;          4 1/2
4630  067607    033    133    061  HORE:    .BYTE  33,133,61,62,60,60,140,33,133,63,60,60,141              ; ABSOLUTE TO 4 THEN REL
4631  067624    033    133    061  HORF:    .BYTE  33,133,61,63,65,60,140,33,133,63,60,60,141              ;              4 1/2
4632  067641    033    133    061  HORG:    .BYTE  33,133,61,65,60,60,140,33,133,63,60,60,141              ;              5
4633  067656    033    133    061  HORH:    .BYTE  33,133,61,71,65,60,140                                  ; ABSOLUTE TO 6 1/2
4634          067666                 .EVEN
4635  067666  067734  066542  003115  IDVEC:   .WORD  VER7,SEC5,OUTBUF+1,VER8.5,HOR3,SELPIX,VEC01,SELDEC,OUTBUF+10,0  ; TBL FO
4636  067712  000007  000012  000001  IDVCNT:  .WORD  7,10.,1,7,7,5,153.,5,1                                 ; BYTE COUNTS FOR IDVEC
4637  067734    033    133    065  VER7:    .BYTE  33,133,65,60,64,60,144                                  ; VERTICAL TO 7 INCHES
4638  067743    033    133    066  VER8.5:  .BYTE  33,133,66,61,62,60,144                                  ; VERTICAL TO 8.5 INCHES
4639  067752    033    133    062  HOR3:    .BYTE  33,133,62,61,64,62,140                                  ; MOVE TO JUST LESS THAN
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 4640  067761      033     133     060  VEC01:  .BYTE   33,133,60,73,67,65,60,73,62,63,70,60,73          ;  SEQS FOR DRAWING RECT
 4641  067776      061     062     062          .BYTE   61,62,62,60,73,62,60,41,174                      ; TOP HORIZONTAL LINE
 4642  070007      033     133     060          .BYTE   33,133,60,73,67,65,60,73,62,66,70,60,73
 4643  070024      061     062     062          .BYTE   61,62,62,60,73,62,60,41,174                      ; BOTTOM HORIZONTAL LINE
 4644  070035      033     133     061          .BYTE   33,133,61,73,67,65,60,73,62,64,60,60,73
 4645  070052      063     060     060          .BYTE   63,60,60,73,62,60,41,174                         ;  1ST   VERTICAL      BA
 4646  070062      033     133     061          .BYTE   33,133,61,73,61,60,65,60,73,62,64,60,60,73
 4647  070100      063     060     060          .BYTE   63,60,60,73,62,60,41,174                         ;  2ND           "
 4648  070110      033     133     061          .BYTE   33,133,61,73,61,63,65,60,73,62,64,60,60,73
 4649  070126      063     060     060          .BYTE   63,60,60,73,62,60,41,174                         ;  3RD           "
 4650  070136      033     133     061          .BYTE   33,133,61,73,61,66,65,60,73,62,64,60,60,73
 4651  070154      063     060     060          .BYTE   63,60,60,73,62,60,41,174                         ;  4TH           "
 4652  070164      033     133     061          .BYTE   33,133,61,73,61,71,65,60,73,62,64,60,60,73
 4653  070202      063     060     060          .BYTE   63,60,60,73,62,60,41,174                         ;  5TH           "
 4654                                    .EVEN
 4655  070212  070222  070232  070242  LN01TB: .WORD   HOR4,HOR5,HOR6,0                                  ; TABLE TO POSITION AND
 4656  070222      033     133     062  HOR4:   .BYTE   33,133,62,70,66,62,140,116                       ; MOVE TO JUST LESS THAN
 4657  070232      033     133     063  HOR5:   .BYTE   33,133,63,65,70,62,140,60                        ; MOVE TO JUST LESS THAN
 4658  070242      033     133     064  HOR6:   .BYTE   33,133,64,63,60,62,140,61                        ;       "
 4659                                    .EVEN
 4660                                    .LIST BEX
 4661  070252                                    ENDTST
  (3)  070252                            L10031:
  (3)  070252  104401                           TRAP    C$ETST
 4662  070254                                    ENDMOD
 4663
 4664
 4665
 4666
 4667
 4668
 4669
 4670
 4671
 4672
 4675                                    .SBTTL  FONT TEST
 4676                                    ;MODULE FONT.P11
 4677
 4678  070254                                    BGNMOD
 4679
 4680                                    ;**
 4681                                    ;               FUNCTIONAL DESCRIPTION
 4682                                    ;
 4683                                    ;THE "FONTS TEST" IS A COMPREHENSIVE TEST OF THE FOLLOWING FUNCTIONS WHICH
 4684                                    ;ARE ASSOCIATED WITH MULTIPLE FONT USE ON THE LN01 ELECTRONIC PRINTER:
 4685                                    ;
 4686                                    ;       1- FONT LOADING
 4687                                    ;       2- FONT ASSIGNMENT
 4688                                    ;       3- FONT SELECTION
 4689                                    ;       4- OTHER
 4690                                    ;
 4691                                    ;
 4692                                    ;       1- FONT LOADING WILL BE TESTED BY DOWNLINE LOADING A PREDESIGNED SET OF
 4693                                    ;FONTS WHICH WILL THEN BE ASSIGNED, SELECTED AND SUBSEQUENTLY PRINTED.
 4694                                    ;       2- FONT ASSIGNMENT WILL BE TESTED BY AN EXHAUSTIVE SERIES OF ASSIGNING,
 4695                                    ;RE-ASSIGNING AND SELECTING OF FONTS.  THE FONTS WILL THEN BE PRINTED
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                        ;TO VERIFY THE ASSIGNMENTS.
                        ;       3- FONT SELECTION WILL BE TESTED BY A SERIES OF SELECTIONS OF SPECIFIC
                        ;FONTS IN SUCH A MANNER AS TO GUARANTEE THAT ANY FONT ASSIGNED TO
                        ;A PARTICULAR LOGICAL FONT NUMBER CAN BE SELECTED AND SUBSEQUENTLY PRINTED.
                        ;       4- OTHER STATED SPECIFIC FUNCTIONS WILL ALSO BE CHECKED FOR DESIRED RESULT.
                        ;       ONE SUCH EXAMPLE WOULD BE IF THE LNO1 WAS PRINTING FROM THE DEFAULT
                        ;LANDSCAPE FONT AND WAS IN THE MIDDLE OF A PAGE WHEN A FONT SELECTION SEQUENCE
                        ;WAS RECEIVED TO SELECT THE RESIDENT PORTRAIT FONT.  THE DESIRED RESULT IS THAT
                        ;THE CURRENT PAGE WOULD BE TERMINATED AND THAT A NEW PAGE WOULD BEGIN USING THE NEW
                        ;ORIENTATION.  AND VICE VERSA.
                        ;--

                        ;               GLOBALS REFERENCED:
                        ;       MESSAGES, VARIABLES, SUBROUTINES
                        ;       REINIT

000000                  .REPT   0

                                PDL
                        BEGIN ROUTINE FONT
                        :       PART: 1         DEFAULT SELECTION
                        :
                        :       RESET PRINTER
                        :       ASSIGN PORTRAIT RESIDENT FONT TO LOGICAL #10 AND #11
                        :       SELECT LOGICAL FONT #11
                        :       RESET PRINTER                                   ; SHOULD ASSIGN DEFAULT
                        :       PRINT TEST ID
                        :       SKIP A LINE
                        :       PRINT DEFAULT MESSAGE
                        :       LET R3 EQUAL NSELTB                             ; FONT NUMBER TABLE
                        :       WHILE (R3) NOT EQUAL TO 0 DO
                        :               SEND BEGINNING OF SELECT SEQUENCE
                        :               SEND THE PARAMETER
                        :               SEND END OF SELECT SEQUENCE
                        :               SEND BEGINNING OF FONT ID MESSAGE
                        :               SEND (R3)*                              ; CORRECT FONT NUMBER FR
                        :               SEND REST OF FONT ID MESSAGE
                        :       ENDDO
                        :       SEND BELOW SEQUENCE                             ; ATTEMPTS TO SELECT ILL
                        :       SEND ABOVE SEQUENCE                             ;       "       "
                        :       SEND COMMEN MESSAGE                             ; IDENTIFIES PREVIOUS 2
                        :       SEND END OF PART 1 MESSAGE
                        :       DO FORM FEED
                        :
                        :       PART: 2         ASSIGNING OF RESIDENT FONTS
                        :
                        :       RESET PRINTER
                        :       SELECT SIZE UNIT AS DECIPOINTS
                        :       TOGGLE PAPER OFFSET
                        :       LET R3 EQUAL EVENTB                     ; TABLE OF EVEN PARAMETERS FOR F
                        :       LET R4 EQUAL ODDTB                      ;    "     ODD          "
                        :       WHILE (R3) NOT EQUAL TO 0 DO
                        :               SEND ASBGIN                     ; BEGINNING OF ASSIGNMENT SEQUEN
                        :               SEND (R3)*                      ; SEND THE FONT NUMBER FROM TABL
                        :               SEND ASENDP                     ; END OF ASSIGNMENT SEQUENCE
                        :               SEND ASBGIN                     ; BEGINNING OF ASSIGNMENT SEQUEN
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4752                    :              SEND (R4)+                          ; SEND FONT NUMBER FROM TABLE
4753                    :              SEND ASENDL                         ; END OF ASSIGNMENT SEQUENCE
4754                    :       ENDDO
4755                    :       LET R3 EQUAL EVENTB
4756                    :       LET R4 EQUAL ODDTB
4757                    :       SEND SEQEVE                                 ; SEQUENTIAL EVEN SELECTIONS FRO
4758                    :       WHILE (R3) NOT EQUAL TO 0 DO
4759                    :              SEND SELBGN                          ; BEGINNING OF SELECTION SEQUENC
4760                    :              SEND (R3)+                           ; FONT NUMBER FROM EVEN TABLE
4761                    :              SEND SELEND                          ; END OF SELECT SEQUENCE
4762                    :              SEND PORFON                          ; IDENTIFIES FONT AS PORTRAIT
4763                    :       ENDDO
4764                    :       SEND SEL11                                  ; SELECTS LOGICAL FONT #11 (NOW
4765                    :       SEND NEW PAGE MESSAGE
4766                    :       SEND SEQODD                                 ; SEQUENTIAL ODD SELECTONS
4767                    :       WHILE (R4) NOT EQUAL TO 0 DO
4768                    :              SEND SELBGN                          ; BEGINNING OF SELECT SEQUENCE
4769                    :              SEND (R4)+                           ; FONT NUMBER FROM ODD TABLE
4770                    :              SEND SELEND                          ; END OF SELECT SEQUENCE
4771                    :              SEND LANFON                          ; IDENTIFIES FONT AS LANDSCAPE
4772                    :       ENDDO
4773                    :       SEND PRTEN2                                 ; END OF SECTION AND PAGE MESSAG
4774                    :       DO FORM FEED
4775                    :       RESET PRINTER
4776                    :       SELECT SIZE UNIT AS DECIPOINTS
4777                    :       TOGGLE PAPER OFFSET
4778                    :
4779                    :       PART: 3          FONT LOAD SECTION
4780                    :
4781                    :       SEND #BGNLD                                 ; BEGINNING OF LOAD SEQ
4782                    :       LET R3 EQUAL RECTBO                         ; SET UP RECORD TABLE
4783                    :       WHILE (R3) NOT EQUAL 0 DO
4784                    :              SEND (R3)+
4785                    :       ENDDO                                       ; SEND RECORD IN PARTS
4786                    :       LET R3 EQUAL RECTBL                         ; SET UP RECORD TABLE
4787                    :       WHILE (R3) NOT EQUAL 0 DO
4788                    :              SEND (R3)+
4789                    :       ENDDO                                       ; SEND RECORD IN PARTS
4790                    :       LET R3 EQUAL RECTBA                         ; SET UP NEXT REC TABLE
4791                    :       WHILE (R3) NOT EQUAL 0 DO
4792                    :              SEND (R3)+
4793                    :       ENDDO                                       ; SEND RECORD IN PARTS
4794                    :       LET R3 EQUAL RECTBB                         ; SET UP NEXT REC TABLE
4795                    :       WHILE (R3) NOT EQUAL 0 DO
4796                    :              SEND (R3)+
4797                    :       ENDDO                                       ; SEND RECORD IN PARTS
4798                    :       SEND ENDLD                                  ; END OF LOAD SEQ
4799                    :       RESET PRINTER                               ; CHECK TO SEE IF RESET DESTROYS
4800                    :       SELECT SIZE UNIT AS DECIPOINTS
4801                    :       TOGGLE PAPER OFFSET
4802                    :       LET R3 EQUAL DIAGTB                         ; TABLE OF DIAG FONT ASSIGNMENT
4803                    :       WHILE (R3) NOT EQUAL 0 DO                   ; DO FOR EACH ENTRY
4804                    :              SEND (R3)+                           ; ASSIGN DIAG FONT AND SELECT IT
4805                    :       ENDDO
4806                    :       INCREMENT COUNT FROM 1 TO 3 BY 1
4807                    :              SEND OUTBUF,2 CHARACTERS, 12 TIMES   ; PRINT A LINE OF ALTERNATING LI
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4808                                    ;               DO CARRIAGE RETURN AND LINE FEED
4809                                    ;               SEND OUTBUF+1, 2 CHARACTERS, 12 TIMES   ; PRINT A LINE OF ALTERNATING DA
4810                                    ;               DO CARRIAGE RETURN AND LINE FEED
4811                                    ;       ENDINC
4812                                    ;       DO FORM FEED
4813                                    ;       RESET PRINTER
4814                                    ;       SELECT SIZE UNIT AS DECIPOINTS
4815                                    ;
4816                                    END ROUTINE FONT
4817                                    .ENDR
4818
4819
4820
4821
4822
4823
4824
4825
4826
4827
4828  070254                                    BGNTST  19.
 (3)  070254                            T19::
4829
4830                                    ;               RESIDENT SECTION (USING RESIDENT FONTS ONLY)
4831                                    ;
4832                                    ;               PART 1  SELECTION DEFAULTS
4833                                    ;
4834                                    ;PART 1 FIRST GUARANTEES THAT,  ON RESET OF THE MACHINE (RIS SEQUENCE),
4835                                    ;THE DEFAULT POWER-UP FONT IS SELECTED FOR PRINTING.
4836                                    ;PART 1 NEXT CHECKS TO SEE IF ATTEMPTS TO SELECT UNASSIGNED
4837                                    ;LEGAL LOGICAL FONT NUMBERS ARE IGNORED.
4838                                    ;IT NEXT CHECKS TO SEE IF ATTEMPTS TO SELECT ILLEGAL LOGICAL FONT NUMBERS
4839                                    ;(ABOVE OR BELOW LEGAL RANGE) ARE IGNORED.
4840  070254                            OUTPUT #REINIT,#2                 ; RESET PRINTER TO ALL DEFAULT CONDITIONS
4841  070316                            OUTPUT #SELDEC,#5                 ; SELECT DECIPOINTS AS SIZE UNIT
4842  070360                            OUTPUT #DECFIN,#5                 ; TOGGLE PAPER OFFSET
4843  070422                            OUTPUT #FONTST,#19.               ; TEST ID AND TWO LF'S
4844  070464                            OUTPUT #ASSDIA,#20.               ; ASSIGN DIAGNOSTIC FONT TO LOGICAL FONT #10
4845  070526                            OUTPUT #ASDIA1,#20.               ;        "         "         "     #11
4846  070570                            OUTPUT #SEL11,#5                  ; SELECT PORTRAIT FONT (LOG NUMBER 11)
4847  070632                            OUTPUT #REINIT,#2                 ; SHOULD REASSIGN #10 TO DEFAULT (LANDSCAPE) AND SELECT
4848  070674                            OUTPUT #SELDEC,#5                 ; SELECT DECIPOINTS AS SIZE UNIT
4849  070736                            OUTPUT #FONDEMES,#50.             ; PRINT DEFAULT MESSAGE
4850  071000                            LET R3 := #NSELTB                 ; FONT NUMBER IN MESSAGE TABLE
 (4)  071000  012703  074070                       MOV     #NSELTB,R3
4851  071004                            WHILE (R3) NE #0 DO               ; DO FOR EACH ENTRY SEQ TABLE
 (4)  071004                            50522$:
 (6)  071004  005713                               TST     (R3)
 (8)  071006  001002                               BNE     .+6
 (9)  071010  000137  071326                       JMP     50523$
4852  071014                                      OUTPUT #SELBGN,#2         ; BEGINNING OF SELECT SEQUENCE
4853  071056                                      OUTPUT (R3),#2            ; OUTPUT THE PARAMETER
4854  071116                                      OUTPUT #SELEND,#1         ; FINAL CHAR. FOR SELECT SEQ.
4855  071160                                      OUTPUT #FONSLA,#14.       ; BEGINNING OF FONT ID MESSAGE
4856  071222                                      OUTPUT (R3)+,#3           ; OUTPUT THE CORRECT FONT NUMBER FOR MESSAGE
4857  071262                                      OUTPUT #FONSLB,#51.       ; REST OF FONT NUMBER ID MESSAGE
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4858  071324                                  ENDDO
 (3)  071324  000627                              BR      50522$
 (3)  071326                                  50523$:
4859  071326                                  OUTPUT #BELOW,#56.              ; ATTEMPTS TO SELECT NUMBER BELOW RANGE
4860  071370                                  OUTPUT #ABOVE,#57.              ;       "       "       "   ABOVE   "
4861  071432                                  OUTPUT #COMMEN,#56.             ; MESSAGE IDENTIFYING 2 PREVIOUS LINES AS LANDSCAPE
4862  071474                                  OUTPUT #PRTEN1,#29.             ; END OF PART 1 MESSAGE + LF AND FF
4863                                          ;
4864                                          ;*****************************************************************************************
4865                                          ;                   PART 2  ASSIGNING OF RESIDENT FONTS
4866                                          ;
4867                                          ;OUTPUT #REINIT,#2              ; START THIS PART FRESH FROM RESET CONDITION
4868                                          ;OUTPUT #SELDEC,#5              ; SELECT DECIPOINTS AS SIZE UNIT
4869                                          ;OUTPUT #DECFIN,#5
4870                                          ;LET R3 := #EVENTB              ; TABLE OF EVEN PARAMS FOR ASSIGNMENT SEQS
4871                                          ;LET R4 := #ODDTB               ;       "  ODD  "       "       "
4872                                          ;WHILE (R3) NE #0 DO            ; ASSIGNS BOTH EVEN AND ODD NUMBERS
4873                                          ;       OUTPUT #ASBGIN,#4       ; BEGINNING OF ASSIGNMENT SEQ
4874                                          ;       OUTPUT (R3)+,#2         ; EVEN PARAM FOR SEQ
4875                                          ;       OUTPUT #ASENDP,#14.     ; END OF SEQ ASSIGNING PORTRAIT TO EVEN #
4876                                          ;       OUTPUT #ASBGIN,#4       ; BEGINNING OF ASSIGNMENT SEQ
4877                                          ;       OUTPUT (R4)+,#2         ; ODD PARAM
4878                                          ;       OUTPUT #ASENDL,#20.     ; END OF SEQ ASSIGNING LANDSCAPE TO ODD #
4879                                          ;ENDDO
4880                                          ;LET R3 := #EVENTB              ; TABLE OF EVEN PARAMS
4881                                          ;LET R4 := #ODDTB               ;       "  ODD  "
4882                                          ;OUTPUT #SEQEVE,#15.            ; SEQUENTIAL EVEN SELECTIONS FROM 16-12
4883                                          ;WHILE (R3) NE #0 DO            ; NOW SELECT EVEN INDIVIDUALLY AND IDENTIFY
4884                                          ;       OUTPUT #SELBGN,#2       ; BEGINNING OF SELECTION SEQUENCE
4885                                          ;       OUTPUT (R3)+,#2         ; EVEN NUMBERED PARAMS
4886                                          ;       OUTPUT #SELEND,#1       ; FINAL CHAR OF SELECT ESC SEQUENCE
4887                                          ;       OUTPUT #PORFON,#47.     ; IDENTIFIES THIS FONT AS PORTRAIT
4888                                          ;ENDDO
4889                                          ;OUTPUT #PGEND,#17.             ; END OF PAGE MESSAGE
4890                                          ;OUTPUT #SEL11,#5               ; SELECTS LOG FONT #11 (LANDSCAPE NOW)
4891                                          ;OUTPUT #NEWPG,#36.             ; IDENTIFY NEW PAGE
4892                                          ;OUTPUT #SEQODD,#20.            ; SEQUENTIAL SELECTION OF ODD NUMBERS
4893                                          ;WHILE (R4) NE #0 DO            ; NOW SELECT THE ODD NUMBERS INDIVIDUALLY AND IDENTIFY
4894                                          ;       OUTPUT #SELBGN,#2       ; BEGINNING OF SELECT SEQUENCE
4895                                          ;       OUTPUT (R4)+,#2         ; ODD NUMBERED PARAMS
4896                                          ;       OUTPUT #SELEND,#1       ; FINAL CHAR OF ESC SEQUENCE
4897                                          ;       OUTPUT #LANFON,#47.     ; IDENTIFIES THIS FONT AS DEFAULT LANDSCAPE
4898                                          ;ENDDO
4899                                          ;OUTPUT #PRTEN2,#29.            ; END OF PART MESSAGE AND FF
4900                                          ;OUTPUT #REINIT,#2              ; RESET PRINTER
4901                                          ;OUTPUT #SELDEC,#5              ; SELECT DECIPOINTS AS SIZE UNIT
4902                                          ;OUTPUT #DECFIN,#5              ; TOGGLE PAPER OFFSET
4903                                          ;*****************************************************************************************
4904                                          ;
4905                                          ;
4906                                          ;                   PART 3    "FONT LOAD SECTION"
4907                                          ;
4908  071536                                  LET OUTBUF :B= #40                                      ; CODE FOR 1ST CHAR IN DIAG FONT
 (4)  071536  112737  000040  003114              MOVB    #40,OUTBUF
4909  071544                                  LET OUTBUF+1 :B= #41                                    ;  "        2ND         "
 (4)  071544  112737  000041  003115              MOVB    #41,OUTBUF+1
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4910  071552                        LET OUTBUF+2 :B= #40                    ; "        1ST        "
 (4)  071552  112737  000040  003116          MOVB    #40,OUTBUF+2
4911  071560                        LET OUTBUF+3 :B= #15                    ; CR
 (4)  071560  112737  000015  003117          MOVB    #15,OUTBUF+3
4912  071566                        LET OUTBUF+4 :B= #12                    ; LF
 (4)  071566  112737  000012  003120          MOVB    #12,OUTBUF+4
4913  071574                        LET OUTBUF+5 :B= #14                    ; FF
 (4)  071574  112737  000014  003121          MOVB    #14,OUTBUF+5
4914  071602                        OUTPUT #BGNLD,#6.                       ; BEGINNING OF LOAD SEQ
4915  071644                        LET R3 := #RECTBO                       ; SET UP RECORD TABLE
 (4)  071644  012703  074154          MOV     #RECTBO,R3
4916  071650                        WHILE (R3) NE #0 DO
 (4)  071650                        50524$:
 (6)  071650  005713                  TST     (R3)
 (8)  071652  001002                  BNE     .+6
 (9)  071654  000137  071726          JMP     50525$
4917  071660                            OUTPUT (R3)+,#128.
4918  071720  004737  005306          JSR PC, QUIET
4919  071724                        ENDDO                                   ; SEND RECORD IN PARTS
 (3)  071724  000751                  BR      50524$
 (3)  071726                        50525$:
4920  071726                        LET R3 := #RECTBL                       ; SET UP RECORD TABLE
 (4)  071726  012703  074216          MOV     #RECTBL,R3
4921  071732                        WHILE (R3) NE #0 DO
 (4)  071732                        50526$:
 (6)  071732  005713                  TST     (R3)
 (8)  071734  001002                  BNE     .+6
 (9)  071736  000137  072010          JMP     50527$
4922  071742                            OUTPUT (R3)+,#128.
4923  072002  004737  005306          JSR PC, QUIET
4924  072006                        ENDDO                                   ; SEND RECORD IN PARTS
 (3)  072006  000751                  BR      50526$
 (3)  072010                        50527$:
4925  072010                        LET R3 := #RECTBA                       ; SET UP NEXT REC TABLE
 (4)  072010  012703  074260          MOV     #RECTBA,R3
4926  072014                        WHILE (R3) NE #0 DO
 (4)  072014                        50530$:
 (6)  072014  005713                  TST     (R3)
 (8)  072016  001002                  BNE     .+6
 (9)  072020  000137  072072          JMP     50531$
4927  072024                            OUTPUT (R3)+,#128.
4928  072064  004737  005306          JSR PC, QUIET
4929  072070                        ENDDO                                   ; SEND RECORD IN PARTS
 (3)  072070  000751                  BR      50530$
 (3)  072072                        50531$:
4930  072072                        LET R3 := #RECTBB                       ; SET UP NEXT REC TABLE
 (4)  072072  012703  074322          MOV     #RECTBB,R3
4931  072076                        WHILE (R3) NE #0 DO
 (4)  072076                        50532$:
 (6)  072076  005713                  TST     (R3)
 (8)  072100  001002                  BNE     .+6
 (9)  072102  000137  072154          JMP     50533$
4932  072106                            OUTPUT (R3)+,#128.
4933  072146  004737  005306          JSR PC, QUIET
4934  072152                        ENDDO                                   ; SEND RECORD IN PARTS
 (3)  072152  000751                  BR      50532$
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 (3)  072154                                    50533$:
4935  072154                                    OUTPUT #ENDLD,#3                        ; END OF LOAD SEQ
4936  072216                                    OUTPUT #REINIT,#2                       ; CHECK TO SEE IF RESET DESTROYS FONTS L
4937  072260                                    OUTPUT #SELDEC,#5                       ; SELECT DECIPOINTS AS PARAMETER
4938  072322                                    OUTPUT #DECFIN,#5                       ; TOGGLE PAPER OFFSET
4939  072364                                    LET R3 := #DIAGTB                       ; TABLE OF DIAG FONT ASSIGNMENT AND SELE
 (4)  072364  012703  074364                          MOV     #DIAGTB,R3
4940  072370                                    LET R4 := #DIAGX
 (4)  072370  012704  074514                          MOV     #DIAGX,R4
4941  072374                                    WHILE (R3) NE #0 DO                     ; DO FOR EACH ENTRY
 (4)  072374                                    50534$:
 (6)  072374  005713                                  TST     (R3)
 (8)  072376  001002                                  BNE     .+6
 (9)  072400  000137  072754                          JMP     50535$
4942  072404                                          OUTPUT (R4)+,#13.                 ; ASSIGN DIAGX AND SELECT IT FOR TITLES
4943  072444                                          OUTPUT (R3)+,#21.                 ; ASSIGN DIAG FONT AND SELECT IT.
4944  072504                                          INCR COUNT FROM #1 TO #2 BY #1    ; PRINT ONLY TWO LINE (2*2=4 AS TOTAL OF LIN
 (5)  072504  012737  000001  002276                  MOV     #1,COUNT
 (7)  072512  000402                                  BR      50537$
 (6)  072514                                    50536$:
 (8)  072514  005237  002276                          INC     COUNT
 (6)  072520                                    50537$:
 (7)  072520  023727  002276  000002                  CMP     COUNT,#2
 (9)  072526  003402                                  BLE     50540$
 (7)  072530  000137  072752                          JMP     50541$
 (6)  072534                                    50540$:
4945  072534                                          OUTPUT #OUTBUF,#2,,#12.           ; PRINT A LINE OF ALTERNATING LI
4946  072576                                          OUTPUT #OUTBUF+3,#2               ; CRLF
4947  072640                                          OUTPUT #OUTBUF+1,#2,,#12.         ; PRINT A LINE OF ALTERNATING DA
4948  072702                                          OUTPUT #OUTBUF+3,#2               ; CRLF
4949  072744  004737  005306                          JSR PC,QUIET
4950  072750                                          ENDINC
 (4)  072750  000661                                  BR      50536$
 (4)  072752                                    50541$:
4951  072752                                    ENDDO
 (3)  072752  000610                                  BR      50534$
 (3)  072754                                    50535$:
4952  072754                                    OUTPUT #OUTBUF+5,#1                     ; FF
4953  073016                                    OUTPUT #REINIT,#2                       ; RESET TO DEFAULT FONT
4954  073060                                    OUTPUT #SELDEC,#5                       ; SELECT DECIPOINTS AS SIZE UNIT
4955  073122  004737  005306                    JSR PC,QUIET
4956
4957  073126                                          EXIT TST
 (3)  073126  104432                                  TRAP    C$EXIT
 (3)  073130  006464                                  .WORD   L10032-.
4958
4959                                            .NLIST BEX
4960                                            ;               LOCAL VARIABLES, TABLES, MESSAGES
4961  073132  055433  030061  043155  FONTST: .ASCII  <33>/[10mFONT TEST 19/<12><12>
4962  073155     104  043105  052501  FONDEMES:       .ASCII  /DEFAULT FONT PRINTED - SHOULD BE DEFAULT POWER-UP/<12> ; IDENTI
4963  073237     114  043517  041511  FONSLA: .ASCII  /LOGICAL FONT #/                                               ; BEGINN
4964  073255     123  046105  041505  FONSLB: .ASCII  /SELECTED - DEFAULT POWER-UP FONT SHOULD BE PRINTED/<12>        ; END OF
4965  073340  044124  051511  051440  NEWPG:  .ASCII  /THIS SHOULD BE TOP LINE OF NEW PAGE/<12>                      ; 36 CHA
4966  073404  050033  035461  030061  ASSDIA: .ASCII  <33>/P1;10/<175>/DIAG000/<33>/\/                               ; ASSIGN
4967  073424  050033  035461  030461  ASDIA1: .ASCII  <33>/P1;11/<175>/DIAG001/<33>/\/                               ; ASSIGN
4968  073444  055433  030461     155  SEL11:  .ASCII  <33>/[11m/                                 ; SELECTS LOGICAL FONT #11
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 4969 073451      033 033533 040555 BELOW:   .ASCII  <33>/[7mATTEMPTING TO SELECT FONT NUMBER BELOW LEGAL RANGE./<12>
 4970 073541      033 031133 066460 ABOVE:   .ASCII  <33>/[20mATTEMPTING TO SELECT FONT NUMBER ABOVE LEGAL RANGE./<12>
 4971 073632   051120 041505 042105 COMMEN:  .ASCII  /PRECEDING TWO LINES SHOULD BE THE DEFAULT POWER-UP FONT/<12>
 4972 073722   047105 020104 043117 PGEND:   .ASCII  /END OF THIS PAGE/<12>
 4973 073743      105 042116 047440 PRTEN1:  .ASCII  /END OF PART 1 AND THIS PAGE/<12><14>
 4974                               ;PRTEN2:         .ASCII  /END OF PART 2 AND THIS PAGE/<12><14>
 4975                               ;LANFON:         .ASCII  /THIS LINE SHOULD BE THE DEFAULT LANDSCAPE FONT/<12>
 4976                               ;PORFON:         .ASCII  /THIS LINE SHOULD BE THE RESIDENT PORTRAIT FONT/<12>
 4977                               ;ASSLAN:         .ASCII  <33>/P1;10/<175>/DELandscape13.6-@/<33>/\/                   ; ASSIGN
 4978 074000   055433 033061 015555 SEQEVE:  .ASCII  <33>/[16m/<33>/[14m/<33>/[12m/                           ; SEQUENTIAL SELECTION O
 4979 074017      033 030533 066467 SEQODD:  .ASCII  <33>/[17m/<33>/[15m/<33>/[13m/<33>/[11m/                ;     "          "
 4980 074043      033 030533 066466 SEQALL:  .ASCII  <33>/[16m/<33>/[15m/<33>/[14m/<33>/[13m/                ;     "          "
 4981          074070               .EVEN
 4982 074070   074416 074421 074424 NSELTB:  .WORD   ASSI12,ASSI13,ASSI14,ASSI15,ASSI16,ASSI17,0           ;
 4983 074106   074410 074413 074416 ASSTBL:  .WORD   ASSI10,ASSI11,ASSI12,ASSI13,ASSI14,ASSI15,ASSI16,ASSI17,0       ; TABLE
 4984 074130   074410 074416 074424 EVENTB:  .WORD   ASSI10,ASSI12,ASSI14,ASSI16,0                          ; TABLE OF EVEN PARAMETE
 4985 074142   074413 074421 074427 ODDTB:   .WORD   ASSI11,ASSI13,ASSI15,ASSI17,0                          ;      "  ODD
 4986 074154   075014 076014 076214 RECTB0:  .WORD   REC0,REC2,REC3,REC4,REC5,REC6,REC7,REC8,REC9,REC10,REC11,REC12,REC13,REC
 4987 074216   075214 076014 076214 RECTBL:  .WORD   REC1,REC2,REC3,REC4,REC5,REC6,REC7,REC8,REC9,REC10,REC11,REC12,REC13,REC
 4988 074260   075414 076014 076214 RECTBA:  .WORD   REC1A,REC2,REC3,REC4,REC5,REC6,REC7,REC8,REC9,REC10,REC11,REC12,REC13,RE
 4989 074322   075614 076014 076214 RECTBB:  .WORD   REC1B,REC2,REC3,REC4,REC5,REC6,REC7,REC8,REC9,REC10,REC11,REC12,REC13,RE
 4990 074364   074616 074643 074670 DIAGTB:  .WORD   DIAG12,DIAG13,DIAG14,DIAG15,DIAG16,DIAG17,0        ; ASSIGNS AND SELECTS LO
 4991 074402   050033 035461        ASBGIN:  .ASCII  <33>/P1;/                                              ; BEGINNING OF ASSIGNMEN
 4992 074406   055433               SELBGN:  .ASCII  <33>/[/                                                ; BEGINNING OF SELECTION
 4993 074410   030061    040        ASSI10:  .ASCII  /10 /
 4994 074413      061 020061        ASSI11:  .ASCII  /11 /
 4995 074416   031061    040        ASSI12:  .ASCII  /12 /
 4996 074421      061 020063        ASSI13:  .ASCII  /13 /
 4997 074424   032061    040        ASSI14:  .ASCII  /14 /
 4998 074427      061 020065        ASSI15:  .ASCII  /15 /
 4999 074432   033061    040        ASSI16:  .ASCII  /16 /
 5000 074435      061 020067        ASSI17:  .ASCII  /17 /
 5001 074440   042175 052105 072151 ASENDP:  .ASCII  <175>/DETitan10-R/<33>/\/                                 ; END OF ASSIGNM
 5002 074456   042175 046105 067141 ASENDL:  .ASCII  <175>/DELandscape13.6-@/<33>/\/                          ;    "         "
 5003 074502      155               SELEND:  .ASCII  /m/                                                    ; END OF SELECTION SEQUE
 5004 074503      033    120    061 BGNLD:   .BYTE   33,120,61,73,61,171                             ; FIRST PART OF FONT LOAD SEQ
 5005 074511      073    033    134 ENDLD:   .BYTE   73,33,134                                              ; LAST   "        "
 5006                               ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
 5007 074514   074532 074547 074564 DIAGX:   .WORD   DIAG0,DIAG1,DIAG2,DIAG3,DIAG0,DIAG1,0                  ; FONT BEING SELECTED TO
 5008 074532   055433 030461 042155 DIAG0:   .ASCII  <33>/[11mDIAG000/<12>
 5009 074547      033 030533 066461 DIAG1:   .ASCII  <33>/[11mDIAG001/<12>
 5010 074564   055433 030461 042155 DIAG2:   .ASCII  <33>/[11mDIAG002/<12>
 5011 074601      033 030533 066461 DIAG3:   .ASCII  <33>/[11mDIAG003/<12>
 5012                               ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
 5013 074616      033    120    061 DIAG12:  .BYTE   33,120,61,73,61,62,175,104,111,101,107   ; SEQS TO ASSIGN AND SELECT DIAG
 5014 074631      060    060    060          .BYTE   60,60,60,33,134,33,133,61,62,155
 5015 074643      033    120    061 DIAG13:  .BYTE   33,120,61,73,61,63,175,104,111,101,107   ; SEQS TO ASSIGN AND SELECT DIAG
 5016 074656      060    060    061          .BYTE   60,60,61,33,134,33,133,61,63,155
 5017 074670      033    120    061 DIAG14:  .BYTE   33,120,61,73,61,64,175,104,111,101,107   ; SEQS TO ASSIGN AND SELECT DIAG
 5018 074703      060    060    062          .BYTE   60,60,62,33,134,33,133,61,64,155
 5019 074715      033    120    061 DIAG15:  .BYTE   33,120,61,73,61,65,175,104,111,101,107   ; SEQS TO ASSIGN AND SELECT DIAG
 5020 074730      060    060    063          .BYTE   60,60,63,33,134,33,133,61,65,155
 5021 074742      033    120    061 DIAG16:  .BYTE   33,120,61,73,61,66,175,104,111,101,107   ; SEQS TO ASSIGN AND SELECT DIAG
 5022 074755      060    060    060          .BYTE   60,60,60,33,134,33,133,61,66,155
 5023 074767      033    120    061 DIAG17:  .BYTE   33,120,61,73,61,67,175,104,111,101,107   ; SEQS TO ASSIGN AND SELECT DIAG
 5024 075002      060    060    061          .BYTE   60,60,61,33,134,33,133,61,67,155
```

```
5025  075014  064551  040147  062477  REC0:   .ASCII  /iig@?e_CPCd@Pr?oKA?_GA?_GA?_GA?_GA???????????D??S??_GO/          ; 54 cha
5026  075102  037477  037477  037477          .ASCII  /?????????????????????????????????????????????????????????????????????
5027  075214  064551  040147  062477  REC1:   .ASCII  /iig@?e_CPCd@Pr?oKQ?_GA?_GA?_GA?_GA???????????D??S??_GO/          ; 54 cha
5028  075302  037477  037477  037477          .ASCII  /?????????????????????????????????????????????????????????????????????
5029  075414  064551  040147  062477  REC1A:  .ASCII  /iig@?e_CPCd@Pr?oKa?_GA?_GA?_GA?_GA???????????D??S??_GO/          ; 54 cha
5030  075502  037477  037477  037477          .ASCII  /?????????????????????????????????????????????????????????????????????
5031  075614  064551  040147  062477  REC1B:  .ASCII  /iig@?e_CPCd@Pr?oKq?_GA?_GA?_GA?_GA???????????D??S??_GO/          ; 54 cha
5032  075702  037477  037477  037477          .ASCII  /?????????????????????????????????????????????????????????????????????
5033  076014  037477  037477  037477  REC2:   .ASCII  /?????????????????????????????????????????????????????????????????/
5034  076102  037477  037477  037477          .ASCII  /?????????????????????????????????????????????????????????????????????
5035  076214  037477  037477  037477  REC3:   .ASCII  /?????????????????????????????????????????????????????????????????/
5036  076302  037477  037477  037477          .ASCII  /?????????????????????????????????????????????????????????????????????
5037  076414  037477  037477  037477  REC4:   .ASCII  /?????????????????????G?O?F/<176>/NO@cF_LA?†/<173>/t?EO???????????/
5038  076502  037477  037477  037477          .ASCII  /?????????????????????????????????????????????????????????????????????
5039  076614  037477  037477  037477  REC5:   .ASCII  /??????????????????N/<176>/w?????????@/<176><176><176><176><173>/????????F/<17
5040  076702  047077  077176  077176          .ASCII  /?N/<176><176><176><176><176><176>/w??????N/<176><176><176><176><176><176>/_?
5041  076744  037575  037477  037477          .ASCII  <175>/?????@/<176><176><173>/?F/<176><176>/o?????/<176><176>/o??N/<176><
5042  077014  057576  037477  037477  REC6:   .ASCII  <176>/_????B/<176>/_???F/<176>/w????@/<176>/o???@/<176><175>/??????†/<173
5043  077102  037573  037477  041077          .ASCII  <173>/????B/<176>/_????/<176><176>/?????/<176>/w????N/<176>/o????N/<175>
5044  077166  077176  037477  037477          .ASCII  <176><176>/?????/<176>/w????N/<176>/o????N/<175>
5045  077214  037477  037477  077102  REC7:   .ASCII  /????B/<176><173>/????B/<176>/_????/<176><176>/?????/<176><174>/????N/<1
5046  077271     176  037573  037477          .ASCII  <176><173>/????@/<176>/o/
5047  077302  037477  040077  077176          .ASCII  /???@/<176><176>/?????†/<175>/????†/<176>/_????F/<176>/_???N/<176>/w????
5048  077366  067576  037477  077100          .ASCII  <176>/o??@/<176><176>/?????B/<176><176>/_?@/<176><176>/o?/
5049  077414  037477  037477  077176  REC8:   .ASCII  /????/<176><176><176>/_B/<176><176><173>/?????F/<176><176><176><176><176
5050  077456  077176  077176  037537          .ASCII  <176><176><176><176>/_?????N/<176><176><176><176><176><176>/o??/
5051  077502  037477  037477  077176          .ASCII  /????/<176><176><176><176><176><176>/_??????@/<176><176><176><176><176>/
5052  077546  037477  037477  037477          .ASCII  /??????????/<176><176>/_?????????????????????????/
5053  077614  037477  037477  037477  REC9:   .ASCII  /?????????????????????????????????????????????†/<176><176><176><176><17
5054  077702  057576  037477  043077          .ASCII  <176>/_???F/<176><176><176><176><176><176><176><176>/w???@/<176><176><17
5055  077736  037477  037477  077136          .ASCII  /????†/<176><176><176><176><176><176><176><176>/_???F/<176><176><176><17
5056  077776  077176  077176  077176          .ASCII  <176><176><176><176><176><176><176><175>/????†/<176>
5057  100014  077176  077176  077176  REC10:  .ASCII  <176><176><176><176><176><176><176>/_???F/<176><176><176><176><176><176>
5058  100052  037477  037477  037477          .ASCII  /???????????F/<176><173>/??????????/
5059  100102  077102  057576  037477          .ASCII  /B/<176><176>/_?????????@/<176><176><173>/??????????/<176><176><176>/_??
5060  100170  063176  057576  037477          .ASCII  <176>/f/<176>/_????????F/<176>/o/<176><173>/???/
5061  100214  037477  037477  041077  REC11:  .ASCII  /?????B/<176>/wF/<176>/_???????@/<176><173>/?/<176><173>/????????/<176><
5062  100275     176  037573  037477          .ASCII  <176><173>/???/
5063  100302  037477  037477  077116          .ASCII  /????N/<176>/_?F/<176>/_??????F/<176>/o??/<176><173>/??????B/<176>/w??F/
5064  100363     176  037573  037477          .ASCII  <176><173>/???????/<176><175>/???F/<176>/_?????†/<176>/??/
5065  100414  037477  075576  037477  REC12:  .ASCII  /??/<176><173>/?????N/<176>/_???F/<176>/_????F/<176>/o????/<176><173>/??
5066  100475     176  037573  037477          .ASCII  <176><173>/???/
5067  100502  037477  075576  037477          .ASCII  /??/<176><173>/????N/<175>/?????F/<176>/????B/<176>/??????/<176>
5068  100540  042137  052124  052124          .ASCII  /_DTTTTTTTTT?????????????????????????????/
5069  100614  037477  037477  037477  REC13:  .ASCII  /?????????????????????????????????????????????????/
5070  100702  037477  037477  037477          .ASCII  /?????????????????????????????????????????????????????????????????????
5071  101014  037477  037477  037477  REC14:  .ASCII  /?????????????????????????????????????????????????/
5072  101102  037477  037477  037477          .ASCII  /?????????????????????????????????????????????????????????????????????
5073  101214  037477  037477  037477  REC15:  .ASCII  /?????????????????????????????????????????????????/
5074  101302  037477  037477  037477          .ASCII  /?????????????????????????????????????????????????????????????????????
5075  101414  037477  037477  037477  REC16:  .ASCII  /?????????????????????????????????????????????????/
5076  101502  037477  037477  037477          .ASCII  /?????????????????????????????????????????????????????????????????????
5077                                  .EVEN
5078                                  .LIST BEX
5079  101614                                ENDTST
 (3)  101614                          L10032:
```

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 (3)  101614  104401                          TRAP    C$ETST
5080  101616                                  ENDMOD
5081
5082
5083
5084
5085
5086
5087
5088
5089
5090
5093                                .SBTTL  MISCELANEOUS CONTROL FUNCTIONS TEST
5094                                ;MODULE MISCON.P11
5095
5096  101616                                BGNMOD
5097
5098                                ;++
5099                                ;               FUNCTIONAL DESCRIPTION
5100                                ;
5101                                ;       THE MISCELANEOUS CONTROL FUNCTIONS TEST WAS CREATED FOR USE ON
5102                                ;THE LN01 PRINTER.  IT IS A COMPILATION OF SUBTESTS THAT ARE SHORT IN
5103                                ;DURATION AND DO NOT REQUIRE A SEPARATE TEST ALL OF THERE OWN.  THE
5104                                ;FUNCTIONS THAT ARE TESTED ARE AS FOLLOWS:
5105                                ;       1: "CANCEL" CHARACTER
5106                                ;       2: "SUBSTITUTE" CHARACTER
5107                                ;       3: USE OF CONTROL CHARACTERS INSIDE ESCAPE AND CONTRL SEQUENCES
5108                                ;--
5109
5110                                ;               GLOBALS REFERENCED:
5111                                ;       MESSAGES, VARIABLES, SUBROUTINES
5112
5113  000000                        .REPT   0
5114
5115                                ;               PDL
5116                                ;
5117                                ;BEGIN ROUTINE MISCON
5118                                ;       DO RESET                                        ; RESET
5119                                ;       SELECT SIZE UNIT AS DECIPOINTS
5120                                ;       PRINT TEST ID
5121                                ;
5122                                ;                       "CANCEL" SECTION
5123                                ;
5124                                ;       MOVE TO ABSOLUTE POSITION 1 INCH (VERTICAL AND HORIZONTAL)
5125                                ;       WHILE SEQUENCE TABLE NE TO 0 DO                 ; DO FOR
5126                                ;       ;       SEND ESCAPE OR CONTROL SEQUENCE WITH "CANCEL" CHARACTER INSIDE  ; SEQUEN
5127                                ;       ENDDO
5128                                ;       SEND SECTION ID AND LINE LOCATION AND CR        ; LINE L
5129                                ;       SEND 1 "CANCEL" CHARACTER OUTSIDE A SEQUENCE    ; NOTHIN
5130                                ;                                                       ; SHOULD
5131                                ;                       "SUBSTITUTE" SECTION
5132                                ;
5133                                ;       MOVE TO ABSOLUTE POSITION 2 INCHES VERTICAL, 1 INCH HORIZONTAL
5134                                ;       SEND SECTION ID WITH LINE LOC.                  ; LINE L
5135                                ;       WHILE TABLE1 OF SEQUENCES NE TO 0 DO            ; DO FOR
5136                                ;       ;       SEND ESC OR CONT SEQUENCE WITH "SUBSTITUTE" CHAR INSIDE  ; SHOULD
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5137                                    :       ENDDO
5138                                    :       SEND "SUBSTITUTE" CHAR (OCTAL CODE 32) OUTSIDE SEQUENCE         ; SHOULD
5139                                    :
5140                                    :                   "CONTROL CHARACTERS INSIDE SEQUENCE" SECTION
5141                                    :
5142                                    :       CLEAR ALL HORIZONTAL AND VERTICAL TABS
5143                                    :       SET A VERTICAL TAB AT THE 4 INCH MARK
5144                                    :       SET A HORIZONTAL TAB AT THE 2 INCH MARK
5145                                    :       MOVE TO HORIZONTAL POSITION ABSOLUTE 1 INCH MARK
5146                                    :       MOVE RELATIVE VERTICALLY 1 INCH                                 ; RESULT
5147                                    :       SEND ESCAPE SEQUENCE TO CLEAR VERTICAL TABS
5148                                    :           INSIDE THE SEQUENCE:- SEND VT, CR, HT                       ; SHOULD
5149                                    :       SEND SECTION ID WITH LINE LOCATION MESSAGE                      ; LINE L
5150                                    :       MOVE TO HORIZONTAL POSITION 1 INCH
5151                                    :       SEND SEQUENCE TO TURN UNDERLINE
5152                                    :           INSIDE THE SEQUENCE:- SEND LF,FF,HT                         ; SHOULD
5153                                    :       PRINT "BELID" MESSAGE                                           ; IDENTI
5154                                    :                                                                       ; SECTIO
5155                                    :       RESET THE PRINTER
5156                                    :       SELECT SIZE UNIT AS DECIPOINTS
5157                                    :       DO A FORM FEED
5158                                    .ENDR
5159
5160
5161
5162
5163
5164
5165
5166
5167
5168
5169  101616                                    BGNTST  20.
 (3)  101616                            T20::
5170
5171                                    ;               SOURCE CODE
5172
5173  101616                            LET OUTBUF    :B= #11                                           ; CODE FOR HT
 (4)  101616  112737  000011  003114            MOVB    #11,OUTBUF
5174  101624                            LET OUTBUF+1  :B= #12                                           ;       " LF
 (4)  101624  112737  000012  003115            MOVB    #12,OUTBUF+1
5175  101632                            LET OUTBUF+2  :B= #13                                           ;       " VT
 (4)  101632  112737  000013  003116            MOVB    #13,OUTBUF+2
5176  101640                            LET OUTBUF+3  :B= #14                                           ;       " FF
 (4)  101640  112737  000014  003117            MOVB    #14,OUTBUF+3
5177  101646                            LET OUTBUF+4  :B= #15                                           ;       " CR
 (4)  101646  112737  000015  003120            MOVB    #15,OUTBUF+4
5178  101654                            LET OUTBUF+5  :B= #30                                           ;       " CANCEL
 (4)  101654  112737  000030  003121            MOVB    #30,OUTBUF+5
5179  101662                            LET OUTBUF+6  :B= #32                                           ;       " SUBSTITUTE
 (4)  101662  112737  000032  003122            MOVB    #32,OUTBUF+6
5180  101670                            LET OUTBUF+7  :B= #33                                           ;       " ESCAPE
 (4)  101670  112737  000033  003123            MOVB    #33,OUTBUF+7
5181  101676                            OUTPUT #REINIT,#2
5182  101740                            OUTPUT #SELDEC,#5                                               ; DECIPOINTS AS PARAMETERS
5183  102002                            OUTPUT #MISCON,#42.                                             ; TEST ID
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5184                                    ;
5185                                    ;                       "CANCEL" SECTION
5186                                    ;
5187  102044                            OUTPUT #ABP01,#12.                    ; ABSOLUTE POSITION 1 INCH VERTI
5188  102106                            LET R3 := #SEQTAB
 (4)  102106  012703  104364                    MOV     #SEQTAB,R3
5189  102112                            LET R4 := #CNTTAB
 (4)  102112  012704  104410                    MOV     #CNTTAB,R4
5190  102116                            WHILE (R3) NE #0 DO                   ; DO FOR EACH SEQUENCE IN TABLE
 (4)  102116                            50542$:
 (6)  102116  005713                            TST     (R3)
 (8)  102120  001002                            BNE     .+6
 (9)  102122  000137  102230                    JMP     50543$
5191  102126                                    OUTPUT (R3)+,(R4)+            ; OUTPUT THE SEQUENCE WITHOUT A
5192  102164                                    OUTPUT #OUTBUF+5,#1           ; ABORT THE SEQUENCE BY SENDING
5193  102226                            ENDDO
 (3)  102226  000733                            BR      50542$
 (3)  102230                            50543$:
5194  102230                            OUTPUT #CANSEC,#87.                   ; OUTPUT TEST ID AND LINE LOCATI
5195  102272                            OUTPUT #OUTBUF+5,#1                   ; SEND 1 CANCEL CHAR. NOTHING SH
5196  102334  004737  005306           JSR PC, QUIET
5197
5198                                    ;                       "SUBSTITUTE" SECTION
5199
5200  102340                            OUTPUT #ABP02,#13.                    ; ABSOLUTE POS. 2 INCHES VER AND
5201  102402                            OUTPUT #SUBSEC,#89.                   ; SECTION ID PLUS LINE LOCATION
5202  102444                            LET R3 := #SQTAB1
 (4)  102444  012703  104376                    MOV     #SQTAB1,R3
5203  102450                            LET R4 := #CNTTAB
 (4)  102450  012704  104410                    MOV     #CNTTAB,R4
5204  102454                            WHILE (R3) NE #0 DO                   ; DO FOR EACH ENTRY IN THIS TABL
 (4)  102454                            50544$:
 (6)  102454  005713                            TST     (R3)
 (8)  102456  001002                            BNE     .+6
 (9)  102460  000137  102566                    JMP     50545$
5205  102464                                    OUTPUT (R3)+,(R4)+            ; SEND ESC OR CONT SEQ WITHOUT A
5206  102522                                    OUTPUT #OUTBUF+6,#1           ; ABORT THE SEQUENCE BY SENDING
5207                                                                          ; SHOULD PRINT NOTHING
5208  102564                            ENDDO
 (3)  102564  000733                            BR      50544$
 (3)  102566                            50545$:
5209  102566                            OUTPUT #OUTBUF+6,#1                   ; SUBSTITUTE CHAR OUTSIDE SEQUEN
5210                                    ;
5211                                    ;                   "CONTROL CHARACTERS INSIDE SEQUENCE SECTION"
5212                                    ;
5213  102630                            OUTPUT #CLHVTB,#8.                    ; CLEAR ALL HOR AND VER TABS
5214  102672                            OUTPUT #STVR4,#7                      ; SET VERTICAL TAB AT 4 INCH MAR
5215  102734                            OUTPUT #STHOR2,#7                     ; SET HORIZONTAL TAB AT 2 INCH M
5216  102776                            OUTPUT #ABP01H,#7                     ; MOVE TO ABSOLUTE POSITION HORI
5217  103040                            OUTPUT #RLTV1,#6                      ; RELATIVE VERTICAL 1 INCH (SHOU
5218  103102                            OUTPUT #CONSEQ,#8.                    ; SEND SEQ TO CLEAR VERTICAL TAB
5219  103144                            OUTPUT #CONSEC,#107.                  ; SEND SECTION ID AND LINE LOCAT
5220  103206                            OUTPUT #ABP01H,#7                     ; HOR ABSOLUTE TO 1 INCH
5221  103250                            OUTPUT #CONSQ1,#8.                    ; SEND SEQ TO TURN ON UNDERLINE
5222  103312                            OUTPUT #BELID,#81.                    ; IDENTIFIES LINE LOC AS BEING 1
5223                                                                          ; AND IDENTIFIES THE LINE AS BEI
```

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      103354                               OUTPUT @REINIT,@2                          ; RESET THE MACHINE TO DEFAULT
      103416                               OUTPUT @SELDEC,@5                          ; SELECT DECIPOINTS
      103460                               OUTPUT @OUTBUF+3,@1                        ; FORM FEED
      103522  004737  005306               JSR PC,QUIET                               ; GUARANTEE THE FORM FEED
      103526                                         EXIT TST
 (3)  103526  104432                                 TRAP    C$EXIT
 (3)  103530  001072                                 .WORD   L10033-.

                                           .NLIST BEX
                                           ;                   LOCAL VARIABLES, TABLES, MESSAGES
      103532  055433  030061  046555  MISCON: .ASCII   <33>/[10mMISCELLANEOUS CONTROL FUNCTIONS TEST 20/<12>
      103607     042  040503  041516  CANSEC: .ASCII   /"CANCEL" SECTION - THIS LINE POSITION SHOULD BE APPROX. 1 INCH VERTICAL
      103736  051442  041125  052123  SUBSEC: .ASCII   /"SUBSTITUTE" SECTION - THIS LINE POSITION SHOULD BE APPROX. 2 INCHES VE
      104067     042  047503  052116  CONSEC: .ASCII   /"CONTROL CHARACTERS INSIDE A SEQUENCE" SECTION - LINE POSITION SHOULD B
      104242  044124  051511  046040  BELID:  .ASCII   /THIS LINE SHOULD BE 1 LINE BELOW SECTION ID AND IT SHOULD BE UNDERLINED
              104364                  .EVEN
      104364  104422  104463  104466  SEQTAB: .WORD    INTCAN,UNDSEQ,JUSSEQ,0,VECSEQ                  ; TABLE OF CANCEL SEQUEN
      104376  104431  104463  104466  SQTAB1: .WORD    INTSUB,UNDSEQ,JUSSEQ,VECSEQ,0                  ; TABLE OF SUBSTITUTE SE
      104410  000007  000003  000004  CNTTAB: .WORD    7,3,4,19.,0                                    ; TABLE OF BYTE COUNTS F
      104422     033     030     033  INTCAN: .BYTE    33,30,33,133,30,33,120                         ; POSSIBLE SEQUENCE INTR
      104431     033     032     033  INTSUB: .BYTE    33,32,33,133,32,33,120                         ; POSSIBLE SEQUENCE INTR
      104440     033     133     060  VECSEQ: .BYTE    33,133,60,73,63,60,60,73,63,60,60,73,71,60,60,73,61,65,60      ; DRWVEC
      104463     033     133     064  UNDSEQ: .BYTE    33,133,64                                      ; UNDERLINE SEQ WITHOUT
      104466     033     133     060  JUSSEQ: .BYTE    33,133,60,40                                   ; TURN ON JUSTIFY SEQ WI
      104472     033     133     067  ABPO1:  .BYTE    33,133,67,62,60,144,33,133,67,62,60,140        ; ABSOLUTE POSITION 1 IN
      104506     033     133     061  ABPO2:  .BYTE    33,133,61,64,64,60,144,33,133,67,62,60,140     ;       "           2
      104523     033     133     063  CLHVTB: .BYTE    33,133,63,147,33,133,64,147                    ; CLEAR ALL HOR AND VER
      104533     033     133     062  STVR4:  .BYTE    33,133,62,70,70,60,166                         ; SET VER TAB AT 4 INCH
      104542     033     133     061  STHOR2: .BYTE    33,133,61,64,64,60,165                         ; SET HOR TAB AT 2 INCH
      104551     033     133     062  ABPO3:  .BYTE    33,133,62,61,66,60,140                         ; ABSOLUTE HOR POSITION
      104560     033     133     060  ABPO1H: .BYTE    33,133,60,67,62,60,140                         ; ABSOLUTE HOR POSITION
      104567     033     133     067  RLTV1:  .BYTE    33,133,67,62,60,145                            ; RELATIVE VER 1 INCH
      104575     033     133     064  CONSEQ: .BYTE    33,133,64,13,15,12,11,147                          ; CLEAR VER TABS
      104605     033     133     064  CONSQ1: .BYTE    33,133,64,12,15,14,11,155                          ; TURN ON UNDERL
              104616                  .EVEN
                                      .LIST BEX
      104616  004737  005306                    JSR     PC,QUIET
      104622                                    ENDTST
 (3)  104622                          L10033:
 (3)  104622  104401                            TRAP    C$ETST
      104624                                    ENDMOD











                                      .SBTTL  INTERRUPT SERVICE ROUTINES
      104624                          BGNSRV
                                      ;
                                      ;++
                                      ;INTERRUPT VECTORS ARE ESTABLISHED DURING INITIALIZATION
```

```
                                ;POINTING TO THE BASIC ROUTINES WHICH
                                ;SET UP THE UNIT NUMBER CAUSING THE INTERRUPTS.
                                ;LINE NUMBER IS RETURNED IN R2
                                ;
                                ;--
                        000000  X=0
104624  000020          INT00:  .REPT 16.
                                SETPRI #PRIO4
                                PUSH    R2
                                LET R2 := #X
                                INLINE <JMP     IODRV>
                        X=X+2
                                .ENDR
(4)  104624  012700  000200     MOV     #PRIO4,R0
(4)  104630  104441             TRAP    C$SPRI
(3)  104632  010246             MOV     R2,-(SP)
(5)  104634  012702  000000     MOV     #X,R2
(3)  104640  000137  004542     JMP     IODRV
(4)  104644  012700  000200     MOV     #PRIO4,R0
(4)  104650  104441             TRAP    C$SPRI
(3)  104652  010246             MOV     R2,-(SP)
(5)  104654  012702  000002     MOV     #X,R2
(3)  104660  000137  004542     JMP     IODRV
(4)  104664  012700  000200     MOV     #PRIO4,R0
(4)  104670  104441             TRAP    C$SPRI
(3)  104672  010246             MOV     R2,-(SP)
(5)  104674  012702  000004     MOV     #X,R2
(3)  104700  000137  004542     JMP     IODRV
(4)  104704  012700  000200     MOV     #PRIO4,R0
(4)  104710  104441             TRAP    C$SPRI
(3)  104712  010246             MOV     R2,-(SP)
(5)  104714  012702  000006     MOV     #X,R2
(3)  104720  000137  004542     JMP     IODRV
(4)  104724  012700  000200     MOV     #PRIO4,R0
(4)  104730  104441             TRAP    C$SPRI
(3)  104732  010246             MOV     R2,-(SP)
(5)  104734  012702  000010     MOV     #X,R2
(3)  104740  000137  004542     JMP     IODRV
(4)  104744  012700  000200     MOV     #PRIO4,R0
(4)  104750  104441             TRAP    C$SPRI
(3)  104752  010246             MOV     R2,-(SP)
(5)  104754  012702  000012     MOV     #X,R2
(3)  104760  000137  004542     JMP     IODRV
(4)  104764  012700  000200     MOV     #PRIO4,R0
(4)  104770  104441             TRAP    C$SPRI
(3)  104772  010246             MOV     R2,-(SP)
(5)  104774  012702  000014     MOV     #X,R2
(3)  105000  000137  004542     JMP     IODRV
(4)  105004  012700  000200     MOV     #PRIO4,R0
(4)  105010  104441             TRAP    C$SPRI
(3)  105012  010246             MOV     R2,-(SP)
(5)  105014  012702  000016     MOV     #X,R2
(3)  105020  000137  004542     JMP     IODRV
(4)  105024  012700  000200     MOV     #PRIO4,R0
(4)  105030  104441             TRAP    C$SPRI
(3)  105032  010246             MOV     R2,-(SP)
```

```
 (5)  105034  012702  000020          MOV     #X,R2
 (3)  105040  000137  004542          JMP     IODRV
 (4)  105044  012700  000200          MOV     #PRI04,R0
 (4)  105050  104441                  TRAP    C$SPRI
 (3)  105052  010246                  MOV     R2,-(SP)
 (5)  105054  012702  000022          MOV     #X,R2
 (3)  105060  000137  004542          JMP     IODRV
 (4)  105064  012700  000200          MOV     #PRI04,R0
 (4)  105070  104441                  TRAP    C$SPRI
 (3)  105072  010246                  MOV     R2,-(SP)
 (5)  105074  012702  000024          MOV     #X,R2
 (3)  105100  000137  004542          JMP     IODRV
 (4)  105104  012700  000200          MOV     #PRI04,R0
 (4)  105110  104441                  TRAP    C$SPRI
 (3)  105112  010246                  MOV     R2,-(SP)
 (5)  105114  012702  000026          MOV     #X,R2
 (3)  105120  000137  004542          JMP     IODRV
 (4)  105124  012700  000200          MOV     #PRI04,R0
 (4)  105130  104441                  TRAP    C$SPRI
 (3)  105132  010246                  MOV     R2,-(SP)
 (5)  105134  012702  000030          MOV     #X,R2
 (3)  105140  000137  004542          JMP     IODRV
 (4)  105144  012700  000200          MOV     #PRI04,R0
 (4)  105150  104441                  TRAP    C$SPRI
 (3)  105152  010246                  MOV     R2,-(SP)
 (5)  105154  012702  000032          MOV     #X,R2
 (3)  105160  000137  004542          JMP     IODRV
 (4)  105164  012700  000200          MOV     #PRI04,R0
 (4)  105170  104441                  TRAP    C$SPRI
 (3)  105172  010246                  MOV     R2,-(SP)
 (5)  105174  012702  000034          MOV     #X,R2
 (3)  105200  000137  004542          JMP     IODRV
 (4)  105204  012700  000200          MOV     #PRI04,R0
 (4)  105210  104441                  TRAP    C$SPRI
 (3)  105212  010246                  MOV     R2,-(SP)
 (5)  105214  012702  000036          MOV     #X,R2
 (3)  105220  000137  004542          JMP     IODRV
5291
5292
5293
5294
5295
5296
5297
5298
5299
5300
5301
5302                                  .SBTTL CLOCK SERVICE ROUTINE
5303                                  ;++
5304                                  ;UPDATES THE COUNTER AT A RATE OF 16.67 MILLISECONDS PER TICK
5305                                  ;AND UPDATES A SECOND COUNTER WHEN THE FIRST OVERFLOWS.
5306                                  ;--
5307
5308  105224                          BGNSRV
5309  105224                          CLKTCK: SETPRI #PRI06
```

```
  (3)  105224  012700  000300              MOV     #PRI06,R0
  (3)  105230  104441                      TRAP    C$SPRI
5310   105232                              IF TICK EQ #0 THEN
  (6)  105232  005737  105310              TST     TICK
  (8)  105236  001402                      BEQ     .+6
  (9)  105240  000137  105256              JMP     50546$
5311   105244                                  LET TICK := #60.          ;60 TICKS PER SECOND
  (4)  105244  012737  000074  105310      MOV     #60.,TICK
5312   105252                                  LET TIME := TIME + #1
  (7)  105252  005237  105306              INC     TIME
5313   105256                              ENDIF
  (4)  105256                       50546$:
5314   105256                              LET TICK := TICK - #1          ;BACK UP SECOND TIMER
  (7)  105256  005337  105310              DEC     TICK
5315   105262                              IF CLKTYP EQ #2 THEN
  (6)  105262  023727  002316  000002      CMP     CLKTYP,#2
  (8)  105270  001402                      BEQ     .+6
  (9)  105272  000137  105304              JMP     50547$
5316   105276                                  LET @CLKCSR := #100
  (4)  105276  012777  000100  075016      MOV     #100,@CLKCSR
5317   105304                              ENDIF
  (4)  105304                       50547$:
5318
5319   105304                       ENDSRV                                ;AND EXIT
  (3)  105304                       L10035:
  (2)  105304  000002                      RTI
5320                                ;
5321   105306  000000               TIME:   .WORD   0
5322   105310  000000               TICK:   .WORD   0
5323                                .SBTTL  HARDWARE PARAMETER SECTION
5324   105312                       BGNMOD
5325
5326
5327                                ;++
5328                                ;THIS SECTION INCLUDES THE QUESTIONS WHICH REQUEST THE OPERATOR TO
5329                                ;FURNISH THE HARDWARE INFORMATION NECESSARY TO BUILD THE HARDWARE
5330                                ;P-TABLES.
5331                                ;
5332   105312                       ;--
                                    BGNHRD
  (3)  105312  000010                       .WORD L10036-L$HARD/2
  (3)  105314                       L$HARD::
5333
5334   105314                               GPRMA   GETADR,0,0,160000,177516,YES
  (4)  105314  000031                       .WORD   T$CODE
  (4)  105316  105334                       .WORD   GETADR
  (4)  105320  160000                       .WORD   T$LOLIM
  (4)  105322  177516                       .WORD   T$HILIM
5335   105324                               GPRMA   GETVEC,2,0,110,770,YES
  (4)  105324  001031                       .WORD   T$CODE
  (4)  105326  105351                       .WORD   GETVEC
  (4)  105330  000110                       .WORD   T$LOLIM
  (4)  105332  000770                       .WORD   T$HILIM
5336   105334                       ENDHRD
  (2)                                       .EVEN
  (3)  105334                       L10036:
5337                                .NLIST BEX
```

```
 5338  105334  050114  030461  040440  GETADR: .ASCIZ  /LP11 ADDRESS/
 5339  105351     111  052116  051105  GETVEC: .ASCIZ  /INTERRUPT VECTOR/
 5340                                  .LIST BEX
 5341                                  .EVEN
 5342                                  .SBTTL  SOFTWARE PARAMETER SECTION
 5343                                  ;
 5344                                  ;++
 5345                                  ;THIS SECTION INCLUDES THE QUESTIONS WHICH REQUEST THE OPERATOR TO FURNISH
 5346                                  ;THE SOFTWARE INFORMATION NECESSARY TO BUILD THE SOFTWARE P-TABLES.
 5347                                  ;--
 5348                                  ;
 5349  105372                          BGNSFT
  (3)  105372  000010                          .WORD L10037-L$SOFT/2
  (3)  105374                          L$SOFT::
 5350  105374                                  GPRML   MGTINT,0,1,YES
  (4)  105374  000130                          .WORD   T$CODE
  (4)  105376  105414                          .WORD   MGTINT
  (4)  105400  000001                          .WORD   1
 5351  105402                                  GPRMD   GETMAX,2,D,377,1,255.,YES
  (4)  105402  001052                          .WORD   T$CODE
  (4)  105404  105452                          .WORD   GETMAX
  (4)  105406  000377                          .WORD   377
  (4)  105410  000001                          .WORD   T$LOLIM
  (4)  105412  000377                          .WORD   T$HILIM
 5352  105414                          ENDSFT
  (2)                                          .EVEN
  (3)  105414                          L10037:
 5353                                  .NLIST BEX
 5354  105414  052522  020116  040515  MGTINT: .ASCIZ  /RUN MANUAL INTERVENTION TESTS/
 5355  105452  052501  047524  051104  GETMAX: .ASCIZ  /AUTODROP ERROR COUNT/
 5356                                  .LIST BEX
 5357          105500                  .EVEN
 5358                                  ;
 5359
 5360  105500  000020                  PATCH:  .BLKW   20
 5361  105540                          LASTAD
  (2)                                          .EVEN
  (4)  105540  000000                          .WORD   0
  (4)  105542  000000                          .WORD   0
  (3)  105544                          L$LAST::
 5362  105544                          ENDMOD
 5363          000001                  .END
```

```
ABMAR   067236          4505    4604#
ABOVE   073541          4860    4970#
ABPO1   104472          5187    5246#
ABPO1H  104560          5216    5220    5252#
ABPO2   104506          5200    5247#
ABPO3   104551          5251#
ABREL   024656          2585    2613#
ABS3    063566          4331#
ABS7    063575          4332#
ABTBCT  067534          4539    4625#
ABTBL   067512          4538    4624#
ACRLF   004043 G        1078#   2717    2728    3701    3702    3711    3712    3719    3720    3727    3728
ACTIVE= 020000           950#   1233    1245    1250    1314    1316    1321    1595    1700    2439
ADR   = 000020 G          910#
AMAR    067062          4594    4595#
APTBL   044254          3426    3558#
ASBGIN  074402          4991#
ASDIA1  073424          4845    4967#
ASENDL  074456          5002#
ASENDP  074440          5001#
ASSDIA  073404          4844    4966#
ASSEMB= 000010           748     750
ASSI10  074410          4983    4984    4993#
ASSI11  074413          4983    4985    4994#
ASSI12  074416          4982    4983    4984    4995#
ASSI13  074421          4982    4983    4985    4996#
ASSI14  074424          4982    4983    4984    4997#
ASSI15  074427          4982    4983    4985    4998#
ASSI16  074432          4982    4983    4984    4999#
ASSI17  074435          4982    4983    4985    5000#
ASSTBL  074106          4983#
ATBL    044160          3425    3555#
ATHRUZ  050354          3691    3752#
AVEC    053735          4009    4040#
BELID   104242          5222    5236#
BELOW   073451          4859    4969#
BEM     033221          2982    2996#
BGNLD   074503          4914    5004#
BGNSEQ  043254          3512#   3568
BIN2DA  004330          1168#
BIT0  = 000001 G         910#
BIT00 = 000001 G         910#
BIT01 = 000002 G         910#
BIT02 = 000004 G         910#
BIT03 = 000010 G         910#
BIT04 = 000020 G         910#
BIT05 = 000040 G         910#
BIT06 = 000100 G         910#
BIT07 = 000200 G         910#   1660    1670
BIT08 = 000400 G         910#
BIT09 = 001000 G         910#
BIT1  = 000002 G         910#
BIT10 = 002000 G         910#
BIT11 = 004000 G         910#
BIT12 = 010000 G         910#
BIT13 = 020000 G         910#    950
```

J11


```
BIT14 = 040000 G      910#    949
BIT15 = 100000 G      910#    948    1223    1307    1643    2379    2453    2470
BIT2  = 000004 G      910#
BIT3  = 000010 G      910#
BIT4  = 000020 G      910#
BIT5  = 000040 G      910#
BIT6  = 000100 G      910#
BIT7  = 000200 G      910#   1652    1717
BIT8  = 000400 G      910#
BIT9  = 001000 G      910#
BLANK   022301       2389   2490#
BMAR    067076       4594   4596#
BOE   = 000400 G      910#
BOTMAR  044023      3549#   3569    3576
BOTNUM  044135      3552#   3569    3576
BOTSEC  037447       3176   3179    3234#
BPTBL   044422       3432   3563#
BTBL    044346       3431   3560#
BUFADD  002344       993#   1341    1342    1369*   1430*   1525*   1709*   1710*   1712*   1715*   1787*   1790*   1791*
                    1811*   1816*   1851*   1856*   1857*   1865*   1869*   1877*   1881*   1884*   1886*   1887*   1888*
                    1941*   1942*   1973*   2008*   2014*   2123*   2125*   2130*   2135*   2138*   2142*   2144*   2147*
                    2149*   2150*   2157*   2215*   2217*   2218*   2239*   2244*   2291*   2293*   2294*   2295*   2296*
                    2306*   2314*   2318*   2323*   2330*   2338*   2388*   2389*   2412*   2416*   2421*   2483*   2583*
                    2584*   2585*   2586*   2587*   2588*   2589*   2592*   2593*   2595*   2599*   2600*   2601*   2602*
                    2604*   2605*   2606*   2714*   2715*   2716*   2717*   2718*   2719*   2725*   2726*   2728*   2729*
                    2730*   2732*   2733*   2735*   2736*   2737*   2738*   2899*   2900*   2901*   2902*   2912*   2914*
                    2915*   2917*   2919*   2921*   2926*   2927*   2929*   2930*   2933*   2937*   2938*   2940*   2941*
                    2943*   2947*   2948*   2949*   2953*   2957*   2959*   2960*   2962*   2966*   2968*   2969*   2971*
                    2975*   2976*   2978*   2979*   2982*   2983*   3142*   3143*   3144*   3145*   3146*   3147*   3148*
                    3149*   3150*   3151*   3152*   3153*   3154*   3155*   3156*   3157*   3158*   3159*   3161*   3164*
                    3166*   3167*   3168*   3170*   3171*   3173*   3174*   3175*   3176*   3178*   3179*   3181*   3182*
                    3183*   3184*   3185*   3187*   3190*   3192*   3193*   3194*   3195*   3196*   3408*   3409*   3410*
                    3411*   3412*   3414*   3415*   3417*   3420*   3421*   3423*   3428*   3434*   3437*   3438*   3439*
                    3440*   3444*   3445*   3447*   3450*   3455*   3461*   3466*   3467*   3468*   3470*   3474*   3475*
                    3479*   3480*   3484*   3487*   3488*   3489*   3490*   3491*   3682*   3683*   3684*   3685*   3686*
                    3687*   3689*   3690*   3691*   3693*   3694*   3695*   3697*   3698*   3700*   3701*   3702*   3704*
                    3705*   3707*   3709*   3711*   3712*   3714*   3716*   3719*   3720*   3722*   3723*   3724*   3725*
                    3727*   3728*   3730*   3731*   3732*   3733*   3734*   3842*   3843*   3844*   3845*   3846*   3850*
                    3851*   3852*   3853*   3854*   3856*   3857*   3859*   3860*   3862*   3864*   3865*   3866*   3986*
                    3987*   3988*   3989*   3990*   3994*   3996*   3997*   3998*   3999*   4000*   4197*   4198*   4199*
                    4200*   4204*   4205*   4206*   4207*   4208*   4209*   4211*   4212*   4214*   4215*   4216*   4218*
                    4219*   4222*   4225*   4227*   4228*   4229*   4231*   4232*   4233*   4236*   4239*   4241*   4242*
                    4243*   4244*   4245*   4247*   4252*   4253*   4254*   4255*   4256*   4257*   4258*   4262*   4265*
                    4266*   4270*   4273*   4275*   4276*   4277*   4278*   4487*   4488*   4492*   4496*   4497*   4498*
                    4499*   4500*   4503*   4504*   4505*   4506*   4508*   4509*   4517*   4522*   4523*   4524*   4526*
                    4527*   4528*   4529*   4531*   4536*   4537*   4540*   4541*   4543*   4544*   4546*   4547*   4555*
                    4559*   4561*   4562*   4563*   4840*   4841*   4842*   4843*   4844*   4845*   4846*   4847*   4848*
                    4849*   4852*   4853*   4854*   4855*   4856*   4857*   4859*   4860*   4861*   4862*   4914*   4917*
                    4922*   4927*   4932*   4935*   4936*   4937*   4938*   4942*   4943*   4945*   4946*   4947*   4948*
                    4952*   4953*   4954*   5181*   5182*   5183*   5187*   5191*   5192*   5194*   5195*   5200*   5201*
                    5205*   5206*   5209*   5213*   5214*   5215*   5216*   5217*   5218*   5219*   5220*   5221*   5222*
                    5224*   5225*   5226*
BUFCNT  002346       995#   1343    1344    1369*   1430*   1525*   1709*   1710*   1712*   1715*   1787*   1790*   1791*
                    1811*   1816*   1851*   1856*   1857*   1865*   1869*   1877*   1881*   1884*   1886*   1887*   1888*
                    1941*   1942*   1973*   2008*   2014*   2123*   2125*   2130*   2135*   2138*   2142*   2144*   2147*
                    2149*   2150*   2157*   2215*   2217*   2218*   2239*   2244*   2291*   2293*   2294*   2295*   2296*
```

	2306#	2314#	2318#	2323#	2330#	2338#	2388#	2389#	2412#	2416#	2421#	2483#	2583#
	2584#	2585#	2586#	2587#	2588#	2589#	2592#	2593#	2595#	2599#	2600#	2601#	2602#
	2604#	2605#	2606#	2714#	2715#	2716#	2717#	2718#	2719#	2725#	2726#	2728#	2729#
	2730#	2732#	2733#	2735#	2736#	2737#	2738#	2899#	2900#	2901#	2902#	2912#	2914#
	2915#	2917#	2919#	2921#	2926#	2927#	2929#	2930#	2933#	2937#	2938#	2940#	2941#
	2943#	2947#	2948#	2949#	2953#	2957#	2959#	2960#	2962#	2966#	2968#	2969#	2971#
	2975#	2976#	2978#	2979#	2982#	2983#	3142#	3143#	3144#	3145#	3146#	3147#	3148#
	3149#	3150#	3151#	3152#	3153#	3154#	3155#	3156#	3157#	3158#	3159#	3161#	3164#
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	3411#	3412#	3414#	3415#	3417#	3420#	3421#	3423#	3428#	3434#	3437#	3438#	3439#
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	3687#	3689#	3690#	3691#	3693#	3694#	3695#	3697#	3698#	3700#	3701#	3702#	3704#
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	3987#	3988#	3989#	3990#	3994#	3996#	3997#	3998#	3999#	4000#	4197#	4198#	4199#
	4200#	4204#	4205#	4206#	4207#	4208#	4209#	4211#	4212#	4214#	4215#	4216#	4218#
	4219#	4222#	4225#	4227#	4228#	4229#	4231#	4232#	4233#	4236#	4239#	4241#	4242#
	4243#	4244#	4245#	4247#	4252#	4253#	4254#	4255#	4256#	4257#	4258#	4262#	4265#
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	5224#	5225#	5226#										
BUFREP 002350	997#	1345	1369#	1430#	1525#	1709#	1710#	1712#	1715#	1787#	1790#	1791#	1811#
	1816#	1851#	1856#	1857#	1865#	1869#	1877#	1881#	1884#	1886#	1887#	1888#	1941#
	1942#	1973#	2008#	2014#	2123#	2125#	2130#	2135#	2138#	2142#	2144#	2147#	2149#
	2150#	2157#	2215#	2217#	2218#	2239#	2244#	2291#	2293#	2294#	2295#	2296#	2306#
	2314#	2318#	2323#	2330#	2338#	2388#	2389#	2412#	2416#	2421#	2483#	2583#	2584#
	2585#	2586#	2587#	2588#	2589#	2592#	2593#	2595#	2599#	2600#	2601#	2602#	2604#
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	4270#	4273#	4275#	4276#	4277#	4278#	4487#	4488#	4492#	4496#	4497#	4498#	4499#

```
                        4500* 4503* 4504* 4505* 4506* 4508* 4509* 4517* 4522* 4523* 4524* 4526* 4527*
                        4528* 4529* 4531* 4536* 4537* 4540* 4541* 4543* 4544* 4546* 4547* 4555* 4559*
                        4561* 4562* 4563* 4840* 4841* 4842* 4843* 4844* 4845* 4846* 4847* 4848* 4849*
                        4852* 4853* 4854* 4855* 4856* 4857* 4859* 4860* 4861* 4862* 4914* 4917* 4922*
                        4927* 4932* 4935* 4936* 4937* 4938* 4942* 4943* 4945* 4946* 4947* 4948* 4952*
                        4953* 4954* 5181* 5182* 5183* 5187* 5191* 5192* 5194* 5195* 5200* 5201* 5205*
                        5206* 5209* 5213* 5214* 5215* 5216* 5217* 5218* 5219* 5220* 5221* 5222* 5224*
                        5225* 5226*
BYTTBL  053000          3992  4010#
CANSEC  103607          5194  5233#
CCNT    002300           962# 1800* 2226*
CHAR    011722          1795* 1797* 1801  1802* 1803* 1804  1805* 1806* 1820#
CHAR24  057737          4294#
CHAR44  057663          4293#
CHRGEN  002304           964#
CK1     006342          1509#
CLEAN   007276          1589#
CLEART  067333          4606  4610#
CLHVTB  104523          5213  5248#
CLKCSR  002322           977# 1502* 1503* 1513* 1516* 1604* 5316*
CLKENA  002330           980#
CLKSET  002324           978#
CLKTCK  105224          5309#
CLKTYP  002316           972# 1497* 1500* 1511* 1519  1602  1606  5315
CLKVEC  002326           979# 1505* 1506  1514* 1603  1607
CLOCKP  002320           976# 1501* 1502  1512* 1513
CLRHOR  036610          3146  3167  3208#
CLRTAB  043170          3508#
CLRUND  047760          3724  3730  3739#
CLRVER  036604          3145  3207#
CMAR    067112          4594  4597#
CNTTAB  104410          5189  5203  5240#
COMMEN  073632          4861  4971#
CONSEC  104067          5219  5235#
CONSEQ  104575          5218  5254#
CONSQ1  104605          5221  5255#
COUNT   002276           961# 1861* 1873* 1948* 1983* 2131* 2151* 2152 2913* 2918* 2928* 2939* 2958*
                        2967* 2977* 3160* 3163* 3169* 3177* 3186* 3189* 3413* 3446* 3483* 3715* 3721*
                        3849* 4213* 4215  4220* 4221  4224  4228  4234* 4235  4238  4243  4525* 4944*
COUNTD  004536          1172* 1177* 1180  1181* 1182  1189* 1204#
CPTBL   044646          3453  3572#
CR    = 000015 G         917#
CSRERR  003342          1065# 1647  2381
CTBL    044554          3452  3568#
CURADD  002546          1015# 1228  1229* 1240* 1242  1243* 1341* 2441*
CURCNT  002746          1027# 1227  1234* 1241* 1244* 1326  1343* 1346  1382* 1464* 1596* 2440* 2481*
C$AU  = 000052           748#
C$AUTO= 000061           748#  818
C$BRK = 000022           748#
C$BSEG= 000004           748#
C$BSUB= 000002           748#
C$CEFG= 000045           748#
C$CLCK= 000062           748#  1498  1509
C$CLEA= 000012           748#  1610
C$CLOS= 000035           748#
C$CLP1= 000006           748#
```

```
C$CVEC= 000036          7480  1603
C$DCLN= 000044          7480  1389
C$DODU= 000051          7480
C$DRPT= 000024          7480
C$DU  = 000053          7480
C$EDIT= 000003          7480   769
C$ERDF= 000055          7480
C$ERHR= 000056          7480  1134  1139  1145  1647  1664  1674  1698  1728  2381  2422  2460  2477
C$ERRO= 000060          7480
C$ERSF= 000054          7480
C$ERSO= 000057          7480
C$ESCA= 000010          7480
C$ESEG= 000005          7480
C$ESUB= 000003          7480
C$ETST= 000001          7480  1752  1829  1899  2089  2185  2260  2348  2508  2641  2750  3001  3237
                       3581  3759  3879  4048  4335  4661  5079  5259
C$EXIT= 000032          7480  1434  1526  1719  1818  1891  2016  2161  2246  2341  2368  2371  2485
                       2608  2740  2985  3201  3493  3736  3868  4002  4280  4565  4957  5228
C$GETB= 000026          7480
C$GETW= 000027          7480
C$GMAN= 000043          7480  1454  2408  2430  2452  2456  2469  2473
C$GPHR= 000042          7480  1404  1460
C$GPLO= 000030          7480
C$GPRI= 000040          7480
C$INIT= 000011          7480  1541
C$INLP= 000020          7480
C$MANI= 000050          7480  1443  2366
C$MEM = 000031          7480
C$MSG = 000023          7480
C$OPEN= 000034          7480
C$PNTB= 000014          7480
C$PNTF= 000017          7480#  1384  1388  1440  1441  1446  1520  1521  2405  2406  2407  2428  2449
                       2450  2451  2454  2455  2467  2468  2471  2472
C$PNTS= 000016          7480#
C$PNTX= 000015          7480#
C$QIO = 000377          7480#
C$RDBU= 000007          7480#
C$REFG= 000047          7480#  1422  1424
C$RESE= 000033          7480#  1438  1587
C$REVI= 000003          7480#   769
C$RFLA= 000021          7480#
C$RPT = 000025          7480#
C$SEFG= 000046          7480#
C$SPRI= 000041          7480#  1428  1523  1586  1609  1681  1692  1708  5290  5309
C$SVEC= 000037          7480#  1482  1506  1566  1607  1682  1693
C$TPRI= 000013          7480#
DATPTH  011724          1791  1821#
DEBUG = ****** U        2653  2762  3012  3593  3771  3891  4060  4347  4673  5091  5271
DECFIN  004052 G        1060#  1712  1787  1857  2123  2215  2291  2901  3193  3410  3862  4252  4842
                       4938
DECLCS  051704          3850  3871#
DEFMAR  043713          3547#  3568  3570
DEFMR1  037372          3155  3229#
DEFMR2  037402          3156  3230#
DEL   = 000177 G         918#
DFAULT  010634          1710  1742#
```

```
DFPTBL  002252 G          803#
DIAGMC= 000000            748      750
DIAGTB  074364           4939     4990#
DIAGX   074514           4940     5007#
DIAGO   074532           5007     5008#
DIAG1   074547           5007     5009#
DIAG12  074616           4990     5013#
DIAG13  074643           4990     5015#
DIAG14  074670           4990     5017#
DIAG15  074715           4990     5019#
DIAG16  074742           4990     5021#
DIAG17  074767           4990     5023#
DIAG2   074564           5007     5010#
DIAG3   074601           5007     5011#
DIGITS  004540           1174*    1205#
DISANL  027126           2718     2743#
DMAR    067126           4594     4598#
DONE    013132           1884     1894#
DOORDY  023372           2471     2503#
DOORD1  023441           2472     2504#
DOORSW  023265           2467     2501#
DOOSWI  003556           1069#    2477
DOOSW1  023342           2468     2502#
DPTBL   045010           3459     3577#
DROPED= 040000            949#    1303     1381     1491     1595     1700
DROPIT  005354           1152     1381#
DRULE1  043636           3543#    3562
DRULE2  043664           3545#    3569
DRWVEC  052632           3987     3998     4006#
DSSU    067504           4546     4622#
DTBL    044740           3458     3574#
DVEC    053417           4009     4029#
EF.CON= 000036 G          910#
EF.NEW= 000035 G          910#
EF.PWR= 000034 G          910#
EF.RES= 000037 G          910#    1424
EF.STA= 000040 G          910#    1422
EMAR    067142           4594     4599#
ENABNL  027177           2729     2744#
ENDHAB  043566           3535#    3555     3556     3557     3560
ENDHR   043565           3534#    3556
ENDHT   043564           3533#
ENDLD   074511           4935     5005#
ENDLRM  043562           3531#
ENDPLP  043570           3537#
ENDTBM  043563           3480     3532#    3568     3569     3570     3574     3575
ENDTS   044113           3488     3550#
ENDVAB  043567           3536#    3569     3576
END2    010224           1699#    1729     1736
ENJUS   063472           4275     4323#
EOIGN   042772           3487     3502#
EOPLP   042676           3470     3501#
ERFLG = 000400           1129#    1335#
ERRCOD  002332            981#    1129     1155*    1258*    1299*    1308*    1320*    1330*    1334     1451*    2438*
ERRFLG  002334            983#    2393*    2410*    2418     2419     2426*    2437*
ERROR = 100000            948#    1154     1257     1309     1322     1595     1644     1661     1671     1700     2439
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ERRSVC 003046 10360 1259 1335 1369# 1430# 1525# 1709# 1710# 1712# 1715# 1787# 1790# 1791#
1811# 1816# 1851# 1856# 1857# 1865# 1869# 1877# 1881# 1884# 1886# 1887# 1888#
1941# 1942# 1973# 2008# 2014# 2123# 2125# 2130# 2135# 2138# 2142# 2144# 2147#
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5224# 5225# 5226#

ERRTBL 003050 G 10370 1132# 1137# 1143# 1151 1385# 1463# 1597# 1645# 1663# 1672# 1696# 1726#
2380# 2423# 2458# 2475#

ERR11 011010 1674 17480
ERR12 011064 1728 17490
ERR13 011147 1698 17500
EVENTB 074130 49840
EVL = 000004 G 910#
EXP 060015 4205 42960
EXPL 061153 4254 43050
EXPL1 061360 4255 43070
EXPL2 061452 4256 43080
EXP1 060225 4206 42980
EXP2 060444 4207 43000
EXP3 060665 4208 43020
EXP4 061103 4209 43040
EXRMAR 043550 35290 3564 3566
E$END = 002100 7480
E$LOAD= 000035 7480 769
FAKE 005462 14020 1427
FF = 000014 G 9160
FLAG 002270 9580 1450# 1454 2373# 2404# 2408 2429# 2430 2448# 2452 2456 2466# 2469
2473

```
FLAGDA  004534  1171* 1180  1183* 1192  1203#
FMAR    067156  4594  4600#
FONDEM  073155  4849  4962#
FONSLA  073237  4855  4963#
FONSLB  073255  4857  4964#
FONTST  073132  4843  4961#
FRAME   066707  4576  4586#
FUN     050414  3725  3754#
F$AU  = 000015   748#
F$AUTO= 000020   748#  814  818
F$BGN = 000040   748#  766  774  814  897  900 1410 1418 1419 1434 1526 1585 1612
                1616 1627 1719 1725 1734 1752 1754 1769 1784 1818 1829 1831 1845
                1850 1891 1899 1901 1915 1938 2016 2089 2091 2105 2121 2161 2185
                2186 2200 2210 2246 2260 2261 2273 2288 2341 2348 2350 2354 2364
                2368 2371 2485 2508 2510 2513 2581 2608 2641 2642 2658 2712 2740
                2750 2751 2765 2897 2985 3001 3014 3017 3134 3201 3237 3239 3243
                3388 3493 3581 3582 3596 3673 3736 3759 3760 3775 3840 3868 3879
                3880 3895 3985 4002 4048 4049 4065 4188 4280 4335 4336 4352 4472
                4565 4661 4662 4678 4828 4957 5079 5080 5096 5169 5228 5259 5260
                5274 5308 5324 5332 5349 5362
F$CLEA= 000007   748#  1585 1610
F$DU  = 000016   748#
F$END = 000041   748#  766  818  897  900 1410 1418 1434 1526 1541 1610 1612 1616
                1627 1719 1730 1737 1752 1754 1769 1784 1818 1829 1831 1845 1850
                1891 1899 1901 1915 1938 2016 2089 2091 2105 2121 2161 2185 2186
                2200 2210 2246 2260 2261 2273 2288 2341 2348 2350 2354 2364 2368
                2371 2485 2508 2510 2513 2581 2608 2641 2642 2658 2712 2740 2750
                2751 2765 2897 2985 3001 3014 3017 3134 3201 3237 3239 3243 3388
                3493 3581 3582 3596 3673 3736 3759 3760 3775 3840 3868 3879 3880
                3895 3985 4002 4048 4049 4065 4188 4280 4335 4336 4352 4472 4565
                4661 4662 4678 4828 4957 5079 5080 5096 5169 5228 5259 5260 5319
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F$HW  = 000013   748#  803  810
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F$MOD = 000000   748#  766  897  900 1410 1418 1612 1616 1754 1769 1831 1845 1901
                1915 2091 2105 2186 2200 2261 2273 2350 2354 2510 2513 2642 2658
                2751 2765 3014 3017 3239 3243 3582 3596 3760 3775 3880 3895 4049
                4065 4336 4352 4662 4678 5080 5096 5260 5324 5362
F$MSG = 000011   748#
F$PROT= 000021   748#  774  778
F$PWR = 000017   748#
F$RPT = 000012   748#
F$SEG = 000003   748#
F$SOFT= 000005   748#  5349 5352
F$SRV = 000010   748#  1725 1730 1734 1737 5274 5308 5319
F$SUB = 000002   748#
F$SW  = 000014   748#  826  835
F$TEST= 000001   748#  1627 1752 1784 1829 1850 1899 1938 2089 2121 2185 2210 2260
                2288 2348 2364 2508 2581 2641 2712 2750 2897 3001 3134 3237 3388
                3581 3673 3759 3840 3879 3985 4048 4188 4335 4472 4661 4828 5079
                5169 5259
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GETMAX  105452  5351  5355#
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GRID1   025654          2595    2637#
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G$DELM= 000372           748#   1317    1432    1654    1685    1695
G$DISP= 000003           748#
G$EXCP= 000400           748#
G$HILI= 000002           748#
G$LOLI= 000001           748#
G$NO  = 000000           748#
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G$OFSI= 000376           748#   1454    2408    2430    2452    2456    2469    2473    5334    5335    5350    5351
G$PRMA= 000001           748#   5334    5335
G$PRMD= 000002           748#   5351
G$PRML= 000000           748#   1454    2408    2430    2452    2456    2469    2473    5350
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G$RADB= 000000           748#
G$RADD= 000040           748#   5351
G$RADL= 000120           748#   1454    2408    2430    2452    2456    2469    2473    5350
G$RADO= 000020           748#   5334    5335
G$XFER= 000004           748#
G$YES = 000010           748#   1454    2408    2430    2452    2456    2469    2473    5334    5335    5350    5351
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HANRD1  023217          2455    2500#
HANRSW  022675          2449    2496#
HANSWI  003503          1068#   2460
HANSW1  023006          2450    2497#
HANSW2  023073          2451    2498#
HILOSQ  025427          2600    2602    2627#
HMAR    067206          4594    4602#
HOE   = 100000 G         910#
HORA    067554          4624    4626#
HORB    067562          4624    4627#
HORC    067571          4624    4628#
HORD    067600          4624    4629#
HORDEF  032562          2912    2990#
HORE    067607          4624    4630#
HORF    067624          4624    4631#
HORG    067641          4624    4632#
HORH    067656          4624    4633#
HORTB1  037115          3152    3182    3220#
HORTB2  037237          3153    3183    3224#
HOR3    067752          4635    4639#
HOR4    070222          4655    4656#
HOR5    070232          4655    4657#
HOR6    070242          4655    4658#
IBE   = 010000 G         910#
IDMAR   066636          4581#
IDU   = 000040 G         910#
IDVCNT  067712          4553    4636#
IDVEC   067666          4552    4635#
IER   = 020000 G         910#
IGNORA  043606          3539#   3564    3566
IGNORB  043611          3540#   3564    3566
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IGNORE	007202	1506	1549#	1607										
IGNOR1	043571	3538#												
IGNOR2	043623	3542#												
IGNTBL	044532	3476	3566#											
IGNTBP	044544	3477	3567#											
IGSEC	043103	3484	3503#											
IGTBL	044474	3441	3564#											
IGTBLP	044514	3442	3565#											
IMAR	067222	4594	4603#											
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INTER1	003622	1070#												
INTFAC	010554	1709	1740#											
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		4954	5181	5182	5183	5187	5191	5192	5194	5195	5200	5201	5205	5206
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I$INIT= 000041           748#   1419#   1434    1526    1541#
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JUSSPA  057616          5238    5239    5245#
JUSTFY  057636          4285#
JUSTIF  057767          4214    4227    4242    4287#
JUSTOF  054062          4199    4295#
JUSTON  054055          4045#
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LETTBL  052750          2589    2619#
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                         959#   1810*   1949*   1984*   2146*   2223*   2224*   2230    2237    2242    2409*   2413*   2414
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LOOP    033350          2923*   2946    3000#
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                        2470    2479*
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LRMAR1 036624 3148 32100
LSTCNT 002274 9600
LUNIT 002310 9660 1633* 1636* 1638 1642 1646 1662 1673 1697 1727 2128* 2129 2130
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2464* 2465 2467 2471 2476

LVEC 053133 4009 40190
LVEC2 054005 4009 40420
L$ACP 002110 G 7690
L$APT 002036 G 7690
L$AUT 002070 G 7690
L$AUTO 002256 G 769 8140
L$CCP 002106 G 7690
L$CLEA 007266 G 769 15850
L$CO 002032 G 7690
L$DEPO 002011 G 7690
L$DESC 002202 G 769 7900
L$DESP 002076 G 7690
L$DEVP 002060 G 7690
L$DISP 002132 G 769 7860
L$DLY 002116 G 7690 1317 1432 1654 1685 1695

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L$DUT   002072 G        769#
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L$ENVI  002044 G        769#
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L$HPCP  002016 G        769#
L$HPTP  002022 G        769#
L$HW    002252 G        769     803#
L$ICP   002104 G        769#
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L$LADP  002026 G        769#
L$LAST  105544 G        769     5361#
L$LOAD  002100 G        769#
L$LUN   002074 G        769#    1133*   1138*   1144*   1285*   1288*   1298    1355*   1384    1402*   1403    1404    1405*
                       1459*   1460    1462    1590*   1593    1646*   1662*   1673*   1697*   1727*   2447*   2459*   2476*
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L$NAME  002000 G        769#
L$PRIO  002042 G        769#
L$PROT  002122 G        769     774#
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L$REPP  002062 G        769#
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L$SPCP  002020 G        769#
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L$STA   002030 G        769#
L$SW    002264 G        769     826#
L$TEST  002114 G        769#
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L10002  002260          818#
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L10007  010544         1730#
L10010  010552         1737#
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L10012  013202         1891    1899#
L10013  015152         2016    2089#
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L10027  054070          4002    4048#
L10030  063604          4280    4335#
L10031  070252          4565    4661#
L10032  101614          4957    5079#
L10033  104622          5228    5259#
L10035  105304          5319#
L10036  105334          5332    5336#
L10037  105414          5349    5352#
MARDEF  032672          2975    2993#
MARTBL  067036          4501    4594#
MAXERR  002266           832#   1151
MGTINT  105414          5350    5354#
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MIDSEQ  043561          3530#   3568
MISCON  103532          5183    5232#
MRESET  006661          1531#
MSGADR  002706          1024#   1240    1342*
MSGCNT  002606          1018#   1241    1344*
MULINE  017157          2218    2252#
NEWPG   073340          4965#
NLMODE  027264          2716    2745#
NO      057661          4292#
NOCLCK  007043          1520    1535#
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NONBUF  014124          1943    2024#
NONCHR  014010          1942    2021#
NORMAR  066673          4497    4509    4585#
NOSPA   057656          4291#
NOTAB   050046          3694    3700    3744#
NOTIM   007105          1521    1536#
NOTUND  050117          3687    3731    3746#
NOUND   047770          3685    3741#
NRGT16  006542          1440    1529#
NRGT17  006625          1441    1530#
NSELTB  074070          4850    4982#
NUM     015150          2086#
NVEC    053203          4009    4021#
ODDTB   074142          4985#
OFFJU   066657          4583#
OFFJUS  063551          4211    4232    4244    4266    4328#
OFFSET  052666          4007#
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ON      057654          4290#
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ONESVN  043534          3474    3528#
ONETEN  043520          3437    3527#   3564
ONJU    066652          4582#
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                         2138    2144    2149    2150    2156*   2157    2225    2239    2243*   2244    2301    2306    2308
                         2314    2317*   2318    2325    2330    2332    2338    2415*   2416    2420*   2421    2482*   2483
                         2603*   2604    2720    2725    2726    2732    2733    2736    2903*   2904*   2905*   2906*   2907*
                         2908*   2909*   2910*   2914    2915    2917    2921    2926    2927    2929    2930    2933    2937
                         2938    2940    2941    2943    2947    2948    2949    2953    2959    2962    2968    2971    2978
                         2979    2983    3135*   3136*   3137*   3138*   3139*   3140*   3141*   3157    3158    3159    3161
                         3164    3166    3170    3173    3175    3178    3181    3185    3187    3190    3192    3194    3390*
                         3391*   3392*   3393*   3394*   3395*   3396*   3397*   3398*   3399*   3400*   3401*   3402*   3403*
                         3404*   3405*   3414    3415    3417    3421    3423    3438    3439    3440    3445    3447    3450
                         3467    3475    3489    3555    3556    3557    3560    3561    3569    3570    3571    3574    3575
                         3674*   3675*   3676*   3677*   3678*   3679*   3680*   3681*   3697    3698    3705    3707    3709
                         3716    3732    3847*   3857    3859    3863*   3864    4192*   4193*   4194*   4195*   4196*   4200
                         4212    4216    4218    4229    4233    4245    4253    4276    4477*   4478*   4479*   4480*   4481*
                         4482*   4483*   4484*   4485*   4486*   4504    4506    4508    4524    4531    4540    4544    4547
                         4561    4606    4607    4635    4908*   4909*   4910*   4911*   4912*   4913*   4945    4946    4947
                         4948    4952    5173*   5174*   5175*   5176*   5177*   5178*   5179*   5180*   5192    5195    5206
                         5209    5226
OUTTIM   003702          1072#   1139
OVTEST   020372          2296    2343#
O$APTS=  000000           748#    769
O$AU   = 000000           748#    769
O$BGNR=  000000           748#    769
O$BGNS=  000001           748#    767#    769
O$DU   = 000000           748#    769
O$ERRT=  000000           748#    769
O$GNSW=  000001           748#    767#    769
O$POIN=  000001           748#    767#    769
O$SETU=  000000           748#    769     5361
PAPRDY   022604          2428    2494#
PAPRSW   022356          2405    2491#
PAPSWI   003402          1067#   2422
PAPSW1   022462          2406    2492#
PAPSW2   022542          2407    2493#
PAPTST   022673          2412    2495#
PARAM1   043256          3513#   3555    3569
PARAM2   043272          3514#   3554    3555    3556    3570
PARAM3   043306          3515#   3554    3555    3556    3574
PARAM4   043322          3516#   3554    3556
PARAM5   043336          3517#   3554    3556    3557    3562    3574
PARAM6   043352          3518#   3554    3560    3568
PARAM7   043366          3519#   3554    3557    3560    3561    3569    3575
PARAM8   043402          3520#   3554    3561    3576
PARAM9   043416          3521#   3561
PARM10   043446          3523#   3560
PARTBL   044140          3418    3554#
PAR2     043454          3524#
PAR3     043470          3525#
PAR5     043504          3526#
PATCH    105500          5360#
PATTER   011770          1793*   1794    1824#
PGEND    073722          4972#
PLOC     007176          1538#
PLP      042636          3468    3500#
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PLPTBL  045060          3578#
PLP3    043134          3504#   3578
PLP5    043143          3505#   3578
PLP8    043152          3466    3506#   3578
PLP9    043161          3507#   3578
PL1     051773          3851    3853    3856    3874#
PL2     051777          3852    3875#
PL3     052005          3854    3876#
PNT   = 001000 G          910#
PORSEL  020423          2295    2345#
PORSEQ  066576          4576    4578#
PORSQ   013150          1881    1895#
PORT    066374          4498    4569#
PRAM10  043432          3522#
PRI   = 002000 G          910#
PRINTR  002314           970#   1283    1288    1369*   1430*   1525*   1709*   1710*   1712*   1715*   1787*   1790*   1791*
                        1811*   1816*   1851*   1856*   1857*   1865*   1869*   1877*   1881*   1884*   1886*   1887*   1888*
                        1941*   1942*   1973*   2008*   2014*   2123*   2125*   2130*   2135*   2138*   2142*   2144*   2147*
                        2149*   2150*   2157*   2215*   2217*   2218*   2239*   2244*   2291*   2293*   2294*   2295*   2296*
                        2306*   2314*   2318*   2323*   2330*   2338*   2388*   2389*   2412*   2416*   2421*   2483*   2583*
                        2584*   2585*   2586*   2587*   2588*   2589*   2592*   2593*   2595*   2599*   2600*   2601*   2602*
                        2604*   2605*   2606*   2714*   2715*   2716*   2717*   2718*   2719*   2725*   2726*   2728*   2729*
                        2730*   2732*   2733*   2735*   2736*   2737*   2738*   2899*   2900*   2901*   2902*   2912*   2914*
                        2915*   2917*   2919*   2921*   2926*   2927*   2929*   2930*   2933*   2937*   2938*   2940*   2941*
                        2943*   2947*   2948*   2949*   2953*   2957*   2959*   2960*   2962*   2966*   2968*   2969*   2971*
                        2975*   2976*   2978*   2979*   2982*   2983*   3142*   3143*   3144*   3145*   3146*   3147*   3148*
                        3149*   3150*   3151*   3152*   3153*   3154*   3155*   3156*   3157*   3158*   3159*   3161*   3164*
                        3166*   3167*   3168*   3170*   3171*   3173*   3174*   3175*   3176*   3178*   3179*   3181*   3182*
                        3183*   3184*   3185*   3187*   3190*   3192*   3193*   3194*   3195*   3196*   3408*   3409*   3410*
                        3411*   3412*   3414*   3415*   3417*   3420*   3421*   3423*   3428*   3434*   3437*   3438*   3439*
                        3440*   3444*   3445*   3447*   3450*   3455*   3461*   3466*   3467*   3468*   3470*   3474*   3475*
                        3479*   3480*   3484*   3487*   3488*   3489*   3490*   3491*   3682*   3683*   3684*   3685*   3686*
                        3687*   3689*   3690*   3691*   3693*   3694*   3695*   3697*   3698*   3700*   3701*   3702*   3704*
                        3705*   3707*   3709*   3711*   3712*   3714*   3716*   3719*   3720*   3722*   3723*   3724*   3725*
                        3727*   3728*   3730*   3731*   3732*   3733*   3734*   3842*   3843*   3844*   3845*   3846*   3850*
                        3851*   3852*   3853*   3854*   3856*   3857*   3859*   3860*   3862*   3864*   3865*   3866*   3986*
                        3987*   3988*   3989*   3990*   3994*   3996*   3997*   3998*   3999*   4000*   4197*   4198*   4199*
                        4200*   4204*   4205*   4206*   4207*   4208*   4209*   4211*   4212*   4214*   4215*   4216*   4218*
                        4219*   4222*   4225*   4227*   4228*   4229*   4231*   4232*   4233*   4236*   4239*   4241*   4242*
                        4243*   4244*   4245*   4247*   4252*   4253*   4254*   4255*   4256*   4257*   4258*   4262*   4265*
                        4266*   4270*   4273*   4275*   4276*   4277*   4278*   4487*   4488*   4492*   4496*   4497*   4498*
                        4499*   4500*   4503*   4504*   4505*   4506*   4508*   4509*   4517*   4522*   4523*   4524*   4526*
                        4527*   4528*   4529*   4531*   4536*   4537*   4540*   4541*   4543*   4544*   4546*   4547*   4555*
                        4559*   4561*   4562*   4563*   4840*   4841*   4842*   4843*   4844*   4845*   4846*   4847*   4848*
                        4849*   4852*   4853*   4854*   4855*   4856*   4857*   4859*   4860*   4861*   4862*   4914*   4917*
                        4922*   4927*   4932*   4935*   4936*   4937*   4938*   4942*   4943*   4945*   4946*   4947*   4948*
                        4952*   4953*   4954*   5181*   5182*   5183*   5187*   5191*   5192*   5194*   5195*   5200*   5201*
                        5205*   5206*   5209*   5213*   5214*   5215*   5216*   5217*   5218*   5219*   5220*   5221*   5222*
                        5224*   5225*   5226*
PRI00 = 000000 G          910#   1428    1523    1609    1708
PRI01 = 000040 G          910#
PRI02 = 000100 G          910#
PRI03 = 000140 G          910#   1692
PRI04 = 000200 G          910#   1482    1566    1681    1682    1693    5290
PRI05 = 000240 G          910#
PRI06 = 000300 G          910#   1506    1607    5309
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PRIO7 = 000340 G      910#  1586
PRTCHR  013066       1851  1893#
PRTCTL  016150       2130  2163#
PRTEN1  073743       4862  4973#
PSSU    067477       4541  4621#
PTABAD  002312        969#
PTLINE  051711       3845  3872#
PUD     032522       2902  2989#
QUIET   005306       1369# 1716  1812  1817  1866  1870  1878  1889  1974  2009  2015  2155  2158
                     2240  2245  2307  2315  2319  2331  2339  2484  2594  2596  2607  2739  2980
                     2984  3197  3430  3436  3449  3457  3469  3482  3486  3492  3708  3718  3735
                     3861  3867  4001  4210  4263  4271  4279  4564  4918  4923  4928  4933  4949
                     4955  5196  5227  5258
RDYERR  003360       1066# 1664
READY   007006       1454  1534# 2408  2430  2452  2456  2469  2473
RECTBA  074260       4925  4988#
RECTBB  074322       4930  4989#
RECTBL  074216       4920  4987#
RECTBO  074154       4915  4986#
REC0    075014       4986  5025#
REC1    075214       4987  5027#
REC1A   075414       4988  5029#
REC1B   075614       4989  5031#
REC10   100014       4986  4987  4988  4989  5057#
REC11   100214       4986  4987  4988  4989  5061#
REC12   100414       4986  4987  4988  4989  5065#
REC13   100614       4986  4987  4988  4989  5069#
REC14   101014       4986  4987  4988  4989  5071#
REC15   101214       4986  4987  4988  4989  5073#
REC16   101414       4986  4987  4988  4989  5075#
REC2    076014       4986  4987  4988  4989  5033#
REC3    076214       4986  4987  4988  4989  5035#
REC4    076414       4986  4987  4988  4989  5037#
REC5    076614       4986  4987  4988  4989  5039#
REC6    077014       4986  4987  4988  4989  5042#
REC7    077214       4986  4987  4988  4989  5045#
REC8    077414       4986  4987  4988  4989  5049#
REC9    077614       4986  4987  4988  4989  5053#
REINIT  004027       1075# 1790  1887  1941  2125  2217  2293  2583  2605  2714  2737  2899  3142
                     3195  3408  3490  3682  3733  3842  3865  3999  4197  4277  4487  4562  4840
                     4847  4936  4953  5181  5224
REPCNT  002646       1021# 1238* 1239  1345* 1466* 1599* 2442*
RESET1  006735       1446  1532#
RESVEC  007204 G     1562# 1601  1707
RLTV1   104567       5217  5253#
RMANL   027337       2719  2735  2746#
SCALE   033340       2919  2997#
SECCNT  066566       4490  4577#
SECO    066554       4489  4576#
SEC1    066415       4500  4570#
SEC2    066430       4571# 4606
SEC3    066456       4523  4572#
SEC4    066513       4537  4573#
SEC5    066542       4574# 4635
SELBGN  074406       4852  4992#
SELDEC  004031       1076# 1856  1888  2584  2606  2715  2738  2900  3143  3196  3409  3491  3562
```

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                        3569    3683    3734    3843    3866    4000    4198    4278    4488    4563    4576    4635    4841
                        4848    4937    4954    5182    5225
SELEND  074502          4854    5003#
SELPIX  004036          1077#   3562    3569    4576    4635
SEL11   073444          4846    4968#
SEQALL  074043          4980#
SEQEVE  074000          4978#
SEQODD  074017          4979#
SEQTAB  104364          5188    5238#
SFPTBL  002264  G        826#
SKIP3   004046  G       1079#   3844    3846    4257    4265    4273
SMANL   027345          2730    2747#
SPACES  050332          3704    3750#
SPAJUS  057626          4215    4228    4243    4286#
SPAOFF  057612          4284#
SQTAB1  104376          5202    5239#
STACHR  017140          2220*   2223    2227    2238*   2249#
STATER= 000001           923#   1258    1308
STATUS  002506          1012#   1154*   1233*   1245*   1250*   1257*   1303    1309*   1314    1316    1321*   1322*   1381*
                        1491*   1595*   1644*   1661*   1671*   1700*   2439*
STHOR2  104542          5215    5250#
STOPS3  037415          3168    3231#
STRCNT  002302           963#
STTAB   047775          3695    3742#
STVER4  067320          4606    4609#
STVR4   104533          5214    5249#
SUBSEC  103736          5201    5234#
SVCGBL= 000000           748#    758#    769     774     786     790     791     803     814     826     1419    1585    5332
                        5349    5361#
SVCINS= 000000           748#    755#    769     786     790     791     803     818     826     1134    1139    1145    1317
                        1384    1388    1389    1404    1422    1423    1424    1425    1428    1432    1434    1438    1440
                        1441    1443    1444    1446    1454    1460    1461    1482    1498    1506    1509    1520    1521
                        1523    1526    1541    1566    1586    1587    1603    1607    1609    1610    1647    1654    1664
                        1674    1681    1682    1685    1692    1693    1695    1698    1708    1719    1728    1730    1737
                        1752    1818    1829    1891    1899    2016    2089    2161    2185    2246    2260    2341    2348
                        2366    2367    2368    2371    2381    2405    2406    2407    2408    2422    2428    2430    2449
                        2450    2451    2452    2454    2455    2456    2460    2467    2468    2469    2471    2472    2473
                        2477    2485    2508    2608    2641    2740    2750    2985    3001    3201    3237    3493    3581
                        3736    3759    3868    3879    4002    4048    4280    4335    4565    4661    4957    5079    5228
                        5259    5290    5309    5319    5332    5334    5335    5336    5349    5350    5351    5352    5361
SVCSUB= 000000           748#    757#
SVCTAG= 000000           748#    759#    810     818     835     1454    1541    1574    1584    1610    1730    1737    1752
                        1829    1899    2089    2185    2260    2348    2408    2430    2452    2456    2469    2473    2508
                        2641    2750    3001    3237    3581    3759    3879    4048    4335    4661    5079    5259    5319
                        5336    5352
SVCTST= 000000           748#    756#    1627    1784    1850    1938    2121    2210    2288    2364    2581    2712    2897
                        3134    3388    3673    3840    3985    4188    4472    4828    5169
SYM     = 000037        1129#
SYMD    = 000007        1132#   1133#   1137#   1138#   1143#   1144#   1154#   1174#   1176#   1177#   1181#   1183#   1188#
                        1198#   1229#   1233#   1234#   1238#   1243#   1244#   1245#   1250#   1257#   1298#   1309#   1381#
                        1386#   1405#   1431#   1458#   1459#   1462#   1471#   1479#   1480#   1486#   1491#   1567#   1568#
                        1589#   1590#   1593#   1595#   1628#   1642#   1644#   1645#   1653#   1661#   1663#   1671#   1672#
                        1683#   1684#   1691#   1694#   1696#   1700#   1726#   1793#   1800#   1803#   1806#   1810#   1949#
                        1954#   1961#   1975#   1984#   1989#   1996#   2010#   2126#   2129#   2151#   2224#   2226#   2232#
                        2237#   2238#   2300#   2302#   2309#   2324#   2326#   2333#   2374#   2377#   2378#   2380#   2398#
                        2413#   2423#   2431#   2439#   2445#   2446#   2458#   2464#   2465#   2475#   2597#   2724#   2731#
```

		2913#	2918#	2932#	2944#	5312#	5314#							
SYMS =	000007	1132#	1133#	1137#	1138#	1143#	1144#	1154#	1174#	1176#	1177#	1181#	1183#	1188#
		1198#	1229#	1233#	1234#	1238#	1243#	1244#	1245#	1250#	1257#	1298#	1309#	1381#
		1386#	1405#	1431#	1458#	1459#	1462#	1471#	1479#	1480#	1486#	1491#	1567#	1568#
		1589#	1590#	1593#	1595#	1628#	1642#	1644#	1645#	1653#	1661#	1663#	1671#	1672#
		1683#	1684#	1691#	1694#	1696#	1700#	1726#	1793#	1800#	1803#	1806#	1810#	1949#
		1954#	1961#	1975#	1984#	1989#	1996#	2010#	2126#	2129#	2151#	2224#	2226#	2232#
		2237#	2238#	2300#	2302#	2309#	2324#	2326#	2333#	2374#	2377#	2378#	2380#	2398#
		2413#	2423#	2431#	2439#	2445#	2446#	2458#	2464#	2465#	2475#	2597#	2724#	2731#
		2913#	2918#	2932#	2944#	5312#	5314#							
S$LSYM=	010000	748#	810#	818#	835#	1454#	1541#	1610#	1730#	1737#	1752#	1829#	1899#	2089#
		2185#	2260#	2348#	2408#	2430#	2452#	2456#	2469#	2473#	2508#	2641#	2750#	3001#
		3237#	3581#	3759#	3879#	4048#	4335#	4661#	5079#	5259#	5319#	5336#	5352#	
S1	067452	4526	4529	4618#										
S2	067456	4527	4528	4619#										
TABLDA	004522	1170	1202#											
TABLE1	016424	2133	2180#											
TABLE2	016460	2140	2181#											
TABMS	043174	3412	3509#											
TABS	050344	3693	3751#											
TABSTR	017142	2220	2251#											
TABTST	036560	3144	3206#											
TABUCT	067274	4515	4608#											
TABUND	067246	4514	4606#											
TBMAR1	036614	3147	3209#											
TDONE	051755	3860	3873#											
TEM	032724	2994#												
TEXT	061614	4309#	4325											
TEXTBL	063506	4259	4267	4325#										
TEXTBP	063526	4260	4268	4326#										
TEXT1	062031	4311#	4325											
TEXT2	062251	4313#	4325											
TEXT3	062476	4315#	4325											
TEXT4	062700	4317#	4325											
TEXT5	063110	4319#	4325											
TEXT6	063257	4321#	4325											
TICK	105310	5310	5311*	5314*	5322#									
TIME	105306	5312*	5321#											
TIMOUT=	000002	924#	1320											
TOPBOT	025316	2588	2618#											
TOPMAR	043736	3548#	3568	3571	3574	3575								
TOPNUM	044127	3551#	3568	3571	3574	3575								
TOPSEC	037435	3171	3232#											
TOPVEC	053074	3989	4017#											
TSET	067337	4606	4611#											
TSTMRA	042514	3411	3498#											
TSTMRB	042552	3499#	3570											
TVEC	053665	4009	4038#											
TXERR	003655	1071#	1134											
TXNOIN	003727	1073#	1145											
T$ARGC=	000001	769#	1384#	1388#	1440#	1441#	1446#	1520#	1521#	2405#	2406#	2407#	2428#	2449#
		2450#	2451#	2454#	2455#	2467#	2468#	2471#	2472#					
T$CODE=	001052	1454#	2408#	2430#	2452#	2456#	2469#	2473#	5334#	5335#	5350#	5351#		
T$ERRN=	000012	748#	1134#	1139#	1145#	1647#	1664#	1674#	1698#	1728#	2381#	2422#	2460#	2477#
T$EXCP=	000000	5334#	5335#	5351#										
T$FLAG=	000040	1434#	1526#	1719#	1818#	1891#	2016#	2161#	2246#	2341#	2368#	2371#	2485#	2608#

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                    27400   29850   32010   34930   37360   38680   40020   42800   45650   49570   52280
T$GMAN= 000000       7480
T$HILI= 000377      53340   53350   53510
T$LAST= 000001       7480   53610
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T$LSYM= 010000       7480     810     818     835    1541    1610    1730    1737    1752    1829    1899    2089    2185
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M13

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	1608	1643#	1649	1652#	1656	1660#	1665	1670#	1676	1684#	1686	1717#	1718
	1793#	1814	1858#	1883	1949#	1976	1984#	2011	2128#	2159	2222#	2242	2300#
	2316	2324#	2340	2370#	2372	2377#	2384	2411#	2418	2419#	2425#	2427	2445#
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	2923#	2951	2958#	2961	2967#	2970	2977#	2981	3160#	3162	3163#	3165	3169#
	3172	3177#	3180	3186#	3188	3189#	3191	3413#	3416	3419#	3424	3427#	3429
	3433#	3435	3443#	3451	3454#	3456	3460#	3462	3478#	3481	3483#	3485	3696#
	3699	3706#	3710	3715#	3717	3721#	3726	3848#	3858	3993#	3995	4213#	4217
	4220#	4230	4234#	4246	4261#	4264	4269#	4272	4491#	4493	4502#	4507	4516#
	4518	4525#	4530	4542#	4545	4554#	4556	4558#	4560	4851#	4858	4916#	4919
	4921#	4924	4926#	4929	4931#	4934	4941#	4951	5190#	5193	5204#	5208	5310#
	5313	5315#	5317										
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	1433	1459#	1492	1565#	1569	1590#	1600	1653#	1655	1684#	1686	1717#	1718
	1793#	1814	1858#	1883	1949#	1976	1984#	2011	2128#	2159	2226#	2228	2230#
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	3186#	3188	3189#	3191	3413#	3416	3419#	3424	3427#	3429	3433#	3435	3443#
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	4929	4931#	4934	4941#	4951	5190#	5193	5204#	5208				
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	4235#	4237	4238#	4240	4944#	4950							
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$TSK6  = 050040     13160   1324
$TSK7  = 050041     13190   1323
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$$REG = 177777       750#
$$RETU= 000000       750#
$$RTN1= 000000       750#
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$$SRC = 000027       750#  2224#
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$$TGS1= 050005       750#  1131#  1136#  1141#  1149#
$$TGS2= 000000       750#
$$TO  = 000000       750#  1335#
$$TOB = 000000      1335#
$$TOTL= 000000      1335#
$$$TAG= 050000       750#
.     = 105544       764#   791#  1081#  1129  1151  1175  1180  1192  1223  1227  1239  1283  1294
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. ABS.  105544     000     OVR   RW    REL   GBL   I

ERRORS DETECTED:  0

CZLNAD,CZLNAD.SEQ/CRF:SYM/DOC=SPMACJ/ML,SVC33/ML,CZLNAD.P11
RUN-TIME.  134  135  6 SECONDS
RUN-TIME RATIO: 585/276=2.1
CORE USED:  32K  (63 PAGES)

DOCUMENT PAGES:  171
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