```
29                              .TITLE  CZCLMCO DMP/V-11 DCLT
30
                                                        .REM &
```

IDENTIFICATION

PRODUCT CODE: AC F597C-MC

PRODUCT NAME: CZCLMC DMP,DMV-11 DATA COMM. LINK TEST

PRODUCT DATE: MARCH 1984

MAINTAINER: MERRIMACK DIAGNOSTIC ENGINEERING

AUTHOR: BRUCE LUMRS - BRUCE RIBOLINI

REVISION HISTORY:

REV	DATE	AUTHOR	REASON
A	14 JAN-81	BRUCE RIBOLINI	ORIGINAL ISSUE, DCLT FOR THE DMP,DMV 11
B	26 OCT 81	ERNIE COOPER	ADD "SET E-T COMMAND' ADD ID OF DEVICE REQUESTING DOWNLINELOAD. ADDED NEEDED PATCHES. GENERAL CLEANUP AND ENHANCEMENT OF DOCUMENT.
C	MARCH 1984	ERNIE COOPER	ADD FIXES TO CORRECT DISCONNECT ERROR.

TABLE OF CONTENTS

1.0 GENERAL INFORMATION

1.1 PROGRAM ABSTRACT

THIS DCLT (DATA COMMUNICATION LINK TEST) PROGRAM IS MEANT TO PROVIDE FIELD SERVICE WITH A TOOL TO MAINTAIN DMP,DMV-11 TO DDCMP MULTIPOINT COMMUNICATION LINKS. THIS DCLT PROGRAM WILL PROVIDE THE COVERAGE NECESSARY TO DETECT FAILURES IN THE COMPUTER EQUIPMENT, THE COMMUNICATION LINK, OR THE MODEM.

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

1.2 SYSTEM REQUIREMENTS

IN ORDER TO RUN THE CZCLM DCLT PROGRAM, THE FOLLOWING MINIMUM HARDWARE IS REQUIRED:

- A PDP 11 CPU IF DMP OR A LSI-11 CPU IF DMV
- MINIMUM OF 24K WORDS OF MEMORY
- A WORKING, LINE OR REAL-TIME CLOCK
- A CONSOLE TERMINAL
- ANY XXDP+ SUPPORTED LOAD MEDIA
- ONE OF THESE DMP,DMV-11 CONFIGURATIONS:

DMV-11 AA	EIA RS232 AND RS423
DMV-11-AB	CCITT AND V.35
DMV-11-AC	INTEGRAL MODEM
DMP-11-AA	EIA RS232 AND RS423 WITH H3251 TURNAROUND
DMP-11 AB	CCITT AND V.35
DMP 11-AC	INTEGRAL MODEM
DMP 11 AE	RS422
DMP-11-AD	DMP WITH TURNAROUND CONN (H3254,H3255)

NOTE: OPTIONS AE,AC,AB,AND AA ALSO CONTAIN AD.

1.3 RELATED DOCUMENTS AND STANDARDS

- DMP USERS MANUAL EK-DMP11-UG-001
- DMP TECH MANUAL EK-DMP11-TM-001
- DMV USERS MANUAL EK-DMV11-UG-001
- DMV TECH MANUAL EK-DMV11-TM-001
- XXDP+ USER'S MANUAL (CHQUS?.SEQ WHERE ? IS THE REV. LEVEL OF THE MANUAL "C" IS THE CURRENT REV.).

1.4 DIAGNOSTIC HIERARCHY PREREQUISITES

THE GOAL OF THE DATA COMM. LINK TEST PROGRAM IS TO TEST THE COMMUNICATION LINK AND THEREFORE ASSUMES THAT THE CPU'S, CLOCKS, AND DMP,DMV 11'S AT EACH END OF THE LINK HAVE ALREADY BEEN TESTED.

IF NO LINE OR REAL-TIME CLOCK IS FOUND, THE PROGRAM WILL CONTINUE BUT ANY OF THE PROGRAM THAT TIMES THE DEVICE WILL HANG IF THE DEVICE TIMES OUT. ALSO, THE EVENT LOG WILL CONTAIN A ZERO EVENT TIME FOR ALL EVENTS LOGGED.

IT IS NOT THE INTENTION OF A DATA COMM. LINK TEST PROGRAM TO TEST THE DMP,DMV-11, BUT TO TEST THE COMMUNICATION LINK TO WHICH THEY ARE CONNECTED.

SOME OF THE DIAGNOSTICS THAT COULD BE RUN IF THE DMP,DMV-11 LOOKS BAD:

CZDMT - FUNCTIONAL DIAGNOSTIC FOR DMP,DMV 11

FOR DMP:

```
        CZDMP - 8207 STATIC #1  (PROCESSOR)
        CZDMQ - 8207 STATIC #2  (PROCESSOR)
        CZDMR   8203 STATIC #1  (LINE UNIT)
        CZDMS - 8203 STATIC #2  (LINE UNIT)
```

FOR DMV:

```
        CVDMA - MICRO PROCESSOR #1
        CVDMB   MICRO PROCESSOR #2
        CVDMC - LINE UNIT #1
        CVDMD - LINE UNIT #2
        CVDME - LINE UNIT #3
```

1.5 ASSUMPTIONS - RESTRICTIONS

IT IS ASSUMED THAT THE COMMUNICATIONS DEVICE (DMP,DMV 11) HAS BEEN TESTED USING THE PREREQUISITE DIAGNOSTICS. THE OPERATOR SHOULD HAVE READ THE USER DOCUMENTATION PORTION OF THE LISTING TO FAMILIARIZE HIMSELF WITH THE COMMANDS AND CAPABILITIES AVAILABLE UNDER THE DIAGNOSTIC SUPERVISOR AND DCLT.

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
IBE*	INHIBIT ALL ERROR REPORTS EXCEPT FIRST LEVEL (FIRST LEVEL CONTAINS ERROR TYPE, NUMBER, PC, TEST AND UNIT)
IXE*	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).

THE DMP,DMV-11 DATA COMM. LINK TEST PROGRAM WILL NOT USE MORE THAN ONE UNIT. FOR THE DMP,DMV-11 THE HARDWARE INFORMATION REQUESTED WILL BE:

```
# UNITS (D) ? 1<CR>

UNIT 0
FULL DUPLEX OPERATION :  (L) Y ?
DEVICE CSR ADDRESS : (O)  160170 ?
INTERRUPT VECTOR ADDRESS: (O) 300 ?
INTERRUPT PRIORITY: (O) 5 ?
OPTION TYPE
 0=DMP
 1=DMV: (O)  0 ?
IS THIS A MULTIPOINT NETWORK: (L) N ?
IS THIS A CONTROL STATION: (L) N ?
```

NOTE: THE QUESTION ABOUT CONTROL STATION IS ONLY ASKED IF YOU ANSWER YES TO THE MULTIPOINT QUESTION.

WHEN YOU COMPLETE THE ABOVE SEQUENCE YOU WILL BE AT THE DCLT> COMMAND LEVEL

```
THIS IS DCLT. TYPE "H' OR "?' FOR DETAILS
     MODE=ACTIVE/PASS=00001
                 /NOSTATUS/CHECK/NOECHO/NOMODEM
DCLT> (A)  ?
```

2.5 DATA COMM. LINK TEST COMMANDS

THE "DCLT>" COMMAND LEVEL FOLLOWS THE ANSWERING OF THE HARDWARE P TABLE QUESTIONS. THESE COMMANDS CAN BE TYPED WHEN THE "DCLT> (A) ?" PROMPT IS PRINTED.

YOU ONLY HAVE TO TYPE ENOUGH CHARACTERS TO UNIQUELY SPECIFY A COMMAND.

THE COMMAND LINE IS INTERPRETED FROM LEFT TO RIGHT. THEREFORE, IF A QUALIFIER ON THE COMMAND LINE IS RELATED OR EFFECTS A QUALIFIER TO THE LEFT ON THE COMMAND LINE, THE QUALIFIER FARTHEREST TO THE RIGHT TAKES PRECEDENCE SINCE IT IS INTERPRETED LAST. (I.E. IF /CHECK..... .../NOCHECK APPEAR ON THE SAME LINE, NOCHECK WILL BE INDICATED IN THE PARAMETERS WORD.)

REFER TO SECTION 6.0 FOR A DESCRIPTION OF THE DIFFERENT MODES OF OPERATION AND THE TYPES OF MESSAGES AVAILABLE.

2.5.1 MESSAGE COMMANDS

COMMAND		DESCRIPTION
CLEAR	EXPECTLIST	ZEROES THE EXPECTLIST (000'S) AND THEN INITIALIZES LIST TO ONE DEFAULT ITEP MESSAGE
CLEAR	TRANSMITLIST	FILLS TRANSMITLIST (000'S) AND THEN INITIALIZES LIST TO ONE DEFAULT ITEP MESSAGE
SET	EXPECTMSG=TYPE/QUAL	DEFINE A MESSAGE TO BE PUT ON THE EXPECTED LIST
	WHERE: "TYPE" IS: =ONES =ZEROES =1ALT =0ALT =ITEP =CCITT =ALPHA ="A Z,0 9,SPACES OR TABS IN QUOTES"	
	WHERE THE OPTIONAL 'QUAL' IS:	
	/SIZE=NNN	MAKE THE MESSAGE 'NNN" BYTES LONG. (DEFAULT VALUE IS SIZE OF MESSAGE SPEC'D BY OPERATOR OR DEFAULTS.)

```
                              /COPY=NN         COPY THIS MESSAGE INTO THE
                                                  BUFFER "NN" TIMES (DEFAULT
                                                  IS 0 = PUT THE MESSAGE IN
                                                  ONLY ONCE)

                  NOTE: SET'S ADD MESSAGES TO THE LIST IN THE ORDER THEY'RE
                        DEFINED. "NNN" IS A DECIMAL NUMBER.  THE FIRST SET
                        OVERWRITES THE DEFAULT ITEP MESSAGE PLACED THERE BY
                        INITIALIZATION OR A 'CLEAR" COMMAND.

                        SEE SECTION 6.2 FOR A DESCRIPTION OF THE PRE-DEFINED
                        MESSAGES THAT ARE AVAILABLE. (ZEROS,ONES ...)

            SET     EXPECT=TRANSMIT                MAKES A COPY OF THE TRANSMIT
                                                      LIST IN THE EXPECT LIST.

            SET     TRANSMITMSG=TYPE/QUAL          DEFINE A MESSAGE TO BE PUT ON
                                                      THE TRANSMIT LIST
                                                      (SEE DESCRIPT FOR SET EXP)

            SHOW    EXPECTLIST                     LISTS THE MESSAGE SIZE AND TYPE
                                                     FOR THE MESSAGES IN THE
                                                     EXPECT LIST

            SHOW    TRANSMITLIST                   LISTS THE MESSAGE SIZE AND TYPE
                                                     FOR THE MESSAGES IN THE
                                                     TRANSMIT LIST
```

2.5.2 TRIBUTARY COMMANDS

NOTE: THESE COMMANDS ARE VALID ONLY IF IN MULTIPOINT MODE.

TRIB ESTABLISH=N,N,N/W	ADDS THE DECIMAL TRIBUTARY ADDRESSES SPECIFIED IN N TO THE TRIB LIST. IF /W IS USED THEN PROGRAM WILL ASK USER FOR POLL PARAMS FOR ALL TRIBS THAT HAVE THE /W SWITCH APPENDED. AFTER ALL TRIB PARAM QUESTIONS HAVE BEEN ANSWERED THEN THE PROGRAM ASKS THE USER FOR THE GLOBAL POLL PARAMS
TRIB KILL=N,N,N OR ALL	REMOVE TRIB ADDRESSES FOR THE TRIB LIST IF"ALL' IS USED ALL TRIBS ARE REMOVED.
TRIB SHOW	LISTS ALL TRIBS IN THE TRIB ADDRESS LIST.

2.5.2 STATISTICAL COMMANDS

HELP		TYPES HELP INFO FOR OPERATOR
?		TYPES HELP INFO FOR OPERATOR
DUMP	SSSSSS EEEEEE/B	PRINTS THE CONTENTS OF THE MEMORY LOCATIONS BETWEEN OCTAL ADDRESSES "SSSSSS" AND "EEEEEE" WHERE 'SSSSSS" IS THE START ADDRESS AND " EEEEE" IS THE END ADDRESS. IF "-EEEEEE" IS NOT SPECIFIED THEN THE CONTENTS OF "SSSSSS' IS PRINTED IN WORD FORMAT. THE "/B" IS OPTIONAL. DEFAULT IS PRINT WORDS "/B" CAUSES PRINT BYTES

NOTE: THE DUMP COMMAND IS USEFUL FOR EXAMINING MESSAGE DATA. STARTING ADDRESSES CAN BE FOUND BY LOOKING IN THE EVENT LOG.

2.5.3 RUN COMMANDS

COMMAND	DESCRIPTION
RUN MODE=MTYPE/QUAL	STARTS DCLT EXECUTING IN THE MODE SPECIFIED

NOTE: MODE=ACTIVE IS NOT DEFAULT, A MODE=MTYPE MUST BE TYPED -- EACH TIME A RUN IS TYPED

WHERE THE "MTYPE" IS ANY ONE OF THE FOLLOWING:

=ACTIVE	(FORCES /NOECHO ,NO LOOPING)
=PASSIVE	(FORCES NO LOOPING)
=RECEIVE	(FORCES /NOECHO ,NO LOOPING)
=LISTEN	(FORCES /NOECHO ,NO LOOPING, /NOCHECK)
=TRANSMIT	(FORCES /NOECHO ,NO LOOPING, /NOCHECK)
=TALK	(FORCES /NOECHO ,NO LOOPING, /NOCHECK)
=DOWNLINELOAD	(FORCES /NOECHO ,NO LOOPING, /NOCHECK)

(FORCING NO LOOPING MEANS IT MUST BE SPECIFIED AS A QUALIFIER ANY TIME ITS DESIRED, THERE IS NO DEFAULT)

AND OPTIONAL "QUAL" IS ANY COMBINATION OF THE FOLLOWING:

/CHECK/NOCHECK	ENABLES/DISABLES CHECKING OF RECEIVED DATA AGAINST THE EXPECTED DATA

NOTE: IF BOTH NODES IN ACTIVE AND "/NOCHECK" IS USED, END OF PASS IS DEFINED AS RECEIVING THE SAME # OF MESSAGES THAT IS CONTAINED IN THE TX LIST. WITH NO DATA CHECKING, THERE IS NO WAY FOR DCLT TO KNOW HOW MANY MESSAGES IT SHOULD EXPECT TO RECEIVE.

/STATUS/NOSTATUS	ENABLES/DISABLES PRINTING OF PROGRAM STATUS MESSAGES TO THE OPERATOR
/ECHO/NOECHO	ENABLES/DISABLES THE RETRANSMISSION OF THE DATA RECEIVED IN PASSIVE MODE. NOTE: THIS IS VALID ONLY FOR PASSIVE MODE. IF THIS SWITCH IS USED THE TRANSMIT LIST WILL HAVE TO BE RE BUILT.
/MODEM/NOMODEM	ENABLES/DISABLES THE REPORTING OF MODEM STATUS INTERRUPT CHANGES. NOTE: THIS SWITCH CAUSES NO ACTION IN THIS DCLT PROGRAM BUT IT IS INCLUDED BECUASE IT IS USED IN OTHER DCLT PROGRAMS.
/LOOP=LTYPE	SPECIFIES WHICH, IF ANY, TYPE OF MAINTENANCE LOOPBACK IS BEING USED.

(IGNORED IN MODES OTHER THAN ACTIVE)
MUST BE SPECIFIED EACH TIME ELSE NO
LOOP IS USED.

"LTYPE" IS:

•INTERNALTTL SETS THE LULOOP BIT IN BSEL1 IF DMP AND IF DMV ENTERS MAINT LOOP AND SETS THE INTERNAL LOOP BIT.

•CABLE DOES NOT CAUSE ANY BITS TO BE SET OR REQUESTS TO BE QUEUED, BUT MAKES FOR A NICE BOOKKEEPING FEATURE. "/L:CABLE" WILL THEN BE SHOWN WHEN THE COMMAND LINE IS TYPED AS A REMINDER OF WHAT TYPE OF LOOPING IS BEING ATTEMPTED. REMEMBER TO INSTALL ANY CONNECTORS OR ENABLE ANY LOOP FEATURES THAT ARE NECESSARY TO MAKE CABLE LOOPBACK POSSIBLE.

THE FOLLOWING LOOP TYPES ARE NOT SUPPORTED BY THE DMV.
INCLUDING THESE LOOP TYPES FOR A DMV WILL HAVE NO EFFECT AT ALL.

•LOCALMODEM
ALSO CALLED ANALOG-LOOPBACK.
SETS MM1 AND DSR IN THE MODEM REG
THIS IS ONLY FOR RS449 MODEMS

•REMOTEMODEM
ALSO CALLED DIGITAL-LOOPBACK.
SETS MM2 AND DSR IN THE MODEM REG
THIS ONLY FOR RS449 MODEMS

/PASS:NN SPECIFIES NUMBER OF ITERATIONS TO MAKE BEFORE END-OF-PASS. DEFAULT VALUE OF 1 WILL BE USED ON ANY RUN THAT A /PASS:N IS NOT ADDED TO THE "RUN ..." COMMAND. IF A "-1" IS TYPED, THEN THE PROGRAM RUN UNTIL A ↑C IS TYPED.

NOTE: SEE SECTION 6.1 FOR A DESCRIPTION OF THE "RUN MODES" AND "LOOP MODES"

EXIT
--
THE EXIT COMMAND RETURNS THE USER TO THE SUPERVISOR DR> PROMPT AFTER PRINTING A SUPERVISOR END OF PASS.

2.5.4 PRINT

THE PRINT COMMAND TAKES YOU A LEVEL BELOW DCLT> CALLED REPORT THE COMMANDS AVAILABLE IN RPT> ARE...

COMMAND		DESCRIPTION
HELP OR ?		PRINTS HELP INFORMATION FOR RPT>
TSS NNN/SW		SHOWS TRIBUTARY STATUS SLOT INFORMATION WHERE NNN IS THE DECIMAL TRIBUTARY ADDR AND SW IS ONE OF THE FOLLOWING SWITCHES
	ERROR	INDICATES ONLY ERROR SLOTS ARE TO BE PRINTED
	FULL	INDICATES ALL TRIB STATUS SLOTS ARE TO BE PRINTED
	OFFSET=NN	INDICATES THE TRIB STATUS SLOT WHOSE OFFSET IS NN IS TO BE PRINTED.
GSS/SW		PRINT THE GLOBAL STATUS INFORMATION SWITCHES ARE THE SAME AS FOR TSS.
LOG		DUMPS THE EVENT LOG
EXIT		EXITS BACK TO THE COMMAND LEVEL THAT YOU ENTERED FROM. [DCLT> OR DR>]

2.5.6 DEFAULTS

```
IF NO "SET'S" THEN THE DEFAULT IS SAME AS IF TYPED:
        SET TRANSMITMSG=ITEP/SIZE=58/COPY=0
        SET EXPECTMSG=ITEP/SIZE=58/COPY=0

THE DEFAULT COPY AND SIZE FOR EACH OF THE MESSAGE TYPES:
        ONES    /SIZE=64/COPY=0
        ZEROES   /SIZE=64/COPY=0
        0ALT    /SIZE=64/COPY=0
        1ALT  - /SIZE=64/COPY=0
        CCITT - /SIZE=64/COPY=0
        ALPHA    /SIZE=65/COPY=0
        ITEP  - /SIZE=58/COPY=0
        OPER. SPEC'D   /SIZE=LENGTH-OF-TEXT-TYPED-BETWEEN QUOTES/COPY=0

FOR THE RUN COMMAND THE DEFAULTS ARE:

        RUN MODE=ACTIVE/NOSTATUS/CHECK/NOECHO/NOMODEM/PASS=1

        NOTE: MODE=ACTIVE IS NOT DEFAULT. A MODE=MTYPE MUST BE TYPED
           --   EACH TIME A RUN IS TYPED


IF THE DCLT PROGRAM IS RUN IN UNATTENDED MODE (UAM FLAG=1 OR CHAINED),
THE DEFAULTS ARE AS IF THESE SETUP AND RUN COMMANDS WERE TYPED:

        SET TRANS=ITEP
        SET EXPECT=ITEP
        RUN MODE=ACTIVE/LOOP=INTERNAL/NOSTAT/NOECHO/NOMODEM/CHECK/PASS=1


OTHER NOTES:
 -- -  -  -
^C              ALWAYS RETURNS YOU TO "DR>" (THE SUPERVISOR)
<CR>            IS SEEN AS A COMMAND TERMINATOR
"PUBOUT'        DELETE LAST CHAR. TYPED IN COMMAND STRING
```

2.6 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. THE NUMBER OF UNITS THAT CAN DCLT CAN USE IS ALWAYS "1".

WHEN YOU FOLLOW THIS PROCEDURE YOU WILL BE USING ONLY THE DEFAULTS FOR FLAGS. THESE DEFAULTS ARE DESCRIBED IN SECTION 2.3.

7. AFTER THE "DCLT> (A) ?" PROMPT, TYPE "RUN MODE=ACTIVE<CR>"

WHEN YOU FOLLOW THIS PROCEDURE YOU WILL BE USING THE DEFAULT TRANSMIT AND EXPECTED MESSAGES. THE DEFAULT PASS COUNT AND "RUN" QUALIFIERS ARE ALSO BEING USED. THESE DEFAULTS ARE DESCRIBED IN SECTION 2.5.3.

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 "IBE" 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", "IBE" OR "IXE" 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

3.2.1 COMMAND LINE INTERPRETER ERRORS:

ERROR MESSAGE:	MEANING
?ILL CMD BAD SYNTX?	A COMMAND WITH AN ILLEGAL CHAR WAS TYPED - RETYPE THE COMMAND. THE VALID COMMANDS AND THEIR SYNTAX ARE SHOWN IN SECTION 2.5.
?INCMPLTE CMD?	A REQUIRD PART OF A COMMAND WAS LEFT OUT.
?NUM TOO BIG?	THE VALUE OF A NUMERIC STRING IN THE COMMAND LINE WAS LARGER THAN 65535 OR 177777 OCTAL. (> 16 BITS).
?BAD RADIX?	A '8' OR "9" WAS TYPED WHEN AN OCTAL STRING WAS EXPECTED. PROBABLY OCCURRED WHEN TYPING A "DUMP" COMMAND WHERE OCTAL ADDRESSES ARE EXPECTED.
? LOOP" VALID ONLY IN ACTIVE?	THE '/LOOP... SWITCH WAS TYPED IN A RUN COMMAND BUT THE MODE WAS NOT SET TO ACTIVE. MAINTENANCE LOOP IS ONLY

```
                                    POSSIBLE IF THE MODE OF OPERATION IS
                                    ACTIVE.

?"ECHO" VALID ONLY IN PASSIVE?  THE "/ECHO" SWITCH WAS TYPED IN A
                                    RUN COMMAND BUT THE MODE WAS NOT SET
                                    TO PASSIVE. ECHOING OF RECEIVED DATA
                                    IS ONLY POSSIBLE IF THE MODE OF
                                    OPERATION IS PASSIVE.

?ILL CHR  'A-Z,0 9,SP,TAB" ONLY? A CHARACTER TYPED WITHIN QUOTES WHEN
                                     TRYING TO DEFINE THE CONTENTS OF A
                                     TRANSMIT OR EXPECT MESSAGE WAS NOT
                                     A "A-Z,0-9,SPACE OR TAB". RETYPE THE
                                     COMMAND WITH ONLY THESE CHARACTERS
                                     BETWEEN QUOTES.

?"SIZE=0' NOT VALID?            A MESSAGE ZERO BYTES LONG CAN NOT BE
                                     BUILT. RETYPE THE COMMAND WITH A
                                     "/SIZE=NNN".  IF NO "/SIZE=" IS TYPED
                                     A DEFAULT SIZE WILL BE USED.

?TRIB CMDS ILLEGAL IN PT-PT MODE?
                                    A TRIB COMMAND WAS ISSUED AND THE MODE
                                     DEFINED BY THE HARDWARE P-TABLE WAS
                                     POINT TO POINT. IF TRIB COMMANDS ARE
                                     TO BE USED PROGRAM MUST BE STARTED
                                     AGAIN WITH THE MODE SET TO MULTIPOINT

?TRANSMIT AND EXPECT LIST MUST BE IDENTICAL FOR LOOP?

                                   IF RUN COMMAND WITH "/LOOP/CH" IS TYPED
                                    TRANSMIT AND EXPECT LISTS MUST BE
                                    EQUAL. USE "SE E=T" COMMAND.


?TRIB ADDRESS= XXX IS NOT UNIQUE?
                                    THE TRIB WHOSE ADDRESS IS XXX IS
                                    ALREADY IN THE TRIB LIST
?TRIB ADDRESS= XXX NOT FOUND?
                                    THE TRIB WHOSE DECIMAL ADDRESS IS
                                    XXX WAS NOT FOUND IN THE TRIB LIST
                                    WHEN THE TRIB KILL COMMAND WAS EXECUTED
?CABLE,LOC,REM LOOP NOT VALID IN "MULTIPT MODE"?
                                    A RUN COMMAND WAS ISSUED WITH LOOP=
                                    TO CABLE,LOCAL OR REMOTE WHILE THE
                                    MODE SET BY THE P-TABLE WAS MULTIPOINT
                                    THESE LOOP MODES ARE ONLY VALID FOR
                                    POINT TO POINT OPERATION
?TRIBS MUST BE ESTABLISHED TO EXECUTE?
                                    A RUN COMMAND WAS ISSUED IN MULTIPOINT
                                    MODE AND THE TRIB LIST WAS EMPTY. TO
                                    USE MULTIPOINT MODE A LEAST ONE TRIB
                                    MUST BE ESTABLISHED.
?TRIB STATION CANNOT DO LOOP?
                                    A RUN COMMAND WAS ISSUED WITH THE LOOP
                                    SWITCH AND THE MODE IN P TABLE WAS
                                    MULTIPOINT TRIBUTARY. TRIBUTARY
```

STATIONS CANNOT DO LOOPBACK.

?ONLY ONE TRIB (TRIB ADDR 1) ALLOWED FOR LOOP IN MULTIPOINT?

A RUN COMMAND WITH LOOP=INTERNAL WAS ISSUED AND THE TRIB LIST DID NOT HAVE ONLY 1 TRIB IN IT. IF IT DID HAVE ONLY 1 TRIB IN IT THE ADDRESS WAS NOT 1.

?TRIB ADDRESS= XXX INVALID?

A TRIB COMMAND WAS ISSUED WITH A TRIB ADDRESS NOT IN THE RANGE 1-255

3.2.2 DCLT ERROR MESSAGES:

CLOCK NOT FOUND

THIS MEANS THAT NO CLOCK WAS FOUND ON THE SYSTEM THE DIAGNOSTIC WILL STILL RUN BUT NONE OF THE TIME OUT CONDITIONS WILL OCCUR.

BAD CLOCK - PROGRAM WILL HANG ON "TIMEOUT"!!

THIS MEANS THAT EITHER NO CLOCK WAS ON THE SYSTEM OR THE ONE THAT WAS FOUND DID NOT INTERRUPT WHEN ASKED TO DO A "TICK".
THE PROGRAM WILL STILL RUN, BUT ANY OF THE PROGRAM THAT TIMES THE DEVICE WILL HANG IF THE DEVICE TIMES OUT.
ALSO, THE EVENT LOG WILL CONTAIN A ZERO EVENT TIME FOR ALL EVENTS LOGGED.

MAX. CHAR. MSG COUNT EXCEEDED - MSG. NOT BUILT !!

THIS MEANS THAT THE TRANSMIT OR EXPECT BUFFER IS FULL. NO MORE MESSAGES CAN BE ADDED TO THAT BUFFER.

BUFFER FULL MSG. NOT BUILT !!

THIS MEANS THAT THE LAST MESSAGE YOU TRIED TO ADD TO EITHER THE TRANSMIT OR EXPECT BUFFER CAUSED THE TOTAL NUMBER OF MESSAGES TO BE EXCEEDED. NO MORE MESSAGES CAN BE ADDED TO THAT BUFFER. THE LIMIT IS DETERMINED BY THE SIZE OF THE MESSAGE POINTER TABLE. THE LIMIT IS CURRENTLY 15.

CHAR. COUNT EXCEEDS BUFF LIMIT - MSG TRUNCATED

THIS MEANS THAT THE LAST MESSAGE YOU TRIED TO ADD TO THE TRANSMIT OR EXPECT BUFFER CAUSED THE TOTAL CHAR. COUNT FOR THAT BUFFER TO EXCEED THE LIMIT. THE LIMIT IS 512. BYTES.
THE MESSAGE WAS TRUNCATED TO COMPLETELY FILL THE BUFFER. NO MORE MESSAGES CAN

BE ADDED TO THAT BUFFER.

TRIB ADDRESS LIST IS EMPTY

THERE ARE NO TRIBS IN THE TRIB LIST WHEN THE THE TRIB SHOW COMMAND WAS EXECUTED.

TRIB ADDRESS LIST FULL - ADDRESS= XXX NOT ADDED

A TRIB ESTABLISH COMMAND CAUSED THE NUMBER OF TRIBS IN THE LIST TO EXCEED THE MAXIMUM (DMV=12,DMP=32). THIS ERROR MESSAGE IS REPEATED FOR ALL TRIBS IN EXCESS FOR THIS STRING. XXX= THE DECIMAL ADDRESS OF THE TRIB

RX BUFFER NOT BIG ENOUGH
TOO MANY TRIBS OR MSGS

A RUN COMMAND WAS ISSUED WITH DATA CHECKING REQUESTED AND THE NUMBER OF TRIBS TIMES THE NUMBER OF EXPECTED MESSAGES EXCEEDED THE MAXIMUM REC BUFFER TOTAL (2048 BYTES) TO CORRECT FOR THIS EITHER THE NUMBER OF MESSAGES, THE SIZE OF THE MESSAGE OR THE NUMBER OF TRIBS MUST BE DECREASED.

3.2.3 DEVICE ERROR MESSAGES:

DATA COMPARISON DATA ERROR
BYTE # IN MSG=XXX EXPTD=YYY RECVD=ZZZ

XXX= OFFSET OF THAT BYTE FROM THE START OF THE COMPARE OR EXPECT MESSAGE.
YYY= THE CONTENTS OF THAT BYTE IN THE EXPECTED MESSAGE
ZZZ= THE CONTENTS OF THAT BYTE IN THE RECEIVED MESSAGE

UP TO FIVE OF THESE ERRORS WILL BE PRINTED PER MESSAGE COMPARED. ONLY THE FIRST FIVE MISMATCHES WILL BE INDIVIDUALLY REPORTED, BUT TOTAL NUMBER OF MISMATCHES IS REPORTED BY ANOTHER ERROR.

PRINTING THE EVENT LOG AND USING THE DCLT "DUMP" COMMAND WILL ALLOW YOU TO FIND THE ADDRESS OF THE MESSAGE AND EXAMINE IT.

DATA COMPARISON DATA ERROR
TOTAL MISMATCHES IN MSG = NNN

THIS MEANS THAT WHEN THE MESSAGE RECEIVED WAS COMPARED AGAINST THE MESSAGE THAT WAS EXPECTED, SOME OF THE CHARS. WERE NOT THE SAME.

DATA COMPARISON LENGTH ERROR
COMPARE COUNT= XXX RECEIVE COUNT= ZZZ

```
                                XXX= NUMBER OF BYTES IN THE COMPARE
                                     MESSAGE
                                ZZZ= NUMBER OF BYTES IN THE RECEIVED
                                     MESSAGE
                                THIS MEANS THAT THE MESSAGE RECEIVED
                                WAS A DIFFERENT LENGTH THEN THE MESSAGE
                                THAT WAS EXPECTED.


                        *******
                        * NOTE *     IN THE FOLLOWING ERROR DESCRIPTIONS XXXXX
                        ********     REFERS TO THE OCTAL CONTENTS OF THE DEVICE REGISTERS
                                         SPECIFIED.

DEVICE DID NOT RETURN RUN BIT                   ;THIS ERROR INDICATES
    SEL0     SEL2                               ;THAT THE DEVICE DID
    XXXXXX    XXXXXX                            ;NOT RETURN THE RUN BIT
                                                ;AFTER 1000 TICKS OF THE CLOCK
                                                ;COULD INDICATE MICRO DIAG
                                                ;FOUND A FAILURE.

FAILURE IN MICRO DIAGNOSTICS                    ;THIS ERROR INDICATES THAT
    SEL0     SEL6                               ;BSEL6 DOES NOT CONTAIN 305
    XXXXXX    XXXXXX                            ;THIS IS CHECKED AFTER A MASTER
                                                ;CLEAR AND THE RUN BIT HAS
                                                ;BEEN SET


TIME OUT WAITING FOR TX OR RX TO COMPLETE
    SEL0     SEL2                               ;THIS ERROR IS THE MOST POPULAR
    XXXXXX    XXXXXX                            ;IT INDICATES THAT THE 60 SEC
                                                ;TIMER EXPIRED WHEN THE DEVICE
                                                ;WAS EXPECTING TO GET A RX OR
                                                ;TRANSMIT COMPLETE. AFTER THIS
                                                ;ERROR OCCURS THE PROGRAM WILL
                                                ;RESET THE TIMER AND LOOP AGAIN

TIME OUT WAITING FOR RDI                        ;THIS ERROR INDICATES THAT THE
    SEL0     SEL2                               ;DEVICE DID NOT RETURN RDI IN
    XXXXXX    XXXXXX                            ;RESPONSE TO AN RQI BEFORE THE
                                                ;TIMER EXPIRED. THE TIMER IS
                                                ; 100 TICKS FOR DMP AND 400
                                                ; TICKS FOR THE DMV.
```

```
CONTROL OR INFORMATION OUT ERROR        ;THIS ERROR INDICATES THAT
    SEL2     SEL6                       ;A CONTROL OUT ERROR OCCURRED
    XXXXXX   XXXXXX  YYYYYY             ;OR AN UNEXPECTED INFORMATION
                                        ;OUT OCCURRED. THE TYPE OF
                                        ;ERROR IS INDICATED
                                        ;BY THE ASCII
                                        ;STRING YYYYY WHICH CAN BE ONE
                                        ;FROM THE LIST BELOW.
                                        ;SOME CONTROL OUTS ARE FATAL
                                        ;IF A FATAL ERROR OCCURS THE
                                        ;PROGRAM WILL BE FORCED TO THE
                                        ;DCLT> PROMPT THE FATAL ERRORS
                                        ;ARE INDICATED BELOW
```

MSG	FATAL	DESCRIPTION
SELECT THRESHOLD	NO	SELECTION TIMER TIMED OUT MORE THAN 7 TIMES
START RXD IN RUN	YES	DDCMP START RX'D WHILE DEVICE WAS IN RUN STATE
MAINT RXD IN RUN	YES	DDCMP MAINT MESSAGE WAS RX'D WHILE DEVICE WAS IN THE RUN STATE
MAINT RXD IN HALT	YES	DDCMP MAINTINANCE MSG RX'D WHEN DEVICE WAS IN HALT STATE.
START RXD IN MAINT	YES	DDCMP START MSG RX'D WHILE DEVICE WAS IN MAINTINANCE MODE
RING DETECTED	NO	RING SIGNAL WAS SET BY MODEM. THIS OUTPUT FOR DMP ONLY.
DEAD TRIB	NO	INDICATES THAT A TRIB NO LONGER RESPONDS WHEN IT IS POLLED
RUN STATE ERR	NO	RUN STATE OUTPUT IS POSTED WHEN DCLT IS NOT EXPECTING IT.
BABBLING TRIB	YES	A TRIBUTARY IS HOGGING THE LINE AND NOT RETUN ING THE SELECT FLAG.
STREAMING TRIB	YES	A TRIBUTARY IS SENDING DATA CONSTANTLY.
BUFFER TOO SMALL	YES	MSG WAS RX'D AND THE DEVICE HAS NO BUFFER

		BIG ENOUGH FOR IT. THIS IS PROBABLY OPER RATER ERROR.
NON EXIST MEM	YES	INDICATES THAT DEVICE TRIED TO NPR TO A MEM LOCATION THAT IS NON EXISTENT.
DISCONNECT	YES	INDICATES DEVICE SAW MODEM READY GO AWAY AFTER BEING SET. LOOK FOR CABLE OR MODEM
QUEUE OVER	YES	DEVICE HAS TOO MUCH OUTPUT OR PROGRAM GAVE DEVICE TOO MUCH.
CARRIER LOSS	YES	INDICATES CARRIER SIG WENT AWAY WHILE RX ING

**NOTE THE FOLLOWING ARE PROCEDURE ERRORS IF THEY OCCUR
**THE DEVICE IS PROBABLY BAD ALL PROCEDURE ERRORS ARE FATAL

NO MODE DEF	YES	PROCEDURE ERROR
ILLEGAL TYPE CODE		
MODE CHANGE		
CONTROL IN TO UNES. TRIB		
COMMAND TO TRIB 0		
COMMAND TO UNHALTED TRIB		
MAX TRIBS EXCEEDED		
ESTB TO ALREADY ESTABLISHED		
ILLEGAL REQEST KEY		
ASSIGN BUFF UNEST. TRIB		
ASSIGN BUFF HALTD TRIB		
ASSIGN BUFF BYTE CNT 0		
ASSIGN TX BUFF TRIB 0		
R OR W RESERVED TSS		
USE RESERVED BIT IN BSEL7		
COMMON POOL ERROR		
QUOTA OVERFLOW		

**** END OF PROCEDURE ERRORS******

```
ILLEGAL TRANSMIT COMPLETE                ;INDICATES DEVICE GOT A TX
    SEL4      SEL6                       ;COMPLETE WHEN IT WAS NOT
    XXXXXX    XXXXXX                     ;EXPECTING IT.

ILLEGAL RECEIVE COMPLETE                 ;INDICATES DEVICE GOT A RX
    SEL4      SEL6                       ;COMPLETE WHEN IT WAS NOT
    XXXXXX    XXXXXX                     ;EXPECTING IT.

QUE OVERFLOW BUFFER COMPLETE             ;INDICATES A BUFFER COMPLETE
    SEL4      SEL6                       ;WAS TAKEN FROM THE QUE AFTER
    XXXXXX    XXXXXX                     ;A QUE OVERFLOW

RLD OR MODE ENABLE OF PASSWORD SW NOT SET
    SEL0      SEL2                       ;INDICATES THAN WHEN IN DLL
    XXXXXX    XXXXXX                     ;MODE ON A TRIB THE SWITCHES
                                         ;ON THE DEVICE WERE NOT SET
                                         ;CORRECTLY.

DOWN LINE LOAD ABORTED                   ;WHEN RUNNING DOWN LINE LOAD
   RXBUF     TXBUF                       ;THE HOST HAS SENT A "ENTER
   ZZZZZZ    XXXXXX      YYYYYY         ;MOP" MSG AND IS WAITING FOR
                                         ;RESPONSE. ZZZZZ IS FIRST WORD
                                         ;OF REC BUFFER XXXXX FIRST WORD
                                         ;OF TX BUFFER AND YYYYY  IS AN
                                         ;ASCII STRING THAT INDICATES
                                         ;ONE OF THE FOLLOWING

TX NOT COMPLETE                          ;THE FIRST COMPLETE WAS
                                         ;NOT A TRANSMIT COMPLETE

RX NOT COMPLETE                          ;THE SECOND COMPLETE WAS
                                         ;NOT A RX COMPLETE

SEC REQ ERR WORD 1                       ;THE TX AND RX COMPLETE
                                         ;HAPPEN BUT THE FIRST WORD
                                         ;OF THE "SECONDARY BOOT"
                                         ;MSG IS IN ERROR

SEC REQ ERR WORD 2                       ;THE TX AND RX COMPLETE HAPPEN
                                         ;AND THE FIRST WORD IS GOOD IN
                                         ;THEN "SECONDARY BOOT" MESG BUT
                                         ;THERE IS AN ERROR IN
                                         ;BYTES 3 OR 4.
```

4.0 PERFORMANCE AND PROGRESS REPORTS

DCLT USES IT'S OWN METHOD FOR DETERMINING AN "END OF PASS"
WHICH IS CALLED A "DCLT END OF PASS". THE NUMBER OF "DCLT PASSES"
TO BE RUN IS SPECIFIED BY THE '/PASS=XXX" SWITCH ON THE DCLT
RUN COMMAND. THE TOTAL NUMBER OF "DCLT ERRORS" ARE LOGGED IN
IN THE EVENT LOG WHEN EACH "DCLT PASS" IS COMPLETED.

4.1 PRINTING OF EVENT LOG

SIGNIFICANT EVENTS OR CHECK-POINTS WILL BE LOGGED IN A
"CIRCULAR QUEUE" STORAGE AREA CALLED THE EVENT LOG. THE LAST
45 EVENTS ARE KEPT LOGGED AND CAN BE LISTED ON THE OPERATORS
CONSOLE BY GIVING A "PRINT" COMMAND AT THE "DR>"(DIAGNOSTIC SUPERVISOR)
OR "DCLT>" (DCLT) LEVEL. THE PRINT COMMAND MUST BE FOLLOWED BY A LOG
COMMAND. THE EVENTS ARE PRINTED IN A "LAST-IN
FIRST-OUT" ORDER.

EVENT TIME IS TYPED OUT AS MMM:SS:TT (LIKE 254:36:07) WHERE MMM,SS,TT
REPRESENT THE NUMBER OF MINUTES, SECONDS, CLOCK TICKS SINCE THE LAST
START OR RESTART. IT SHOULD BE NOTED THAT THE TIMES ARE
RELATIVE SINCE WHILE THE PROCESSOR IS RUNNING AT PRIORITY 7
THE CLOCK CAN'T INTERRUPT TO KEEP TIME. THIS IS THE CASE
WHILE THE PROGRAM IS FETCHING DCLT COMMANDS FROM THE OPERATOR.
IT SHOULD ALSO BE NOTED THAT THERE ARE ONLY 8 BITS AVAILABLE TO STORE
RELATIVE MINUTES SO "TIME" WILL WRAP TO 000:00:00 AFTER 256:59:59.

A START OR RESTART COMMAND AT THE "DR>" LEVEL INITIALIZES THE EVENT
LOG. THEREFORE IT IS WISE TO DO A "PRINT" "LOG" AT THE "DR>" LEVEL
BEFORE GIVING A "START" OR "RESTART".

THE TYPES OF EVENTS KEPT IN THE EVENT LOG ARE:

TRANSMIT MESSAGE QUEUED:
        EVENT TIME,ADDRESS OF TRIBUTARY TO/FROM
        ADDRESS OF 1ST BYTE OF MESSAGE,
        TOTAL NO. OF BYTES, MODEM STATUS AT THAT TIME.
TRANSMIT MESSAGE COMPLETED:
        EVENT TIME,ADDRESS OF TRIBUTARY TO/FROM
        ADDRESS OF 1ST BYTE OF MESSAGE,
        TOTAL NO. OF BYTES, MODEM STATUS AT THAT TIME.
RECEIVE SPACE QUEUED:
        EVENT TIME,ADDRESS OF TRIBUTARY TO/FROM
        ADDRESS OF 1ST BYTE OF MESSAGE,
        TOTAL NO. OF BYTES, MODEM STATUS AT THAT TIME.
RECEIVE MESSAGE COMPLETED:
        EVENT TIME,ADDRESS OF TRIBUTARY TO/FROM
        ADDRESS OF 1ST BYTE OF MESSAGE,
        TOTAL NO. OF BYTES, MODEM STATUS AT THAT TIME.
DATA COMPARISON STARTED:
        EVENT TIME,ADDRESS OF TRIBUTARY TO/FROM
        ADDRESS OF 1ST BYTE OF RECEIVED MSG.,
        TOTAL NO. OF BYTES IN RCV. MSG., TOTAL NO. OF BYTES
        IN EXPECT MSG.
DATA COMPARISON DATA ERROR:

```
        EVENT TIME,ADDRESS OF TRIBUTARY TO/FROM
        ADDRESS OF 1ST BYTE OF RECEIVED MSG.,
        TOTAL NO. OF BYTES IN RCV. MSG , TOTAL NO. OF
        COMPARISON FAILURES
DATA COMPARISON LENGTH ERROR:
        EVENT TIME,ADDRESS OF TRIBUTARY TO/FROM
        ADDRESS OF 1ST BYTE OF RECEIVED MSG.,
        TOTAL NO. OF BYTES IN RCV. MSG., TOTAL NO. OF BYTES
        IN EXPECT MSG.
DEVICE INIT AND SETUP:
        EVENT TIME, MODE OF OPERATION, TYPE OF MAINTENANCE
        LOOP, "DCLT" PASS COUNT, "RUN" PARAMETERS
DEVICE ERROR:
        EVENT TIME, DEVICE ERROR MESSAGE, CONTENTS OF TWO
        REGISTERS RELATING TO THE ERROR.
END OF PASS:
        EVENT TIME, "DCLT" PASS COUNT, "DCLT" ERROR COUNT,
        #OF RX THRESHOLD ERRORS,# OF TX THRESHOLD ERRORS

        NOTE    RX THRESHOLDS AND TX THRESHOLDS OCCUR IF
                ONE STATION IS STARTED BEFORE THE OTHER
                OR IF LINKS ARE RUN AT HIGH SPEED
```

4.2 OPERATOR STATUS MESSAGES

THE "/STATUS, /NOSTATUS" QULAIFIERS FOR THE DCLT "RUN' COMMAND ENABLES/DISABLES THE PRINTING OF PROGRAM STATUS MESSAGES TO THE OPERATOR. THESE MESSAGES ARE INTENDED TO TELL THE OPERATOR WHAT THE DCLT PROGRAM IS CURRENTLY DOING. BELOW ARE THE MESSAGES THAT MIGHT BE PRINTED AND THEIR MEANING:

MESSAGE	MEANING
TXQ	DEVICE IS ABOUT START TRANSMITTING A MESSAGE
TXC	TRANSMISSION OF MESSAGE COMPLETED
RXQ	DEVICE HAS QUEUED SPACE TO RECEIVE/ COMPLETED RECEIVE
ERR	DEVICE ERROR HAS OCCURRED
INI	DEVICE ABOUT TO BE INITIALIZED
CMP	ABOUT TO DO DATA CHECKING OF RECVD VS. EXPTD DATA
CML	LENGTH ERROR OCCURRED DURING DATA COMPARISON
CMD	DATA ERROR OCCURRED DURING DATA COMPARISON
EOP	END OF PASS

5.0 DEVICE INFORMATION TABLES

THIS IS THE DEFAULT HARDWARE P-TABLE. THE VALUES AND
SIZE ARE USED AS A "TEMPLATE" FOR CREATING ACTUAL P-TABLE
ENTRIES AND THE DEFAULT VALUES PROVIDED FOR THE OPERATOR.
SEE SECTION 2.4 FOR AN EXAMPLE OF THE HARDWARE QUESTIONS.

THE NUMBERS IN BRACKETS (I.E. [10]) INDICATES THE OFFSET OF THE
WORD INTO THE HARDWARE P-TABLE. THE OFFSETS MUST MATCH THE P-TABLE
OFFSETS USED IN THE HARDWARE PARAMETER CODING SECTION WHERE THE
"GET PARAMETER" CALLS ARE USED TO FILL THE P-TABLE.

```
.WORD   1               ;[0] FULL OR HALF DUPLEX FLAG (BIT0=1 IF FULL)
.WORD   160170          ;[2] CSR ADDRESS
.WORD   300             ;[4] INTERRUPT VECTOR
.WORD   240             ;[6] INTERRUPT PRIORITY (5)
.WORD   0               ;[10] DEVICE PARAMS BIT1        BIT0
                        ;       IF A ZERO   TRIB        POINT-POINT
                        ;       IF A ONE    CONTROL     MULTIPOINT
.WORD   0               ;[12] OPTION TYPE 0=DMP 1=DMV
                        ;
```

6.0 MODE AND MESSAGE DESCRIPTIONS

THE FOLLOWING ABBREVIATIONS WILL BE USED IN THE
MODE DESCRIPTIONS
MTP/TB - MULTIPOINT TRIBUTARY
MTP/CS - MULTIPOINT CONTROL STATION
PTP POINT TO POINT

6.1 MODE DESCRIPTIONS

6.1.1 TRANSMIT MODE

IF PTP OR MTP/TB:

THE TRANSMIT LIST OF MESSAGES IS TRANSMITTED WITHOUT EXPECTING ANY DATA
TO BE RECEIVED.

IF MTP/CS: THE LIST IS SENT TO EACH TRIBUTARY

6.1.2 RECEIVE MODE

IF PTP OR MTP/TB:

SPACE IS QUEUED FOR THE DEVICE TO RECEIVE MESSAGES.
AFTER RECEIVING AN "EXPECTED" NUMBER OF MESSAGES, THE DATA RECEIVED
CAN BE COMPARED AGAINST A LIST OF "EXPECT TO RECEIVE" MESSAGES
IF DATA-CHECKING IS ENABLED.

IF MTP/CS: SPACE IS QUED FOR ALL TRIBUTARIES

6.1.3 PASSIVE MODE

IF PTP OR MTP/TB:

EVERY TIME A MESSAGE IS RECEIVED, A MESSAGE IS TRANSMITTED.
DATA CHECKING CAN BE DONE ON THE RECEIVED DATA. THE '/ECHO, /NOECHO
ENABLES/DISABLES THE RETRANSMISSION OF THE DATA RECEIVED.

IF MTP/CS: A MESSAGE IS RECEIVED FROM EACH TRIB AND THEN A
MESSAGE IS TRANSMITED TO EACH TRIB.

6.1.4 ACTIVE MODE

A LIST OF MESSAGES IS TRANSMITTED AND MESSAGES ARE RECEIVED.
AFTER RECEIVING AN "EXPECTED" NUMBER OF MESSAGES, THE DATA RECEIVED
CAN BE COMPARED AGAINST A LIST OF "EXPECT TO RECEIVE" MESSAGES
IF DATA-CHECKING IS ENABLED.

IF MTP/TB: THE TRANSMIT MESSAGES OF ALL TRIBS MUST BE IDENTICAL
IF DATA CHECKING IS ENABLED.

NOTE: IF BOTH ENDS OF THE LINK ARE IN ACTIVE MODE, THEN THE
LINK MUST BE A FULL DUPLEX LINK!

6.1.5 DOWN LINE-LOAD

****
* NOTE * - THE SATELLITE IN MTP MODE WILL ALWAYS BE THE FIRST
******** TRIB IN THE TRIB LIST.
IF IN PTP MODE, THE SATELLITE WILL ENTER MOP MODE
ONLY IF THE PASSWORD SUPPLIED BY THE USER MATCHES
THAT SET IN ITS PASSWORD SWITCH PACK.

IF PTP OR MTP/CS:

THE "HOST" REQUESTS THE "SATELLITE" TO ENTER MOP MODE.
THE SATELLITE THEN SENDS A "SECONDARY BOOT REQUEST MESSAGE".
THE "HOST" THEN CHECKS THE RECEIVED MESSAGE TO SEE THAT IT IS
A "SECONDARY BOOT REQUEST". THEN THE HOST SENDS A "MEMORY LOAD
WITH TRANSFER ADDRESS" THAT CONTAINS IMAGE DATA TO BE LOADED
BY THE SATELLITE'S MICRO-CODE INTO MAIN MEMORY STARTING AT
LOC. 0. THIS IMAGE DATA WILL CONTAIN CODE THAT PRINTS
A MESSAGE STATING DOWN-LINE-LOAD WAS SUCCESSFUL. THE BOOTING
PROCESS OVERWRITES PART OF THE "VECTOR" AREA SO THE DCLT
PROGRAM MUST BE RELOADED IN THE "SATELLITE" SYSTEM.

IF MTP/TB:

RUNNING DOWN LINE LOAD MODE IN A MULTIPOINT TRIB JUSTS
ENABLES PRIMARY MOP MODE.
TRIBS CANNOT BE "HOSTS"

****
* NOTE * THE SATELLITE MUST HAVE CERTAIN SWITCHES SET ON

******** THE LINE UNIT CARD IN ORDER TO ALLOW THE BOOT TO OCCUR. THE MODE ENABLE SWITCH [SW 8 OF E121] MUST BE SET TO A 1[OFF].THE MODE MUST BE DEFINED IN THE SWITHCES[SW"S 5 6 AND 7 OF E 121]. THE PASSWORD OR TRIB ADDRESS MUST BE SET IN THE SWITCHES[SW'S IN E-134]. THIS MUST BE DONE FOR ALL TYPES OF DOWN LINE LOAD. IN ADDTION THE FOLLOWING MUST BE DONE FOR.
REMOTE LOAD DETECT:
SWITCH 9 OF E-121 TO A ONE [OFF]
FOR POWER ON BOOT AND ENTER P MOP
SWITCH 10 OF E-121 TO A ZERO [ON]

INCLUDED IN THE "SECONDARY BOOT MESSAGE" IS THE DEVICE TYPE CODE THAT IS DECIPHERED AND INCLUDED IN AN IDENTIFICATION MESSAGE.

EXAMPLE:

SECONDARY BOOT REQ FROM XXX DEVICE TYPE = YY

YY	XXX
0	DP
2	DU
4	DL
6	DQ
8	DA
10	DUP
12	DMC
14	DN
16	DLV
18	DMP
20	DTE
22	DV
24	DZ
28	KDP
30	KDZ
32	KL
34	DMV

6.1.6 TALK AND LISTEN MODE

******** * NOTE * - IN MTP MODE TALK AND LISTEN USE ONLY THE FIRST TRIB ******** IN THE TRIB LIST

6.1.6.1 TALK MODE

THE "TALK" END OF THE LINK TRANSMITS OPERATOR-TYPED MESSAGES UNTIL A "EXIT" MESSAGE IS TYPED. AT THAT POINT, THE NODE GOES INTO "LISTEN" MODE. AN "EXIT MESSAGE" IS A MESSAGE WHOSE FIRST FOUR CHARACTERS ARE "EXIT". SINCE ONLY THE FIRST FOUR CHARACTERS NEED TO BE "EXIT", MORE CHARACTERS CAN BE ADDED SO THAT A MESSAGE

MAY BE SENT AND THE MODE SWITCHED ALL AT ONCE. FOR EXAMPLE:

TLK> EXIT ALL OF THIS LINE IS SENT THEN MODE SWITCHED

6.1.6.2 LISTEN MODE

THE "LISTEN" END OF THE LINK PRINTS ALL OF THE MESSAGES RECEIVED BY THE DEVICE ON THE OPERATOR'S CONSOLE. IF THE MESSAGE RECEIVED IS AN "EXIT" MESSAGE, THEN THE NODE ENTERS "TALK" MODE. AN "EXIT MESSAGE" IS A MESSAGE WHOSE FIRST FOUR CHARACTERS ARE "EXIT".

6.1.7 MAINTENANCE "LOOP" MODES

REMEMBER THAT THE WHENEVER A "RUN" COMMAND IS TYPED, THE DEFAULT IS NO LOOPBACK AND THAT A LOOP MODE MUST BE SPECIFIED BY A "/LOOP=.." IF A LOOP MODE IS DESIRED.
LOOP MODES ARE ONLY VALID IF THE MODE TO RUN IS ACTIVE

INTERNALTTL	LOOPS DATA INTERNALLY THIS WILL NOT WORK FOR MTP/TB. IF MTP/CS THEN TRIB 1 MUST BE ESTABLISHED.

THE FOLLOWING ARE ONLY VALID IN PTP MODE.

CABLE	DOES NOT CAUSE ANY BITS TO BE SET OR REQUESTS TO BE QUEUED, BUT MAKES FOR A NICE BOOKKEEPING FEATURE. "/L=CABLE" WILL THEN BE SHOWN WHEN THE COMMAND LINE IS TYPED AS A REMINDER OF WHAT TYPE OF LOOPING IS BEING ATTEMPTED. REMEMBER TO INSTALL ANY CONNECTORS OR ENABLE ANY LOOP FEATURES THAT ARE NECESSARY TO MAKE CABLE LOOPBACK POSSIBLE.
LOCALMODEM	SETS MM1 ON INTERFACE ALSO CALLED ANALOG-LOOPBACK.
REMOTEMODEM	SETS MM2 ON RS449 INTERFACE ALSO CALLED DIGITAL LOOPBACK.

6.1.8 MODE SUMMARY TABLE

THE FOLLOWING TABLE SUMMARIZES THE MODES THAT CAN BE RUN TOGETHER WHEN THE DCLT PROGRAM IS RUNNING ON TWO PROCESSORS (ONE AT EACH END OF THE LINK):

STATION A "HOST" NODE	STATION A "/LOOP" ALLOWED?	STATION B "REMOTE" NODE	DUPLEX
TALK	NO	LISTEN*, RECEIVE	HALF OR FULL
LISTEN	NO	TALK*, TRANSMIT	HALF OR FULL
TRANSMIT	NO	RECEIVE*, LISTEN	HALF OR FULL
RECEIVE	NO	TRANSMIT*, TALK	HALF OR FULL
PASSIVE	NO	ACTIVE*	HALF OR FULL
ACTIVE	YES	ACTIVE*	FULL
ACTIVE	YES	PASSIVE*	HALF OR FULL
DOWNLINELOAD	NO	PASSIVE*	HALF FORCED

* = MOST LIKELY TO BE IN THAT MODE

6.2 MESSAGE DESCRIPTIONS

NAME	DESCRIPTION
ZEROES	MESSAGE OF ALL 0'S (00000000,00000000,00000000,....)
ONES	MESSAGE OF ALL 1'S (11111111,11111111,11111111,....)
1ALT	MESSAGE OF ALTERNATING 1'S (10101010,10101010,....)
0ALT	MESSAGE OF ALTERNATING 0'S (01010101,01010101,....)
CCITT	"CCITT" 512-BIT (VS. 511 BITS) TEST PATTERN
ITEP	"INTERPROCESSOR TEST PROGRAM'S (ITEP)" MESSAGE 1(DP1:) (<177><177>/$A THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG.<15><12><001><177><177><177><177>)
ALPHA	ALPHA-NUMERICS (OR FUTURE COMM TURNAROUND MSG) (@$!" (AMPERSAND)'()*+,-.0123456789:;<=>?@ABCDEFGHIJK LMNOPQRSTUVWXYZ/[\]↑_≠)
OPERATOR SPECIFIED	"A-Z,0-9,SPACES,TABS" THESE ARE THAT THE CHARACTERS THAT CAN BE TYPED BETWEEN QUOTATION MARKS ("..") TO SPECIFIY A UNIQUE MESSAGE.

7.0 OTHER INFORMATION

7.1 INTERFACING TO AN "ITEP" NODE

THIS DCLT WILL INTERFACE ONLY TO THE ITEP FOR DMC.
IF THIS LINK IS NEEDED THEN THE DMP/V-11 MUST BE IN POINT
TO POINT MODE AND THE FOLLOWING TABLE APPLIES TO THE ITEP
NODE:

ITEP NODE	DCLT NODE
ONE WAY-OUT	RECEIVE OR LISTEN
ONE -WAY-IN	TRANSMIT OR TALK
INTERNAL LOOP	ACTIVE
EXTERNAL LOOP	ACTIVE OR PASSIVE

NOTE: WHEN INTERFACING TO ITEP IF THE RX BUFFER ON THE
ITEP SIDE IS ONLY 10 BYTES LARGER THAN THE TX BUFFER YOU
HAVE SELECTED, SO BE SURE TO SET THE TX BUFFER ON THE DCLT
NODE ACCORDINGLY.

WHEN ITEP IS IN A MODE THAT IT IS EXPECTING TO BE TRANSMITTED
TO, A SOFT ERROR "BASE TABLE ERR COUNTS NON-ZERO" WILL OCCUR.
THIS IS DUE TO THE SPEED DIFFERENCES IN THE SOFTWARE.

WHEN DCLT IS IN LISTEN MODE THE RX BUFFER IS ONLY
82 BYTES LONG THEREFORE DO NOT SEND THE DCLT NODE
ITEP MSG. 3 FROM THE ITEP NODE OR A "LOST DATA" ERROR WILL
OCCUR

BE SURE ITEP NODE HAS INCORPORATED PATCH FROM DEPO# MD 11 DZDMO A1

ITEP NODE SHOULD ALWAYS BE RUN WITH SW 4 = TO 0

7.2 TROUBLESHOOTING HINTS

LISTED BELOW ARE SOME SETUPS THAT COULD BE USED FOR ISOLATING FAULTS.
THESE ARE BY NO MEANS THE ONLY WAYS DCLT CAN BE USED !!!!!!!
DCLT IS MEANT TO BE A VERY FLEXIBLE TOOL! THIS SECTION IS MEANT TO
GIVE SOMEONE NOT TOO FAMILIAR WITH DCLT A PLACE TO START.

REMEMBER THAT THE PRINTING OF STATUS MESSAGES AND PRINTING OF THE
EVENT LOG CAN PROVIDE A LOT OF INFORMATION ABOUT THE SEQUENCE OF
EVENTS AND HOW THE DEVICE AND LINK ARE BEHAVING.

NOTE: IF BOTH NODES IN ACTIVE AND "/NOCHECK" IS USED,
END-OF PASS IS DEFINED AS RECEIVING 1 MESSAGE
AND COMPLETING THE TRANSMIT LIST. WITH NO DATA
CHECKING, THERE IS NO WAY FOR DCLT TO KNOW HOW
MANY MESSAGES IT SHOULD EXPECT TO RECEIVE.

7.2.1 INTERNAL LOOP AT EACH NODE

RUN EACH END OF THE LINK IN ACTIVE MODE WITH LOOP=INTERNAL.
TRANSMIT TWO OR THREE MESSAGES WITH NO DATA CHECKING.
STATUS PRINTING COULD BE TURNED OFF IF ON, BUT SEEING THE SEQUENCE
OF EVENTS MIGHT BE INFORMATIVE.

INTERNAL LOOP WORKS ONLY FOR POINT TO POINT OR MUTLITPOINT
CONTROL STATIONS. THE SEQUENCE BELOW IS FOR POINT TO POINT
IF YOU WISH TO DO MULTIPOINT ADD THE COMMAND WITH THE *

```
        C E
        C T
        SE T=ONES/S=20/C=2
*       T E=1
        R M=A/LO=I/NOCH/STAT
```

WHAT THE ABOVE COMMAND SEQUENCE MEANS:

THE "C E" AND THE "C T" INITIALIZES THE "EXPECT"
LIST AND THE "TRANSMIT LIST". THE "SE T=ONES/S=20/C=2"
SETS THE TRANSMIT LIST TO CONTAIN 3 MESSAGES. THE MESSAGES
CONTAIN DATA OF ALL ONES AND EACH ONE IS 20 BYTES IN LENGTH.
THE "T E=1"(ONLY FOR MTP) ESTABLISHES ONE TRIB ,TRIB ADDRESS 1.
THE "R M=A/LO=I/NOCH/STAT" SETS THE MODE TO RUN IN TO BE
ACTIVE AND LOOP TYPE TO BE INTERNAL TTL. THE PROGRAM WILL
NOT BE CHECKING DATA SO THERE WAS NO NEED TO SET UP AN
EXPECT LIST. THE PROGRAM WILL BE PRINTING STATUS MESSAGES.

WHAT YOU SHOULD SEE AFTER ENTERING THE RUN COMMAND
IF THINGS ARE RUNNING CORRECTLY :

```
        INI RXQ TXQ RXQ TXC TXQ RXQ TXQ
        RXQ TXC EOP
             MODE=ACTIVE/LOOP=INTERNAL/PASS=00000
```

```
                                /STATUS/NOCHECK/NOECHO/NOMODEM
        DCLT> (A)  ?
```

THIS GIVES YOU A IDEA IF THE COMM. DEVICE CAN TRANSMIT AND
RECEIVE. ANY ERRORS REPORTED WILL PROBABLY BE DUE TO INCORRECT
DEVICE ADDRESSES BEING USED OR A FAULTY DEVICE. CHECK ADDRESSES
WITH "DISPLAY" AND RUN THE PREREQUISITE DIAGNOSTICS FOR THE COMM.
DEVICE.

NOW TRY RUNNING EACH NODE THE SAME WAY WITH DATA CHECKING ENABLED.
A POSSIBLE COMMAND SEQUENCE IS.

```
        SE E=T
        R M=A/LO=I/CH/PAS=3
```

WHAT THIS SEQUENCE MEANS:

THIS SEQUENCE IS SIMILAR TO THE ONE ABOVE . THE 'SE E=T"
MAKES A COPY OF THE TRANSMIT LIST IN THE EXPECT LIST.
THE EXPECT LIST NOW CONTAINS 3 MESSAGES (SAME AS TRANSMIT).
THE MESSAGES WILL HAVE ALL ONES FOR DATA AND BE 20 BYTES
EACH IN LENGTH. THE RUN COMMAND IS THE SAME WITH THE
ADDITION OF TWO SWITCHES "/CH/PAS=3". THE "CH" SWITCH
TELLS THE PROGRAM TO CHECK THE RECEIVED DATA AGAINST
THE "EXPECTED LIST". THE "PAS=3" SWITCH TELLS THE PROGRAM
TO RUN 3 PASSES BEFORE RETURNING TO THE DCLT> PROMPT.

WHAT YOU SHOULD SEE AFTER ENTERING THE RUN COMMAND
IF THINGS ARE RUNNING CORRECTLY :

```
        INI RXQ TXQ RXQ TXC TXQ RXQ TXC
        TXQ TXC CMP CMP CMP EOP RXQ TXQ
        RXQ TXC TXQ RXQ TXC TXQ TXC CMP
        CMP CMP EOP RXQ TXQ RXQ TXC TXQ
        RXQ TXC TXQ TXC CMP CMP CMP EOP
             MODE=ACTIVE/LOOP=INTERNAL/PASS=00000
                        /STATUS/CHECK/NOECHO/NOMODEM
        DCLT> (A)  ?
```

IF A CABLE TURNAROUND CONNECTOR IS AVAILABLE, PUT IT ON THE END OF
THE CABLE JUST BEFORE THE MODEM AND RUN IN ACTIVE MODE WITH NO LOOP.
THIS COMMAND IS VALID FOR POINT TO POINT STATIONS ONLY.
POSSIBLE COMMAND SEQUENCE IS:

```
        R M=A/CH/PAS=3
```

WHAT THIS SEQUENCE MEANS:

THIS SEQUENCE HAS THE "/LO=I" REMOVED. THIS INFORMS
THE DEVICE TO ACT AS IF IT WAS RECEIVING FROM ANOTHER
NODE.

WHAT YOU SHOULD SEE AFTER ENTERING THE RUN COMMAND
IF THINGS ARE RUNNING CORRECTLY :

```
        RXQ TXQ TXC RXQ TXQ TXC RXQ TXQ
```

```
        TXC CMP CMP CMP EOP RXQ TXQ TXC
        RXQ TXQ TXC RXQ TXQ TXC CMP CMP
        CMP EOP RXQ TXQ TXC RXQ TXQ TXC
        RXQ TXQ TXC CMP CMP CMP EOP
             MODE=ACTIVE/PASS=00000
                        /STATUS/CHECK/NOECHO/NOMODEM
        DCLT> (A)  ?
```

7.2.2 TRANSMIT ON ONE NODE RECEIVE ON THE OTHER

NOW TRY TRANSMITTING FROM ONE END AND RECEIVING ON THE OTHER MAYBE WITH NO DATA CHECKING AT FIRST TO ESTABLISH IF THE LINK IS WORKING. POSSIBLE COMMAND SEQUENCES ARE:

```
********
* NOTE *   THESE SEQUENCES ARE FOR POINT TO POINT MODE
********   IF YOU WISH TO RUN MULITPOINT ADD THE COMMAND
           COMMAND LINES MARKED WITH AN *.
```

```
        NODE A                              NODE B
        -- --                              -    -
        C E                                 C E
        C T                                 C T
        SE T=1ALT/S=250
*       T E=1                               T E=1
        R M=TR/PAS=3                        R M=R/NOCH/PAS=3
```

WHAT THIS SEQUENCE MEANS:

THE "C E " AND "C T" INITIALIZE BOTH THE TRANSMIT AND EXPECT LISTS. THE "SE T=1ALT/S=250" SETS THE TRANSMIT LIST ON NODE A TO BE 1 MESSAGE WITH A LENGTH OF 250 BYTES AND DATA OF ALTERNATING ONES AND ZEROS. THE "T E=1" ESTABLISHES 1 TRIBUTRAY WITH AN ADDRESS OF 1. THIS IS ONLY FOR MULTIPOINT SITUATIONS. THE "R M=TR/PAS=3" SETS THE RUN MODE OF NODE A TO BE TRANSMIT AND THE PASS COUNT IS SET TO 3. THE "R M=R/NOCH/PAS=3" SETS THE RUN MODE OF NODE B TO BE RECEIVE, NO DATA CHECKING IS TO BE DONE,AND THE PASS COUNT IS SET TO THREE.

WHAT YOU SHOULD SEE AFTER ENTERING THE RUN COMMAND IF THINGS ARE RUNNING CORRECTLY :

FOR NODE A:

```
        INI TXQ TXC EOP TXQ TXC EOP TXQ
        TXC EOP
             MODE=TRANSMIT/PASS=00000
                        /STATUS/NOCHECK/NOECHO/NOMODEM
        DCLT> (A)  ?
```

FOR NODE B:

```
        INI RXQ EOP RXQ EOP RXQ EOP
             MODE=RECEIVE/PASS=00000
```

```
                        /STATUS/NOCHECK/NOECHO/NOMODEM
        DCLT> (A)  ?

NOW TRY DOING DATA CHECKING ON THE MESSAGE(S) BEING
TRANSMITTED.  POSSIBLE COMMAND SEQUENCES ARE:

                                        SE E=1ALT/S=250
        R M=TR/PAS=3                    R M=R/CH/PAS=3

WHAT THIS SEQUENCE MEANS:

        THE 'SE E=1ALT/S=250" LINE MUST BE ADDED HERE
        TO SET UP THE "EXPECT" LIST ON THE RECEIVE NODE
        SO IT WILL KNOW WHAT TO COMPARE AGAINS.
        THE CHANGE IN THE RUN COMMAND IS FROM "NOCH" TO "CH"
        THE  CH" ENABLES DATA CHECKING

WHAT YOU SHOULD SEE AFTER ENTERING THE RUN COMMAND
IF THINGS ARE RUNNING CORRECTLY :

NODE A: IS THE SAME AS ABOVE.

NODE B:
        INI RXQ CMP EOP RXQ CMP EOP RXQ
        CMP EOP
             MODE=RECEIVE/PASS=00000
                        /STATUS/NOCHECK/NOECHO/NOMODEM
        DCLT> (A)  ?

NOW RUN THRU THE SEQUENCE AGAIN WITH NODE A RECEIVING
AND NODE B TRANSMITTING TO CHECK OUT THE OPPOSITE DIRECTION
OF DATA FLOW.


7.2.3

ONE NODE ACTIVE THE OTHER NODE PASSIVE

NOW TRY RUNNING ONE NODE IN ACTIVE MODE WHILE THE OTHER
END RUNS IN PASSIVE. DATA CHECKING SHOULD BE TURNED OFF
IF THE MESSAGE LISTS ARE NOT THE SAME.
POSSIBLE COMMAND SEQUENCES ARE:

********
* NOTE *    THESE SEQUENCES ARE FOR POINT TO POINT MODE
********    IF YOU WISH TO RUN MULITPOINT ADD THE COMMAND
            COMMAND LINES MARKED WITH AN *.

        NODE A                      NODE B
        -                           -
        C E                         C E
        C T                         C T
        SE T=CCITT/S=10/C=2         SE T=1ALT/S=20/C=2
*       T E=1                       T E=1
        R M=ACT/NOCH/PAS=3          R M=P/NOCH/PAS=3

WHAT THIS SEQUENCE MEANS:
```

```
        THE EXECUTION OF THIS SEQUENCE CAUSES THE FOLLOWING
        THINGS TO HAPPEN ON NODE A. THE TRANSMIT AND EXPECT
        LISTS ARE INITIALIZED THEN THE TRANSMIT LIST IS SET
        TO 3 MESSAGES OF 10 BYTES EACH. THE DATA USED IN THE
        TRANSMIT MESSAGES IS THE CCITT PATTERN. THEN A
        IF THIS IS A MULTIPOINT NETWORK A
        TRIB IS ESTABLISHED (TRIB ADDR. 1)
        THEN NODE A IS RUN IN ACTIVE MODE
        WITH DATA CHECKING DISABLED AND THE PASS COUNT
        SET TO THREE. NOTE STATUS WOULD STILL BE
        PRINTED IF THE PREVIOUS SEQUENCES HAD BEEN RUN.
        IF YOU ARE RUNNING FROM LOAD TIME YOU WOULD HAVE
        TO ADD A "/STA TO THE RUN COMMAND LINE.
        NODE B: THE TRANSMIT AND EXPECT LISTS ARE INTIALIZED
        THEN THE TRANSMIT LIST IS SET TO 3 MESSAGES OF
        20 BYTES EACH. THE DATA FOR EACH MESSAGE IS ALTERNATING
        1'S AND 0'S. IF MULITPOINT ESTABLISH 1 TRIB. THEN
        RUN IN PASSIVE MODE WITH DATA CHECKING DISABLED
        AND THE PASS COUNT SET TO 3.

WHAT YOU SHOULD SEE AFTER ENTERING THE RUN COMMAND
IF THINGS ARE RUNNING CORRECTLY :

FOR NODE A:

        INI RXQ TXQ TXC TXQ RXQ TXC TXQ
        RXQ TXC EOP RXQ TXQ RXC TXC TXQ
        RXQ TXC TXQ RXC TXC EOP RXQ TXQ
        RXQ TXC TXQ RXQ TXC TXQ RXQ TXC
        EOP
             MODE=ACTIVE/PASS=00000
                        /STATUS/NOCHECK/NOECHO/NOMODEM
        DCLT> (A)  ?

FOR NODE B:

        INI RXQ TXQ TXC RXQ TXQ TXC RXQ
        TXQ TXC EOP
             MODE=PASSIVE/PASS=00000
                        /STATUS/NOCHECK/NOECHO/NOMODEM
        DCLT> (A)  ?

NOW USE DATA CHECKING WITH THE "EXPECT MESSAGE LISTS" SET
UP APPROPRIATELY.  ANOTHER VARIATION IS TO HAVE LARGE SIZE
MESSAGES ON ONE SIDE WITH SMALL MESSAGES ON THE OTHER.

THEN REVERSE THE SETUP SO THAT THE NODE RUNNING IN ACTIVE
IS RUNNING IN PASSIVE AND VICE VERSA.


7.2.4  BOTH NODES ACTIVE

NOW BOTH NODES CAN BE RUN IN ACTIVE WITH DATA CHECKING ON.
STATUS PRINTING COULD BE TURNED OFF IF YOU'RE NOT INTERESTED
IN THEM.
```

NOTE - THIS IS FOR POINT TO POINT ONLY

```
        NODE A                      NODE B
        -                           - - - -
        C E                         C E
        C T                         C T
        SE T=OALT/S=10              SE E=OALT/S=10
        SE T=CCITT/S=20             SE E=CCITT/S=20
        SE T=ALPHA/S=30             SE E=ALPHA/S=30
        SE E=ZERO/S=11              SE T=ZERO/S=11
        SE E=ONES/S=21              SE T=ONES/S=21
        SE E=ITEP/S=31              SE T=ITEP/S=31
        R M=A/CH/NOST/PAS=3         R M=A/CH/NOST/PAS=3
```

WHAT THIS SEQUENCE MEANS:
NODE A SETS UP IS TRANSMIT LIST TO BE
3 MESSAGES. MESSAGE 1 IS 10 BYTES LONG AND
CONTAINS DATA OF ALTENATING O'S AND 1'S
MESSAGE 2 IS 20 BYTES LONG AND CONTAINS
DATA OF THE CCITT PATTERN. MESSAGE THREE
IS 30 BYTES LONG AND CONTAINS ALPHANUMERICS
FOR DATA. THE EXPECT LIST ALSO CONTAINS
3 MESSAGES. MESSAGE 1 IS 11 BYTES LONG AND
CONTAINS O'S FOR DATA. MESSAGE TWO IS 21
BYTES LONG AND CONTAINS 1'S FOR DATA. MESSAGE
3 IS 31 BYTES LONG AND CONTAINS THE ITEP DATA.
NODE B HAS THE SAME MESSAGES EXCEPT THAT THE
TRANSMIT MESSAGE LIST IS THE EXPECT MESSAGE LIST
AND VICE VERSA.
BOTH NODES ARE RUN IN THE ACTIVE MODE WITH NO
DATA CHECKING AND PASS COUNT EQUAL TO THREE.

WHAT YOU SHOULD SEE AFTER ENTERING THE RUN COMMAND
IF THINGS ARE RUNNING CORRECTLY :
ON BOTH NODES A AND B:

```
        MODE=ACTIVE/PASS=00000
                    /NOSTATUS/CHECK/NOECHO/NOMODEM
        DCLT> (A)  ?
```

A VARIATION THAT CAN BE USED IS FOR ONE END TO SEND A LOT OF
SMALL MESSAGES AND THE OTHER TO SEND A FEW LARGE MESSAGES.
THE "END-OF PASS" POINT WILL BE OUT OF SYNC BUT THIS IS NOT
A PROBLEM.

7.2.5 TALK AND LISTEN MODES FOR COMMUNICATING

TALK AND LISTEN MODES ARE USEFUL IF THE OPERATORS WISH TO COMMUNICATE
WITH EACH OTHER. JUST SETUP A TIME THAT EACH WILL GO TO THEIR MODE,
TALK OR LISTEN, AND SEND MESSAGES OVER THE LINK. POSSIBLE COMMAND
SEQUENCES ARE. WHEN USING TALK AND LISTEN MODES ON MULTIPOINT LINKS
REMEMBER THAT YOU CAN ONLY USE THESE MODES FROM THE CONTROL STATION
TO THE FIRST TRIBUTARY IN THE TRIB LIST.

```
        R M=LIS/NOST                R M=TA/NOST
        LIS>                        TLK>
```

7.3 EXAMPLES OF COMMANDS

THIS SECTION WILL SHOW A SAMPLING OF COMMANDS AND
EXACTLY WHAT TO EXPECT FROM THEM.

7.3.1 EXAMPLES OF MESSAGES COMMANDS

THE CLEAR COMMANDS .

```
        C E
        C T
```

THIS WILL INITIALIZE THE TRANSMIT AND EXPECT LIST
TO 1 MESSAGE OF 58 BYTES. THE DATA OF THE MESSAGE WILL
BE THE ITEP MESSAGE.
IF THESE COMMANDS ARE FOLLOWED BY A SHOW COMMAND

```
        SH E
```

SUCH AS THE SHOW EXPECT LIST. WHAT YOU WOULD SEE IS

```
        MSG: TYPE=ITEP/SIZE=58
             MODE=ACTIVE/PASS=00001
                        /NOSTATUS/CHECK/NOECHO/NOMODEM
        DCLT> (A) ?
```

NOW IF YOU DID A SET EXPECT LIST COMMAND SUCH AS:

```
        SE E=A/S=35/C=3
```

AND FOLLOWED IT WITH A SHOW EXPECT LIST COMMAND

```
        SH E
```

WHAT YOU WOULD SEE IS

```
        MSG: TYPE=ALPHA/SIZE=35
        MSG: TYPE=ALPHA/SIZE=35
        MSG: TYPE=ALPHA/SIZE=35
        MSG: TYPE=ALPHA/SIZE=35
             MODE=ACTIVE/PASS=00001
                        /NOSTATUS/CHECK/NOECHO/NOMODEM
        DCLT> (A) ?
```

7.3.1 EXAMPLES TRIBUTARY COMMANDS

WHEN YOU FIRST GET TO THE DCLT> COMMAND LEVEL IN
MULTIPOINT MODE AND YOU EXECUTE A TRIB SHOW COMMAND:

```
        T S
```

WHAT YOU WOULD SEE IS

```
        TRIB ADDRESS LIST IS EMPTY
```

THEN YOU COULD TO A TRIB ESTABLISH COMMAND

```
        T E=1,2,3,4
```

THIS WOULD ESTABLISH TRIB ADDRS 1 2 3 AND 4

IF YOU FOLLOWED THIS WITH A TRIB SHOW COMMMAND
YOU WOULD SEE

```
        TRIB ADDRESS LIST:
            1,   2,   3,  4,
```

IF YOU THEN DID A TRIB KILL COMMAND

```
        T K=3
```

FOLLOWED BY A TRIB SHOW.

```
        T S
```

```
WHAT YOU WOULD SEE IS
        TRIB ADDRESS LIST:
           1.   2.   4.
IF YOU FOLLOWED THIS WITH A TRIB KILL ALL COMMAND
        T K=A
AND ANOTHER TRIB SHOW
        T S
WHAT YOU WOULD SEE IS
        TRIB ADDRESS LIST IS EMPTY
IS YOU DID A TRIB ESTABLISH WITH A /W SWITCH
        T E=1/W,2/W
WHAT YOU WOULD SEE IS SHOWN BELOW WHEN YOU GET TO THE ?
TYPE EITHER THE NEW PARAMATER OR CARRIAGE RETURN FOR
DEFALUT.
     PARAMETERS FOR TRIB     001
000000  PRESET VALUE FOR TX DELAY TIMER
NEW POLL PARAMETERS (WORD)= (0)  0 ?

377     Q VAL FOR ACT
000     R VAL FOR ACT
NEW POLL PARAMETERS (BYTE LOW) = (0)  377 ?

NEW POLL PARAMETERS (BYTE HI) = (0)  0 ?
000     Q VAL FOR INACT
100     R VAL FOR INACT
NEW POLL PARAMETERS (BYTE LOW) = (0)  0 ?

NEW POLL PARAMETERS (BYTE HI) = (0) 100 ?
000     Q VAL FOR UNRSP
020     R VAL FOR UNRSP
NEW POLL PARAMETERS (BYTE LOW) = (0)  0 ?

NEW POLL PARAMETERS (BYTE HI) = (0) 20 ?
010     NOM TO INACT
002     # T-O TO UNRSP
NEW POLL PARAMETERS (BYTE LOW) = (0)  10 ?

NEW POLL PARAMETERS (BYTE HI) = (0) 2 ?
010     #T-O TO DEAD
004     MAX MSG COUNT
NEW POLL PARAMETERS (BYTE LOW) = (0)  10 ?

NEW POLL PARAMETERS (BYTE HI) = (0) 4 ?

005670  SELECTION INTERVAL TIMING COUNT
NEW POLL PARAMETERS (WORD)= (0)  5670 ?

013650  BABBLING TRIB TIMING COUNT
NEW POLL PARAMETERS (WORD)= (0)  13650 ?
     PARAMETERS FOR TRIB     002
000000  PRESET VALUE FOR TX DELAY TIMER

                .
                .
                .
        THE SAME AS FOR TRIB 1
```

```
                    .
                    :
                    .

013650  BABBLING TRIB TIMING COUNT
NEW POLL PARAMETERS (WORD)= (O)  13650 ?

GLOBAL POLL PARAMETERS
0000015  NUM SYNC
NEW POLL PARAMETERS (WORD)= (O)  15 ?

013650  CARRIER WAIT TIMER COUNTER
NEW POLL PARAMETERS (WORD)= (O)  13650 ?

000062  DELTA T
NEW POLL PARAMETERS (WORD)= (O)  13650 ?

000000  DEAD T
NEW POLL PARAMETERS (WORD)= (O)  13650 ?

000000  POLL DELAY
NEW POLL PARAMETERS (WORD)= (O)  13650 ?

DCLT> (A)  ?

7.3.1 EXAMPLES STATISTICAL COMMANDS


IF YOU TYPE A HELP COMMMAND
        HELP
WHAT YOU WILL SEE IS
DCLT CMDS:
 CLEAR OR SHOW  EXPECTLIST OR TRANSMITLIST
 PRINT OR EXIT
 DUMP START-END/B
 TRIB SHOW, TRIB ESTABLISH=N/W,N(D)..OR TRIB KILL=N,ALL
     WHERE W=INDICATES WRITE POLL PARAMS
 SET EXPECTMSG OR TRANSMITMSG=TYPE/SIZE=N OR /COPY=N
 SET EXPECT=TRANSMIT
   TYPE=ONES,ZEROES,1ALT,0ALT,ITEP,CCITT,ALPHA
        OR "OPR SPCD=A Z,SP,TAB,0-9 IN QUOTES"
 RUN MODE=MTYP/LOOP=LTYP/CHECK,STATUS,ECHO,MODEM,PASS=N
   MTYP=TRAN,REC,ACT,PAS,TAL,LIS,DOWN
   LTYP=INT,CAB,LOC,REM/

DCLT> (A)  ?

THE SAME WILL HAPPEN IF YOU USE THE ?

THE DUMP COMMAND WORKS LIKE THIS
        DUM 41260-41300
THIS WILL DUMP THE DATA FROM ADDRESSES 41260 TO
41300 IN THE FOLLOWING MANNER

41260   104423  000167 177772 021122 012112 006312 006312 006312
41300   006312
IF YOU HAD USED THE /B SWITCH
```

```
        DUM 41260 41300/B
WHAT YOU WOULD SEE IS
        41260   023 211 167 000 372 377 122 024
        41270   112 024 312 014 312 014 312 014
        41300   312


7.3.1 EXAMPLES RUN COMMMANDS

YOU CAN FIND SEVERAL EXPAMLES OF THE RUN COMMMAND IN TH
TROUBLE SHOOTING HINTS SECTION BUT HERE ARE SOME OTHERS.

IF YOU WERE TO EXECUTE THE RUN COMMAND
        R M=TR/NOST/CH/PAS=4
WHAT WOULD HAPPEN IS AFTER 4 PASSES THE PROGRAM WOULD RETURN
TO THE DCLT PROMT. AND PRINT.
        MODE=TRANSMIT/PASS=00000
                    /NOSTATUS/CHECK/NOECHO/NOMODEM
  DCLT> (A)  ?
IF YOU WERE TO EXECUTE THE RUN COMMAND
        R M=A/LO=I/ST/CH/PAS=4
WHAT YOU WOULD SEE (IF USING DEFUALT TRANSMIT AND EXPECT
MESSAGES) IS
        INI RXQ TXQ TXC CMP EOP RXQ TXQ
        TXC CMP EOP RXQ TXQ TXC CMP EOP
        MODE=ACTIVE/LOOP=INTERNAL/PASS=0000
                    /STATUS/CHECK/NOECHO/NOMODEM
  DCLT> (A)  ?

 IF YOU USE THE EXIT COMMAND
        EXIT
 WHAT YOU WOULD SEE IS
        CZCLM EOP
             0 CUMLATIVE ERRORS

        DR>

7.3.1 EXAMPLES PRINT COMMANDS


THE PRINT COMMMAND CAN BE USED FROM THE SUPERVISOR (DR>)
LEVEL OR THE DCLT (DCLT>) LEVEL. ONCE YOU ARE AT THAT
LEVEL YOU WILL KNOW IT BY THE PROMPT "RPT>".
AFTER TYPING PRI FOR EITHER THE THE DLCT> OR DR> PROMPTS

        TYPE "H" OR  "?" FOR HELP!
        RPT> (A)  ?

HERE ARE SOME EXAMPLES OF RPT> LEVEL COMMANDS

THE HELP OR ? COMMAND
        HELP
OR
        ?
PRODUCES THE FOLLOWING:

DCLT REPORT CMDS:
```

```
 EXIT OR LOG
 TSS NNN(D)/SW  OR GSS/SW
      WHERE /SW= /FULL,/ERROR,/OFFSET=NN(O)
RPT> (A)  ?
THE LOG COMMAND
        LOG
PRODUCES THE FOLLOWING
>>> DCLT EVENT LOG ENTRY >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
    0:01:16   RECEIVE SPACE QUEUED
   TO-FROM TRIB ADDRESS-001
   ADDR OF MSG=000455   BYTE COUNT= 512
        MODEM STATUS: CTS DSR DCD RTS RI SQD TM
                      0   1   0   0   1  1   1
>>> DCLT EVENT LOG ENTRY >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
    0:01:16   RECEIVE SPACE QUEUED
   TO-FROM TRIB ADDRESS-001
   ADDR OF MSG=000455   BYTE COUNT= 512
        MODEM STATUS: CTS DSR DCD RTS RI SQD TM
                      0   1   0   0   1  1   1
                       .....
                       .....
                       .....

        THIS GOES ON FOR 45 EVENTS IF THE MODE
        PREVIOUSLY EXECUTED HAD THAT MANY.
        YOU EXIT FROM EVENT LOG PRINTING BY
        TYPING A CONTROL C.

THE TSS COMMANDS CAN BE USED AS FOLLOWS
TO GET THE ERROR COUNTERS FROM A TSS USE
        T 1
OR
        T 1/E
THIS WILL PRODUCE:


000000  DATA MSGS. TX'MITTD
000000  DATA MSGS. RX'CVD
000000  SELECTION INTERVALS
000     DATA ERRORS OUT
        HBCC 0 BCC 0 REP 0
000     DATA ERRORS IN
        HBCC 0 BCC 0 REP 0
000     LOCAL BUFFER ERRS
         TU 0 TS 0
000     REMOTE BUFFER ERRS
         TU 0 TS 0
000     SELECTION T-O
        NRTS 0 IRTS 0
000     LOCAL REPLY T 0
000     REMOTE REPLY T-O
TO GET THE ENTIRE TSS FOR A SPECIFIED TRIB
        USE THE COMMAND
        T 1/F
        THIS WILL PRODUCE:

        000000  TRIB STATUS FLAGS
```

```
000     NAK REASON
000     TRIB ADDR
000000  POLL STATUS FLAGS
000     POLL RATE
000     POLL PRIORITY
000     NA
000     MAX MSG COUNTER
000     COMM POLL QUOTA
000     RX THRESH ERRS
000     TX THRESH. ERRS
000     SELECT THRESH. ERRS
000000  DATA MSGS. TX'MITTD
000000  DATA MSGS. RX'CVD
000000  SELECTION INTERVALS
000     DATA ERRORS OUT
        HBCC 0 BCC 0 REP 0
000     DATA ERRORS IN
        HBCC 0 BCC 0 REP 0
000     LOCAL BUFFER ERRS
         TU 0 TS 0
000     REMOTE BUFFER ERRS
         TU 0 TS 0
000     SELECTION T-O
         NRTS 0  IRTS 0
000     LOCAL REPLY T-O
000     REMOTE REPLY T-O
000     HIGHEST MSG # TX'D
000     HIGHEST MSG # ACK'D
000     NEXT MSG # TO TX
000     TPTR ADDR OF LKNBK
000     LAST MSG # TX'D
000     XPTR ADDR OF LNKBK
000     CTL X REPLY T-O
000     STRT OF TX BUFF Q
000     END OF TX BUFF Q
000     HIGHEST MSG # RX'D
000     STRT OF RX BUFFQ
000     END OF RX BUFF Q
000000  TX DELAY TIMER
000     NO DATA MSG COUNTER
000     T-O COUNTER
000000  PRESET VALUE FOR TX DELAY TIMER
000     Q VAL FOR ACT
000     R VAL FOR ACT
000     Q VAL FOR INACT
000     R VAL FOR INACT
000     Q VAL FOR UNPSP
000     R VAL FOR UNRSP
000     NDM TO INACT
000     # T-O TO UNRSP
000     # T-O TO DEAD
000      MAX MSG COUNT
000000  SELECTION INTERVAL TIMING COUNT
000000  BABBLING TRIB TIMING COUNT

TO GET A SPECIFIC OFFSET LOCATION FROM THE
TSS USE THE COMMAND
```

```
        T 1/O=4
THIS IS FOR THE VALUES AT OFFSET 4 BUT YOU COULD
USE ANY VALUE FROM 0 TO 36 OCTAL
THIS WILL PRODUCE:

000     MAX MSG COUNTER
000     COMM POLL QUOTA

TO GET THE GLOBAL ERROR COUNTERS USE
THE COMMAND
        G
To PRODUCE

TO GET THE FULL GSS USE THE COMMAND
        G/F
TO PRODUCE:

        000     POLPTR
        000     RCVPTR
        000     XMTPTR
        000     TSP
        000     NASP
        000     BUFPTR
        000     S-OF
        000     E-OF
        000     S-OQ
        000     E-OQ
        000     S-OC
        000     E-OC
        000     TIMER STATUS
        000     S-R TIMER [L]
        000     S-R
        000     B-CW TIME [H]
        000     RPM CNTR
        000000  AACTIM
        000     MODEM
        000     MODE
        000     ALT SW
        000     XMTQRT
        000000  RTNADD
        000     REMOTE STA ERRS
                OVRN 0 MMFE 0 SEL 0 STR 0
        000     LOCAL STA ERRS
                OVRN 0 MMFE 0 UNDRO OVR 0
        000     GBL HDR BCC
        000     MAINT DATA BCC ERR
        000     TX HDR 1
        000     TX HDR 2
        000     TX HDR 3
        000     TX HDR 4
        000     TX HDR 5
        000     TX HDR 6
        000     RX HDR 1
        000     RX HDR 2
        000     RX HDR 3
        000     RX HDR 4
        000     RX HDR 5
```

```
        000     RX HDR 6
        000000  R TIMER
        000000  D TIMER
        000000  POLL DELAY TIMER
        000     POLL UPDATE PTR
        000     DEAD SCAN
        000     CARRIER LOSS TIM
        000     USART HANG CTR
        000000  NUM SYNC
        000000  CARRIER WAIT TIMER COUNTER
        000000  DELTA T
        000000  DEAD T
        000000  POLL DELAY

********
* NOTE * - DATA DISPLAYED HERE IS ZEROES ACTUAL DATA WILL VARY
********

TO GET AN OFFSET VALUE USE THE COMMMAND
        G/O=4
TO PRODUCE
        000     E-OF
        000     S-OQ

THE EXIT COMMAND WORKS LIKE THIS. IF YOU
ENTERED THE REPORT LEVEL FROM THE SUPERVISOR
(DR>)THEN TYPING
        EXIT
WILL RETURN YOU TO THE SUPERVISOR
        DR>
IF YOU ENTERED REPORT FROM THE DCLT LEVEL
THEN TYPING
        EXIT
WILL RETURN YOU TO THE DCLT LEVEL
        DCLT>
```

7.4 THINGS TO WATCH OUT FOR

IF YOU ARE RUNNING DCLT ON SYSTEMS THAT HAVE CONSOLES WITH DIFFERENT SPEEDS YOU WILL BE UNABLE TO USE THE PRINT-STATUS FEATURE IN CERTAIN MODES. THE RULE IS IF IT DOESNT WORK WITH STATUS PRINTING RUN THE MODE WITH NOSTATUS.

IF YOU ARE USING PASSVIE MODE WITH THE ECHO SWITCH THEN YOU WILL PROBALBLY HAVE TO RE ENTER THE TRANSMIT LIST ON THE SIDE WITH THE ECHO SWITCH. THE REASON IS THAT THE TRANSMIT LIST GETS OVER WRITTEN WITH THE RECEIVE LIST WHEN USING THE ECHO SWITCH

IF YOU ARE IN MULTIPOINT MODE AND YOU ARE USING THE DATA CHECK FEATURE ALL TRIBUTARYS MUST USE THE SAME TRANSMIT LIST.

```
                                .SBTTL  PROGRAM HEADER

002000                          BGNMOD

                                ;++
                                ; THE PROGRAM HEADER IS THE INTERFACE BETWEEN
                                ; THE DIAGNOSTIC PROGRAM AND THE SUPERVISOR.
                                ;-

002000                          POINTER BGNRPT,BGNAU,BGNDU

002000                          HEADER  CZCLM,C,0,1800.,0,PRIO7
002000                                                          L$NAME::
002000  103                                                             .ASCII /C/
002001  132                                                             .ASCII /Z/
002002  103                                                             .ASCII /C/
002003  114                                                             .ASCII /L/
002004  115                                                             .ASCII /M/
002005  000                                                             .BYTE   0
002006  000                                                             .BYTE   0
002007  000                                                             .BYTE   0
002010                                                          L$REV::
002010  103                                                             .ASCII  /C/
002011                                                          L$DEPO::
002011  060                                                             .ASCII  /0/
002012                                                          L$UNIT::
002012  000000                                                          .WORD   0
002014                                                          L$TIML::
002014  003410                                                          .WORD   1800.
002016                                                          L$HPCP::
002016  066710                                                          .WORD   L$HARD
002020                                                          L$SPCP::
002020  000000                                                          .WORD   0
002022                                                          L$HPTP::
002022  002130                                                          .WORD   L$HW
002024                                                          L$SPTP::
002024  000000                                                          .WORD   0
002026                                                          L$LADP::
002026  067350                                                          .WORD   L$LAST
002030                                                          L$STA::
002030  000000                                                          .WORD   0
002032                                                          L$CO::
002032  000000                                                          .WORD   0
002034                                                          L$DTYP::
002034  000000                                                          .WORD   0
002036                                                          L$APT::
002036  000000                                                          .WORD   0
002040                                                          L$DTP::
```

SEQ 50

```
002040  002124                          .WORD   L$DISPATCH
002042                          L$PRIO::
002042  000340                          .WORD   PRIO7
002044                          L$ENVI::
002044  000000                          .WORD   0
002046                          L$EXP1::
002046  000000                          .WORD   0
002050                          L$MREV::
002050     003                          .BYTE   C$REVISION
002051     003                          .BYTE   C$EDIT
002052                          L$EF::
002052  000000                          .WORD   0
002054  000000                          .WORD   0
002056                          L$SPC::
002056  000000                          .WORD   0
002060                          L$DEVP::
002060  023266                          .WORD   L$DVTYP
002062                          L$REPP::
002062  050736                          .WORD   L$RPT
002064                          L$EXP4::
002064  000000                          .WORD   0
002066                          L$EXP5::
002066  000000                          .WORD   0
002070                          L$AUT::
002070  052056                          .WORD   L$AU
002072                          L$DUT::
002072  052050                          .WORD   L$DU
002074                          L$LUN::
002074  000000                          .WORD   0
002076                          L$DESP::
002076  023304                          .WORD   L$DESC
002100                          L$LOAD::
002100  104035                          EMT     E$LOAD
002102                          L$ETP::
002102  000000                          .WORD   0
002104                          L$ICP::
002104  050752                          .WORD   L$INIT
002106                          L$CCP::
002106  051772                          .WORD   !$CLEAN
002110                          L$ACP::
002110  051770                          .WORD   L$AUTO
002112                          L$PRT::
002112  050744                          .WORD   L$PROT
002114                          L$TEST::
002114  000000                          .WORD   0
002116                          L$DLY::
002116  000000                          .WORD   0
002120                          L$HIME::
002120  000000                          .WORD   0
     99
```

DISPATCH TABLE

```
                                .SBTTL  DISPATCH TABLE
                                ;**
                                ; THE DISPATCH TABLE CONTAINS THE STARTING ADDRESS OF EACH TEST.
                                ; IT IS USED BY THE SUPERVISOR TO DISPATCH TO EACH TEST.
                                ;

002122                                  DISPATCH 1
002122  000001                                                         .WORD   1
002124                                                          L$DISPATCH::
002124  052064                                                          .WORD   T1
```

DEFAULT HARDWARE P TABLE

```
                                .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 STRUCTURE OF THE HARDWARE P TABLES,
                                ; AND IS USED AS A "TEMPLATE" FOR BUILDING THE P-TABLES.
                                ; -

002126                                  BGNHW   DFPTBL
002126  000010                                                                 .WORD   L10000-L$HW/2
002130                                                                  L$HW::
002130                                                                  DFPTBL::

                                ;INDEPENDENT SECTION
                                ;       THE NUMBERS IN BRACKETS ARE THE OFFSET VALUES USED IN THE PARAMETER
                                ;       CODING SECTION.

002130  000001                          .WORD   1               ;[0] FULL OR HALF DUPLEX FLAG (BIT0=1 IF FULL)


                                ;DEVICE DEPENDENT SECTION
                                ;       ADDING OR REMOVING WORDS FROM THIS TABLE EFFECTS THE "GET" CALLS IN
                                ;       THE HARDWARE PARAMTER CODING SECTION BY CHANGING "OFFSETS'

002132  160170                          .WORD   160170          ;[2] CSR ADDRESS
002134  000300                          .WORD   300             ;[4] INTERRUPT VECTOR
002136  000240                          .WORD   240             ;[6] INTERRUPT PRIORITY (5)
002140  000000                          .WORD   0               ;[10] DEVICE PARAMETERS WORD
                                                                ; BIT0=(1=MULTI 0=POINT TO POINT)
                                                                ; BIT1=(1=CONTROL 0=TRIB)
002142  000000                          .WORD   0               ;[12] DEVICE OPTION TYPE
                                                                ; 0=DMP,1=DMV
002144  000004                          .WORD   4               ;[14]SPARE
002146  000000                          .WORD   0               ;[16]SPARE

002150                                  ENDHW
002150                                                                  L10000:
```

```
                                .SBTTL  GLOBAL EQUATES SECTION

                                ;**
                                ; THE GLOBAL EQUATES SECTION CONTAINS PROGRAM EQUATES THAT
                                ; ARE USED IN MORE THAN ONE TEST.
                                ;

002150                                  EQUALS
                                ;
                                ; BIT DIFINITIONS
                                ;
100000                          BIT15** 100000
040000                          BIT14** 40000
020000                          BIT13** 20000
010000                          BIT12** 10000
004000                          BIT11** 4000
002000                          BIT10** 2000
001000                          BIT09** 1000
000400                          BIT08** 400
000200                          BIT07** 200
000100                          BIT06** 100
000040                          BIT05** 40
000020                          BIT04** 20
000010                          BIT03** 10
000004                          BIT02** 4
000002                          BIT01** 2
000001                          BIT00** 1
                                ;
001000                          BIT9**  BIT09
000400                          BIT8**  BIT08
000200                          BIT7**  BIT07
000100                          BIT6**  BIT06
000040                          BIT5**  BIT05
000020                          BIT4**  BIT04
000010                          BIT3**  BIT03
000004                          BIT2**  BIT02
000002                          BIT1**  BIT01
000001                          BIT0**  BIT00
                                ;
                                ; EVENT FLAG DEFINITIONS
                                ;   EF32:EF17 RESERVED FOR SUPERVISOR TO PROGRAM COMMUNICATION
                                ;
000040                          EF.START**      32.                     ; START COMMAND WAS ISSUED
000037                          EF.RESTART**    31.                     ; RESTART COMMAND WAS ISSUED
000036                          EF.CONTINUE**   30.                     ; CONTINUE COMMAND WAS ISSUED
000035                          EF.NEW**        29.                     ; A NEW PASS HAS BEEN STARTED
000034                          EF.PWR**        28.                     ; A POWER FAIL/POWER UP OCCURRED
```

GLOBAL EQUATES SECTION

```
0
                                ;
                                ; PRIORITY LEVEL DEFINITIONS
                                ;
000340                          PRI07== 340
000300                          PRI06== 300
000240                          PRI05== 240
000200                          PRI04== 200
000140                          PRI03== 140
000100                          PRI02== 100
000040                          PRI01== 40
000000                          PRI00== 0
                                ;
                                ;OPERATOR FLAG BITS
                                ;
000004                          EVL==         4
000010                          LOT==        10
000020                          ADR==        20
000040                          IDU==        40
000100                          ISR==       100
000200                          UAM==       200
000400                          BOE==       400
001000                          PNT==      1000
002000                          PRI==      2000
004000                          IXE==      4000
010000                          IBE==     10000
020000                          IER==     20000
040000                          LOE==     40000
100000                          HOE==    100000
1
```

```
                                ; INDEPENDENT EQUATES
 2
 3          001000                      BUFLIM=512.                 ;MAX BUFFER SIZE IN BYTES
 4                                                                  ;  APPLIES TO TX,RX AND CMP BUFFS
 5          000017                      MSGLIM=15.                  ;MAX NO. OF MESSAGES PER BUFFER
 6                                                                  ;  (FOR EACH INCREMENT (+1) TO MSGLIM,
 7                                                                  ;   ADD 6 WORDS TO THE POINTER TABLE
 8                                                                  ;   (PTRTAB:) SINCE THIS MEANS 2 MORE
 9                                                                  ;   "POINTER" WORDS PER BUFFER.
10
11          004000                      RBFLIM=2048.                ;MAX NUMBER OF BYTES FROM ALL TRIBS
12                                                                  ;ALLOWS FOR 32 TRIBS TIMES DEFAULT
13                                                                  ;ITEP MESSAGE SIZE (58 BYTES).
14                              ;MODE OF OPERATION EQUATES
15          000000                      REC=0                       ;RECEIVE MODE
16          000001                      TRA=1                       ;TRANSMIT MODE
17          000002                      PAS=2                       ;PASSIVE MODE
18          000003                      ACT=3                       ;ACTIVE MODE
19          000004                      DOW=4                       ;DOWN-LINE-LOAD MODE
20          000005                      TAL=5                       ;TALK MODE
21          000006                      LIS=6                       ;LISTEN MODE
22
23                              ;MAINT LOOP TYPE EQUATES
24
25          000000                      NONE=   0                   ;NO LOOP
26          000001                      TTL=    1                   ;INTERNAL TTL
27          000002                      CABLE=  2                   ;CABLE LOOP
28          000003                      MODLOC= 3                   ;MODMEM LOCAL
29          000004                      MODREM= 4                   ;MODEM REMOTE
30          000005                      MOP=    5                   ;MOP
31
32
33                              ;CLOCK ENABLE VALUES TO BE LOADED IN CLK'S CSR
34
35          000100                      LCLKEN= 100             ;L-CLOCK CSR VALUE TO ENABLE THE CLOCK
36          000111                      PCLKEN= 111             ;P-CLOCK CSR VALUE TO ENABLE THE CLOCK
37          001600                      PCLKCT= 1600            ;P-CLOCK COUNT SET REGISTER FOR COUNTER
38
39                              ;PARAM WORD EQUATES
40
41          000001                      STATB=  BIT0            ;OPERATOR AWAKE ASKED FOR
42          000002                      DATCKB= BIT1            ;DATA CHECK BIT
43          000004                      ECHOB=  BIT2            ;ECHO BIT
44          000010                      MODCHK= BIT3            ;MODEM CHECK/NO CHECK
45          000020                      CRCB=   BIT4            ;CRC CALCULATE ASKED FOR
46          000040                      PROTOB= BIT5            ;PROTOCOL PROCESSING ASKED FOR
47
48                              ;OPTION TYPE EQUATES
49
61
62          000000                      DMP=    0       ;DMP OPTION
63          000001                      DMV=    1       ;DMV
64          000004                      DMP6=   4       ;DMP 8206
65
66          000001                      MTP=    BIT0    ;MULTIPOINT IF 1 IF PTPT =0
67          000002                      TRBB=   BIT1    ;TRIB BIT IF 0=TRIB IF 1=CONTROL
68
```

```
                                ;EVENT LOG MESSAGE TYPES (USED TO LOCATE EVENT DESCRIPTION IN EVENT TABLE
                                ;  AND DISPATCHING TO SEPARATE SECTIONS OF THE EVENT REPORTING SECTION)
000000                                  TXQ=    0               ;TRANSMIT MESSAGE QUEUED
000002                                  TXC=    2               ;TRANSMIT COMPLETE
000004                                  RXQ=    4               ;RECEIVE BUFFER QUEUED
000006                                  RXC=    6               ;RECEIVE COMPLETE
000010                                  DER=    10              ;DEVICE INFORMATION
000012                                  DVI=    12              ;DEVICE ABOUT TO INIT
000014                                  DCK=    14              ;DATA COMPARISON RESULTS
000016                                  MSC=    16              ;MODEM STATUS CHANGE
000020                                  DLE=    20              ;DATA COMPARISON LENGTH ERROR
000022                                  DDE=    22              ;DATA COMPARISON DATA ERROR
000024                                  EOP=    24              ;END OF PASS

                                ;EQUATES FOR FLAG WORD

000001                                  ININT=  BIT0            ;INPUT INT. REC.
000002                                  OTINT=  BIT1            ;OUTPUT INT REC
000004                                  QRX=    BIT2            ;RX QUED /COMPL
000010                                  QTX=    BIT3            ;TX QUED/COMPL
000100                                  ERX=    BIT6            ;EXPECT TO GET A RX COMPLED
000200                                  ETX=    BIT7            ;EXPECT TO GET A TX COMPLETED

000400                                  RUNST=  BIT8            ;INDICATES TRIB COULD GIVE RUN STATE INTERRUPT
001000                                  DLLGA=  BIT9            ;INDICATES GO AHEAD FOR DLL.
002000                                  INOVR=  BIT10           ;INDICATE DEVICE INITIALIZATION OVER

                                ; SPECIAL CLI CODES FOR "CHAR" ARGUMENT IN CLI CALLS
                                ;  (COMMAND LINE INTERPRETER DEFINITIONS)
000000                                  CLIERR= 0
000001                                  CLIEXI= 1
000002                                  CLIBR=  2
000003                                  CLIBIF= 3
000004                                  CLISPA= 4
000005                                  CLINUM= 5
000006                                  CLIALP= 6
000007                                  CLIALN= 7
000010                                  CLIOCT= 8.
000011                                  CLIDEC= 9.
000012                                  CLISTR= 10.

                                ; DEFS FOR COMMAND LINE INTERPRETATION ACTION VALUES
000000                                  NULL=0
000001                                  CLEAR=1
000002                                  SHOW=2
000003                                  CHECK=3
000004                                  RUN=4
000005                                  HLP=5
000006                                  CSMEXP=6
000007                                  CSMTRN=7
000010                                  SETEXP=10
000011                                  SETTRN=11
000012                                  SIZE=12
000013                                  QCOPY=13
000014                                  NUM=14
000015                                  OPRMSG=15
```

GLOBAL EQUATES SECTION

```
136          000016                          STATUS=16
137          000017                          ENDQO=17
138          000020                          CMSG0=20
139          000021                          CMSG1=21
140          000022                          CMSG2=22
141          000023                          CMSG3=23
142          000024                          CMSG4=24
143          000025                          CMSG5=25
144          000026                          CMSG6=26
145          000027                          ATVMOD=27
146          000030                          PASMOD=30
147          000031                          RECMOD=31
148          000032                          LISMOD=32
149          000033                          DLLMOD=33
150          000034                          TRAMOD=34
151          000035                          TALMOD=35
152          000036                          NO=36
153          000037                          ECHO=37
154          000040                          CRC=40
155          000041                          PROTO=41
156          000042                          PASC=42
157          000043                          MOP=43
158          000044                          TTLLOP=44
159          000045                          CBLLOP=45
160          000046                          LMDLOP=46
161          000047                          RMDLOP=47
162          000050                          NOTNUF=50
163          000051                          BADCHR=51
164          000052                          DMPS=52
165          000053                          DMPE=53
166          000054                          DMPQ=54
167          000055                          PRNT=55
168          000056                          MOSC=56
169          000057                          SLST=57
170          000060                          ETRB=60
171          000061                          KTRB=61
172          000062                          KALL=62
173          000063                          EKTB=63
174          000064                          CTPP=64
175          000065                          ETWS=65
176          000066                          EXIT=66
177          000067                          SETET=67        ;REV B EC
178
179          000001                          RPHLP=1
180          000002                          RPEXT=2
181          000003                          RPLOG=3
182          000004                          RPGSS=4
183          000005                          RPTSS=5
184          000006                          RPTSN=6
185          000007                          RPSWE=7
186          000010                          RPSWF=10
187          000011                          RPSWO=11
188          000012                          RNOTNF=12
189
190
202
203                                  ; DEVICE DEPENDENT EQUATES
```

GLOBAL EQUATES SECTION

```
                                ; MODEM SIGNAL BIT DEFINITIONS
                                ;       IF SIGNAL AVAILABLE IN DEVICE, EQUATE NAME TO BIT POSITION,
                                ;       ELSE EQUATE IT TO = 0
000004                                  CTS=    BIT2            ;CLEAR TO SEND (CIRCUIT CB)
000010                                  DSR=    BIT3            ;DATA SET READY (CIRCUIT CC)
000001                                  DCD=    BIT0            ;DATA CARRIER DETECT (CIRCUIT CF)
000040                                  RTS=    BIT5            ;REQUEST TO SEND (CIRCUIT CA)
000200                                  RI=     BIT7            ;RING INDICATOR (CIRCUIT CE)
040000                                  SQD=    BIT14           ;SIGNAL QUALITY DETECT (CIRCUIT CG)
002000                                  TM=     BIT10           ;MODEM IN TEST MODE (RS 449 ONLY CIRCUIT TM)


                                ; DEVICE BIT DEFINITONS

000200                                  RQI=    BIT7
000200                                  RDO=    BIT7
040000                                  MCLR=   BIT14
000020                                  RDI=    BIT4
000001                                  IEI=    BIT0
000020                                  IEO=    BIT4

```

```
                                        .SBTTL  GLOBAL DATA SECTION
                                        .SBTTL          DEFAULT MESSAGE DEFINITIONS AND TABLES
                                        ;++
                                        ; THE GLOBAL DATA SECTION CONTAINS DATA THAT ARE USED
                                        ; IN MORE THAN ONE TEST.
                                        ;
                                        ;MESSAGE BYTE COUNT TABLE

002150                                  DMSGCT:
002150  000001                          MSG0C:  .WORD   EMSG0-MSG0      ;BYTE COUNT OF MESSAGE #0
002152  000001                          MSG1C:  .WORD   EMSG1-MSG1      ;BYTE COUNT OF MESSAGE #1
002154  000001                          MSG2C:  .WORD   EMSG2-MSG2      ;BYTE COUNT OF MESSAGE #2
002156  000001                          MSG3C:  .WORD   EMSG3-MSG3      ;BYTE COUNT OF MESSAGE #3
002160  000100                          MSG4C:  .WORD   EMSG4-MSG4      ;BYTE COUNT OF MESSAGE #4
002162  000072                          MSG5C:  .WORD   EMSG5-MSG5      ;BYTE COUNT OF MESSAGE #5
002164  000101                          MSG6C:  .WORD   EMSG6-MSG6      ;BYTE COUNT OF MESSAGE #6
002166  000000                          OPCNT:  .WORD   0               ;BYTE COUNT FOR OPERATOR SPEC D MSG.
002170  000001                          MSG8C:  .WORD   EMSG8-MSG8      ;BYTE COUNT OF RECEIVE BUFFER FILL PATTERN
002172  000005                          DLLM1C: .WORD   DLLM1E DLLM1    ;DLL MSG 1 COUNT
002174  000254                          DLLM2C: .WORD   DLLM2E-DLLM2    ;DLL MSG 2 COUNT


                                        ;MESSAGE ADDRESS TABLE

002176                                  DMSGAD:
002176  002220                                  MSG0                    ;ADDRESS OF MESSAGE #0
002200  002221                                  MSG1                    ;ADDRESS OF MESSAGE #1
002202  002222                                  MSG2                    ;ADDRESS OF MESSAGE #2
002204  002223                                  MSG3                    ;ADDRESS OF MESSAGE #3
002206  002224                                  MSG4                    ;ADDRESS OF MESSAGE #4
002210  002324                                  MSG5                    ;ADDRESS OF MESSAGE #5
002212  002416                                  MSG6                    ;ADDRESS OF MESSAGE #6
002214  002524                                  OPBUF                   ;ADDRESS OF OPERATOR SPEC'D MSG.
002216  002646                                  MSG8                    ;ADDRESS OF RECEIVE BUFFER FILL PATTERN

002220     000                          MSG0:   .BYTE   000             ;MESSAGE OF ALL 0'S
002221                                  EMSG0:
002221     377                          MSG1:   .BYTE   377             ;MESSAGE OF ALL 1'S
002222                                  EMSG1:
002222     252                          MSG2:   .BYTE   252             ;MESSAGE OF ALTERNATING 1'S
002223                                  EMSG2:
002223     125                          MSG3:   .BYTE   125             ;MESSAGE OF ALTERNATING 0'S
002224                                  EMSG3:
002224                                  MSG4:                           ;"CCITT" 512-BIT (VS. 511 BITS) TEST PATTERN
002224  177603  157427  031011                  .WORD   177603,157427,031011,047321,163715,105221,143325,142304
002232  047321  163715  105221
002240  143325  142304
002244  040041  014116  052606                  .WORD   040041,014116,052606,172334,105025,123754,111337,111523
002252  172334  105025  123754
002260  111337  111523
002264  030030  145064  137642                  .WORD   030030,145064,137642,143531,063617,135075,066730,026575
002272  143531  063617  135075
002300  066730  026575
002304  052012  053627  070071                  .WORD   052012,053627,070071,151172,165044,031605,166632,016741
002312  151172  165044  031605
```

```
        002320  166632  016741
     51 002324                          EMSG4:
     52 002324                          MSG5:                           ;"INTERPROCESSOR TEST PROGRAM'S (ITEP)" MESSAGE
     53                                                                 ; #1, (DP1:)
     54 002324      177     177     044         .ASCII  <177><177>/$A THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG./
        002327      101     040     124
        002332      110     105     040
        002335      121     125     111
        002340      103     113     040
        002343      102     122     117
        002346      127     116     040
        002351      106     117     130
        002354      040     112     125
        002357      115     120     105
        002362      104     040     117
        002365      126     105     122
        002370      040     124     110
        002373      105     040     114
        002376      101     132     131
        002401      040     104     117
        002404      107     056
     55 002406      015     012     001         .ASCIZ  <15><12><001><177><177><177><177>
        002411      177     177     177
        002414      177     000
     56 002416                          EMSG5:
     57 002416                          MSG6:                           ;ALPHA-NUMERICS (OR FUTURE COMM TURNAROUND MSG)
     58 002416      043     044     041         .ASCII  /#$!" &'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ/
        002421      042     040     046
        002424      047     050     051
        002427      052     053     054
        002432      055     056     060
        002435      061     062     063
        002440      064     065     066
        002443      067     070     071
        002446      072     073     074
        002451      075     076     077
        002454      100     101     102
        002457      103     104     105
        002462      106     107     110
        002465      111     112     113
        002470      114     115     116
        002473      117     120     121
        002476      122     123     124
        002501      125     126     127
        002504      130     131     132
     59 002507      057     133     134         .ASCIZ  ?/[\]↑_#?
        002512      135     136     137
        002515      045     000
     60 002517                          EMSG6:
     61                                         .EVEN
     62
     63                                 ; ********************************************************************
     64                                 ;THESE THREE STORAGE AREAS MUST NOT BE SEPARATED !!!!
     65
     66 002520      045     116     045 OPBFPT: .ASCII  /#N#A/
        002523      101
     67 002524                          OPBUF:  .BLKB   82.             ;BUFFER FOR OPERATOR SPEC'D MESSAGES
```

```
      68 002646                          OPEND:
      69
      70                                 ; THE ABOVE THREE LINES MUST BE KEPT TOGETHER
      71                                 ; ************************************************************************
      72
      73 002646     033                  MSG8:    .BYTE   33              ;RECEIVE BUFFER FILL PATTERN
      74 002647                          EMSG8:
      75
      76                                 ; DOWN-LINE-LOAD MESSAGE DEFINITIONS
      77
      78 002647     006                  DLLM1:   .BYTE   6
      79 002650     000                  PASS1:   .BYTE   0
      80 002651     000                  PASS2:   .BYTE   0
      81 002652     000                  PASS3:   .BYTE   0
      82 002653     000                  PASS4:   .BYTE   0
      83 002654                          DLLM1E:
      84 002654     000                  DLLM2:   .BYTE   0       ;CODE
      85 002655     000                           .BYTE   0       ;LOAD NUMBER
      86 002656     006                           .BYTE   6       ;LOAD ADDRESS LSB
      87 002657     000                           .BYTE   0
      88 002660     000                           .BYTE   0
      89 002661     000                           .BYTE   0       ;LOAD ADDRESS
      90                                 ;
      91                                 ;IMAGE DATA
      92                                 ;
      93 002662  000240                          NOP                     ;BYTE COUNT=240 (USED ONLY IN CATS VTC LOADER)
      94 002664  005037  000006                  CLR     @#6
      95 002670  012706  001000                  MOV     #1000,SP
      96 002674  012701  177560                  MOV     #177560,R1      ;SET UP TTY
      97 002700  010700                          MOV     PC,R0           ;MAKE ADDR.PIC
      98 002702  062700  000034                  ADD     #<MSG-.>,R0     ;ADDRESS MSG.
      99 002706  105761  000004          1$:     TSTB    4(R1)           ;TTY READY?
     100 002712  100375                          BPL     1$              ;WAIT TIL YES
     101 002714  112061  000006                  MOVB    (R0)+,6(R1)     ;TYPE A CHAR
     102 002720  001372                          BNE     1$              ;KEEP GOING
     103 002722  012737  000026  000024          MOV     #26,@#24        ;SET UP POWER FAIL
     104 002730  005037  000026                  CLR     @#26            ;MAKE SURE T BIT CLAER
     105 002734  000777                          BR      .               ;JUMP ON YOURSELF
     106 002736     012     015     102  MSG:    .ASCII  <12><15>/BOOT MESSAGE WAS RECEIVED SUCCESSFULLY  END OF TEST!!/
         002741     117     117     124
         002744     040     115     105
         002747     123     123     101
         002752     107     105     040
         002755     127     101     123
         002760     040     122     105
         002763     103     105     111
         002766     126     105     104
         002771     040     123     125
         002774     103     103     105
         002777     123     123     106
         003002     125     114     114
         003005     131     040     055
         003010     105     116     104
         003013     040     117     106
         003016     040     124     105
         003021     123     124     041
         003024     041
```

```
    107 003025     012     015     056          .ASCIZ  <12><15>/....RELOAD PROGRAM..../
        003030     056     056     056
        003033     122     105     114
        003036     117     101     104
        003041     040     120     122
        003044     117     107     122
        003047     101     115     056
        003052     056     056     056
        003055     000
    108
    109                                         ;;PADDING TO OBTAIN 240 BYTES OF DATA
    110 003056  177603  157427  031011          .WORD   177603,157427,031011
    111 003064  047321  163715  105221          .WORD   047321,163715,105221
    112 003072  143325  142304  040041          .WORD   143325,142304,040041
    113 003100  014116  052606  172334          .WORD   014116,052606,172334
    114 003106  105025  123754  111337          .WORD   105025,123754,111337
    115 003114  111523  030030  145064          .WORD   111523,030030,145064
    116
    117                                         ;;CRC VALUE FOR ABOVE 240 BYTES OF DATA
    118 003122  152645                         .WORD   152645          ;CRC
    119
    120 003124     006                          .BYTE   6
    121 003125     000                          .BYTE   0
    122 003126     000                          .BYTE   0
    123 003127     000                          .BYTE   0
    124 003130                          DLLM2E:
    125
    126                                         .EVEN
    127
```

```
                                        .COMMAND LINE BUFFER, DATA LOCATIONS AND MESSAGES FOR ACTION ROUTINES

003130                          CMDBUF: .BLKB   82.             ;BUFFER FOR OPERATOR COMMANDS
003252  000000                  KEYWD1: .WORD   0               ;THIS LOC WILL =1 IF CLEAR TYPED, 2 FOR SHOW,
                                                                ; A 4 IF RUN WAS TYPED, 5 IF HELP WAS TYPED
003254  000000                  QUALFG: .WORD   0               ;THIS LOC HOLDS QUALIFIER VALUE (SIZE OR COPY)
003256  000000                  QUALVL: .WORD   0
003260  024123                  HLPTAB: .WORD   HLP1
003262  024136                          .WORD   HLP2
003264  024254                          .WORD   HLP2B
003266  024344                          .WORD   HLP2C
003270  024417                          .WORD   HLP3
003272  024504                          .WORD   HLP3A   ;REV B EC
003274  024531                          .WORD   HLP4
003276  024610                          .WORD   HLP4A
003300  024666                          .WORD   HLP5
003302  024756                          .WORD   HLP6
003304                          HLPEND:
003304  025377                  RHLPTB: .WORD   RHLP1
003306  025421                          .WORD   RHLP2
003310  025436                          .WORD   RHLP3
003312  025470                          .WORD   RHLP4
003314                          RHLPEN:


003314  025647  025656  025663  SHTYTB: .WORD   SHTYP0,SHTYP1,SHTYP2,SHTYP3,SHTYP4,SHTYP5,SHTYP6,SHTYP7
003322  025670  025675  025707
003330  025710  025716

                                ; THE LIST OF BYTES BELOW ARE THE FIRST BYTES OF THE PREDEFINED MESSAGES
                                ;  USED TO "SHOW" THE TRANSMIT AND COMPARE BUFFER CONTENTS.

003334     000     377     252  SHTAB:  .BYTE   0,377,252,125,203,177,043
003337     125     203     177
003342     043
003343                          SHTEND:
                                        .EVEN

003344  026674                  MODES:  .WORD   M00      ;ADDRESSES OF MODE TYPES IN ASCII
003346  026704                          .WORD   M01
003350  026715                          .WORD   M02
003352  026725                          .WORD   M03
003354  026734                          .WORD   M04
003356  026751                          .WORD   M05
003360  026756                          .WORD   M06

003362  026765                  LOOPS:  .WORD   LP0      ;ADDRESSES OF LOOP TYPES IN ASCII
003364  026775                          .WORD   LP1
003366  027006                          .WORD   LP2
003370  027014                          .WORD   LP3
003372  027027                          .WORD   LP4

                                ;COMMAND LINE TRAVERSE LOCATIONS (USED BY "P$TRV")

003374  000000                  P$BUFA: .WORD   0               ;LOC. TO HOLD ADDR. OF CMD LINE BUFFER
003376  000000                  P$TREE:  WORD   0               ;LOC. TO HOLD ADDR. OF PARSING TREE
```

```
      54 003400  000000                P$ACT:  .WORD   0               ;LOC. TO HOLD ADDR. OF ACTION ROUTINE
      55 003402  000000                P$CNT:  .WORD   0               ;LOC. TO BE A COUNTER LOCATION
      56 003404  000000                P$NUM:  .WORD   0               ;LOC. TO HOLD NUMERIC VALUE FROM PARSE
      57 003406  000000                P$RADX: .WORD   0               ;LOC. TO HOLD RADIX USED(LO) AND +/ (HI BYTE)
      58 003410     000                P$NNUF: .BYTE   0               ;RETURN =0 IF ENOUGH OF COMMAND FOUND
      59 003411     000                P$GDBD: .BYTE   0               ;RETURN CODE 0 IF NO ERROR FOUND
      60 003412     000                WRFLG:  .BYTE   0               ;WRITE FLAG
      61                                       .EVEN
      62 003414  000000                VALTRB: .WORD   0               ;VALID TRIB FLAG..IF SET  1 THEN VALID REV B EC
      63
```

```
                                .SBTTL          MESSAGE BUFFERS AND POINTER TABLES

003416                          TXBUF:  .BLKB   BUFLIM  ;TRANSMITTER BUFFERS
004416                          CMPBUF: .BLKB   BUFLIM  ;COMPARISON BUFFERS
005416                          RXBUF:  .BLKB   RBFLIM  ;RECEIVER BUFFERS

011416                          PTRTAB: .BLKW   MSGLIM*2        ;TABLE FOR MESSAGE ADDRS. & BYTE COUNTS
011512                          PTR13:  .BLKW   MSGLIM*2
011606                          PTR23:  .BLKW   MSGLIM*2
011702                                  .BLKW   MSGLIM*2*31.    ;TABLE FOR MULTIPOINT POINTERS

015406                          PTREND:                 ; END OF MSG. PTR. TABLE

015406                                  .BLKW   2       ;FILLER FOR OVERFLOW OF RX POINTER TABLE
015412                          CPTRLS: .BLKW   32.     ;TABLE FOR MULITPOINT RX POINTERS
015512                          CPTTLS: .BLKW   32.     ;TABLE FOR MULITPOINT TX POINTERS
015612                          DVRCLS: .BLKB   32.     ;TABLE (BYTES) FOR REC COUNTS
015652                          DVTCLS: .BLKB   32.     ;TABLE (BYTES) FOR TX COUNTS
015712                          TRIBLS: .BLKB   32.     ;TABLE (BYTES) OF TRIB ADDRESSES
015752  177777                          .WORD   177777
015754  000000                  TRBTOT: .WORD   0       ;TOTAL NUMBER OF TRIBS IN LIST
015756  000000                  TRIBN:  .WORD   0       ;CURRENT TRIB NUMBER
015760  000000                  INDW:   .WORD   0       ;WORD INDEX
015762  000000                  INDEX:  .WORD   0       ;BYTE INDEX FOR TRIBS
015764  000000                  CTX:    .WORD   0       ;COUNTER FOR TX BUFFER COMPLETE INTERRUPTS
015766  000000                  CRX:    .WORD   0       ;COUNTER FOR RX BUFFER COMPLETE INTERRUPTS
015770  000000                  RSPTRS: .WORD   0       ;STACK POINTER FOR RX INTERPUTS ON STACK
015772  000000                  RSPTRE: .WORD   0       ;STACK POINTER FOR RX INTERPUTS OFF STACK
015774  000000                  TSPTR:  .WORD   0       ;STACK POINTER FOR TX INTERRUPTS
015776                          TXSTAK: .BLKW   6.
016012                          RXSTAK: .BLKW   54.     ;TX AND RX INT STACKS
016166                          RXSKEN:
```

```
                                        ;POLL DEFAULTS FOR TRIBS
                                        
016166  000000          POLDEF: .WORD   0       ;TX DELAY TIMER
016170  377                     .BYTE   377     ;Q FOR ACTIVE
016171  000                     .BYTE   0       ;R FOR ACTIVE
016172  000                     .BYTE   0       ;Q FOR INACTIVE
016173  100                     .BYTE   100     ;R FOR INACTIVE
016174  000                     .BYTE   0       ;Q FOR PDEAD
016175  020                     .BYTE   20      ;R FOR PDEAD
016176  010                     .BYTE   10      ;#NDM INACTIVE
016177  002                     .BYTE   2       ;#T/O TO PDEAD
016200  010                     .BYTE   10      ;#T/O TO DEAD
016201  004                     .BYTE   4       ;MAX MESSAGE COUNTER
                                ;       DMP                                     DMV
016202  005670          DMVDF1: .WORD   5670    ;SELCET TIMER [3 SECS ]          454
016204  013560          DMVDF2: .WORD   13560   ;INTERVAL TIMER [6 SECS ]       1130
                                
                                        ;GLOABAL DEFAULTS
                                
016206  000015          GLBDEF: .WORD   15      ;NUMSYNC
016210  013560          DMVDF3: .WORD   13560   ;CARRIER WAIT TIMING [6 SECS]  1130
016212  000062          DMVDF4: .WORD   62      ;DELTA T                         24
016214  023420          DMVDF5: .WORD   23420   ;DEAD T                        1750
016216  000000                  .WORD   0       ;POLL DELAY
016220                  GLBEND:
                                
                                ;*****************************************************************************
                                ;                                                                            *
                                ;* NOTE * - THE VALUES FOR DMVDF1-DMVDF5 ARE ASSEMBLED FOR DMP IF             *
                                ;       THIS IS A DMV THE INIT CODE CHANGES THESE VALUES TO DEFAULTS          *
                                ;       FOR DMV. THIS IS POSSIBLE BECUASE THIS PROGRAM WILL BE LOADED        *
                                ;       ONE TIME FOR EVERY DEVICE.                                           *
                                ;*****************************************************************************
                                
                                        ;TRIB LIST OF POLL PARAMETERS
016220          POLLIS: .BLKW   8.*32.
                                
                                        ;GLOBAL LIST OF POLL PARAMETERS
017220          GLBPLS: .BLKW   5.
```

MESSAGE BUFFERS AND POINTER TABLES

```
 1 017232  000000                MPLY:   .WORD   0       ;MULTIPLIER
 2 017234  000000                RXPTR:  .WORD   0       ;RECEIVER MESSAGE POINTER
 3 017236  000000                TXPTR:  .WORD   0       ;TRANSMITTER BUFFER POINTER
 4 017240  000000                CMPPTR: .WORD   0       ;COMPARISON BUFFER POINTER
 5 017242  000000                CMPTOT: .WORD   0       ;CMP MSG TOTAL
 6 017244  000000                CTOTCC: .WORD   0       ;COMPARE BUFFER CHAR. COUNT
 7 017246  000000                CCURAD: .WORD   0       ;CURRENT ADDR OF CMP BUFF TO ADD AT
 8 017250  000000                DVTXA:  .WORD   0       ;DEVICE TX ADDR
 9 017252  000000                DVTCC:  .WORD   0       ;DEVICE TX CHAR COUNT
10 017254  000000                DVTTB:  .WORD   0       ;DEVICE TRIBN
11 017256  000000                DVTCT:  .WORD   0       ;DEVICE TX MESSAGE COUNT
12 017260  000000                TXMTOT: .WORD   0       ;TX MSG TOTAL
13 017262  000000                TTOTCC: .WORD   0       ;TX BUFFER CHAR. COUNT
14 017264  000000                TCURAD: .WORD   0       ;CURRENT ADDR. OF TX BUFF TO ADD AT
15 017266  000000                DVRTB:  .WORD   0       ;RECEIVE TRIBN
16 017270  000000                DVRXA:  .WORD   0       ;DEVICE RX ADDR
17 017272  000000                DVRCC:  .WORD   0       ;DEVICE RX CHAR COUNT
18 017274  000000                DVRCT:  .WORD   0       ;DEVICE RX MESSAGE COUNT
19 017276  000000                RXMTOT: .WORD   0       ;RX MSG TOTAL
20
21 017300  000000                LNCNT:  .WORD   0       ;NUMBER OF OPERATOR AWAKE MSGS
22 017302  000000                OPVAR:  .WORD   0       ;HOLDER FOR OPTIONAL VARIABLE (1)
23 017304  000000                OPVAR1: .WORD   0       ;HOLDER FOR OPTION VARIABLE (2)
24 017306  000000                PSCNT:  .WORD   0       ;PASS COUNTER
25 017310  000000                ERRCNT: .WORD   0       ;ERROR COUNTER
26 017312  000000                STADD:  .WORD   0       ;START ADDR.
27 017314  000000                ENADD:  .WORD   0       ;END ADDR. FOR DUMP
28 017316  000000                BYTBIT: .WORD   0       ;BYTE BIT FOR DUMP ROUTINE
29 017320  000000                CLNSET: .WORD   0       ;CLEANSET FLAG SET AND CLEARED IN CLEAN UP
30                                                       ;INDICATES TO OUTPUT HANDELER THAN NO OUPUTS SHOULD
31                                                       ;BE PRINTED
32 017322  000000                RQIFLG: .WORD   0       ;RQI FLAG
33 017324  000000                FTLFLG: .WORD   0       ;USED AS FATEL ERROR FLAG
34 017326  000000                TSSFLG: .WORD   0       ;USED AS TSS FLAG
35 017330  000000                OVRCNT: .WORD   0       ;USED FOR QUE OVERFLOW FLAG
36                               ;OTHER MESSAGE RELATED STORAGE LOCATIONS
37
38 017332  000000                MSGTYP: .WORD   0       ;TYPE OF DATA 0=0'S,1=1'S,2=10'S,3=01'S
39                                                               ;4=CCITT,5=QUICK FOX,6=ALPHA/NUM,7=OPER
40 017334  000000                CURCC:  .WORD   0       ;TX/RX/CMP CHAR COUNT
41 017336  000000                CPTRR:  .WORD   0       ;CURRENT RX POINTER
42 017340  000000                CPTR:   .WORD   0       ;CURRENT POINTER
43 017342  000000                CURADD: .WORD   0       ;CURRENT TX/RX/CMP START ADDD
44 017344  000000                TOTCC:  .WORD   0       ;TOTAL CHAR COUNT NOT MORE THEN "BUFLIM
45 017346  000000                OFSET:  .WORD   0       ;OFFSET COUNT
46 017350  000000                TEMP:   .WORD   0       ;TEMPORARY LOCATIONS (USED A LOT)
47 017352  000000                TEMP1:  .WORD   0
48 017354  000000                TEMP2:  .WORD   0
49 017356  000000                TEMP3:  .WORD   0
50 017360  000000                TEMP4:  .WORD   0
51 017362  000000                TEMP5:  .WORD   0
52 017364  000000                SAVSP:  .WORD   0       ;STACK POINTER SAVE AREA
53 017366  000000                CONOTM: .WORD   0       ;CONTROL OUT ERROR MSG. ADDRESS AND TSS AND GSS MSGS.
54 017370     000                GOOD:   .BYTE   0       ;BYTE TO HOLD EXPECTED MESSAGE DATA BYTE FOR ERR REPORT
55 017371     000                BAD:    .BYTE   0       ;BYTE TO HOLD RECEIVED MESSAGE DATA BYTE FOR ERR REPORT
56
```

MESSAGE BUFFERS AND POINTER TABLES

```
                                        ;MORE INDEPENDENT CODE STORAGE LOCATIONS
                                        
017372  000000                  LOGUNT: .WORD   0       ;LOC. TO HOLD LOGICAL UNIT NUMBER
017374  000000                  PCADD:  .WORD   0       ;LOC. HOLD PC OF CALLING ROUTINE
017376  000000                  DCLFLG: .WORD   0       ;LOC. TO HOLD DO CLEAN FLAG 1 IF DOCLEAN INIT 0 IF NOT.
01740C  000000                  RESFLG: .WORD   0       ;LOC TO HOLD FLAG (-1) THAT A RESTART WAS GIVEN
017402  000000                  MODTYP: .WORD   0       ;DCLT MODE OF OPERATION TYPE
                                                        ;  (0=REC-ONLY, 1=TX-ONLY, 2=PASSIVE-LOOPBK,
                                                        ;   3=ACTIVE-LOOPBK, 4=DOWN L.L., 5=TALK, 6=LISTEN)
017404  000000                  MLTYP:  .WORD   0       ;MAINTENANCE LOOP TYPE (0=NONE, 1=INTERNAL TTL,
                                                        ;  2=CABLE, 3=MODEM-ANALOG LOOPBK (LOCAL),
                                                        ;  4=MODEM-DIGITAL LOOPBK (REMOTE), 5=MOP)
017406  000000                  FMDPLX: .WORD   0       ;FULL OR HALF DUPLEX FLAG (1=FULL FROM P-TABLE)
017410  000002                  PARAM:  .WORD   2       ;PROGRAM PARAMETERS
                                                        ; BIT0= STATUS MSGS TO OPR PRINTED (1=YES)
                                                        ; BIT1= DATA CHECKING DONE ON RCVD MSGS (1=YES)
                                                        ; BIT2= ECHO (TRANSMIT) RCV'D MSG.(PASSIVE)(1=YES)
                                                        ; BIT3= MODEM STATUS CHECK (1=YES)
                                                        ; BIT4= CRC CALC./CHECK DONE (1=YES)
                                                        ; BIT5= PROTOCOL EMULATION (1=YES)
                                                        ; BIT6= SPARE
017412  000000                  RPASS:  .WORD   0       ;PASS NUMBER FROM RUN COMMAND
017414  000000                  FLAG:   .WORD   0       ;DEVICE FLAG WORD
017416  000000                  RUNING: .WORD   0       ;  1 = DCLT RUNNING(DEVICES ARE COMMUNICATING)

                                        ;MODE DISPATCH TABLE
017420  060036                  MODE:   .WORD   RXONLY  ;RX ONLY DISPATCH
017422  060064                          .WORD   TXONLY  ;TX ONLY DISPATCH
017424  060122                          .WORD   PLCK    ;PASSIVE LOOP BACK DISP
017426  060150                          .WORD   ALCK    ;ACTIVE LOOP BACK DISP
017430  061420                          .WORD   DLL     ;DOWN LINK LOAD DISP
017432  062276                          .WORD   TALCK   ;TALK MODE DISPATCH
017434  062530                          .WORD   LISCK   ;LISTEN MODE DISPATCH


                                        .SBTTL          CLOCK TABLES, EVENT LOG AND POINTERS
017436  000000                  CLKCSR: .WORD   0       ;CLOCK CSR ADDRESS
017440  000000                  CLKBR:  .WORD   0       ;CLOCK INTERRUPT LEVEL
017442  000000                  CLKVEC: .WORD   0       ;CLOCK INTERRUPT VECTOR
017444  000074                  CLKHZ:  .WORD   60.     ;CLOCK'S HERTZ RATE
017446  000000                  CLKEN:  .WORD   0       ;CLOCK'S CSR VALUE TO INTRPT. ENABLE IT

017450  000000                  TIMMIN: .WORD   0       ;PLACE TO KEEP TIME SINCE START
017452  000000                  TIMSEC: .WORD   0
017454  000000                  TIMTCK: .WORD   0       ;PLACE TO KEEP # OF TICKS/SEC

017456  000000                  TIMER1: .WORD   0       ;EVENT TIMER #1 (TICKS)
017460  000000                  TIMER2: .WORD   0       ;EVENT TIMER #2 (TICKS)
017462  000000                  TIMER3: .WORD   0       ;EVENT TIMER #3 (SECONDS)

```

```
                                        ;EVENT LOG TABLE AND ITS NEXT ENTRY POINTER
017464  017466                          EVTPTR: .WORD   EVTLOG  ;POINTER TO NEXT FREE SPACE IN EVENT LOG
017466                                  EVTLOG: .BLKW   270.    ;EVENT LOG BUFFER
020522                                  EVTEND: .BLKW   1.      ;APPROXIMATE END OF EVENT TABLE (ALLOWS CIRCULAR QUE)

                                        .SBTTL          MODEM DATA SECTION

020524  000000                          MODS:   .WORD   0       ;MODEM STATUS
```

MODEM DATA SECTION

```
                                        ;TABLE OF MODEM SIGNAL BIT DEFINITIONS
                                        
020526  000004                  MOBITS: .WORD   CTS             ;CLEAR TO SEND (CIRCUIT CB)
020530  000010                          .WORD   DSR             ;DATA SET READY (CIRCUIT CC)
020532  000001                          .WORD   DCD             ;DATA CARRIER DETECT (CIRCUIT CF)
020534  000040                          .WORD   RTS             ;REQUEST TO SEND (CIRCUIT CA)
020536  000200                          .WORD   RI              ;RING INDICATOR (CIRCUIT CE)
020540  040000                          .WORD   SQD             ;SIGNAL QUALITY DETECT (CIRCUIT CG)
020542  002000                          .WORD   TM              ;MODEM IN TEST MODE (RS 449 ONLY CIRCUIT TM)
020544                          MOBITE:
                                        
                                        ;TABLE OF ADDRESSES OF MODEM SIGNAL MESSAGE POSITIONS
                                        
020544  031530                  MOMSGS: .WORD   EVMCTS          ;CLEAR TO SEND (CIRCUIT CB)
020546  031534                          .WORD   EVMDSR          ;DATA SET READY (CIRCUIT CC)
020550  031540                          .WORD   EVMDCD          ;DATA CARRIER DETECT (CIRCUIT CF)
020552  031544                          .WORD   EVMRTS          ;REQUEST TO SEND (CIRCUIT CA)
020554  031550                          .WORD   EVMRI           ;RING INDICATOR (CIRCUIT CE)
020556  031554                          .WORD   EVMSQD          ;SIGNAL QUALITY DETECT (CIRCUIT CG)
020560  031560                          .WORD   EVMTM           ;MODEM IN TEST MODE (RS 449 ONLY CIRCUIT TM)
                                        
                                        ;TABLE OF ADDRESSES OF EVENT DESCRIPTION MESSAGES
                                        ;       ORDER CORRESPONDS TO MESSAGE TYPE VALUES
                                        
020562  030001                  EVTLST: .WORD   EDTXQ   ;TRANSMIT MESSAGE QUEUED
020564  030025                          .WORD   EDTXC   ;TRANSMIT OF MESSAGE COMPLETE
020566  030054                          .WORD   EDRXQ   ;RECEIVE MESSAGE SPACE QUEUED
020570  030101                          .WORD   EDRXC   ;MESSAGE RECEIVED - RECEIVE COMPLETE
020572  030127                          .WORD   EDDER   ;DEVICE INFORMATION
020574  030174                          .WORD   EDDVI   ;DEVICE INITIALIZE STARTED
020576  030144                          .WORD   EDDCK   ;DATA COMPARISON DONE
020600  026765                          .WORD   LPO     ;NULL STRING
020602  030222                          .WORD   EDDLE   ;DATA COMPARE LENGTH ERROR
020604  030257                          .WORD   EDDDE   ;DATA COMPARE DATA ERROR
020606  030312                          .WORD   EDEOP   ;END OF PASS
                                        
                                        ;LOCATIONS USED DURING EVENT REPORTING
                                        
020610  000000                  EVTSEC: .WORD   0       ;TEMPORARY LOCS TO KEEP EVENT TIME WHILE REPORTING
020612  000000                  EVTMIN: .WORD   0
020614  000000                  EVTTCK: .WORD   0
020616  000000                  EVTADD: .WORD   0       ;TEMP. LOC. TO HOLD ADDRESS DURING EVENT REPORTING
020620  000000                  EVTBCT: .WORD   0       ;       "       "  BYTE COUNT   "
020622  000000                  EVTTMP: .WORD   0       ;       "       "  OTHER DATA   "
                                        
                                        ;REPORT CODING DISPATCH TABLE
                                        
020624  043444                  RPTDSP: .WORD   RPTTXQ  ;TRANSMIT QUEUED ENTRY DECODING
020626  043444                          .WORD   RPTTXQ  ;TRANSMIT COMPLETE ENTRY DECODING
020630  043444                          .WORD   RPTTXQ  ;RECEIVER QUEUED ENTRY DECODING
020632  043444                          .WORD   RPTTXQ  ;RECEIVER COMPLETE ENTRY DECODING
020634  043522                          .WORD   RPTDER  ;DEVICE ERROR ENTRY DECODING
020636  043622                          .WORD   RPTDVI  ;DEVICE INIT ENTRY DECODING
020640  044056                          .WORD   RPTDCK  ;DATA COMPARISON ENTRY DECODING
020642  044136                          .WORD   RPTMSC  ;PLACE HOLDER
020644  044056                          .WORD   RPTDLE  ;DATA COMPARISON LENGTH ERROR
020646  043776                          .WORD   RPTDDE  ;DATA COMPARISON DATA ERROR
```

MODEM DATA SECTION

```
     58 020650  043672                          .WORD   RPTEOP  ;END OF PASS
     59
     60
     61 020652  000000              DEV1:   .WORD   0               ;TEMP LOCS TO HOLD DATA FOR EVENT REPORTING
     62 020654  000000              DEV2:   .WORD   0               ;   AND SHOW MODE.... SUBROUTINE
     63 020656  000000              DEV3:   .WORD   0
     64 020660  000000              DEV4:   .WORD   0
```

```
                                .SBTTL          TABLE FOR TSS ASCII AND ROUTINES
020662  032112          TSSLST: .WORD   TSS0A           ;POINTER FOR OFFSET 0 ASCII
020664  032146                  .WORD   TSS1A           ;POINTER FOR OFFSET 1 ASCII
020666  032216                  .WORD   TSS2A           ;POINTER FOR OFFSET 2 ASCII
020670  032252                  .WORD   TSS3A           ;POINTER FOR OFFSET 3 ASCII
020672  032325                  .WORD   TSS4A           ;POINTER FOR OFFSET 4 ASCII
020674  032373                  .WORD   TSS5A           ;POINTER FOR OFFSET 5 ASCII
020676  032455                  .WORD   TSS6A           ;POINTER FOR OFFSET 6 ASCII
020700  032545                  .WORD   TSS7A           ;POINTER FOR OFFSET 7 ASCII
020702  032603                  .WORD   TSS10A          ;POINTER FOR OFFSET 10 ASCII
020704  032637                  .WORD   TSS11A          ;POINTER FOR OFFSET 11 ASCII
020706  032675                  .WORD   TSS12A          ;POINTER FOR OFFSET 12 ASCII
020710  032772                  .WORD   TSS13A          ;POINTER FOR OFFSET 13 ASCII
020712  033066                  .WORD   TSS14A          ;POINTER FOR OFFSET 14 ASCII
020714  033151                  .WORD   TSS15A          ;POINTER FOR OFFSET 15 ASCII
020716  033235                  .WORD   TSS16A          ;POINTER FOR OFFSET 16 ASCII
020720  033320                  .WORD   TSS17A          ;POINTER FOR OFFSET 17 ASCII
020722  033404                  .WORD   TSS20A          ;POINTER FOR OFFSET 20 ASCII
020724  033476                  .WORD   TSS21A          ;POINTER FOR OFFSET 21 ASCII
020726  033565                  .WORD   TSS22A          ;POINTER FOR OFFSET 22 ASCII
020730  033653                  .WORD   TSS23A          ;POINTER FOR OFFSET 23 ASCII
020732  033740                  .WORD   TSS24A          ;POINTER FOR OFFSET 24 ASCII
020734  034027                  .WORD   TSS25A          ;POINTER FOR OFFSET 25 ASCII
020736  034114                  .WORD   TSS26A          ;POINTER FOR OFFSET 26 ASCII
020740  034145                  .WORD   TSS27A          ;POINTER FOR OFFSET 27 ASCII
020742  034230                  .WORD   TSS30A          ;POINTER FOR OFFSET 30 ASCII
020744  034302                  .WORD   TSS31A          ;POINTER FOR OFFSET 31 ASCII
020746  034361                  .WORD   TSS32A          ;POINTER FOR OFFSET 32 ASCII
020750  034444                  .WORD   TSS33A          ;POINTER FOR OFFSET 33 ASCII
020752  034527                  .WORD   TSS34A          ;POINTER FOR OFFSET 34 ASCII
020754  034606                  .WORD   TSS35A          ;POINTER FOR OFFSET 35 ASCII
020756  034665                  .WORD   TSS36A          ;POINTER FOR OFFSET 36 ASCII
020760  034737                  .WORD   TSS37A          ;POINTER FOR OFFSET 37 ASCII

                                ;TABLE FOR TSS ACTION ROUTINES
                                ;IF BYTE = 0 USE WORD ROUTINE
                                ;IF BYTE = 2 USE BYTE/BYTE ROUTINE
                                ;IF BYTE = 4 USE BYTE SPECIAL ROUTINE

020762      000         TSSIND: .BYTE   0       ;INDEX FOR  TSS 0
020763      002                 .BYTE   2       ;INDEX FOR  TSS 1
020764      000                 .BYTE   0       ;INDEX FOR  TSS 2
020765      002                 .BYTE   2       ;INDEX FOR  TSS 3
020766      002                 .BYTE   2       ;INDEX FOR  TSS 4
020767      002                 .BYTE   2       ;INDEX FOR  TSS 5
020770      002                 .BYTE   2       ;INDEX FOR  TSS 6
020771      000                 .BYTE   0       ;INDEX FOR  TSS 7
020772      000                 .BYTE   0       ;INDEX FOR  TSS 10
020773      000                 .BYTE   0       ;INDEX FOR  TSS 11
020774      004                 .BYTE   4       ;INDEX FOR  TSS 12
020775      004                 .BYTE   4       ;INDEX FOR  TSS 13
020776      004                 .BYTE   4       ;INDEX FOR  TSS 14
020777      004                 .BYTE   4       ;INDEX FOR  TSS 15
021000      004                 .BYTE   4       ;INDEX FOR  TSS 16
021001      002                 .BYTE   2       ;INDEX FOR  TSS 17
021002      002                 .BYTE   2       ;INDEX FOR  TSS 20
021003      002                 .BYTE   2       ;INDEX FOR  TSS 21
```

```
     58 021004      002                          .BYTE   2       ;INDEX FOR  TSS 22
     59 021005      002                          .BYTE   2       ;INDEX FOR  TSS 23
     60 021006      002                          .BYTE   2       ;INDEX FOR  TSS 24
     61 021007      002                          .BYTE   2       ;INDEX FOR  TSS 25
     62 021010      000                          .BYTE   0       ;INDEX FOR  TSS 26
     63 021011      002                          .BYTE   2       ;INDEX FOR  TSS 27
     64 021012      000                          .BYTE   0       ;INDEX FOR  TSS 30
     65 021013      002                          .BYTE   2       ;INDEX FOR  TSS 31
     66 021014      002                          .BYTE   2       ;INDEX FOR  TSS 32
     67 021015      002                          .BYTE   2       ;INDEX FOR  TSS 33
     68 021016      002                          .BYTE   2       ;INDEX FOR  TSS 34
     69 021017      002                          .BYTE   2       ;INDEX FOR  TSS 35
     70 021020      000                          .BYTE   0       ;INDEX FOR  TSS 36
     71 021021      000                          .BYTE   0       ;INDEX FOR  TSS 37
     72
     73 021022  000000                  TSSE:    .WORD   0               ;WORD FOR LAST TSS TO BE PRINTED
     74 021024  000000                  TSSA:    .WORD   0               ;WORD FOR ADDRESS
     75 021026  000000                  TSSKEY:  .WORD   0               ;KEY WORD FOR READING TSS
     76
```

```
                                        .SBTTL          TABLE FOR GSS ASCII AND ACTION

021030  035004                  GSSLST: .WORD   GSS0A           ;POINTER FOR OFFSET 0 ASCII
021032  035045                          .WORD   GSS1A           ;POINTER FOR OFFSET 1 ASCII
021034  035103                          .WORD   GSS2A           ;POINTER FOR OFFSET 2 ASCII
021036  035142                          .WORD   GSS3A           ;POINTER FOR OFFSET 3 ASCII
021040  035177                          .WORD   GSS4A           ;POINTER FOR OFFSET 4 ASCII
021042  035234                          .WORD   GSS5A           ;POINTER FOR OFFSET 5 ASCII
021044  035271                          .WORD   GSS6A           ;POINTER FOR OFFSET 6 ASCII
021046  035347                          .WORD   GSS7A           ;POINTER FOR OFFSET 7 ASCII
021050  035425                          .WORD   GSS10A          ;POINTER FOR OFFSET 10 ASCII
021052  035477                          .WORD   GSS11A          ;POINTER FOR OFFSET 11 ASCII
021054  035517                          .WORD   GSS12A          ;POINTER FOR OFFSET 12 ASCII
021056  035555                          .WORD   GSS13A          ;POINTER FOR OFFSET 13 ASCII
021060  035616                          .WORD   GSS14A          ;POINTER FOR OFFSET 14 ASCII
021062  035637                          .WORD   GSS15A          ;POINTER FOR OFFSET 15 ASCII
021064  035747                          .WORD   GSS16A          ;POINTER FOR OFFSET 16 ASCII
021066  036057                          .WORD   GSS17A          ;POINTER FOR OFFSET 17 ASCII
021070  036141                          .WORD   GSS20A          ;POINTER FOR OFFSET 20 ASCII
021072  036206                          .WORD   GSS21A          ;POINTER FOR OFFSET 21 ASCII
021074  036253                          .WORD   GSS22A          ;POINTER FOR OFFSET 22 ASCII
021076  036320                          .WORD   GSS23A          ;POINTER FOR OFFSET 23 ASCII
021100  036365                          .WORD   GSS24A          ;POINTER FOR OFFSET 24 ASCII
021102  036432                          .WORD   GSS25A          ;POINTER FOR OFFSET 25 ASCII
021104  036477                          .WORD   GSS26A          ;POINTER FOR OFFSET 26 ASCII
021106  036521                          .WORD   GSS27A          ;POINTER FOR OFFSET 27 ASCII
021110  036543                          .WORD   GSS30A          ;POINTER FOR OFFSET 30 ASCII
021112  036576                          .WORD   GSS31A          ;POINTER FOR OFFSET 31 ASCII
021114  036653                          .WORD   GSS32A          ;POINTER FOR OFFSET 32 ASCII
021116  036736                          .WORD   GSS33A          ;POINTER FOR OFFSET 33 ASCII
021120  036761                          .WORD   GSS34A          ;POINTER FOR OFFSET 34 ASCII
021122  037026                          .WORD   GSS35A          ;POINTER FOR OFFSET 35 ASCII
021124  037050                          .WORD   GSS36A          ;POINTER FOR OFFSET 36 ASCII
021126  037071                          .WORD   GSS37A          ;POINTER FOR OFFSET 37 ASCII

                                        ;TABLE FOR GSS ACTION ROUTINES
                                        ;IF BYTE = 0 USE WORD ROUTINE
                                        ;IF BYTE = 2 USE BYTE/BYTE ROUTINE
                                        ;IF BYTE = 4 USE BYTE SPECIAL ROUTINE

021130      002                 GSSIND: .BYTE   2       ;INDEX FOR  GSS 0
021131      002                         .BYTE   2       ;INDEX FOR  GSS 1
021132      002                         .BYTE   2       ;INDEX FOR  GSS 2
021133      002                         .BYTE   2       ;INDEX FOR  GSS 3
021134      002                         .BYTE   2       ;INDEX FOR  GSS 4
021135      002                         .BYTE   2       ;INDEX FOR  GSS 5
021136      002                         .BYTE   2       ;INDEX FOR  GSS 6
021137      002                         .BYTE   2       ;INDEX FOR  GSS 7
021140      002                         .BYTE   2       ;INDEX FOR  GSS 10
021141      000                         .BYTE   0       ;INDEX FOR  GSS 11
021142      002                         .BYTE   2       ;INDEX FOR  GSS 12
021143      002                         .BYTE   2       ;INDEX FOR  GSS 13
021144      000                         .BYTE   0       ;INDEX FOR  GSS 14
021145      004                         .BYTE   4       ;INDEX FOR  GSS 15
021146      004                         .BYTE   4       ;INDEX FOR  GSS 16
021147      002                         .BYTE   2       ;INDEX FOR  GSS 17
```

```
021150    002        .BYTE   2       ;INDEX FOR  GSS 20
021151    002        .BYTE   2       ;INDEX FOR  GSS 21
021152    002        .BYTE   2       ;INDEX FOR  GSS 22
021153    002        .BYTE   2       ;INDEX FOR  GSS 23
021154    002        .BYTE   2       ;INDEX FOR  GSS 24
021155    002        .BYTE   2       ;INDEX FOR  GSS 25
021156    000        .BYTE   0       ;INDEX FOR  GSS 26
021157    000        .BYTE   0       ;INDEX FOR  GSS 27
021160    000        .BYTE   0       ;INDEX FOR  GSS 30
021161    002        .BYTE   2       ;INDEX FOR  GSS 31
021162    002        .BYTE   2       ;INDEX FOR  GSS 32
021163    000        .BYTE   0       ;INDEX FOR  GSS 33
021164    000        .BYTE   0       ;INDEX FOR  GSS 34
021165    000        .BYTE   0       ;INDEX FOR  GSS 35
021166    000        .BYTE   0       ;INDEX FOR  GSS 36
021167    000        .BYTE   0       ;INDEX FOR  GSS 37
```

```
                        .SBTTL          COMMAND LINE ACTION TREE

                        ;SAMPLE CLI TREE NODE   (ALWAYS AT LEAST 1 WORD)
                        ;       - - -
                        ; ! ACTION  ! CHAR CODE !
                        ;     --  -   - ---    -
                        ; !  MISS DISPLACEMENT  !       ONLY IF "MISS' ARGUMENT DEFINED
                        ; - ------- -------- --  -
                        ; ! NEXT NODE DISPLMNT  !       ONLY IF "ASCII' ARGUMENT DEFINED
                        ; ---------  -  ------  -
                        ; ! ASCIZ MATCH STRING  !       ONLY IF "ASCII" ARGUMENT DEFINED
                        ; !           (.EVEN) !
                        ; -----    - -   - - -

021170                  CLITRE:

                        ;FIRST KEYWORD
021170                          CLI     CLISPA,0,N10$                   ;SKIP ANY LEADING SPACES
021174                  N10$:   CLI     <'?>,HLP,N42$                   ;IS THE FIRST NON SP CHAR A  ?
021200                          CLI     CLIEXI,0                        ;  IF YES DO "HLP" AND EXIT
021202                  N42$:   CLI     CLISTR,HLP,N43$,<'HELP'>        ;ELSE, IS FIRST WORD A "HELP'
021216                          CLI     CLIEXI,0                        ;  IF YES DO "HLP" AND EXIT
021220                  N43$:   CLI     CLISTR,PRNT,N44$,<'PRINT'>      ;ELSE, IS FIRST WORD A "PRINT"
021234                          CLI     CLIEXI,0                        ;  IF YES DO "PRINT" AND EXIT
021236                  N44$:   CLI     CLISTR,EXIT,N45$,< EXIT'>       ;ELSE, IS FIRST WORD A "EXIT"
021252                          CLI     CLIEXI,0                        ;  IF YES DO "EXIT" AND EXIT
021254                  N45$:   CLI     CLISTR,RUN,N46$,<'RUN'>         ;ELSE, IS FIRST WORD A "RUN"
021266                          CLI     CLIBR,0,N80$                    ;  IF YES DO "RUN" & GOTO N80$
021272                  N46$:   CLI     CLISTR,NOTNUF,N40$,<'DUMP'>     ;ELSE, IS FIRST WORD A "DUMP"
021306                          CLI     CLIBR,0,N50$                    ;  IF YES GOTO N80$
021312                  N40$:   CLI     CLISTR,CLEAR,N47$,<'CLEAR'>     ;ELSE, IS FIRST WORD A "CLEAR
021326                          CLI     CLIBR,NOTNUF,N100$              ;  IF YES DO "CLR" & GOTO N100$
021332                  N47$:   CLI     CLISTR,CTPP,N20$,<'TRIB >       ;ELSE IS FIRST WORD TRIB
021346                          CLI     CLIBR,NOTNUF,N105$
021352                  N20$:   CLI     <'S>,NOTNUF,N30$                ;ELSE, IS FIRST CHAR. A 'S'
021356                          CLI     CLISTR,SHOW,N25$,<'HOW >        ;  IF YES IS REST OF WORD "HOW'
021370                          CLI     CLIBR,0,N100$                   ;     IF YES, DO "SHOW ,BR N100$
021374                  N25$:   CLI     CLISTR,0,N30$,<'ET'>            ;  ELSE, IS REST OF WORD  ET'
021406                          CLI     CLIBR,0,N110$                   ;     IF YES, DO 'SET', BR N110$
021412                  N30$:   CLI     CLIERR,0                        ;OTHERWISE "ILL CMD'   EXIT

                        ;SECOND KEYWORD (MODE=) FOR RUN COMMAND

021414                  N80$:   CLI     CLISPA,0,N30$                   ;SKIP LEADING SPS, IF NONE ERR
021420                  N81$:   CLI     CLISTR,NOTNUF,N30$,<'MODE'>     ;IS NEXT WORD "MODE=
021434                          CLI     <'=>,0,N30$                     ;  IF NO, IT S WRONG  ERR  EXIT
021440                          CLI     CLISTR,ATVMOD,N82$,<'ACTIVE'>   ;IS NEXT WORD "ACTIVE'
021456                          CLI     CLIBR,0,N115$                   ;  IF YES, DO 'ACTIVE",BR N115$
021462                  N82$:   CLI     CLISTR,PASMOD,N83$,<'PASSIVE'>  ;IS NEXT WORD "PASSIVE'
021500                          CLI     CLIBR,0,N115$                   ;  IF YES, DO "PASSVE",BR N115$
021504                  N83$:   CLI     CLISTR,RECMOD,N84$,<'RECEIVE'>  ;IS NEXT WORD "RECEIVE"
021522                          CLI     CLIBR,0,N115$                   ;  IF YES, DO "RECVE',BR N115$
021526                  N84$:   CLI     CLISTR,LISMOD,N85$,< LISTEN >   ;IS NEXT WORD "LISTEN'
021544                          CLI     CLIBR,0,N115$                   ;  IF YES, DO "LISTEN",BR N115$
021550                  N85$:   CLI     CLISTR,DLLMOD,N86$,<'DOWNLINELOAD'>     ;IS NEXT WORD 'DOW...
021574                          CLI     CLIBR,0,N115$                   ;  IF YES, DO 'DWNLL ,BR N115$
```

COMMAND LINE ACTION TREE

```
      58 021600                          N86$:   CLI     <'T>,0,N30$                     ;IS NEXT CHAR A 'T
      59 021604                                  CLI     CLISTR,TRAMOD,N87$,<'RANSMIT >  ; IS REST OF WORD "RANSMIT'
      60 021622                                  CLI     CLIBR,0,N115$                   ;  IF YES, DO "TRANSM",BR N115$
      61 021626                          N87$:   CLI     CLISTR,TALMOD,N30$,<'ALK >      ; IS REST OF WORD 'ALK"
      62 021640                                  CLI     CLIBR,0,N115$                   ;  IF YES, DO "TALK",BR N115$
      63                                                                                 ; IF NO, ERROR - EXIT
      64
      65                                 ;SECOND KEYWORD (FOR CLEAR OR SHOW)
      66 021644                          N100$:  CLI     CLISPA,0,N30$                   ;SKIP LEADING SPACES, NONE=ERR
      67 021650                          N102$:  CLI     CLISTR,CSHEXP,N104$,<'EXPECTBUFF'>      ;IS NEXT WORD "EXPE..."
      68 021672                                  CLI     CLIEXI,0                        ; IF YES, DO CLR EXP,EXIT
      69 021674                          N104$:  CLI     CLISTR,CSHTRN,N30$,<'TRANSMITBUFF'>     ;IS NEXT WORD "TRANS.."
      70 021720                                  CLI     CLIEXI,0                        ; IF YES, DO CLR TRN,EXIT
      71                                                                                 ;IF NO   ERROR   EXIT
      72
      73
      74                                 ;SECOND KEYWORD (FOR SET)
      75 021722                          N110$:  CLI     CLISPA,0,N30$
      76 021726                          N111$:  CLI     CLISTR,SETEXP,N112$,<'EXPECTMSG'>
      77 021746                                  CLI     CLIBR,0,N120$
      78 021752                          N112$:  CLI     CLISTR,SETTRN,N30$,<'TRANSMITMSG'>
      79 021774                                  CLI     CLIBR,0,N120$
      80
      81                                 ;GET ADDRESSES FOR DUMP COMMAND
      82 022000                          N50$:   CLI     CLIALP,0,N51$
      83 022004                          N51$:   CLI     CLISPA,0,N52$
      84 022010                          N52$:   CLI     CLIOCT,DMPS,N30$
      85 022014                                  CLI     <'->,NOTNUF,N125$
      86 022020                                  CLI     CLIOCT,DMPE,N30$
      87 022024                                  CLI     <'/>,NOTNUF,N125$
      88 022030                                  CLI     <'B>,DMPQ,N30$
      89 022034                                  CLI     CLIBR,0,N125$
      90
      91                                 ;QUALIFIERS FOR THE RUN COMMAND
      92 022040                          N115$:  CLI     CLIALP,0,N114$
      93 022044                          N114$:  CLI     <'/>,NOTNUF,N125$
      94 022050                                  CLI     CLISTR,NO,N116$,<'NO'>
      95 022062                          N116$:  CLI     <'C>,0,N117$
      96 022066                                  CLI     CLISTR,CHECK,N117$,<'HECK'>
      97 022102                                  CLI     CLIBR,0,N115$
      98
     106
     107 022106                          N117$:  CLI     CLISTR,STATUS,N118$,<'STATUS'>
     108 022124                                  CLI     CLIBR,0,N115$
     109 022130                          N118$:  CLI     CLISTR,ECHO,N130$,<'ECHO'>
     110 022144                                  CLI     CLIBR,0,N115$
     111
     124 022150                          N130$:  CLI     CLISTR,0,N132$,<'PASS'>
     125 022164                                  CLI     CLIBR,0,N150$
     126
     127 022170                          N132$:  CLI     CLISTR,MOSC,N131$,<'MODEM >
     128 022204                                  CLI     CLIBR,0,N115$
     129
     130 022210                          N131$:  CLI     CLISTR,0,N30$,<'LOOP'>
     131 022224                                  CLI     CLIBR,0,N140$
     132
     133                                 ;GET MESSAGE TYPE FOR SET MESSAGE COMMANDS
```

```
    134 022230                          N120$:  CLI     <'=>,0,N30$
    135
    136                                 ;   LOOK FOR DEFAULT MESSAGE NAME
    137 022234                          N60$:   CLI     CLISTR,CMSG1,N61$,< ONFS'>
    138 022250                                  CLI     CLIBR,0,N121$
    139 022254                          N61$:   CLI     CLISTR,CMSG0,N62$,<'ZEROES'>
    140 022272                                  CLI     CLIBR,0,N121$
    141 022276                          N62$:   CLI     CLISTR,CMSG2,N63$,<'1ALT'>
    142 022312                                  CLI     CLIBR,0,N121$
    143 022316                          N63$:   CLI     CLISTR,CMSG3,N64$,<'0ALT'>
    144 022332                                  CLI     CLIBR,0,N121$
    145 022336                          N64$:   CLI     CLISTR,CMSG5,N65$,<'ITEP'>
    146 022352                                  CLI     CLIBR,0,N121$
    147 022356                          N65$:   CLI     CLISTR,CMSG4,N66$,<'CCITT'>
    148 022372                                  CLI     CLIBR,0,N121$
    149 022376                          N66$:   CLI     CLISTR,CMSG6,N67$,< ALPHA'>
    150 022412                                  CLI     CLIBR,0,N121$
    151 022416                          N67$:   CLI     CLISTR,SETET,N68$,<'TRANSMIT >
    152 022436                                  CLI     CLIBR,0,N125$
    153
    154                                 ;   LOOK FOR QUOTED MESSAGE
    155 022442                          N68$:   CLI     <'">,OPRMSG,N30$
    156 022446                          N70$:   CLI     <'">,ENDQQ,N71$
    157 022452                                  CLI     CLIBR,0,N121$
    158 022456                          N71$:   CLI     CLISPA,0,N72$
    159 022462                          N72$:   CLI     CLIALN,0,N73$           ;ONLY A Z,SP,TAB, OR 0 9 BETWEEN ''S
    160 022466                                  CLI     CLIBR,0,N70$
    161 022472                          N73$:   CLI     CLIERR,BADCHR           ;PRINT ERROR IF NONE LEGAL CHAR FOR ''S
    162
    163                                 ;GET QUALIFIERS (SIZE OR COPY) FOR SET MESSAGE COMMANDS
    164 022474                          N121$:  CLI     CLIALP,0,N123$
    165 022500                          N123$:  CLI     <'/>,NOTNUF,N125$
    166 022504                                  CLI     CLISTR,SIZE,N122$,<'SIZE'>
    167 022520                                  CLI     CLIBR,0,N126$
    168 022524                          N122$:  CLI     CLISTR,QCOPY,N30$,<'COPY >
    169 022540                                  CLI     CLIBR,0,N126$
    170
    171                                 ;NUMER FOR SIZE OR COPY
    172 022544                          N126$:  CLI     <'=>,0,N30$
    173 022550                                  CLI     CLIDEC,NUM,N30$
    174 022554                                  CLI     CLIBR,0,N121$
    175
    176                                 ;GET MAINTENANCE LOOP TYPE FOR RUN "LOOP" QUALIFIER
    177 022560                          N140$:  CLI     <'=>,0,N30$
    178
    187
    188 022564                          N141$:  CLI     CLISTR,TTLLOP,N142$,<'INTERNALTTL'>
    189 022606                                  CLI     CLIBR,0,N115$
    190 022612                          N142$:  CLI     CLISTR,CBLLOP,N143$,<'CABLE'>
    191 022626                                  CLI     CLIBR,0,N115$
    192 022632                          N143$:  CLI     CLISTR,LMDLOP,N144$,<'LOCALMODEM'>
    193 022654                                  CLI     CLIBR,0,N115$
    194 022660                          N144$:  CLI     CLISTR,RMDLOP,N30$,< REMOTEMODEM'>
    195 022702                                  CLI     CLIBR,0,N115$
    196
    197                                 ;GET LINE NUMBER FOR "PASS' RUN QUALIFIER
    198 022706                          N150$:  CLI     <'=>,0,N30$
```

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COMMAND LINE ACTION TREE

    199 022712                                  CLI     CLIDEC,PASC,N30$
    200 022716                                  CLI     CLIBR,0,N115$
    201                                 ;GET TRIB SHOW OR ADDR FOR KILL OR ESTABLISH
    202 022722                          N105$:  CLI     CLISPA,NOTNUF,N106$
    203 022726                          N106$:  CLI     CLISTR,SLST,N107$,<'SHOW'>
    204 022742                                  CLI     CLIEXI,0
    205 022744                          N107$:  CLI     CLISTR,ETRB,N108$,<'ESTABLISH'>
    206 022764                                  CLI     CLIBR,0,N160$
    207 022770                          N108$:  CLI     CLISTR,KTRB,N30$,<'KILL'>
    208 023004                          N160$:  CLI     <'='>,0,N30$
    209 023010                          N161$:  CLI     CLISTR,KALL,N162$,<'ALL'>
    210 023022                          N162$:  CLI     CLIDEC,EKTB,N30$
    211 023026                                  CLI     CLISTR,ETWS,N163$,<'/W'>
    212 023040                          N163$:  CLI     54,NOTNUF,N125$                 ;LOOKING FOR .
    213 023044                                  CLI     CLIBR,0,N161$
    214
    215                                 ;END OF-LINE
    216 023050                          N125$:  CLI     CLIEXI,0
    217
```

```
                                ;DEVICE DEPENDENT STORAGE LOCATIONS FOR
                                ;  CURRENT DEVICE PARAMTERS
                                
023052                          SEL0:
023052  000000                  @SEL0:  .WORD   0               ;ADDRESSES OF REGISTERS SEL0 THRU @SEL7
023054  000000                  @SEL1:  .WORD   0
023056                          SEL2:
023056  000000                  @SEL2:  .WORD   0
023060  000000                  @SEL3:  .WORD   0
023062                          SEL4:
023062  000000                  @SEL4:  .WORD   0
023064  000000                  @SEL5:  .WORD   0
023066                          SEL6:
023066  000000                  @SEL6:  .WORD   0
023070  000000                  @SEL7:  .WORD   0

023072  000000                  INVEC:  .WORD   0               ;INPUT INTERRUPT VECTOR ADDRESS
023074  000000                  OUTVEC: .WORD   0               ;OUTPUT INTERRUPT VECTOR ADDRESS
023076  000000                  INTPRI: .WORD   0               ;INTERRUPT PRIORITY
023100  000000                  OPTYP:  .WORD   0               ;OPTION TYPE
023102  000000                  DEVPAR: .WORD   0               ;DEVICE PARAM. BIT 0    BIT1
                                                                ;       1       MTP     CONT
                                                                ;       0       PTP     TRIB
023104  000000                  STATYP: .WORD   0               ;STATION TYPE
                                ; DEVICE ERROR MESG TABLES
023106  000000                  CONOLS: .WORD   0               ;TABLE HOLDER
023110  041075                          .WORD   RXTHEM          ;RX THRESHOLD ERROR MESSAGE ADDR.
023112  041075                          .WORD   TXTHEM          ;TX THRESHOLD ERROR MESSAGE ADDR
023114  040076                          .WORD   SLTHEM          ;SELECT THRESHOLD MESSAGE
023116  040117                          .WORD   STRCM           ;DDCMP START REC MESSAGE ADDR.
023120  040140                          .WORD   MARM            ;DDCMP MAINT REC IN RUN
023122  040161                          .WORD   MARHM           ;MAINT RECEIVED IN HALD
023124  040203                          .WORD   STRMM           ;START REC. IN MAINT MESSAGE.
023126  041075                          .WORD   PE142M          ;SPARE
023130  040245                          .WORD   DEADTM          ;DEAD TRIB MESSAGE
023132  040257                          .WORD   RUSM            ;RUN STATE SET IN ERROR
023134  040275                          .WORD   BABTM           ;BABLING TRIB MESSAGE
023136  040312                          .WORD   STREAM          ;STREAMING TRIB MESSAGE
023140  040226                          .WORD   RIM             ;RING DETECTED
                                        ;PROCEEDURE ERRORS

023142  040331                  CONO1S: .WORD   PE100M          ;NO MODE DEF
023144  040345                          .WORD   PE102M          ;ILLEGAL TYPE
023146  040367                          .WORD   PE104M          ;ILLEGAL MODE CHANGE
023150  040413                          .WORD   PE106M          ;CONTROL IN TO UNESTABLISHED TRIB
023152  040444                          .WORD   PE110M          ;NON-GLOBAL TO TRIB 0
023154  040466                          .WORD   PE112M          ;ILLEGAL REQUEST
023156  040517                          .WORD   PE114M          ;ATTEMPT TO ESTABLISH MORE THAN MAX TRIBS
023160  040542                          .WORD   PE116M          ;ESTABLISH TO ALREADY ESTABLISHED
023162  040576                          .WORD   PE120M          ;ILLEGAL CONTROL IN
023164  040622                          .WORD   PE122M          ;ASSIGN BUFFER FOR UNESTABLISHED TRIB
023166  040652                          .WORD   PE124M          ;ASSIGN BUFFER FOR HALTED TRIB
023170  040701                          .WORD   PE126M          ;ASSIGN BUFFER WITH BYTE COUNT =0
023172  040730                          .WORD   PE130M          ;ASSIGN TX BUFFER TO TRIB 0
```

```
 71 023174  040756                    .WORD   PE132M          ;ATTEMPT TO R/W RESERVED TSS/GSS
 72 023176  041002                    .WORD   PE134M          ;USING RESERVED BITS IN BSEL7
 73 023200  041034                    .WORD   PE136M          ;COMMON POOL ERROR
 74 023202  041056                    .WORD   PE140M          ;COMMON POOL QUOTA ERROR
 75 023204  041075                    .WORD   PE142M          ;SPARE
 76 023206  041103                    .WORD   PE144M          ;SPARE
 77
 78 023210  041111            CONO3S: .WORD   BUFTSM          ;BUFFER TOO SMALL
 79 023212  041132                    .WORD   NOEXM           ;NONESTANT MEM
 80 023214  041150                    .WORD   DISCON          ;DISCON MESSAGE
 81 023216  041162                    .WORD   QUEOM           ;QUEOVER M.
 82 023220  041175                    .WORD   CAPLOS          ;CARRIER LOSS
 83
 84
 85                                 ;.;FOLLOWING TABLE USED IN DOWNLINE LOAD ROUTINE.
 86                                 ;;;;CONTAINS POINTERS TO ASCIZ DEVICE DESCRIPTIONS
 87                                 ;REV B EC
 88 023222  032006            DLLIND: .WORD   DPM
 89 023224  032011                    .WORD   DUM
 90 023226  032014                    .WORD   DLM
 91 023230  032017                    .WORD   DQM
 92 023232  032022                    .WORD   DAM
 93 023234  032025                    .WORD   DUPM
 94 023236  032031                    .WORD   DMCM
 95 023240  032035                    .WORD   DNM
 96 023242  032040                    .WORD   DLVM
 97 023244  032044                    .WORD   DMPM
 98 023246  032050                    .WORD   DTEM
 99 023250  032054                    .WORD   DVM
100 023252  032057                    .WORD   DZM
101 023254  032062                    .WORD   UNKM
102 023256  032072                    .WORD   KDPM
103 023260  032076                    .WORD   KDZM
104 023262  032102                    .WORD   KLM
105 023264  032105                    .WORD   DMVM
106
107
120
131
```

```
                                .SBTTL  GLOBAL TEXT SECTION

                                ;++
                                ; THE GLOBAL TEXT SECTION CONTAINS FORMAT STATEMENTS,
                                ; MESSAGES, AND ASCII INFORMATION THAT ARE USED IN
                                ; MORE THAN ONE TEST.
                                ;

                                .SBTTL          DEVICE SUPPORTED
                                ;
                                ; NAMES OF DEVICES SUPPORTED BY PROGRAM
                                ;


023266                                  DEVTYP  <DMP OR DMV 11>
023266                                                                  L$DVTYP::
023266  104     115     120                                             .ASCIZ  /DMP OR DMV 11/
023271  040     117     122
023274  040     104     115
023277  126     040     061
023302  061     000
                                                                        .EVEN

                                .SBTTL          PROGRAM IDENTIFICATION
                                ; TEST DESCRIPTION
                                ;
023304                                  DESCRIPT        <CZCLMCO DMP DMV 11 DATA COMM. LINK TEST>
023304                                                                  L$DESC::
023304  103     132     103                                             .ASCIZ  /CZCLMCO DMP DMV-11
DATA COMM. LINK TE
ST/
023307  114     115     103
023312  060     040     104
023315  115     120     040
023320  104     115     126
023323  055     061     061
023326  040     104     101
023331  124     101     040
023334  103     117     115
023337  115     056     040
023342  114     111     116
023345  113     040     124
023350  105     123     124
023353  000
                                                                        .EVEN

                                .EVEN
```

```
                                .SBTTL          GLOBAL FORMAT STATEMENTS, MESSAGES, AND ASCII INFO
                                .NLIST  BEX

023354  104  103  114  CLI$PM: .ASCIZ  /DCLT>/
023362  045  116  045  CLIERM: .ASCIZ  /%N%A?ILL CMD-BAD SYNTX?/
023412  045  116  045  CLINUF: .ASCIZ  /%N%A?INCMPLTE CMD?/
023435  045  116  045  CLINBG: .ASCIZ  /%N%A?NUM TOO BIG?/
023457  045  116  045  CLIBRX: .ASCIZ  /%N%A?BAD RADIX?/
023477  045  116  045  CLIBDL: .ASCIZ  /%N%A?"LOOP" VALID ONLY IN ACTIVE?/
023541  045  116  045  CLINPS: .ASCIZ  /%N%A?"ECHO" VALID ONLY IN PASSIVE?/
023604  045  116  045  CLIBCR: .ASCIZ  /%N%A?ILL CHR- "A-Z,0-9,SP,TAB  ONLY?/
023651  045  116  045  CLISEO: .ASCIZ  /%N%A?"SIZE=0" NOT VALID?/
023702  045  116  045  CLIPPE: .ASCIZ  /%N%A?TRIB CMDS ILLEGAL IN PT PT MODE?/
023750  045  116  045  CLIPW:  .ASCIZ  /%N%A?TRANSMIT & EXPECT LIST MUST BE IDENTICAL FOR LOOP?/
024040  045  116  045  HLP0:   .ASCIZ  /%N%ATHIS IS DCLT. TYPE "H" OR "?" FOR DETAILS/
024116  045  116  045  HLPF:   .ASCIZ  /%N%T/
024123  104  103  114  HLP1:   .ASCIZ  /DCLT CMDS:/
024136  040  103  114  HLP2:   .ASCII  / CLEAR OR SHOW  EXPECTLIST OR TRANSMITLIST/<15><12>
024212  040  120  122          .ASCII  / PRINT OR EXIT/<15><12>
024232  040  104  125          .ASCIZ  ? DUMP START-END/B?
024254  040  124  122  HLP2B:  .ASCIZ  ? TRIB SHOW, TRIB ESTABLISH=N,W/W,N(D)..OR TRIB KILL=N,ALL?
024344  015  012  040  HLP2C:  .ASCIZ  <15><12>/     WHERE W=INDICATES WRITE POLL PARAMS/
024417  040  123  105  HLP3:   .ASCIZ  ? SET EXPECTMSG OR TRANSMITMSG=TYPE/SIZE=N OR /COPY=N?
024504  040  123  105  HLP3A:  .ASCIZ  / SET EXPECT=TRANSMIT/
024531  040  040  040  HLP4:   .ASCIZ  ?   TYPE=ONES,ZEROES,1ALT,0ALT,ITEP,CCITT,ALPHA?
024610  040  040  040  HLP4A:  .ASCIZ  /       OR "OPR SPCD=A-Z,SP,TAB,0-9 IN QUOTES"/
024666  040  122  125  HLP5:   .ASCIZ  ? RUN MODE=MTYP/LOOP=LTYP/CHECK,STATUS,ECHO,MODEM PASS=N?
024756  040  040  040  HLP6:   .ASCII  /   MTYP=TRAN,REC,ACT,PAS,TAL,LIS,DOWN/<15><12>
025025  040  040  040          .ASCIZ  /   LTYP=INT,CAB,LOC,REM/
025055  116  105  127  EQUQ:   .ASCIZ  /NEW POLL PARAMETERS (WORD)=/
025111  116  105  127  EQUQ1:  .ASCIZ  /NEW POLL PARAMETERS (BYTE LOW)=/
025151  116  105  127  EQUQ2:  .ASCIZ  /NEW POLL PARAMETERS (BYTE HI)=/
025210  123  101  124  DLLQ1:  .ASCIZ  /SATELLITE PASSWORD=/
025234  045  116  045  POLPM:  .ASCIZ  /%N%S5%APOLL  PARAMETERS FOR TRIB %D5/
025301  045  116  045  POLPM3: .ASCIZ  /%N%AGLOBAL POLL PARAMETERS/
025334  122  120  124  CLI$RP: .ASCIZ  /RPT>/
025341  045  116  045  RHLP0:  .ASCIZ  /%N%ATYPE "H" OR "?" FOR HELP!/
025377  104  103  114  RHLP1:  .ASCIZ  /DCLT REPORT CMDS:/
025421  040  105  130  RHLP2:  .ASCIZ  / EXIT OR LOG/
025436  040  124  123  RHLP3:  .ASCIZ  ? TSS NNN(D)/SW  OR GSS/SW?
025470  040  040  040  RHLP4:  .ASCIZ  ?       WHERE /SW= /FULL,/ERROR,/OFFSET=NN(O)?
025544  045  116  045  RPTIV:  .ASCIZ  /%N%A?TRIB STATUS OFFSET=%02%A%TOO BIG?/
025613  045  116  045  SHMSG:  .ASCIZ  ?%N%AMSG: TYPE=%T%A/SIZE=%D3?
025647  132  105  122  SHTYP0: .ASCIZ  /ZEROES/
025656  117  116  105  SHTYP1: .ASCIZ  /ONES/
025663  061  101  114  SHTYP2: .ASCIZ  /1ALT/
025670  060  101  114  SHTYP3: .ASCIZ  /0ALT/
025675  103  103  111  SHTYP4: .ASCIZ  /CCITT/
025703  111  124  105  SHTYP5: .ASCIZ  /ITEP/
025710  101  114  120  SHTYP6: .ASCIZ  /ALPHA/
025716  117  120  122  SHTYP7: .ASCIZ  /OPR SPEC/
025727  045  116  045  SHTRE:  .ASCIZ  \%N%ATRIB ADDRESS LIST IS EMPTY\
025766  045  116  045  SHTRH:  .ASCIZ  \%N%ATRIB ADDRESS LIST:%N\
026017  045  104  063  SHTAP:  .ASCIZ  .%D3%A, \
026027  045  116  045  SHTFL:  .ASCIZ  \%N%ATRIB ADDRESS LIST FULL   ADDRESS= %Z3%A NOT ADDED\
026115  045  116  045  SHTUN:   ASCIZ  \%N%A?TRIB ADDRESS= %Z3%A IS NOT UNIQUE?\
026165  045  116  045  SHTNF:  .ASCIZ  \%N%A?TRIB ADDRESS= %Z3%A NOT FOUND?\
```

```
 58 026231  045  116  045  SHTLP:  .ASCIZ  \%N%A?CABLE,LOC,REM LOOP NOT VALID IN "MULTIPT MODE'?\
 59 026316  045  116  045  SHTLPA: .ASCIZ  /%N%A?TRIBS MUST BE ESTABLISHED TO EXECUTE?/
 60 026371  045  116  045  SHTLPB: .ASCIZ  /%N%A?TRIB STATION CANNOT DO LOOP?/
 61 026433  045  116  045  SHTLPC: .ASCIZ  /%N%A?ONLY ONE TRIB (TRIB ADDR 1) ALLOWED/
 62 026504  045  116  045  SHTLPD: .ASCIZ  /%N%S5%AFOR LOOP IN MULTIPOINT?/
 63 026543  045  116  045  SHTIV:  .ASCIZ  \%N%A?TRIB ADDRESS= %Z3%A INVALID?\
 64 026605  045  116  045  SHTBR:  .ASCIZ  /%N%ARX BUFFER NOT BIG ENOUGH%N%ATOO MANY TRIBS OR MSGS/
 65 026674  122  105  103  M00:    .ASCIZ  /RECEIVE/
 66 026704  124  122  101  M01:    .ASCIZ  /TRANSMIT/
 67 026715  120  101  123  M02:    .ASCIZ  /PASSIVE/
 68 026725  101  103  124  M03:    .ASCIZ  /ACTIVE/
 69 026734  104  117  127  M04:    .ASCIZ  /DOWNLINELOAD/
 70 026751  124  101  114  M05:    .ASCIZ  /TALK/
 71 026756  114  111  123  M06:    .ASCIZ  /LISTEN/
 72 026765  000               LP0:    .ASCIZ  //
 73 026766  057  114  117  LP00:   .ASCIZ  ?/LOOP=?
 74 026775  111  116  124  LP1:    .ASCIZ  ?INTERNAL?
 75 027006  103  101  102  LP2:    .ASCIZ  ?CABLE?
 76 027014  114  117  103  LP3:    .ASCIZ  ?LOCALMODEM?
 77 027027  122  105  115  LP4:    .ASCIZ  ?REMOTEMODEM?
 78 027043  116  117       PNST:   .ASCII  /NO/
 79 027045  123  124  101  PST:    .ASCIZ  /STATUS/
 80 027054  116  117       PNCK:   .ASCII  /NO/
 81 027056  103  110  105  PCK:    .ASCIZ  /CHECK/
 82 027064  116  117       PNEC:   .ASCII  /NO/
 83 027066  105  103  110  PEC:    .ASCIZ  /ECHO/
 84 027073  116  117       PNMS:   .ASCII  /NO/
 85 027075  115  117  104  PMS:    .ASCIZ  /MODEM/
 96
 97 027103  045  116  045  LISP:   .ASCIZ  /%N%ALIS>/
 98 027114  124  114  113  OPRMM:  .ASCIZ  /TLK>/
 99 027121  124  110  111  L5060:  .ASCIZ  /THIS A 50. OR 60. HZ. LSI-11:/
100                                .EVEN
101
102
103
104                             ;
105                             ; FORMAT STATEMENTS USED IN PRINT CALLS
106                             ;
107 027160  045  116  045  DLLCM:  .ASCIZ  /%N%ADOWN LINE LOAD COMPLETED SUCCESSFULLY/
108
109 027232  045  116  045  BDCLK:  .ASCIZ  /%N%ACLOCK NOT FOUND/
110 027256  045  116  045  NOCLK:  .ASCIZ  /%N%ABAD CLOCK - PROGRAM WILL HANG ON 'TIMEOUT'!!/
111 027337  115  101  130  TAUEX:  .ASCIZ  /MAX. CHAR. MSG COUNT EXCEEDED  /
112 027377  102  125  106  BUFEX:  .ASCIZ  /BUFFER FULL -/
113 027415  045  116  045  MSGTRN: .ASCIZ  /%N%T%A MSG. NOT BUILT !!/
114 027446  045  116  045  MSGTRU: .ASCIZ  /%N%ACHAR. COUNT EXCEEDS BUFF LIMIT   MSG TRUNCATED/
115 027531  045  116  045  SHF0:   .ASCIZ  ?%N%S5%AMODE=%T%T%T%A/PASS=%Z5?
116
122
123 027567  045  116  045  SHF1:   .ASCIZ  ?%N%S5%S5%S5%A/%T%A/%T%A/%T%A/%T?
124 027627  045  123  065  EFM2:   .ASCIZ  /%S5%ATOTAL MISMATCHES IN MSG = %D5/
125 027672  045  116  045  PCPM:   .ASCIZ  /%N%S3%ACALLED FROM PC=%O6/
126 027724  045  123  065  EFM11:  .ASCIZ  /%S5%ACOMPARE COUNT=%D5%S3%ARECEIVE COUNT=%D5/
127
128
129                             ;EVENT DESCRIPTION MESSAGES
```

```
    030001   124   122   101  EDTXQ:   .ASCIZ  /TRANSMIT MSG QUEUED/
    030025   124   122   101  EDTXC:   .ASCIZ  /TRANSMIT MSG COMPLETED/
    030054   122   105   103  EDRXQ:   .ASCIZ  /RECEIVE SPACE QUEUED/
    030101   122   105   103  EDRXC:   .ASCIZ  /RECEIVE MSG COMPLETED/
    030127   104   105   126  EDDER:   .ASCIZ  /DEVICE ERROR/
    030144   104   101   124  EDDCK:   .ASCIZ  /DATA COMPARISON STARTED/
    030174   104   105   126  EDDVI:   .ASCIZ  /DEVICE INIT AND SETUP/
    030222   104   101   124  EDDLE:   .ASCIZ  /DATA COMPARISON LENGTH ERROR/
    030257   104   101   124  EDDDE:   .ASCIZ  /DATA COMPARISON DATA ERROR/
    030312   105   116   104  EDEOP:   .ASCIZ  /END OF PASS/
    030326   101   102   116  EDMOS:   .ASCIZ  /ABNORMAL MODEM STATUS CHANGE/


                                ;EVENT REPORTING MESSAGES

                                ;THE FOLLOWING ARE USED IN THE DUMP SUB ROUTINE

    030363   045   123   063  BASM3:   .ASCIZ  /%S3%03/
    030372   045   123   063  BASM2:   .ASCIZ  /%S3%06/
    030401   045   116   045  BASM1:   .ASCIZ  /%N%06/

    030407   045   116   045  NULEVT:  .ASCIZ  /%N%ATHE DCLT EVENT LOG IS EMPTY/
    030447   045   116   045  EVTF0:   .ASCIZ  /%N%A>>> DCLT EVENT LOG ENTRY <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<</
    030545   045   116   045  EVTF1:   .ASCIZ  /%N%D5%A:%Z2%A:%Z2%S3%T/
    030574   045   116   045  EVTF2:   .ASCIZ  /%N%S3%AADDR OF MSG=%06%S3%ABYTE COUNT %D5/
    030646   045   116   045  EVTF3:   .ASCIZ  /%N%S3%T%N/
    030660   045   123   063  EVTF3C:  .ASCIZ  /%S3%06%S3%06/
    030675   045   123   063  EVTF3D:  .ASCIZ  /%S3%06%S3%06%S3%T/
    030717   045   123   063  EVTF3F:  .ASCIZ  /%S3%06%S3%06%S3%ATRIB ADDR=%Z3/
    030756   045   116   045  EVTF6:   .ASCIZ  /%N%S3%ATO-FROM TRIB ADDRESS-%Z3/

    031016   045   116   045  EVTF4B:  .ASCIZ  /%N%S3%APASS=%D5%S3%AERRORS=%D5/
    031055   045   116   045  EVTF44:  .ASCIZ  /%N%S3%ARX THRESH=%D5%S3%ATX THRESH=%D5/
    031124   045   116   045  EVTF4:   .ASCIZ  /%N%S3%AADDR OF MSG=%06%S3%ABYTE COUNT=%D5%S3%ANO. OF CMP ERRS=%D5/
    031226   045   116   045  EVTF4A:  .ASCIZ  /%N%S3%AADDR OF MSG=%06%S3%ARX BYTES=%D5%S3%ACOMPARE BYTES=%D5/

    031324   045   123   065  EVTF5A:  .ASCIZ  /%S5%ABYTE # IN MSG.=%D5%S3%AEXPTD=%03%S3%ARECVD=%03/

    031410   045   116   045  EVMOCG:  .ASCIZ  /%N%S9%ACHANGED TO:/

                                ; ********************************************************************
                                ;DO NOT SEPARATE THE NEXT LIST OF MESSAGES - MODEM SIGNAL HEADER AND REPORT

    031433   045   116   045  EVMOHD:  .ASCIZ  /%N%S8%AMODEM STATUS: CTS DSR DCD RTS RI  SQD TM/
    031513   045   116   045  EVMOST:  .ASCII  /%N%S9%S9%S5%A/
    031530   130   040   040  EVMCTS:  .BYTE   'X,40,40,40
    031534   130   040   040  EVMDSR:  .BYTE   'X,40,40,40
    031540   130   040   040  EVMDCD:  .BYTE   'X,40,40,40
    031544   130   040   040  EVMRTS:  .BYTE   'X,40,40,40
    031550   130   040   040  EVMRI:   .BYTE   'X,40,40,40
    031554   130   040   040  EVMSQD:  .BYTE   'X,40,40,40
    031560   130   040   040  EVMTM:   .BYTE   'X,40,40,40
    031564   000                       .BYTE   0
                                       .EVEN

                                ;EXECUTION STATUS MESSAGES TO BE PRINTED TO KEEP OPERATOR AWAKE
```

```
031566   045   116   000  CR:      .ASCIZ  /%N/               ;CR FOR LINES IN A ROW
031571   045   123   063  STXQ:    .ASCIZ  /%S3%ATXQ/         ;ABOUT TO TRANSMIT
031602   045   123   063  STXC:    .ASCIZ  /%S3%ATXC/         ;TX COMPLETED
031613   045   123   063  SRXQ:    .ASCIZ  /%S3%ARXQ/         ;ABOUT TO RECEIVE
031624   045   123   063  SDVE:    .ASCIZ  /%S3%AERR/         ;DEVICE ERROR
031635   045   123   063  SCM:     .ASCIZ  /%S3%ACMP/         ;ABOUT TO DO DATA CHECKING OF RECVD VS. EXPTD
031646   045   123   063  SDVI:    .ASCIZ  /%S3%AINI/         ;DEVICE ABOUT TO BE INITIALIZED
031657   045   123   063  SCML:    .ASCIZ  /%S3%ACML/         ;COMPARE LENGTH ERROR
031670   045   123   063  SCMD:    .ASCIZ  /%S3%ACMD/         ;COMPARE DATA ERROR
031701   045   123   063  SEOP:    .ASCIZ  /%S3%AEOP/         ;END  OF PASS
031712   045   123   063  SMSC:    .ASCIZ  /%S3%AMSC/         ;MODEM STATUS CHANGE
                                   .EVEN


                          ;REV B BY EC
                          ;;NEXT ASCIZ LINES ARE USED IN SATELLITE ID MESSAGES
031724   045   116   045  SECRM:   .ASCIZ  /%N%ASECONDARY BOOT REQ FROM %T%A DEVICE TYPE= %D3/
032006   104   120   000  DPM:     .ASCIZ  /DP/
032011   104   125   000  DUM:     .ASCIZ  /DU/
032014   104   114   000  DLM:     .ASCIZ  /DL/
032017   104   121   000  DQM:     .ASCIZ  /DQ/
032022   104   101   000  DAM:     .ASCIZ  /DA/
032025   104   125   120  DUPM:    .ASCIZ  /DUP/
032031   104   115   103  DMCM:    .ASCIZ  /DMC/
032035   104   116   000  DNM:     .ASCIZ  /DN/
032040   104   114   126  DLVM:    .ASCIZ  /DLV/
032044   104   115   120  DMPM:    .ASCIZ  /DMP/
032050   104   124   105  DTEM:    .ASCIZ  /DTE/
032054   104   126   000  DVM:     .ASCIZ  /DV/
032057   104   132   000  DZM:     .ASCIZ  /DZ/
032062   125   116   113  UNKM:    .ASCIZ  /UNKNOWN/
032072   113   104   120  KDPM:    .ASCIZ  /KDP/
032076   113   104   132  KDZM:    .ASCIZ  /KDZ/
032102   113   114   000  KLM:     .ASCIZ  /KL/
032105   104   115   126  DMVM:    .ASCIZ  /DMV/
                                   .EVEN
```

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                                  .SBTTL          ASCII FORMATS FOR TSS AND GSS SLOTS

032112  045  116  045  TSS0A:   .ASCIZ  /%N%06%S2%ATRIB STATUS FLAGS/
032146  045  116  045  TSS1A:   .ASCIZ  /%N%03%S5%ANAK REASON%N%03%S5%ATRIB ADDR/
032216  045  116  045  TSS2A:   .ASCIZ  /%N%06%S2%APOLL STATUS FLAGS/
032252  045  116  045  TSS3A:   .ASCIZ  /%N%03%S5%APOLL RATE%N%03%S5%APOLL PRIORITY/
032325  045  116  045  TSS4A:   .ASCIZ  /%N%03%S5%ANA%N%03%S5%AMAX MSG COUNTER/
032373  045  116  045  TSS5A:   .ASCIZ  /%N%03%S5%ACOMM POOL QUOTA%N%03%S5%ARX THRESH ERRS/
032455  045  116  045  TSS6A:   .ASCIZ  /%N%03%S5%ATX THRESH. ERRS %N%03%S5%ASELECT THRESH. ERRS/
032545  045  116  045  TSS7A:   .ASCIZ  /%N%06%S2%ADATA MSGS. TX'MITTD/
032603  045  116  045  TSS10A:  .ASCIZ  /%N%06%S2%ADATA MSGS. RX'CVD/
032637  045  116  045  TSS11A:  .ASCIZ  /%N%06%S2%ASELECTION INTERVALS/
032675  045  116  045  TSS12A:  .ASCIZ  /%N%03%S5%ADATA ERRORS OUT%N%S8%AHBCC %01%A BCC %01%A REP %01/
032772  045  116  045  TSS13A:  .ASCIZ  /%N%03%S5%ADATA ERRORS IN%N%S8%AHBCC %01%A BCC %01%A REP %01/
033066  045  116  045  TSS14A:  .ASCIZ  /%N%03%S5%ALOCAL BUFFER ERRS%N%S8%A TU %01%A TS %01/
033151  045  116  045  TSS15A:  .ASCIZ  /%N%03%S5%AREMOTE BUFFER ERRS%N%S8%A TU %01%A TS %01/
033235  045  116  045  TSS16A:  .ASCIZ  /%N%03%S5%ASELECTION T-O%N%S8%A NRTS %01%A IRTS %01/
033320  045  116  045  TSS17A:  .ASCIZ  /%N%03%S5%ALOCAL REPLY T-O%N%03%S5%AREMOTE PEPLY T O/
033404  045  116  045  TSS20A:  .ASCIZ  /%N%03%S5%AHIGHEST MSG # TX'D%N%03%S5%AHIGHEST MSG # ACK D/
033476  045  116  045  TSS21A:  .ASCIZ  /%N%03%S5%ANEXT MSG # TO TX%N%03%S5%ATPTR ADDR OF LKNBK/
033565  045  116  045  TSS22A:  .ASCIZ  /%N%03%S5%ALAST MSG # TX'D%N%03%S5%AXPTR ADDR OF LNKBK/
033653  045  116  045  TSS23A:  .ASCIZ  /%N%03%S5%ACTL X REPLY T-O%N%03%S5%ASTRT OF TX BUFF Q/
033740  045  116  045  TSS24A:  .ASCIZ  /%N%03%S5%AEND OF TX BUFF Q%N%03%S5%AHIGHEST MSG # RX'D/
034027  045  116  045  TSS25A:  .ASCIZ  /%N%03%S5%ASTRT OF RX BUFFQ%N%03%S5%AEND OF RX BUFF Q/
034114  045  116  045  TSS26A:  .ASCIZ  /%N%06%S2%ATX DELAY TIMER/
034145  045  116  045  TSS27A:  .ASCIZ  /%N%03%S5%ANO DATA MSG COUNTER%N%03%S5%AT O COUNTER/
034230  045  116  045  TSS30A:  .ASCII  /%N%06%S2%A/
034242  120  122  105  TS30AA:  .ASCIZ  /PRESET VALUE FOR TX DELAY TIMER/
034302  045  116  045  TSS31A:  .ASCIZ  /%N%03%S5%AQ VAL FOR ACT%N%03%S5%AR VAL FOR ACT/
034361  045  116  045  TSS32A:  .ASCIZ  /%N%03%S5%AQ VAL FOR INACT%N%03%S5%AR VAL FOR INACT/
034444  045  116  045  TSS33A:  .ASCIZ  /%N%03%S5%AQ VAL FOR UNRSP%N%03%S5%AR VAL FOR UNRSP/
034527  045  116  045  TSS34A:  .ASCIZ  /%N%03%S5%ANOM TO INACT%N%03%S5%A# T O TO UNRSP/
034606  045  116  045  TSS35A:  .ASCIZ  /%N%03%S5%A# T-O TO DEAD%N%03%S5%AMAX MSG COUNT/
034665  045  116  045  TSS36A:  .ASCIZ  /%N%06%S2%ASELECTION INTERVAL TIMING COUNT/
034737  045  116  045  TSS37A:  .ASCIZ  /%N%06%S2%ABABBLING TRIB TIMING COUNT/
035004  045  116  045  GSS0A:   .ASCIZ  /%N%03%S5%APOLPTR%N%03%S5%ARCVPTR/
035045  045  116  045  GSS1A:   .ASCIZ  /%N%03%S5%AXMTPTR%N%03%S5%ATSP/
035103  045  116  045  GSS2A:   .ASCIZ  /%N%03%S5%ANASP%N%03%S5%ABUFPTR/
035142  045  116  045  GSS3A:   .ASCIZ  /%N%03%S5%AS-OF%N%03%S5%AE-OF/
035177  045  116  045  GSS4A:   .ASCIZ  /%N%03%S5%AS-OQ%N%03%S5%AE-OQ/
035234  045  116  045  GSS5A:   .ASCIZ  /%N%03%S5%AS-OC%N%03%S5%AE-OC/
035271  045  116  045  GSS6A:   .ASCIZ  /%N%03%S5%ATIMER STATUS%N%03%S5%AS R TIMER [L]/
035347  045  116  045  GSS7A:   .ASCIZ  /%N%03%S5%AS-R TIME [H]%N%03%S5%AB CW TIME [L]/
035425  045  116  045  GSS10A:  .ASCIZ  /%N%03%S5%AB-CW TIME [H]%N%03%S5%ARPM CNTR/
035477  045  116  045  GSS11A:  .ASCIZ  /%N%06%S2%AACTIM/
035517  045  116  045  GSS12A:  .ASCIZ  /%N%03%S5%AMODEM%N%03%S5%AMODE/
035555  045  116  045  CSS13A:  .ASCIZ  /%N%03%S5%AALT SW%N%03%S5%AXMTQRT/
035616  045  116  045  GSS14A:  .ASCIZ  /%N%06%S2%ARTNADD/
035637  045  116  045  GSS15A:  .ASCIZ  /%N%03%S5%AREMOTE STA ERRS%N%S8%AOVRN %01%A MHFE %01%A SEL %01%A STR %01
035747  045  116  045  GSS16A:  .ASCIZ  /%N%03%S5%ALOCAL STA ERRS%N%S8%AOVRN %01%A MHFE %01%A UNDR %01%A OVR %01

036057  045  116  045  GSS17A:  .ASCIZ  /%N%03%S5%AGBL HDR BCC%N%03%S5%AMAINT DATA BCC ERR/
036141  045  116  045  GSS20A:  .ASCIZ  /%N%03%S5%ATX HDR 1%N%03%S5%ATX HDR 2/
036206  045  116  045  GSS21A:  .ASCIZ  /%N%03%S5%ATX HDR 3%N%03%S5%ATX HDR 4/
036253  045  116  045  GSS22A:  .ASCIZ  /%N%03%S5%ATX HDR 5%N%03%S5%ATX HDR 6/
036320  045  116  045  GSS23A:  .ASCIZ  /%N%03%S5%ARX HDR 1%N%03%S5%ARX HDR 2/
036365  045  116  045  GSS24A:  .ASCIZ  /%N%03%S5%ARX HDR 3%N%03%S5%ARX HDR 4/
```

```
     58 036432      045     116     045  GSS25A: .ASCIZ  /␣N␣03␣S5␣ARX HDR 5␣N␣03␣S5␣ARX HDR 6/
     59 036477      045     116     045  GSS26A: .ASCIZ  /␣N␣06␣S2␣AR TIMER/
     60 036521      045     116     045  GSS27A: .ASCIZ  /␣N␣06␣S2␣AD TIMER/
     61 036543      045     116     045  GSS30A: .ASCIZ  /␣N␣06␣S2␣APOLL DELAY TIMER/
     62 036570      045     116     045  GSS31A: .ASCIZ  /␣N␣03␣S5␣APOLL UPDATE PTR␣N␣03␣S5␣ADEAD SCAN/
     63 036653      045     116     045  GSS32A: .ASCIZ  /␣N␣03␣S5␣ACARRIER LOSS TIM␣N␣03␣S5␣AUSART HANG CTR/
     64 036736      045     116     045  GSS33A: .ASCIZ  /␣N␣06␣S2␣ANUM SYNC/
     65 036761      045     116     045  GSS34A: .ASCIZ  /␣N␣06␣S2␣ACARRIER WAIT TIMER COUNTER/
     66 037026      045     116     045  GSS35A: .ASCIZ  /␣N␣06␣S2␣ADELTA T/
     67 037050      045     116     045  GSS36A: .ASCIZ  /␣N␣06␣S2␣ADEAD T/
     68 037071      045     116     045  GSS37A: .ASCIZ  /␣N␣06␣S2␣APOLL DELAY/
     69
     88
     89                                  ;DEVICE ERROR MESSAGES
     90 037116      104     105     126  DVEM0:  .ASCII  /DEVICE DID NOT RETURN RUN BIT/
     91 037153      015     012     040          .ASCIZ  <15><12>/    SEL0     SEL2/
     92
     93 037177      106     101     111  DVEM1:  .ASCII  /FAILURE IN MICRO DIAGNOSTICS/
     94 037233      015     012     040          .ASCIZ  <15><12>/    SEL0     SEL6/
     95
     96 037257      124     111     115  DVEM2:  .ASCII  /TIME OUT WAITING FOR TX OR RX TO COMPLETE/
     97 037330      015     012     040          .ASCIZ  <15><12>/    SEL0     SEL2/
     98
     99 037354      124     111     115  DVEM3:  .ASCII  /TIME OUT WAITING FOR RDI/
    100 037404      015     012     040          .ASCIZ  <15><12>/    SEL0     SEL2/
    101
    102 037430      103     117     116  DVEM4:  .ASCII  /CONTROL OR INFORMATION OUT ERROR/
    103 037470      015     012     040          .ASCIZ  <15><12>/    SEL2     SEL6/
    104
    105 037514      111     114     114  DVEM5:  .ASCII  /ILLEGAL TRANSMIT COMPLETE/
    106 037545      015     012     040          .ASCIZ  <15><12>/    SEL4     SEL6/
    107
    108 037571      111     114     114  DVEM6:  .ASCII  /ILLEGAL RECEIVE COMPLETE/
    109 037621      015     012     040          .ASCIZ  <15><12>/    SEL4     SEL6/
    110
    111 037645      121     125     105  DVEM7:  .ASCII  /QUE OVERFLOW BUFFER COMPLETE/
    112 037701      015     012     040          .ASCIZ  <15><12>/    SEL4     SEL6/
    113
    114 037725      122     114     104  DVEM8:  .ASCII  /RLD OR MODE ENABLE OF PASSWORD SW NOT SET/
    115 037776      015     012     040          .ASCIZ  <15><12>/    SEL0     SEL2/
    116
    117 040022      040     104     117  DLLAB:  .ASCII  / DOWN LINE LOAD ABORTED/
    118 040051      015     012     040          .ASCIZ  <15><12>/   RXBUF     TXBUF /
    119
    120
    121 040076      123     105     114  SLTHEM: .ASCIZ  /SELECT THRESHOLD/
    122 040117      123     124     101  STRCM:  .ASCIZ  /START RXD IN RUN/
    123 040140      115     101     111  MARM:   .ASCIZ  /MAINT RXD IN RUN/
    124 040161      115     101     111  MARHM:  .ASCIZ  /MAINT RXD IN HALT/
    125 040203      123     124     101  STRMM:  .ASCIZ  /START RXD IN MAINT/
    126 040226      122     111     116  RIM:    .ASCIZ  /RING DECTECTED/
    127 040245      104     105     101  DEADTM: .ASCIZ  /DEAD TRIB/
    128 040257      122     125     116  RUSM:   .ASCIZ  /RUN STATE ERR/
    129 040275      102     101     102  BABTM:  .ASCIZ  /BABLING TRIB/
    130 040312      123     124     122  STREAM: .ASCIZ  /STREAMING TRIB/
    131 040331      116     117     040  PE100M: .ASCIZ  /NO MODE DEF/
    132 040345      111     114     114  PE102M: .ASCIZ  /ILLEGAL TYPE CODE/
```

```
133 040367      111     114     114  PE104M: .ASCIZ  /ILLEGAL MODE CHANGE/
134 040413      103     117     116  PE106M: .ASCIZ  /CONTROL IN TO UNES. TRIB/
135 040444      103     117     115  PE110M: .ASCIZ  /COMMAND TO TRIB 0/
136 040466      103     117     115  PE112M: .ASCIZ  /COMMAND TO UNHALTED TRIB/
137 040517      115     101     130  PE114M: .ASCIZ  /MAX TRIBS EXCEEDED/
138 040542      105     123     124  PE116M: .ASCIZ  /ESTB TO ALREADY ESTABLISHED/
139 040576      111     114     114  PE120M: .ASCIZ  /ILLEAGAL REQEST KEY/
140 040622      101     123     123  PE122M: .ASCIZ  /ASSIGN BUFF UNEST. TRIB/
141 040652      101     123     123  PE124M: .ASCIZ  /ASSIGN BUFF HALTD TRIB/
142 040701      101     123     123  PE126M: .ASCIZ  /ASSIGN BUFF BYTE CNT 0/
143 040730      101     123     123  PE130M: .ASCIZ  /ASSIGN TX BUFF TRIB 0/
144 040756      122     040     117  PE132M: .ASCIZ  /R OR W RESERVED TSS/
145 041002      125     123     105  PE134M: .ASCIZ  /USE RESERVED BIT IN BSEL7/
146 041034      103     117     115  PE136M: .ASCIZ  /COMMON POOL ERROR/
147 041056      121     125     117  PE140M: .ASCIZ  /QUOTA OVERFLOW/
148 041075                           TXTHEM:
149 041075                           RXTHEM:
150 041075      123     120     101  PE142M: .ASCIZ  /SPARE/
151 041103      123     120     101  PE144M: .ASCIZ  /SPARE/
152
```

```
    153 041111      102     125     106  BUFTSM: .ASCIZ  /BUFFER TOO SMALL/
    154 041132      116     117     116  NOEXM:  .ASCIZ  /NON EXIST MEM/
    155 041150      104     111     123  DISCON: .ASCIZ  /DISCONECT/
    156 041162      121     125     105  QUEOM:  .ASCIZ  /QUEUE OVER/
    157 041175      103     101     122  CARLOS: .ASCIZ  /CARRIER LOSS/
    158 041212      111     116     106  INFOM:  .ASCIZ  /INFORMATION OUT/
    159 041232      124     130     040  TXNC:   .ASCIZ  /TX NOT COMPLETE/
    160 041252      122     130     040  RXNC:   .ASCIZ  /RX NOT COMPLETE/
    161 041272      123     105     103  RXM1:   .ASCIZ  /SEC REQ ERR WORD 1/
    162 041315      123     105     103  RXM2:   .ASCIZ  /SEC REQ ERR WORD 2/
    163
    164                                  .EVEN
    165                          .LIST   BEX
  1
     15
     26
     27
     35
     36
     37
     38
```

```
                                .SBTTL  GLOBAL ERROR REPORT SECTION
                                ;++
                                ; THE GLOBAL ERROR REPORT SECTION CONTAINS MESSAGE PRINTING AREAS
                                ; USED BY MORE THAN TEST TO OUTPUT ADDITIONAL ERROR INFORMATION.  PRINTB
                                ; (BASIC) AND PRINTX (EXTENDED) CALLS ARE USED TO CALL PRINT SERVICES.
                                ;
                                
                                
                                
                                
                                
                                
                                
041340                          BGNMSG  ERR1
041340                                                          ERR1::
                                PRINTB  #EVTF5A,OFSET,<B,GOOD>,<B,BAD>  ;INDIVIDUAL DATA COMPARE ERROR
041340  005046                                                          CLR     (SP)
041342  153716  017371                                                  BISB    BAD,(SP)
041346  005046                                                          CLR     (SP)
041350  153716  017370                                                  BISB    GOOD,(SP)
041354  013746  017346                                                  MOV     OFSET, (SP)
041360  012746  031324                                                  MOV     #EVTF5A, (SP)
041364  012746  000004                                                  MOV     #4, (SP)
041370  010600                                                          MOV     SP,R0
041372  104414                                                          TRAP    C$PNTB
041374  062706  000012                                                  ADD     #12,SP
041400                          ENDMSG
041400                                                          L10001:
041400  104423                                                          TRAP    C$MSG

041402                          BGNMSG  ERR2
041402                                                          ERR2::
041402                          PRINTB  #EFM2,TEMP4             ;TOTAL DATA COMPARE FAILS ERROR
041402  013746  017360                                                  MOV     TEMP4,-(SP)
041406  012746  027627                                                  MOV     #EFM2, (SP)
041412  012746  000002                                                  MOV     #2, (SP)
041416  010600                                                          MOV     SP,R0
041420  104414                                                          TRAP    C$PNTB
041422  062706  000006                                                  ADD     #6,SP
041426                          ENDMSG
041426                                                          L10002:
041426  104423                                                          TRAP    C$MSG

041430                          BGNMSG  ERR10
041430                                                          ERR10::
041430                          PRINTB  #EFM11,R4,TEMP3         ;LENGTH COMPARISON ERROR
041430  013746  017356                                                  MOV     TEMP3,-(SP)
041434  010446                                                          MOV     R4, (SP)
041436  012746  027724                                                  MOV     #EFM11,-(SP)
041442  012746  000003                                                  MOV     #3,-(SP)
041446  010600                                                          MOV     SP,R0
041450  104414                                                          TRAP    C$PNTB
041452  062706  000010                                                  ADD     #10,SP
041456                          ENDMSG
041456                                                          L10003:
041456  104423                                                          TRAP    C$MSG

                                
                                
```

```
                                        ;
                                        ;PRINT THE 2 OCTAL #'S IN TEMP3/4
                                        ;
041460                                  BGNMSG  ERR13
041460                                                          ERR13::
041460                                  PRINTB  #EVTF3C,TEMP3,TEMP4
041460  013746  017360                                                MOV     TEMP4,(SP)
041464  013746  017356                                                MOV     TEMP3,(SP)
041470  012746  030660                                                MOV     #EVTF3C,(SP)
041474  012746  000003                                                MOV     #3,(SP)
041500  010600                                                        MOV     SP,R0
041502  104414                                                        TRAP    C$PNTB
041504  062706  000010                                                ADD     #10,SP
041510                                  ENDMSG
041510                                                          L10004:
041510  104423                                                        TRAP    C$MSG
                                        ;
                                        ;PRINT THE 2 OCTAL #'S IN TEMP3/4
                                        ; AND THE MESG. WHOSE ADDR. IS IN CONOTM
                                        ;
041512                                  BGNMSG  ERR14
041512                                                          ERR14::
041512                                  PRINTB  #EVTF3D,TEMP3,TEMP4,CONOTM
041512  013746  017366                                                MOV     CONOTM,(SP)
041516  013746  017360                                                MOV     TEMP4,(SP)
041522  013746  017356                                                MOV     TEMP3,(SP)
041526  012746  030675                                                MOV     #EVTF3D,(SP)
041532  012746  000004                                                MOV     #4,(SP)
041536  010600                                                        MOV     SP,R0
041540  104414                                                        TRAP    C$PNTB
041542  062706  000012                                                ADD     #12,SP
041546                                  ENDMSG
041546                                                          L10005:
041546  104423                                                        TRAP    C$MSG

041550                                  BGNMSG  ERR15
041550                                                          ERR15::
041550                                  PRINTB  #EVTF3F,RSEL4,RSEL6,<8,RSEL3>
041550  005046                                                        CLR     (SP)
041552  153716  066654                                                BISB    RSEL3,(SP)
041556  013746  066652                                                MOV     RSEL6,(SP)
041562  013746  066650                                                MOV     RSEL4,(SP)
041566  012746  030717                                                MOV     #EVTF3F,(SP)
041572  012746  000004                                                MOV     #4,(SP)
041576  010600                                                        MOV     SP,R0
041600  104414                                                        TRAP    C$PNTB
041602  062706  000012                                                ADD     #12,SP
041606                                  ENDMSG
041606                                                          L10006:
041606  104423                                                        TRAP    C$MSG

041610                                  BGNMSG  ERR16
041610                                                          ERR16::
```

GLOBAL ERROR REPORT SECTION

```
;3 041610                                PRINTB  #EVTF3F,TSEL4,TSEL6,<B,TSEL3>
   041610  005046                                                  CLR     (SP)
   041612  153716  066646                                         BISB    TSEL3,(SP)
   041616  013746  066642                                         MOV     TSEL6,(SP)
   041622  013746  066644                                         MOV     TSEL4,(SP)
   041626  012746  030717                                         MOV     #EVTF3F,(SP)
   041632  012746  000004                                         MOV     #4,(SP)
   041636  010600                                                 MOV     SP,R0
   041640  104414                                                 TRAP    C$PNTB
   041642  062706  000012                                         ADD     #12,SP
;4 041646                                ENDMSG
   041646                                                L10007:
   041646  104423                                                 TRAP    C$MSG
;5
;6 041650                                EXIT    MSG
   041650  000167                                                 .WORD   J$JMP
   041652  177772                                                 .WORD   L10007-2
;7
```

```
                                .SBTTL  GLOBAL SUBROUTINES SECTION

                                ;++
                                ; THE GLOBAL SUBROUTINES SECTION CONTAINS THE SUBROUTINES
                                ; THAT ARE USED IN MORE THAN ONE TEST.
                                ;


                                .SBTTL          CLOCK SETUP SUBROUTINE

                                ;++
                                ; FUNCTIONAL DESCRIPTION:
                                ;       THIS SUBROUTINE SETS UP THE CLOCK INFORMATION TABLE FOLLOWING A "CLOCK
                                ;       CALL EXECUTED IN THE INITIALIZATION CODE. BUT SINCE THE "CLOCK" CALL
                                ;       SAYS NOTHING ABOUT AN LSI 11'S CLOCK, THIS ROUTINE IS ONLY USED IF A
                                ;       LINE OR P-CLOCK IS FOUND.
                                ;
                                ; INPUTS:
                                ;       R1= POINTS TO SUPERVISOR SPACE WHERE CLOCK INFO WAS RETURNED
                                ;       R2= POINTS TO "CLK" TABLE WHERE CLOCK INFO WILL BE KEPT
                                ;
                                ; IMPLICIT INPUTS:
                                ;       THE SUPERVISOR  SPACE WHERE CLOCK INFO WAS RETURNED BY THE "CLOCK  CALL
                                ;
                                ; OUTPUTS:
                                ;       "CLKCSR" GETS LOADED WITH THE CLOCK'S CSR ADDRESS
                                ;       "CLKBR" GETS LOADED WITH THE CLOCK'S INTERRUPT LEVEL
                                ;       "CLKVEC" GETS LOADED WITH THE CLOCK'S INTERRUPT VECTOR
                                ;       "CLKHZ" GETS LOADED WITH THE LINE FREQ. (HERTZ RATE) WHICH DETERMINES
                                ;               THE NUMBER OF TICKS IN A SECOND
                                ;
                                ; CALLING SEQUENCE:
                                ;       JSR     PC,CLKSET               ;CALL CLOCK SETUP WITH R1 & R2 SETUP
                                ;--

041654                          CLKSET:
041654  012122                         MOV     (R1)+,(R2)+             ;LOAD CLOCK'S CSR ADDR. INTO "CLKCSR"
041656  012112                         MOV     (R1)+,(R2)              ;LOAD CLOCK'S INT. LEVEL INTO "CLKBR"
041660  006312                         ASL     (R2)                    ;ADJUST THE INT. LEVEL FOR LOADING INTO
041662  006312                         ASL     (R2)                    ;    THE PSW WITH A "SETVEC" CALL
041664  006312                         ASL     (R2)
041666  006312                         ASL     (R2)
041670  006322                         ASL     (R2)+
041672  012122                         MOV     (R1)+,(R2)+             ;LOAD CLOCK'S INT. VECTOR INTO  CLKVEC
041674  012122                         MOV     (R1)+,(R2)+             ;LOAD CLOCK'S HERTZ RATE INTO "CLKHZ"
041676  000207                         RTS     PC
```

```
                                        .SBTTL          CLOCK INTERRUPT SERVICE ROUTINE
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:
                                        ;       THIS IS THE CLOCK INTERRUPT SERVICE ROUTINE WHICH TAKES CARE OF
                                        ;       KEEPING THE "TIME-SINCE-START" AND COUNTING DOWN ANY OF THE
                                        ;       "EVENT" TIMERS. THE TIMERS ARE USED TO TIME COMPLETION OF  DEVICE
                                        ;       REQUESTS. THE "TIME-SINCE-START" IS USED TO BE LOGGED WITH EACH ENTRY
                                        ;       INTO THE EVENT LOG.
                                        ;
                                        ; IMPLICIT INPUTS:
                                        ;       TIMTCK: THE CURRENT NO. OF TICKS LEFT TO BE COUNTED UNTIL A SECOND
                                        ;               HAS BEEN COUNTED OFF
                                        ;       CLKHZ:  THE NO. OF TICKS IN A SECOND, DETERMINED BY THE SYS. LINE FREQ.
                                        ;       TIMMIN & TIMSEC: CURRENT VALUE OF "TIME SINCE START"
                                        ;                                IN MINUTES & SECONDS
                                        ;       TIMER 1,2, & S: CURRENT VALUES OF THE "EVENT TIMERS"
                                        ;
                                        ; IMPLICIT OUTPUTS:
                                        ;       NEW VALUE OF EVENT TIMER "1" DECREMENTED BY 1 TICK IF IT WAS NON ZERO
                                        ;       NEW VALUE OF EVENT TIMER "2" DECREMENTED BY 1 TICK IF IT WAS NON-ZERO
                                        ;       NEW VALUE OF EVENT TIMER "S" DECREMENTED BY 1 SECOND IF IT WAS NON ZERO
                                        ;
                                        ; FUNCTIONAL SIDE EFFECTS:
                                        ;       THE CLOCK IS DISABLED UPON ENTRY AND REENABLED WHEN LEAVING
                                        ;
                                        ; CALLING SEQUENCE:
                                        ;       THIS ROUTINE IS CALLED WHEN THE CLOCK INTERRUPTS THRU "CLKVEC".
                                        ;       THE ADDRESS OF THIS ROUTINE WAS LOADED INTO THE CLOCK'S INTERRUPT
                                        ;       VECTOR WITH A SUPERVISOR "SETVEC" CALL.
                                        ;
041700                                          BGNSRV  CLKINT
041700                                                                          CLKINT::
041700  005077  155532                         CLR     @CLKCSR         ;DISABLE THE CLOCK FORM INTERRUPTING
041704  005337  017454                         DEC     TIMTCK          ;DECREMENT THE # OF TICKS/SEC.
041710  001015                                 BNE     1$              ;GO CHECK TIMERS (1&2-TICKS, 3-SECONDS)
041712  013737  017444  017454                MOV     CLKHZ,TIMTCK    ;RESET THE # OF TICKS/SEC.
041720  005237  017452                         INC     TIMSEC          ;INC # OF SECS-SINCE-START
041724  022737  000074  017452                CMP     #60.,TIMSEC     ;SEE IF WE'VE COUNTED 60 SECS. YET
041732  001004                                 BNE     1$              ;IF NOT, GO CHECK TIMERS
041734  005237  017450                         INC     TIMMIN          ; ELSE INC MINUTES-SINCE-START
041740  005037  017452                         CLR     TIMSEC          ; AND RESTART SECOND COUNTER
                                        
041744  005737  017456                 1$:     TST     TIMER1          ;SEE IF TIMER #1, TIMING ANYTHING
041750  001402                                 BEQ     2$              ; IF=0, NOTHING BEING TIMED CHECK NEXT TIMER
041752  005337  017456                         DEC     TIMER1          ; ELSE DECREMENT THE TIMER VALUE (BY 1 TICK)
041756  005737  017460                 2$:     TST     TIMER2          ;SEE IF TIMER #2, TIMING ANYTHING
041762  001402                                 BEQ     3$              ; IF=0, NOTHING BEING TIMED CHECK NEXT TIMER
041764  005337  017460                         DEC     TIMER2          ; ELSE DECREMENT THE TIMER VALUE (BY 1 TICK)
041770  005737  017462                 3$:     TST     TIMERS          ;SEE IF TIMER #3, TIMING ANYTHING
041774  001406                                 BEQ     4$              ; IF=0, NOTHING BEING TIMED, LEAVE
041776  023737  017444  017454                CMP     CLKHZ,TIMTCK    ;SEE IF A SECOND HAS BEEN COUNTED OFF
042004  001002                                 BNE     4$              ; BR IF NO
042006  005337  017462                         DEC     TIMERS          ; ELSE DECREMENT THE TIMER VALUE (BY 1 SEC.)
042012  013777  017446  155416         4$:     MOV     CLKEN,@CLKCSR   ;REENABLE THE CLOCK TO INTERRUPT
```

```
5' 042020                           ENDSRV
   042020                                                              L10010:
   042020  000002                                                              RTI
```

```
                                        .SBTTL          EVENT LOG SUBROUTINES
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:
                                        ;       THIS SUBROUTINE HAS A DIFFERENT ENTRY POINT
                                        ;       FOR EACH EVENT TO BE LOGGED AND ALWAYS PRINTS
                                        ;       THE SHORT "OPERATOR AWAKE" MESSAGE TO CONSOLE THEN LOGS THE
                                        ;       EVENT TYPE, TIME, AND THE OTHER 3 WORDS OF INFO PASSED TO THE
                                        ;       SUBROUTINE AT CALLING TIME
                                        ;
                                        ; INPUTS:
                                        ;       TIMMIN & TIMSEC:        CURRENT VALUE OF "TIME SINCE START"
                                        ;       TEMP2:  WORD #1 OF EVENT LOG INFORMATION (FOR MOST EVENT TYPES)
                                        ;       TEMP3:  WORD #2 OF EVENT LOG INFORMATION
                                        ;       TEMP4:  WORD #3 OF EVENT LOG INFORMATION
                                        ;       MODS:   CURRENT VALUE OF THE MODEM SIGNALS AVAILABLE FROM THE DEVICE
                                        ;
                                        ; OUTPUTS:
                                        ;       "OPERATOR AWAKE" MESSAGE SENT TO THE CONSOLE
                                        ;       NEW EVENT LOGGED IN "EVTLOG" (EVENT LOG)
                                        ;       UPDATED "EVTPTR" (EVENT LOG ENTRY POINTER)
                                        ;
                                        ; SUBORDINATE ROUTINES USED:
                                        ;       "DVMODS" THE DEVICE SUBROUTINE THAT RETURNS MODEM STATUS IN "MODS"
                                        ;               (FOR SOME EVENT TYPES)
                                        ;
                                        ; FUNCTIONAL SIDE EFFECTS:
                                        ;       TEMP:   USED TO STORE ADDRESS OF "OPERATOR AWAKE" MESSAGE
                                        ;       TEMP1:  USED TO SETUP THE VALUE OF THE "EVENT TYPE" BYTE FOR LOGGING
                                        ;
                                        ; CALLING SEQUENCE:
                                        ;       JSR     PC,LOGTXQ       ;CALL THE LOG EVENT SUBROUTINE WITH TEMP,TEMP1,
                                        ;        "       "   "          ; TEMP2, TEMP3, AND TEMP4 SETUP
                                        ;        "       "   "
                                        ;       JSR     PC,LOGCMP
                                        ;--
042022                                  LOGTXQ:
042022  012737  031571  017352                  MOV     #STXQ,TEMP1     ;SET UP MSG. TO PRINT
042030  012737  000000  017350                  MOV     #TXQ,TEMP       ;SET UP EVENT TYPE
042036  000522                                  BR      LOGS1           ;GO LOG EVENT AND TIME
042040                                  LOGTXC:
042040  012737  031602  017352                  MOV     #STXC,TEMP1     ;SET UP MSG. TO PRINT
042046  012737  000002  017350                  MOV     #TXC,TEMP       ;SET UP EVENT TYPE
042054  000513                                  BR      LOGS1           ;GO LOG EVENT AND TIME
042056                                  LOGRXQ:
042056  012737  031613  017352                  MOV     #SRXQ,TEMP1     ;SET UP MSG. TO PRINT
042064  012737  000004  017350                  MOV     #RXQ,TEMP       ;SET UP EVENT TYPE
042072  000504                                  BR      LOGS1           ;GO LOG EVENT AND TIME
042074                                  LOGRXC:
042074  012737  000006  017350                  MOV     #RXC,TEMP       ;SET UP EVENT TYPE
042102  000500                                  BR      LOGS1           ;GO LOG EVENT AND TIME
042104                                  LGDVE:
042104  012737  031624  017352                  MOV     #SDVE,TEMP1     ;SET UP MSG. TO PRINT
```

```
     58 042112  012737  000010  017350          MOV     #DFR,TEMP       ;SET UP EVENT TYPE
     59 042120  000511                          BR      LOGS3           ;GO LOG EVENT AND TIME
     60
     61 042122                          LOGDVI:
     62 042122  012737  031646  017352          MOV     #SDVI,TEMP1     ;SET UP MSG. TO PRINT
     63 042130  012737  000012  017350          MOV     #DVI,TEMP       ;SET UP EVENT TYPE
     64 042136  113737  017402  017354          MOVB    MODTYP,TEMP2
     65 042144  113737  017404  017355          MOVB    MLTYP,TEMP2+1
     66 042152  013737  017412  017356          MOV     RPASS,TEMP3
     67 042160  013737  017410  017360          MOV     PARAM,TEMP4     ;SET UP EVNT ENTRIES
     68 042166  000466                          BR      LOGS3           ;GO LOG EVENT AND TIME
     69
     70 042170                          LOGCMP:
     71 042170  012737  031635  017352          MOV     #SCM,TEMP1      ;SET UP MSG. TO PRINT
     72 042176  012737  000014  017350          MOV     #DCK,TEMP       ;SET UP EVENT TYPE
     73 042204  000415                          BR      LOGS3A
     74 042206                          LOGCML:
     75 042206  012737  031657  017352          MOV     #SCML,TEMP1
     76 042214  012737  000020  017350          MOV     #DLE,TEMP       ;SET UP MSG. AND TYPE
     77 042222  000406                          BR      LOGS3A          ;GO LOG EVENT AND TIME
     78 042224                          LOGCMD:
     79 042224  012737  031670  017352          MOV     #SCMD,TEMP1
     80 042232  012737  000022  017350          MOV     #DDE,TEMP
     81 042240  013737  015756  017362  LOGS3A: MOV     TRIBN,TEMP5
     82 042246  000436                          BR      LOGS3           ;GO LOG MSG TYPE AND TIME
     83
     84 042250                          LOGEOP:
     85 042250  012737  031701  017352          MOV     #SEOP,TEMP1
     86 042256  012737  000024  017350          MOV     #EOP,TEMP
     87 042264  000427                          BR      LOGS3           ;GO LOG MSG TYPE AND TIME
     88
     89 042266                          LOGMSC:
     90 042266  012737  031712  017352          MOV     #SMSC,TEMP1
     91 042274  012737  000016  017350          MOV     #MSC,TEMP
     92 042302  000420                          BR      LOGS3
     93
     94 042304  013746  017310          LOGS1:  MOV     ERRCNT,-(SP)    ;SAVE CURRENT ERROR COUNT
     95 042310  013737  015756  017362          MOV     TRIBN,TEMP5     ;SAVE TRIBN
     96 042316  004737  063756                  JSR     PC,DVMODS       ; GO GET MODEM STATUS
     97 042322  012604                          MOV     (SP)+,R4        ;GET SAVED ERRCNT VALUE
     98 042324  020437  017310                  CMP     R4,ERRCNT       ;WERE ANY ERRORS FOUND
     99 042330  001402                          BEQ     1$              ; BR IF NONE
    100 042332  000137  042552                  JMP     LOGEX           ; ELSE, LEAVE WITHOUT LOGGING ANYTHING
    101                                                                 ;   BUT THE DEVICE ERROR FROM  DVMODS
    102 042336  013737  020524  017360  1$:     MOV     MODS,TEMP4      ;AND PUT IT IN TEMP4
    103
    104 042344                          LOGS3:
    105 042344  022737  000006  017350          CMP     #RXC,TEMP
    106 042352  001434                          BEQ     LOGS5           ;IF RXC DON'T PRINT
    107 042354  032737  000001  017410          BIT     #STATB,PARAM
    108 042362  001430                          BEQ     LOGS5           ;IF NO STATUS SELECTED
    109                                                                 ;GO TO 5
    110
    111 042364  022737  000010  017300          CMP     #10,LNCNT       ;HAVE WE DONE 10?
    112 042372  001012                          BNE     LOGS4           ;IF NOT GO TO 4
    113 042374  005037  017300                  CLR     LNCNT           ;ELSE CLEAR IT
    114
```

EVENT LOG SUBROUTINES

```
    115 042400                                          PRINTF  #CR             ;ELSE PRINT CR
        042400  012746  031566                                                              MOV     #CR, (SP)
        042404  012746  000001                                                              MOV     #1, (SP)
        042410  010600                                                              MOV     SP,R0
        042412  104417                                                              TRAP    C$PNTF
        042414  062706  000004                                                              ADD     #4,SP
    116 042420                                  LOGS4:
    117 042420  005237  017300                          INC     LNCNT           ;INC COUNTER OF # OF AWAKE MSGS
    118 042424                                          PRINTF  TEMP1           ;PRINT OPERATOR AWAKE MSG.
        042424  013746  017352                                                              MOV     TEMP1, (SP)
        042430  012746  000001                                                              MOV     #1, (SP)
        042434  010600                                                              MOV     SP,R0
        042436  104417                                                              TRAP    C$PNTF
        042440  062706  000004                                                              ADD     #4,SP
    119 042444  010346                          LOGS5:  MOV     R3,-(SP)        ;SAVE R3 ON THE STACK
    120 042446  013703  017464                          MOV     EVTPTR,R3
    121 042452  11372*  017350                          MOVB    TEMP,(R3)+      ;LOG EVENT
    122 042456  013737  017444  017350                  MOV     CLKHZ,TEMP
    123 042464  163737  017454  017350                  SUB     TIMTCK,TEMP
    124 042472  113723  017350                          MOVB    TEMP,(R3)+      ;LOG TIME SINCE START
    125 042476  113723  017452                          MOVB    TIMSEC,(R3)+
    126 042502  113723  017450                          MOVB    TIMMIN,(R3)+    ;TICKS,SECS AND MINS.
    127 042506  013723  017354                          MOV     TEMP2,(R3)+     ;LOG EVNT ENTRY 3
    128 042512  013723  017356                          MOV     TEMP3,(R3)+     ;LOG EVNT ENTRY 4
    129 042516  013723  017360                          MOV     TEMP4,(R3)+     ;LOG EVNT ENTRY 5
    130 042522  013723  017362                          MOV     TEMP5,(R3)+     ;LOG EVNT ENTRY 6
    131 042526  020327  020522                          CMP     R3,#EVTEND
    132 042532  103404                                  BLO     LOGS2           ;IF EVENT LOG FULL GO
    133                                                                         ;CONTINUE;ELSE GO TO 2
    134 042534  012713  177777                          MOV     #-1,(R3)        ;LOG A TABLE END
    135 042540  012703  017466                          MOV     #EVTLOG,R3      ;PUT R3 TO START OF TABLE
    136 042544  010337  017464          LOGS2:  MOV     R3,EVTPTR       ;RESTORE POINTER
    137 042550  012603                          MOV     (SP)+,R3        ;RESTORE R3
    138 042552  000207                  LOGEX:  RTS     PC
    139
    140
```

```
                                .SBTTL          DUMP EVENT LOG AND BASE TABLE
                                
                                
042554  010246          REPORT: MOV     R2,-(SP)        ;SAVE R2,R3,R4 ON THE STACK
042556  010346                  MOV     R3,-(SP)
042560  010446                  MOV     R4,-(SP)

                                ;PRINT REPORT HELP MESSAGE

042562                          PRINTF  #RHLPO
042562  012746  025341                                                  MOV     #RHLPO,-(SP)
042566  012746  000001                                                  MOV     #1,-(SP)
042572  010600                                                          MOV     SP,R0
042574  104417                                                          TRAP    C$PNTF
042576  062706  000004                                                  ADD     #4,SP
042602  105037  003411  GETRCL: CLRB    P$GDBD          ;CLEAR GOOD BAD FLAG
042606  105037  003410          CLRB    P$NNUF

                                ;PRINT PROMPT RPT>

042612                          GMANID  CLI$RP,CMDBUF,A,0,1,72.,NO
042612  104443                                                          TRAP    C$GMAN
042614  000406                                                          BR      10000$
042616  003130                                                          .WORD   CMDBUF
042620  000142                                                          .WORD   T$CODE
042622  025334                                                          .WORD   CLI$RP
042624  000000                                                          .WORD   0
042626  000001                                                          .WORD   T$LOLIM
042630  000110                                                          .WORD   T$HILIM
042632                                                          10000$:
042632  012737  003130  003374          MOV     #CMDBUF,P$BUFA
042640  012737  044774  003376          MOV     #CLIRT,P$TREE
042646  012737  044360  003400          MOV     #CLIRAC,P$ACT
042654  005037  003254                  CLR     QUALFG                  ;CLEAR QUALIFIER FLAG LOCATION
042660  004737  047646                  JSR     PC,P$TRV                ;GO PARSE COMMAND LINE
042664  105737  003411                  TSTB    P$GDBD                  ;SEE IF PARSED OK OR AN ERROR
042670  001412                          BEQ     1$
042672                                  PRINTF  #CLIERM
042672  012746  023362                                                  MOV     #CLIERM,-(SP)
042676  012746  000001                                                  MOV     #1,-(SP)
042702  010600                                                          MOV     SP,R0
042704  104417                                                          TRAP    C$PNTF
042706  062706  000004                                                  ADD     #4,SP
042712  000137  042602                  JMP     GETRCL
042716  105737  003410          1$:     TSTB    P$NNUF                  ;SEE IF INCOMPLETE COMMAND TYPED
042722  001412                          BEQ     10$
042724                                  PRINTF  #CLINUF
042724  012746  023412                                                  MOV     #CLINUF,-(SP)
042730  012746  000001                                                  MOV     #1,-(SP)
042734  010600                                                          MOV     SP,R0
042736  104417                                                          TRAP    C$PNTF
042740  062706  000004                                                  ADD     #4,SP
042744  000137  042602                  JMP     GETRCL

042750  023727  003252  000005  10$:     CMP     KEYWD1,#RPTSS
042756  00' 003                         BNE     20$
042760  004737  043006                  JSR     PC,RPTTSS       ;JUMP TO  REPORT TSS
```

DUMP EVENT LOG AND BASE TABLE

```
     043006  012737  000046  021024  RPTTSS: MOV     #46,TSSA        ;SET KEY UP TO FIRST ERROR
     043014  005737  015756                  TST     TRIBN
     043020  001003                          BNE     RDTS2           ;BRANCH IF TSS
     043022  012737  000054  021024          MOV     #54,TSSA        ;IF GSS USE 55
     043030  012737  000057  021022  RDTS2:  MOV     #57,TSSE        ;SET UP 57 AS END
     043036  122737  000105  021026          CMPB    #105,TSSKEY     ;IS THIS AN E
     043044  001422                          BEQ     RDTSS           ;AND GO READ THEM
     043046  012737  000037  021024          MOV     #37,TSSA
     043054  012737  000077  021022          MOV     #77,TSSE        ;SET UP LIMITS
     043062  122737  000106  021026          CMPB    #106,TSSKEY     ;IS THIS FULL
     043070  001410                          BEQ     RDTSS           ;IF SO READ FULL
     043072  013737  021026  021024          MOV     TSSKEY,TSSA
     043100  005337  021024                  DEC     TSSA
     043104  013737  021026  021022          MOV     TSSKEY,TSSE

     043112  005237  021024          RDTSS:  INC     TSSA
     043116  152777  000200  157726          BISB    #RQI,@BSEL0     ;MAKE RQEST
     043124  004737  065114                  JSR     PC,TOORIO
     043130  012737  177777  017326          MOV     #-1,TSSFLG      ;SET FLAG
     043136  113777  015756  157714          MOVB    TRIBN,@BSEL3
     043144  013777  021024  157714          MOV     TSSA,@SEL6
     043152  112777  000001  157676          MOVB    #01,@BSEL2      ;DO CONTROL IN READ TSS
     043160  023737  021024  021022          CMP     TSSA,TSSE       ;ARE WE DONE
     043166  001351                          BNE     RDTSS           ;IF NOT GO BACK FOR MORE
     043170  152777  000200  157654          BISB    #RQI,@BSEL0     ;MAKE RQEST
     043176  004737  065114                  JSR     PC,TOORIO
     043202  113777  015756  157650          MOVB    TRIBN,@BSEL3
     043210  105077  157652                  CLRB    @BSEL6
     043214  112777  000001  157634          MOVB    #01,@BSEL2      ;DO CONTROL IN [NO REQUEST]
                                                                     ;THIS GETS LAST OUTPUT
     043222  000207                          RTS     PC              ;RETURN WHEN DONE


     043224  010246          REPLOG: MOV     R2, (SP)        ;SAVE R2,R3,R4 ON THE STACK
     043226  010346                  MOV     R3, (SP)
     043230  010446                  MOV     R4, (SP)

     043232  013702  017464          MOV     EVTPTR,R2       ;MAKE R2 A POINTER TO EVENT TABLE
     043236  023727  017466  177777  CMP     EVTLOG,#-1      ;SEE IF EVENT TABLE IS EMPTY
     043244  001034                  BNE     RPTO            ;BR IF NO
     043246                          PRINTS  #NULEVT         ;IF EMPTY TELL OPERATOR.
     043246  012746  030407                                                  MOV     #NULEVT, (SP)
     043252  012746  000001                                                  MOV     #1, (SP)
     043256  010600                                                          MOV     SP,R0
     043260  104416                                                          TRAP    C$PNTS
     043262  062706  000004                                                  ADD     #4,SP
```

```
     86 043266  000137  044204                  JMP     ENDEVT          ;AND END
     87
     88 043272  162702  000014          RPT:    SUB     #14,R2          ;NOW POINT BACK TO TOP OF ENTRY U
     89                                                                  ;JUST PRINTED
     90
     91 043276  020227  017466                  CMP     R2,#EVTLOG      ;POINTING TO TOP OF EVNT LOG QUEUE?
     92 043302  001010                          BNE     RPT1            ; BR IF NO
     93 043304  012702  020522                  MOV     #EVTEND,R2      ;SET R2 TO POINT TO BOTTOM OF LOG
     94 043310  026227  177776  177777         CMP     -2(R2),#-1
     95 043316  001007                          BNE     RPTO            ;IF END OF LOG IS NOT EMPTY
     96 043320  000137  044204                  JMP     ENDEVT          ;CONTINUE...ELSE EXIT
     97
     98 043324  020237  017464          RPT1:   CMP     R2,EVTPTR       ;ARE WE BACK TO POINTER?
     99 043330  001002                          BNE     RPTO            ;IF NOT CONTINUE
    100 043332  000137  044204                  JMP     ENDEVT          ;IF SO EXIT....
    101
    102 043336  162702  000014          RPTO:   SUB     #14,R2          ;POINT R2 TO START OF ENTRY
    103 043342                          RPTAA:  PRINTS  #EVTFO          ;PRINT EVENT ENTRY HEADER
        043342  012746  030447                                                          MOV     #EVTFO,(SP)
        043346  012746  000001                                                          MOV     #1,-(SP)
        043352  010600                                                                  MOV     SP,R0
        043354  104416                                                                  TRAP    C$PNTS
        043356  062706  000004                                                          ADD     #4,SP
    104 043362  112203                          MOVB    (R2)+,R3        ;PUT EVENT TYPE INTO R3
    105 043364  112237  020614                  MOVB    (R2)+,EVTTCK
    106 043370  112237  020610                  MOVB    (R2)+,EVTSEC    ;PUT EVENT TIME (TICKS,SECS,MINS IN TEMP LOC.S)
    107 043374  112237  020612                  MOVB    (R2)+,EVTMIN
    108 043400                                  PRINTS  #EVTF1,EVTMIN,EVTSEC,EVTTCK,EVTLST(R3)  ;PRINT EVENT TIME AND DESCRIPT.
        043400  016346  020562                                                          MOV     EVTLST(R3),(SP)
        043404  013746  020614                                                          MOV     EVTTCK,(SP)
        043410  013746  020610                                                          MOV     EVTSEC,(SP)
        043414  013746  020612                                                          MOV     EVTMIN,(SP)
        043420  012746  030545                                                          MOV     #EVTF1,-(SP)
        043424  012746  000005                                                          MOV     #5,(SP)
        043430  010600                                                                  MOV     SP,R0
        043432  104416                                                                  TRAP    C$PNTS
        043434  062706  000014                                                          ADD     #14,SP
    109 043440  000173  020624                  JMP     @RPTDSP(R3)     ;DISPATCH TO DECODING SECTION FOR SPECIFIC TYPE
    110
    111 043444  012237  020616          RPTTXQ: MOV     (R2)+,EVTADD    ;STORE MESSAGE ADDRESS FOR PRINTING
    112 043450  012237  020620                  MOV     (R2)+,EVTBCT    ;STORE BYTE COUNT FOR PRINTING
    113 043454  012203                          MOV     (R2)+,R3        ;STORE MODEM STATUS FOR PRINTING
    114 043456  004737  044326                  JSR     PC,PNTTRB       ;PRINT TRIB NO.
    115 043462                                  PRINTS  #EVTF2,EVTADD,EVTBCT    ;PRINT ADDR,BYTE CNT
        043462  013746  020620                                                          MOV     EVTBCT,(SP)
        043466  013746  020616                                                          MOV     EVTADD,-(SP)
        043472  012746  030574                                                          MOV     #EVTF2,(SP)
        043476  012746  000003                                                          MOV     #3,(SP)
        043502  010600                                                                  MOV     SP,R0
        043504  104416                                                                  TRAP    C$PNTS
        043506  062706  000010                                                          ADD     #10,SP
    116 043512  004737  044214                  JSR     PC,RPTMSB       ;GO PRINT MODEM STATUS
    117 043516  000137  043272                  JMP     RPT             ;GO BACK FOR NEXT EVENT ENTRY
    118
    119 043522  012237  020622          RPTDER: MOV     (R2)+,EVTTMP    ;GET ADDRESS OF DEVICE INFO MESSAGE
    120 043526  012237  020652                  MOV     (R2)+,DEV1      ;STORE DEVICE REG CONTENTS FOR PRINTING
    121 043532  012237  020654                  MOV     (R2)+,DEV2
```

```
122 043536  012237  017362              MOV     (R2)+,TEMP5
123 043542                              PRINTS  #EVTF3,EVTTMP   ;PRINT DEVICE REG CONTENTS.
    043542  013746  020622                                                              MOV     EVTTMP,-(SP)
    043546  012746  030646                                                              MOV     #EVTF3,-(SP)
    043552  012746  000002                                                              MOV     #2,-(SP)
    043556  010600                                                                      MOV     SP,R0
    043560  104416                                                                      TRAP    C$PNTS
    043562  062706  000006                                                              ADD     #6,SP
124 043566                              PRINTS  #EVTF3C,DEV1,DEV2
    043566  013746  020654                                                              MOV     DEV2, (SP)
    043572  013746  020652                                                              MOV     DEV1, (SP)
    043576  012746  030660                                                              MOV     #EVTF3C,-(SP)
    043602  012746  000003                                                              MOV     #3,-(SP)
    043606  010600                                                                      MOV     SP,R0
    043610  104416                                                                      TRAP    C$PNTS
    043612  062706  000010                                                              ADD     #10,SP
125 043616  000137  043272              JMP     RPT             ;GO BACK FOR NEXT EVENT ENTRY
126
127 043622  005037  020652      RPTDVI: CLR     DEV1
128 043626  005037  020654              CLR     DEV2            ;CLEAR UPPER BYTES OF DEV1 & DEV2 BEFORE USE
129 043632  112237  020652              MOVB    (R2)+,DEV1      ;STORE SETUP OPERATION PARAMETERS FOR PRINTING
130 043636  112237  020654              MOVB    (R2)+,DEV2
131 043642  012237  020656              MOV     (R2)+,DEV3
132 043646  012237  020660              MOV     (R2)+,DEV4
133 043652  010246                      MOV     R2,-(SP)        ;SAVE R2 ON THE STACK
134 043654  004737  047344              JSR     PC,SHWOP        ;GO PRINT MODE, MAINT LOOP TYPE, PARAMTERS.
135 043660  012602                      MOV     (SP)+,R2        ;RESTORE R2
136 043662  012237  017362              MOV     (R2)+,TEMP5     ;DUMMY MOVE
137 043666  000137  043272              JMP     RPT             ;GO BACK FOR NEXT EVENT ENTRY
138 043672  012237  020616      RPTEOP: MOV     (R2)+,EVTADD
139 043676  012237  020620              MOV     (R2)+,EVTBCT
140 043702  012237  020622              MOV     (R2)+,EVTTMP
141 043706  012237  017362              MOV     (R2)+,TEMP5     ;DUMMY MOVE
142
143                                     ;PRINT  PASCOUNT ERROR COUNT RX THRES AND TX TTHRES
144
145 043712                              PRINTS  #EVTF4B,EVTADD,EVTBCT
    043712  013746  020620                                                              MOV     EVTBCT, (SP)
    043716  013746  020616                                                              MOV     EVTADD,-(SP)
    043722  012746  031016                                                              MOV     #EVTF4B, (SP)
    043726  012746  000003                                                              MOV     #3, (SP)
    043732  010600                                                                      MOV     SP,R0
    043734  104416                                                                      TRAP    C$PNTS
    043736  062706  000010                                                              ADD     #10,SP
146 043742                              PRINTS  #EVTF44,EVTTMP,TEMP5
    043742  013746  017362                                                              MOV     TEMP5,-(SP)
    043746  013746  020622                                                              MOV     EVTTMP, (SP)
    043752  012746  031055                                                              MOV     #EVTF44, (SP)
    043756  012746  000003                                                              MOV     #3, (SP)
    043762  010600                                                                      MOV     SP,R0
    043764  104416                                                                      TRAP    C$PNTS
    043766  062706  000010                                                              ADD     #10,SP
147 043772  000137  043272              JMP     RPT             ;THEN GO GET NEXT EVENT ENTRY
148
149
150 043776  012237  020616      RPTDDE: MOV     (R2)+,EVTADD    ;STORE MESSAGE ADDRESS FOR PRINTING
151 044002  012237  020620              MOV     (R2)+,EVTBCT    ;STORE BYTE COUNT FOR PRINTING
```

```
044006  012237  020622          MOV     (R2)+,EVTTMP    ;STORE TOTAL # OF CMP ERRORS
044012  004737  044326          JSR     PC,PNTTRB       ;PRINT TRIB NO.
044016                          PRINTS  #EVTF4,EVTADD,EVTBCT,EVTTMP     ;PRINT ADDR, BYTE CNT, # CMP ERRS
044016  013746  020622                                                  MOV     EVTTMP,-(SP)
044022  013746  020620                                                  MOV     EVTBCT,-(SP)
044026  013746  020616                                                  MOV     EVTADD,-(SP)
044032  012746  031124                                                  MOV     #EVTF4,-(SP)
044036  012746  000004                                                  MOV     #4,-(SP)
044042  010600                                                          MOV     SP,R0
044044  104416                                                          TRAP    C$PNTS
044046  062706  000012                                                  ADD     #12,SP
044052  000137  043272          JMP     RPT             ;THEN GO GET NEXT EVENT ENTRY

044056                  RPTDLE:
044056  012237  020616  RPTDCK: MOV     (R2)+,EVTADD    ;STORE MSG ADDR FOR PRINT
044062  012237  020620          MOV     (R2)+,EVTBCT    ;STORE BYTE COUNT
044066  012237  020622          MOV     (R2)+,EVTTMP    ;STORE BYTE COUNT COMP
044072  004737  044326          JSR     PC,PNTTRB       ;PRINT TRIB NO.
044076                          PRINTS  #EVTF4A,EVTADD,EVTBCT,EVTTMP    ;PRINT ADDR,RXBYTES,CMPBYTES.
044076  013746  020622                                                  MOV     EVTTMP,-(SP)
044102  013746  020620                                                  MOV     EVTBCT,-(SP)
044106  013746  020616                                                  MOV     EVTADD,-(SP)
044112  012746  031226                                                  MOV     #EVTF4A,-(SP)
044116  012746  000004                                                  MOV     #4,-(SP)
044122  010600                                                          MOV     SP,R0
044124  104416                                                          TRAP    C$PNTS
044126  062706  000012                                                  ADD     #12,SP

044132  000137  043272          JMP     RPT             ;THEN GO GET NEXT EVENT ENTRY


044136                  RPTMSC:

044136  012203                  MOV     (R2)+,R3        ;PUT OLD MODEM STATUS IN R3 FOR PRINTING
044140  004737  044214          JSR     PC,RPTMSB       ;GO PRINT OLD MODEM STATUS
044144                          PRINTS  #EVMOCG         ;GO PRINT "CHANGED TO:"
044144  012746  031410                                                  MOV     #EVMOCG,-(SP)
044150  012746  000001                                                  MOV     #1,-(SP)
044154  010600                                                          MOV     SP,R0
044156  104416                                                          TRAP    C$PNTS
044160  062706  000004                                                  ADD     #4,SP
044164  012203                  MOV     (R2)+,R3        ;PUT NEW MODEM STATUS IN R3 FOR PRINTING
044166  004737  044214          JSR     PC,RPTMSB       ;GO PRINT NEW MODEM STATUS
044172  012203                  MOV     (R2)+,R3        ;POP NULL WORD FROM ENTRY OUT OF LOG
044174  012237  017362          MOV     (R2)+,TEMP5     ;DUMMY MOVE
044200  000137  043272          JMP     RPT             ;THEN GO GET NEXT EVENT

044204                  ENDEVT:                         ;RETURN TO CALLER AFTER REG RESTORE
044204  012604                  MOV     (SP)+,R4        ;RESTORE R4,R3,R2
044206  012603                  MOV     (SP)+,R3
044210  012602                  MOV     (SP)+,R2
044212  000207                  RTS     PC              ;RETURN TO CALLING ROUTINE


                        ;REPORT MODEM STATUS SUBROUTINE
                        ;       PART OF STATISTICAL REPORTING (DUMPING EVENT LOG)

```

```
188 044214                          RPTMS8: PRINTS  @EVMOHD                 ;PRINT MODEM STATUS HEADER
    044214  012746  031433                                                          MOV     @EVMOHD, (SP)
    044220  012746  000001                                                          MOV     #1, (SP)
    044224  010600                                                                  MOV     SP,R0
    044226  104416                                                                  TRAP    C$PNTS
    044230  062706  000004                                                          ADD     #4,SP
189 044234  012704  020526                  MOV     #MOBITS,R4      ;MAKE R4 A POINTER TO MODEM SIG. BIT DEF. TABLE
190 044240  012705  020544                  MOV     #MOMSGS,R5      ;MAKE R5 A POINTER TO MODEM MSG. POSITION TABLE
191 044244  005714                  6$:     TST     (R4)            ;SEE IF BIT AVAILABLE FROM DEVICE
192 044246  001004                          BNE     7$              ;BR IF THAT MODEM SIG. AVAILABLE
193 044250  112735  000130                  MOVB    #'X,@(R5)+      ;ELSE PUT "X" IN REPORT IF SIGNAL NOT AVAILABLE
194 044254  005724                          TST     (R4)+           ;BUMP R4 TO POINT TO NEXT BIT DEFINITION
195 044256  000407                          BR      9$              ;GO SEE IF CHECKED ALL MODEM SIGNALS
196 044260  032403                  7$:     BIT     (R4)+,R3        ;IF THERE, SEE IF THAT BIT IN DEVICE S ENTRY=1
197 044262  001403                          BEQ     8$              ;BR IF BIT (SIGNAL) VALUE =0
198 044264  112735  000061                  MOVB    #'1,@(R5)+      ;IF=1, PUT "1" IN REPORT MESSAGE
199 044270  000402                          BR      9$              ;GO SEE IF ALL MODEM SIGNALS CHECKED
200 044272  112735  000060          8$:     MOVB    #'0,@(R5)+      ;IF BIT(SIGNAL)=0, PUT "0" IN REPORT MESSAGE
201 044276  020427  020544          9$:     CMP     R4,#MOBITE      ;SEE IF ALL BITS(SIGNALS) CHECKED
202 044302  002760                          BLT     6$              ;LOOP UNTIL ALL SIGNALS(BITS) CHECKED
203 044304                                  PRINTS  @EVMOST         ;THEN PRINT MODEM SIGNAL VALUE MESSAGE
    044304  012746  031513                                                          MOV     @EVMOST, (SP)
    044310  012746  000001                                                          MOV     #1, (SP)
    044314  010600                                                                  MOV     SP,R0
    044316  104416                                                                  TRAP    C$PNTS
    044320  062706  000004                                                          ADD     #4,SP
204 044324  000207                          RTS     PC              ;RETURN TO EVENT DECODING
205
206                                         ;PRINT TRIBNO
207
208 044326  012237  017362          PNTTRB: MOV     (R2)+,TEMP5
209 044332                                  PRINTS  @EVTF6,TEMP5    ;PRINT TRIB NUMBER.
    044332  013746  017362                                                          MOV     TEMP5, (SP)
    044336  012746  030756                                                          MOV     @EVTF6, (SP)
    044342  012746  000002                                                          MOV     #2, (SP)
    044346  010600                                                                  MOV     SP,R0
    044350  104416                                                                  TRAP    C$PNTS
    044352  062706  000006                                                          ADD     #6,SP
210 044356  000207                          RTS     PC              ;RETURN TO EVENT
```

```
                                        .SBTTL          CLI FOR RFPORT CODING SECTION
044360                                  CLIRAC:
044360  006302                                  ASL     R2
044362  016202  044376                          MOV     10$(R2),R2      ;FORM ADDRESS OF ACTION ROUTINE
044366  062702  044376                          ADD     #10$,R2
044372  004712                                  JSR     PC,(R2)
044374  000207                                  RTS     PC

044376  000034                          10$:    .WORD   ACTRNL 10$
044400  000036                                  .WORD   ACTRHL 10$      ;RPHLP
044402  000102                                  .WORD   ACTREX-10$      ;RPEXT
044404  000112                                  .WORD   ACTRLG 10$      ;RPLOG
044406  000126                                  .WORD   ACTRGS-10$      ;RPGSS
044410  000156                                  .WORD   ACTRTS-10$      ;RPTSS
044412  000202                                  .WORD   ACTRTN 10$      ;RPTSN
044414  000150                                  .WORD   ACTRSE-10$      ;RPSWE
044416  000274                                  .WORD   ACTRSF 10$      ;RPSWF
044420  000310                                  .WORD   ACTRSO 10$      ;RPSWO
044422  000026                                  .WORD   ACTRNF 10$      ;RNOTNF
```

```
                                        .SBTTL      REPORT COMMAND ACTION ROUTINES
044424  112737  177777  003410  ACTRNF: MOVB    #1,P$NNUF       ;SET FLAG TO SAY MORE NEEDED
044432  000207                  ACTRNL: RTS     PC
044434  012702  003304          ACTRHL: MOV     #RHLPTB,R2      ;SETUP R2 AS A POINTER TO HELP MSG TABLE
044440                          1$:     PRINTF  #HLPF,(R2)+     ;PRINT HELP INFORMATION MESSAGES
044440  012246                                                                  MOV     (R2)+,(SP)
044442  012746  024116                                                          MOV     #HLPF,(SP)
044446  012746  000002                                                          MOV     #2,(SP)
044452  010600                                                                  MOV     SP,R0
044454  104417                                                                  TRAP    C$PNTF
044456  062706  000006                                                          ADD     #6,SP
044462  020227  003314                  CMP     R2,#RHLPEN      ;SEE IF ALL INFO PRINTED YET
044466  001364                          BNE     1$              ;IF NO KEEP PRINTING
044470  012737  000001  003252          MOV     #RPHLP,KEYWD1
044476  000207                          RTS     PC
044500  012737  000002  003252  ACTREX: MOV     #RPEXT,KEYWD1   ;SET UP EXIT WORD
044506  000207                          RTS     PC
044510  004737  043224          ACTRLG: JSR     PC,REPLOG       ;GO REPORT DCLT EVENT LOG
044514  012737  000003  003252          MOV     #RPLOG,KEYWD1
044522  000207                          RTS     PC
044524  105037  015756          ACTRGS: CLRB    TRIBN           ;FOR GLOBAL STATUS MAKE TRIN =0
044530  012737  000105  021026          MOV     #105,TSSKEY
044536  012737  000005  003252          MOV     #RPTSS,KEYWD1   ;SET UP KEY WORD
044544  000207                          RTS     PC              ;AND RETURN
044546  105037  003410          ACTRSE: CLRB    P$NNUF          ;CLEAR NOT NUF FLAG
044552  000207                          RTS     PC
044554  012737  000105  021026  ACTRTS: MOV     #105,TSSKEY
044562  012737  000005  003252          MOV     #RPTSS,KEYWD1   ;SET UP KEY WORD
044570  112737  177777  003410          MOVB    #-1,P$NNUF
044576  000207                          RTS     PC              ;AND RETURN
044600  105037  003410          ACTRTN: CLRB    P$NNUF          ;CLEAR NOT NUF
044604  012705  000040                  MOV     #32.,R5
044610  012702  015712                  MOV     #TRIBLS,R2
044614  122237  003404          3$:     CMPB    (R2)+,P$NUM
044620  001420                          BEQ     4$
044622  005305                          DEC     R5
044624  001373                          BNE     3$
044626                                  PRINTF  #SHTNF,P$NUM
044626  013746  003404                                                          MOV     P$NUM,(SP)
044632  012746  026165                                                          MOV     #SHTNF,(SP)
044636  012746  000002                                                          MOV     #2,(SP)
044642  010600                                                                  MOV     SP,R0
044644  104417                                                                  TRAP    C$PNTF
044646  062706  000006                                                          ADD     #6,SP
044652  112737  177777  003411          MOVB    #-1,P$GDBD
044660  000403                          BR      5$
044662  113737  003404  015756  4$:     MOVB    P$NUM,TRIBN
044670  000207                  5$:     RTS     PC
044672  105037  003410          ACTRSF: CLRB    P$NNUF
044676  012737  000106  021026          MOV     #106,TSSKEY
044704  000207                          RTS     PC
044706  105037  003410          ACTRSO: CLRB    P$NNUF
044712  023727  003404  000037          CMP     P$NUM,#37
044720  003416                          BLE     2$
044722                                  PRINTF  #RPTIV,P$NUM
044722  013746  003404                                                          MOV     P$NUM,(SP)
044726  012746  025544                                                          MOV     #RPTIV,(SP)
```

REPORT COMMAND ACTION ROUTINES

```
        044732  012746  000002                                          MOV     #2, (SP)
        044736  010600                                                  MOV     SP,R0
        044740  104417                                                  TRAP    C$PNTF
        044742  062706  000006                                          ADD     #6,SP
     44 044746  112737  177777  003411          MOVB    # 1,P$GDBD
     45 044754  000406                           BR      3$
     46 044756  013737  003404  021026  2$:     MOV     P$NUM,TSSKEY
     47 044764  052737  000040  021026          BIS     #BIT5,TSSKEY
     48 044772  000207                  3$:     RTS     PC
```

```
      1                                 .SBTTL          REPORT CODE COMMAND LINE PARSING TREE
      2
      3 044774                        CLIRT:  CLI     CLISPA,0,R10$    ;SKIP ANY SPACES
      4 045000                        R10$:   CLI     <'?>,RPHLP,R11$ ;IS FIRST NON-SP CHAR A "?"?
      5 045004                                CLI     CLIEXI,0         ;EXIT
      6 045006                        R11$:   CLI     CLISTR,RPHLP,R12$,<'HELP'>
      7 045022                                CLI     CLIEXI,0
      8 045024                        R12$:   CLI     CLISTR,RPEXT,R13$,<'EXIT'>
      9 045040                                CLI     CLIEXI,0
     10 045042                        R13$:   CLI     CLISTR,RPGSS,R14$,<'GSS'>
     11 045054                                CLI     CLIBR,0,R20$
     12 045060                        R14$:   CLI     CLISTR,RPLOG,R15$,<'LOG'>
     13 045072                                CLI     CLIEXI,0
     14 045074                        R15$:   CLI     CLISTR,RPTSS,R30$,<'TSS'>
     15 045106                                CLI     CLISPA,RNOTNF,R30$
     16 04511c                                CLI     CLIDEC,RPTSN,R30$
     17 045116                        R20$:   CLI     <'/>,RNOTNF,R125$
     18 045122                                CLI     CLISTR,RPSWE,R21$,<'ERROR'>
     19 045136                                CLI     CLIEXI,0
     20 045140                        R21$:   CLI     CLISTR,RPSWF,R22$,<'FULL'>
     21 045154                                CLI     CLIEXI,0
     22 045156                        R22$:   CLI     CLISTR,RNOTNF,R30$,<'OFFSET'>
     23 045174                                CLI     <'=>,0,R30$
     24 045200                                CLI     CLIOCT,RPSWO,R30$
     25 045204                                CLI     CLIEXI,0
     26 045206                        R30$:   CLI     CLIERR,0
     27 045210                        R125$:  CLI     CLIEXI,0
     28
     29
```

DUMP BYTES OR WORDS

```
                                .SBTTL          DUMP BYTES OR WORDS


                                ;++
                                ; FUNCTIONAL DESCRIPTION:
                                ;       DUMPSR   DUMP BYTES OR WORDS SUBROUTINE
                                ;
                                ;       THIS SUBROUTINE PRINTS THE CONTENTS OF THE LOCATIONS BETWEEN
                                ;       A STARTING AND END ADDRESS IN LOCS. "STADD" AND "ENADD".
                                ;       THE WORD OR BYTE CONTENTS ARE PRINTED 8 TO A LINE WITH THE
                                ;       ADDRESS OF THE FIRST BYTE AS THE FIRST 6 OCTAL CHARS. FOLLOWED
                                ;       BY A SEMICOLON.
                                ;
                                ; INPUTS:
                                ;       STADD=  STARTING ADDRESS (FIRST LOC. TO PRINT)
                                ;       ENADD=  END ADDRESS (LAST LOCATION TO DUMP)
                                ;       BYTBIT= 1 IF SUPPOSED TO PRINT "BYTES"
                                ;               0 IF SUPPOSED TO PRINT "WORDS"
                                ;
                                ; OUTPUTS:
                                ;       CONTENTS OF A RANGE OF LOC.S PRINTED ON THE OPERATORS CONSOLE.
                                ;
                                ; CALLING SEQUENCE:
                                ;       JSR PC,DUMPSR           ;CALL DUMP BYTES SUBROUTINE
                                ;
                                ;--

045212  013702  017312          DUMPSR: MOV     STADD,R2        ;SET R2 UP TO STARTING ADDR.
045216  005003                  DUM4:   CLR     R3              ;CLEAR R3
045220                                  PRINTF  #BASM1,R2        ;PRINT ADDRESS
045220  010246                                                                  MOV     R2,-(SP)
045222  012746  030401                                                          MOV     #BASM1,-(SP)
045226  012746  000002                                                          MOV     #2,-(SP)
045232  010600                                                                  MOV     SP,R0
045234  104417                                                                  TRAP    C$PNTF
045236  062706  000006                                                          ADD     #6,SP
045242  005737  017316          DUM3:   TST     BYTBIT          ;IS THIS BYTE OR WORD
045246  001416                          BEQ     DUM1            ;BR IF WORD
045250  112237  017350                  MOVB    (R2)+,TEMP      ;MOV BYTE TO TEMP
045254                                  PRINTF  #BASM3,<8,TEMP> ;PRINT BYTE
045254  005046                                                                  CLR     -(SP)
045256  153716  017350                                                          BISB    TEMP,(SP)
045262  012746  030363                                                          MOV     #BASM3,-(SP)
045266  012746  000002                                                          MOV     #2,-(SP)
045272  010600                                                                  MOV     SP,R0
045274  104417                                                                  TRAP    C$PNTF
045276  062706  000006                                                          ADD     #6,SP
045302  000411                          BR      DUM2
045304                          DUM1:   PRINTF  #BASM2,(R2)+    ;PRINT WORD
045304  012246                                                                  MOV     (R2)+,-(SP)
045306  012746  030372                                                          MOV     #BASM2,-(SP)
045312  012746  000002                                                          MOV     #2,-(SP)
045316  010600                                                                  MOV     SP,R0
045320  104417                                                                  TRAP    C$PNTF
045322  062706  000006                                                          ADD     #6,SP
045326  020237  017314          DUM2:   CMP     R2,ENADD        ;COMPARE FOR LAST ADD
045332  003005                          BGT     DUMEX           ;IF DONE EXIT
```

```
     39 045334  005203                        INC     R3              ;ELSE BUMP R3
     40 045336  022703  000010                CMP     #8.,R3          ;HAVE WE PRINTED 8 ACROSS
     41 045342  001725                        BEQ     DUM4            ;IF SO GO BACK TO 4
     42 045344  000736                        BR      DUM3            ;ELSE GO BACK AND PRINT ANOTHER
     43                                                               ;BYTE OR WORD
     44 045346  000207              DUMEX:    RTS     PC              ;RETURN TO CALLER
     45
```

```
                                        .SBTTL          UPDATE TOTAL CHAR. COUNT SUBROUTINE
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:
                                        ;               UPDATES TOTAL CHAR. COUNT TOTCC BASED ON CURCC.
                                        ;               LAST MESSAGE IS TRUNCATED TO FIT INTO THE
                                        ;               BUFFER IF TOTAL CHAR. COUNT EXCEEDS 'BUFLIM'  A MESSAGE
                                        ;               IS PRINTED TELLING THE OPERATOR THE TRUNCATION OCCURRED.
                                        ;
                                        ; INPUTS:
                                        ;               CURCC:  CHAR. COUNT OF MESSAGE BEING ADDED
                                        ;               TOTCC:  TOTAL CHAR COUNT OF BUFFER ITS BEING ADDED TO
                                        ;
                                        ; OUTPUTS:
                                        ;               MESSAGE TO OPERATOR IF MESSAGE TRUNCATED TO FIT
                                        ;
                                        ; FUNCTIONAL SIDE EFFECTS:
                                        ;               LOCATION "TEMP" USED FOR CALCULATIONS
                                        ; CALLING SEQUENCE:
                                        ;               JSR     PC,ADDCC        ;UPDATED TOTAL CHAR. COUNT
                                        ;
045350  063737  017334  017344  ADDCC:  ADD     CURCC,TOTCC     ;ADD CURRENT TO TOTAL
045356  022737  001000  017344          CMP     #BUFLIM,TOTCC   ; COMPARE TO "BUFLIM"
045364  103027                          BHIS    ADDC1           ;IF NOT MORE THEN "BUFLIM" EXIT
                                        ; PRINT MESSAGE AND TRUNCATE COUNT
045366                                  PRINTF  #MSGTRU
045366  012746  027446                                                          MOV     #MSGTRU,(SP)
045372  012746  000001                                                          MOV     #1,(SP)
045376  010600                                                                  MOV     SP,R0
045400  104417                                                                  TRAP    C$PNTF
045402  062706  000004                                                          ADD     #4,SP
045406  163737  017334  017344          SUB     CURCC,TOTCC     ;SUB CURRENT FROM TOTAL
045414  012737  001000  017350          MOV     #BUFLIM,TEMP    ;MOV "BUFLIM" TO TEMP
045422  163737  017344  017350          SUB     TOTCC,TEMP      ;SUB TOTAL FROM "BUFLIM"
045430  013737  017350  017334          MOV     TEMP,CURCC      ;AND ESTABLISH NEW CURRENT
045436  063737  017334  017344          ADD     CURCC,TOTCC     ;ADD "ADJUSTED CURRENT" TO TOTAL CHAR. CNT.
045444  000207                  ADDC1:  RTS     PC              ;RETURN TO CALLER
```

```
                                        .SBTTL          BUILD MESSAGE BUFFERS SUBROUTINE
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:
                                        ;       BLDBUF    BUILD POINTER TABLE AND BUFFERS
                                        ;
                                        ;       THIS SUBROUTINE ADDS A MESSAGE TO THE TRANSMIT OR EXPECT LIST
                                        ;       USING THE POINTER, BYTE COUNT, AND ADDRESS PASSED TO IT.
                                        ;
                                        ; INPUTS:
                                        ;       CURCC=  CHAR. COUNT OF MESSAGE TO BE ADDED
                                        ;       CURADD= ADDRESS OF MESSAGE TO BE ADDED
                                        ;       CPTR=   ADDRESS OF POINTER TABLE WORD WHERE MESSAGE POINTERS ARE
                                        ;                       TO BE BUILT
                                        ;       MSGTYP= VALUE TO USE AS AN INDEX TO FIND SOURCE OF MESSAGE DATA
                                        ;                       INDEX INTO DMSGCT() AND DMSGAD().
                                        ; OUTPUTS:
                                        ;       A MESSAGE ADDED TO EITHER TXBUF OR CMPBUF
                                        ;       APPROPRIATE POINTERS IN PTRTAB POINTER TABLE
                                        ;
                                        ; CALLING SEQUENCE:
                                        ;       JSR PC,BLDBUF           ;BUILD MESSAGE IN BUFFER AND ADD PTRS.
                                        ;--
045446                                  BLDBUF:
045446  010246                                MOV     R2, (SP)        ;SAVE R2 AND R3 ON THE STACK
045450  010346                                MOV     R3, (SP)
045452  013702  017340                        MOV     CPTR,R2
045456  013722  017342                BLDB1:  MOV     CURADD,(R2)+    ;PUT CURRENT ADD ON POINTER TAB
045462  013722  017334                        MOV     CURCC,(R2)+     ;PUT CURRENT CC ON POINTER TAB
045466  010237  017340                        MOV     R2,CPTR         ;PUT UPDATED R2 BACK TO CURRENT POINT
045472  013702  017332                        MOV     MSGTYP,R2       ;GET MESSAGE TYPE TO USE AS INDEX
045476  006302                              ASL     R2              ;DOUBLE FOR WORD INDEX
045500  013737  017342  017350              MOV     CURADD,TEMP     ;MOVE CURRENT ADD TO TEMP
045506  063737  017334  017350              ADD     CURCC,TEMP      ;ADD CHAR COUNT TO IT TO GET END
045514  013703  017342                      MOV     CURADD,R3       ;SET R3 TO CURRENT START ADD
045520  016237  002150  017354  BLDB2:     MOV     DMSGCT(R2),TEMP2        ;GET BYTE COUNT
045526  016204  002176                      MOV     DMSGAD(R2),R4   ;PUT STARTING FROM ADD IN R4
045532  060437  017354                      ADD     R4,TEMP2        ;ADD IT TO TEMP2 TO GET END OF FROM
045536  112423                      BLDB3:  MOVB    (R4)+,(R3)+     ;MOV BYTE FROM PATTERN TO BUFFER
045540  020337  017350                      CMP     R3,TEMP         ;ALL DONE?
045544  001404                            BEQ     BLDBEX          ;IF SO EXIT
045546  020437  017354                      CMP     R4,TEMP2        ;IS PATTERN COUNT EXPIRED
045552  001762                            BEQ     BLDB2           ;IF SO GO START AGAIN
045554  000770                            BR      BLDB3           ;IF NOT GET ANOTHER BYTE
045556  063737  017334  017342  BLDBEX:  ADD     CURCC,CURADD    ;BUMP CURADD
045564  012603                            MOV     (SP)+,R3        ;RESTORE R3 AND R2
045566  012602                            MOV     (SP)+,R2
045570  000207                            RTS     PC              ;RETURN TO CALLER
```

```
                        .SBTTL  CREATE FACSIMILE OF TX BUFFER AND MESSAGE LIST

                        ;++
                        ;FUNCTIONAL DESCRIPTION:
                        ;       FACSIMILE: THIS ROUTINE IS USED TO CREATE A FACSIMILE OF THE
                        ;                  OF THE TRANSMIT LIST AND TRANSMIT BUFFER IN THE
                        ;                  EXPECT LIST AND EXPECT BUFFER. THE ROUTINE IS
                        ;                  NORMALLY CALLED WHEN USER COMMAND "SET E [XPECT]-
                        ;                  T [RANSMIT] IS ENTERED.
                        ;
                        ;       CALLING SEQUENCE: JSR   PC,FACSIMILE
                        ;
                        ;--
                        ;       DEFINITIONS  CMPBUF = EXPECTED DATA BUFFER  HOLDS MAX 512 BYTES
                        ;                    TXBUF  = TRANSMIT DATA BUFFER  HOLDS MAX 512 BYTES
                        ;                    TTOTCC = NUMBER OF BYTES IN TXBUF
                        ;                    PTRTAB = TOP OF MESSAGE LIST POINTER TABLE
                        ;                    CTOTCC = NUMBER OF BYTES IN EXPECT MESSAGE
                        ;                    CMPTOT = NUMBER OF EXPECTED MESSAGES
                        ;                    CMPPTR = EXPECTED MESSAGE LIST POINTER
                        ;                    TXPTR  = TRANSMIT MESSAGE LIST POINTER
                        ;                    TXMTOT = NUMBER OF TRANSMIT MESSAGES
                        ;                    CCURAD = STORAGE ADDRESS OF MESSAGE IN CMPBUF
                        ;                    MSGLIM = MAXIMUM NUMBER OF MESSAGES THAT CAN BE STORED
                        ;                    BUFLIM = NUMBER OF BYTES IN BUFFER
                        ;
                        ;       BEGIN FACSIMILE ROUTINE
                        ;       (*COPY TXBUF ==> CMPBUF*)
                        ;       ..SAVE R1
                        ;       ..INIT R1
                        ;       ..REPEAT
                        ;       ....[CMPBUF]R1=[TXBUF]R1
                        ;       ....R1=R1+1
                        ;       ..UNTIL R1 = BUFLIM
                        ;
                        ;       (*NOW CALCULATE EXPECT LIST MESSAGE POINTER*)
                        ;       ..CMPPTR = PTRTAB + (2 * MSGLIM)
                        ;
                        ;       (*NOW PRIME THE WHILE - DO LOOP*)
                        ;       ..TXPTR = PTRTAB
                        ;       ..CCURAD = CMPBUF
                        ;       ..TXPTR = TXPTR + 2
                        ;       ..CTOTCC = [TXPTR]
                        ;       ..CMPTOT = 0
                        ;       ..WHILE TXMTOT <> CMPTOT DO
                        ;       ....[CMPPTR] = CCURAD
                        ;       ....CMPPTR = CMPPRT + 2
                        ;       ....[CMPPTR] = CTOTCC
                        ;       ....TXPTR = TXPTR + 4
                        ;       ....CCURAD = CCURAD + CTOTCC
                        ;       ....CTOTCC = [TXPTR]
                        ;       ....CMPPTR = CMPPTR + 2
                        ;       ....CMPTOT = CMPTOT + 1
                        ;       ..END WHILE DO
                        ;       ..CTOTCC = TTOTCC
                        ;       END FACSIMILE ROUTINE
```

```
                                        FACSIMILE:
045572  010146                                  MOV     R1, (SP)                ;SAVE R1
045574  005001                                  CLR     R1                      ;INIT R1
045576  116161  003416  004416  10$:           MOVB    TXBUF(R1),CMPBUF(R1)    ;COPY TX BUFFER TO EXPECTED BUFFER
045604  005201                                  INC     R1                      ;BUMP INDEX
045606  020127  001000                          CMP     R1,#BUFLIM              ;ALL DATA COPIED ?
045612  001371                                  BNE     10$                     ;NO,BRANCH

045614  012701  000017          20$:            MOV     #MSGLIM,R1              ;MESSAGE LIMIT
045620  006301                                  ASL     R1                      ;MULTIPLY BY 2
045622  006301                                  ASL     R1                      ;MULTIPLY BY 2
045624  012737  011416  017240                  MOV     #PTRTAB,CMPPTR          ;TOP OF POINTER TABLE
045632  060137  017240                          ADD     R1,CMPPTR               ;START OF EXPECTED POINTER TABLE
045636  005001                                  CLR     R1                      ;INIT R1

                                        ;SET UP WHILE - DO LOOP
045640  012737  011416  017236                  MOV     #PTRTAB,TXPTR           ;TX POINTER NOW AT TOP OF TABLE
045646  012737  004416  017246                  MOV     #CMPBUF,CCURAD          ;TRANSFER ADDRESS OF 1ST MESSAGE
045654  062737  000002  017236                  ADD     #2,TXPTR                ;BUMP POINTER
045662  017737  151350  017244                  MOV     @TXPTR,CTOTCC           ;BYTE COUNTER 1ST MESSAGE
045670  005037  017242                          CLR     CMPTOT                  ;INIT EXPECTED MESSAGE COUNT

                                        ;WHILE TX MESSAGE TOTAL <> EXPECTED MESSAGE TOTAL DO
045674  023737  017260  017242  30$:           CMP     TXMTOT,CMPTOT           ;ALL MESSAGES COPIED ?
045702  001430                                  BEQ     40$                     ;YES,BRANCH
045704  013777  017246  151326                  MOV     CCURAD,@CMPPTR          ;TRANSFER ADDRESS OF MESSAGE
045712  062737  000002  017240                  ADD     #2,CMPPTR               ;BUMP POINTER
045720  013777  017244  151312                  MOV     CTOTCC,@CMPPTR          ;BYTE COUNT OF MESSAGE
045726  062737  000004  017236                  ADD     #4,TXPTR                ;BUMP TX MESSAGE POINTER
045734  063737  017244  017246                  ADD     CTOTCC,CCURAD           ;CALC. TRANSFER ADDRESS
045742  017737  151270  017244                  MOV     @TXPTR,CTOTCC           ;BYTE COUNT NEXT MESSAGE
045750  062737  000002  017240                  ADD     #2,CMPPTR               ;BUMP POINTER
045756  005237  017242                          INC     CMPTOT                  ;INCREMENT MESSAGE COUNT
045762  000744                                  BR      30$                     ;DO IT AGAIN
                                        ;END WHILE - DO
045764  013737  017262  017244  40$:           MOV     TTOTCC,CTOTCC           ;COPY TOTAL CHARACTER COUNT

                                        ;END ROUTINE
045772  012601                                  MOV     (SP)+,R1                ;RESTORE R1
045774  000207                                  RTS     PC                      ;RETURN
```

```
                                .SBTTL          DO ALL G OBAL PARMAS
                                ;++
                                ; FUNCTIONAL DESCRIPTION:       DOGLOB - ASK QUESTIONS ABOUT ALL GLOBALS
                                ;
                                ;       THIS ROUTINE ASKS QUESTIONS TO ALL GLOBAL POLL PARMS
                                ;       IF NESCESSARY THEN CLEARS THE WRITE GLOBAL FLAG
                                ;
                                ; CALLING SEQUENCE:
                                ;               JSR     PC,DOGLOB
                                ;--
046776  010246                  DOGLOB: MOV     R2,-(SP)        ;SAVE R2,R3,R4 ON THE STACK
046000  010346                          MOV     R3,-(SP)
046002  010446                          MOV     R4,-(SP)
046004  105037  003412                  CLRB    WRFLG           ;CLEAR  WRITE GLOBAL FLAG
046010                                  PRINTF  #POLPM3         ;PRINT GLOBAL PARAMS ARE
046010  012746  025301                                                  MOV     #POLPM3,-(SP)
046014  012746  000001                                                  MOV     #1,(SP)
046020  010600                                                          MOV     SP,R0
046022  104417                                                          TRAP    C$PNTF
046024  062706  000004                                                  ADD     #4,SP
046030  005003                          CLR     R3
046032  012702  000032                  MOV     #32,R2
046036  005202                  DOGL1:  INC     R2
046040  010204                          MOV     R2,R4
046042  006304                          ASL     R4
046044  016337  017220  017350          MOV     GLBPLS(R3),TEMP ;GET DEFAULT
046052  016437  021030  017366          MOV     GSSLST(R4),CONOTM
046060                                  PRINTF  CONOTM,TEMP
046060  013746  017350                                                  MOV     TEMP,(SP)
046064  013746  017366                                                  MOV     CONOTM,-(SP)
046070  012746  000002                                                  MOV     #2,(SP)
046074  010600                                                          MOV     SP,R0
046076  104417                                                          TRAP    C$PNTF
046100  062706  000006                                                  ADD     #6,SP
046104                                  GMANID  EQUQ,TEMP,0,1,0,-1,YES          ;GET INPUT
046104  104443                                                          TRAP    C$GMAN
046106  000406                                                          BR      10001$
046110  017350                                                          .WORD   TEMP
046112  000032                                                          .WORD   T$CODE
046114  025055                                                          .WORD   EQUQ
046116  177777                                                          .WORD   -1
046120  000000                                                          .WORD   T$LOLIM
046122  177777                                                          .WORD   T$HILIM
046124                                                          10001$:
046124  013763  017350  017220          MOV     TEMP,GLBPLS(R3)         ;PUT ANSWER BACK
046132  062703  000002                  ADD     #2,R3           ;BUMP R3
046136  032737  000002  023102          BIT     #TRBB,DEVPAR    ;IS THIS TRIB
046144  001403                          BEQ     DOGL4           ;BRANCH IF TRIB

046146  022702  000037          DOGL2:  CMP     #37,R2          ;ALL DONE
046152  001331                          BNE     DOGL1

046154  012604                  DOGL4:  MOV     (SP)+,R4        ;RESTORE R4,R3,R2
046156  012603                          MOV     (SP)+,R3
046160  012602                          MOV     (SP)+,R2
```

DO ALL GLOBAL PARMAS

```
     38 046162  000207                          RTS     PC              ;RETURN TO CALLING ROUTINE
```

```
                                .SBTTL          QUEUE UP ALL REC BUFFERS FOR MULTIPOINT
                                ;**
                                ; FUNCTIONAL DESCRIPTION:       QURXAL   QUEUE ALL REC BUFFERS
                                ;
                                ;       THIS ROUTINE QUEUES ALL REC BUFFERS FOR VALID TRIBS
                                ;       IF MODE IS POINT TO POINT TRIB LIST WILL STILL BE ONE.
                                ;
                                ; SUBORDINATE ROUTINES USED:
                                ;               GTVIND          LOADS INDEX WITH OFFSET TO NEXT
                                ;                               VALID TRIB AND LOADS TRIBN WITH
                                ;                               ADDRESS OF NEXT VALID TRIB
                                ;               ULRPLS          MOVES RXPTR FOR THIS TRIB TO
                                ;                               CPTRR FROM CPTRLS.
                                ;               LOGAQR          QUES REC BUFFER POINTED TO BY
                                ;                               CPTRR AND LOGS THIS IN EVENT LOG
                                ;               LDRPLS          MOVES VALUE OF CPTRR TO SLOT IN
                                ;                               CPTRLS FOR THIS TRIB
                                ;
                                ; CALLING SEQUENCE:
                                ;               JSR     PC,RXQUAL
                                ;--

046164  012737  177777  015762  RXQUAL: MOV     #-1,INDEX               ;SET INDEX TO -1
046172  004737  046462          RXQU1:  JSR     PC,GTVIND               ;GET NEXT VALID INDEX
046176  022737  000040  015762          CMP     #32.,INDEX              ;IS ALL DONE
046204  001412                          BEQ     RXQUEX                  ;IF SO EXIT
046206  004737  046526                  JSR     PC,ULRPLS               ;LOAD CPTRR FOR THIS TRIB
046212  052737  000004  017414          BIS     #QRX,FLAG               ;SET THE QRX,FLAG
046220  004737  047302                  JSR     PC,LOGAQR
046224  004737  046506                  JSR     PC,LDRPLS               ;RELOAD RX PTR LIST
046230  000760                          BR      RXQU1                   ;AND THEN GO BACK FOR MORE
046232  000207                  RXQUEX: RTS     PC                      ;RETURN TO CALLER
```

```
                                        .SBTTL          LOAD CPTRLS LIST INITIALLY
                                        ;
                                        ;**
                                        ; FUNCTIONAL DESCRIPTION:       LCPRLS  -LOAD CPTR LIST INITIALLY
                                        ;
                                        ;               THIS ROUTINE LOADS UP THE CPTRLS LIST FOR ALL
                                        ;               VALID TRIB ADDRESS IN THE TRIBLS IT ALSO LOADS
                                        ;               THE DVRCLS LIST FOR MSG COUNTS.
                                        ;
                                        ; INPUTS:       RXMTOT   TOTAL NUMBER OF Rx MSGS PER TRIB
                                        ;
                                        ; OUTPUTS:      CPTRLS   LOADED WITH POINTERS TO THE RXPTR TABLE
                                        ;                        FOR EACH TRIB
                                        ;               DVRCLS   LOADED WITH RXTOT COUNT FOR EACH TRIB
                                        ;
                                        ; SUBORDINATE ROUTINES USED:
                                        ;               GTVIND          GETS NEXT VALID INDEX BY
                                        ;                               CHECKING TRIBLS FOR NON ZERO ENTRY
                                        ;               LCPRL1          LOADS POINTER TABLE FOR TRIB AT THIS
                                        ;                               INDEX VALUE AND RXMTOT TO DVRCLS FOR
                                        ;                               THIS TRIB.
                                        ;
                                        ; CALLING SEQUENCE:
                                        ;               JSR     PC,LCPRLS
                                        ;-
046234  012737  177777  015762  LCPRLS: MOV     #1,INDEX        ;SET UP INDEX VALUE TO  1
046242  004737  046462          LCPR1:  JSR     PC,GTVIND       ;GET VALID INDEX
046246  022737  000040  015762          CMP     #32.,INDEX      ;IS IT 32?
046254  001403                          BEQ     LCPREX          ;BRANCH IF 32.
046256  004737  046266                  JSR     PC,LCPRL1       ;IF NOT LOAD CPTRLS FOR THIS TRIB.
046262  000767                          BR      LCPR1           ;GO BACK FOR NEXT
046264  000207                  LCPREX: RTS     PC              ;RETURN TO CALLER WHEN DONE WITH ALL.
```

```
                                        .SBTTL          LOAD CPTRLS AND DVRCLS FROM INDEX
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:       LCPRL1 - LOAD CPTRLS AND DVRCLS FROM INDEX
                                        ;
                                        ;               THIS ROUTINE LOADS UP THE CPTRLS LIST FOR THE
                                        ;               INDEX VALUE AND THE DVRCLS IS LOADED WITH RXMTOT.
                                        ;
                                        ; INPUTS:       RXMTOT - TOTAL NUMBER OF RX MSGS PER TRIB
                                        ;               PTR23  - START OF RX POINTER TABLE
                                        ;
                                        ; OUTPUTS:      CPTRLS   LOADED WITH POINTERS TO THE RXPTR LIST
                                        ;               DVRCLS   LOADED WITH RXMTOT COUNT
                                        ;
                                        ; SUBORDINATE ROUTINES USED:
                                        ;               MTPLY           MULTIPLIES VALUE IN INDEX BY VALUE IN
                                        ;                               TEMP AND THEN ADDS THAT RESULT TO VALUE
                                        ;                               IN TEMP2 AND PUTS FINAL RESULT IN TEMP2
                                        ;
                                        ; CALLING SEQUENCE:
                                        ;               JSR     PC,LCPRL1
                                        ;--
046266  012737  011606  017354  LCPRL1: MOV     #PTR23,TEMP2    ;SET UP TEMP 2 AS BASE
046274  013737  015762  017232          MOV     INDEX,MPLY      ;SET UP MULTIPLIER
046302  012737  000074  017350          MOV     #60.   .MP      ;SET UP MULTIPLICAN
046310  004737  046436                  JSR     PC,MTPLY        ;GO MULTIPY
046314  013703  015762          LCPR2:  MOV     INDEX,R3
046320  113763  017276  015612          MOVB    RXMTOT,DVRCLS(R3)       ;LOAD UP COUNT LIST
046326  006303                          ASL     R3                      ;MAKE R3 WORD INDEX
046330  013763  017354  015412          MOV     TEMP2,CPTRLS(R3)        ;SET UP POINTER TABLE
046336  000207                          RTS     PC                      ;RETURN TO CALLER
```

CLEAR RECEIVE POINTER LIST

```
                                        .SBTTL          CLEAR RECFIVE POINTER LIST
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:       CLRPLS - CLEAR RX POINTER LIST
                                        ;                       THIS ROUTINE CLEARS ALL 32 SLOTS OF THE CTPRLS
                                        ;
                                        ; OUTPUTS:              CPTRLS - IS ZEROED IN ALL SLOTS
                                        ;
                                        ; CALLING SEQUENCE:
                                        ;                       JSR     PC,CLRPLS
                                        ;--

046340  012737  000040  017350  CLRPLS: MOV     #32.,TEMP
046346  012703  015412                  MOV     #CPTRLS,R3      ;LOAD START OF LIST TO R3
046352  005023                  CLRPL1: CLR     (R3)+           ;CLEAR THIS SLOT
046354  005337  017350                  DEC     TEMP
046360  001374                          BNE     CLRPL1          ;IF NOT DONE GO BACK
046362  000207                  CLRPEX: RTS     PC              ;RETURN TO CALLER WHEN DONE
```

```
                                        .SBTTL          LOAD TX POINTER LIST INITIALLY
                                        ;
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:       LCPTLS - LOAD TRANSMIT POINTER LIST
                                        ;                       THIS ROUTINE LOADS CPTTLS WITH TX POINTERS
                                        ;                       FOR EACH VALID TRIB.
                                        ; INPUTS:
                                        ;                       TXMTOT          TOTAL NUMBER OF TX MSGS
                                        ;                       PTRTAB  -       POINTER TO TOP OF TX POINTER TABLE
                                        ;
                                        ; OUTPUTS:
                                        ;                       CCTTLS  -       LOADED WITH POINTERS TO TX POINTER TABLE
                                        ;                                       FOR ALL VALID TRIBS
                                        ;                       DVTCLS          TX MSG COUNT LIST LOADED WITH MSG COUNTS
                                        ;                                       FOR ALL VALID TRIBS
                                        ; SUBORDINATE ROUTINES USED:
                                        ;                       GTVIND  -       GETS NEXT VALID INDEX BY
                                        ;                                       CHECKING TRIBLS FOR NON ZERO ENTRY
                                        ;
                                        ;                       LDTPLS  -       LOADS VALUE FROM CPTR TO CPTTLS IDEXED
                                        ;                                       BY TRIBN
                                        ;
                                        ;                       LDTCLS  -       LOADS DVTCT TO DVTCLS INDEXED BY TRIBN
                                        ;
                                        ; CALLING SEQUENCE:
                                        ;                       JSR     PC,LCPTLS
                                        ;--
046364  013737  017260  017256   LCPTLS: MOV     TXMTOT,DVTCT    ;LOAD UP COUNT
046372  012737  011416  017340           MOV     #PTRTAB,CPTR
046400  012737  177777  015762           MOV     #-1,INDEX       ;LOAD INDEX WITH  1
046406  004737  046462           LCPT1:  JSR     PC,GTVIND       ;GET VALID INDEX
046412  022737  000040  015762           CMP     #32.,INDEX      ;IS THIS THE END
046420  001405                           BEQ     LCPTEX          ;EXIT IF SO
046422  004737  046644                   JSR     PC,LDTPLS       ;LOAD TX POINTER LIST
046426  004737  046704                   JSR     PC,LDTCLS       ;LOAD TX COUNT LIST
046432  000765                           BR      LCPT1           ;GO BACK
046434  000207                   LCPTEX: RTS     PC              ;RETURN TO CALLER
```

```
                                        .SBTTL          MULTIPY
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:       MTPLY  MULTIPY
                                        ;       THIS ROUTINE MULTIPLIES THE VALUE IN MPLY BY
                                        ;       THE VALUE IN TEMP AND THEN ADDS IN THE VALUE OF TEMP2
                                        ;       WITH THE RELSUT GOING TO TEMP2
                                        ;
                                        ; INPUTS:       TEMP2 - INITIALLY VALUE
                                        ;               TEMP  - VALUE TO MULTIPLY BY
                                        ;               MPLY  - NUMBER OF TIMES TO MULITPLY
                                        ;
                                        ; OUTPUTS:      TEMP2 - RESULT OF [MPLY * TEMP]+TEMP2
                                        ;
                                        ; CALLING SEQUENCE:
                                        ;               JSR     PC,MTPLY
                                        ;--

046436  005737  017232          MTPLY:  TST     MPLY
046442  001406                          BEQ     MTPLEX          ;IF MULITPLIER IS ZERO QUIT
046444  063737  017350  017354          ADD     TEMP,TEMP2      ;ADD THE FACTOR TO BASE
046452  005337  017232                  DEC     MPLY            ;COUNT DOWN THE MULTIPLIER
046456  000767                          BR      MTPLY           ;GO BACK FOR MORE
046460  000207                  MTPLEX: RTS     PC              ;RETURN TO CALLEP
```

```
                                        .SBTTL          GET NEXT VALID INDEX
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:       GTVIND    GET NEXT VALID INDEX
                                        ;
                                        ;       THIS LOADS INDEX WITH INDEX VALUE OF NEXT VALID TRIB. THIS ALSO
                                        ;       LOADS TRIBN WITH THE ADDRESS.
                                        ;       TRIB BEING THE LOCATION IN THE TRIBLS THAT HAS A NON ZERO
                                        ;       ENTRY.
                                        ;
                                        ; INPUTS:       INDEX           SET TO VALUE OF LAST INDEX
                                        ; OUTPUTS:      INDEX           SET TO VALUE OF THIS TRIB
                                        ;               TRIBN           ADDRESS OF THIS TRIB
                                        ; CALLING SEQUENCE:
                                        ;               JSR     PC,GTVIND
                                        ;
046462  013703  015762          GTVIND: MOV     INDEX,R3
046466  005203                  GTVI1:  INC     R3
046470  116337  015712  015756          MOVB    TRIBLS(R3) TRIBN        ;LOAD TRIBN
046476  001773                          BEQ     GTVI1                   ;IF ZERO GO GET ANOTHER
046500  010337  015762                  MOV     R3,INDEX                ;LOAD INDEX VALUE IF NOT ZERO
046504  000207                          RTS     PC                      ;RETURN TO CALLER WHEN DONE
```

```
                                        .SBTTL          LOAD REC POINTER LIST
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:       LDRPLS - LOAD RX POINTER LIST FROM CPTRR
                                        ;               THIS ROUTINE MOVES DATA FROM CPTRR TO THE SLOT IN THE
                                        ;               CPTRLS INDEXED BY INDW.
                                        ; INPUTS:       INDW    WORD INDEX INTO LIST
                                        ; OUTPUTS:      CPTRLS   CORRECT SLOT LOADED WITH DATA FROM CPTRR
                                        ; SUBORDINATE ROUTINES USED:
                                        ;               GETIND          GETS INDW FOR THIS TRIBN
                                        ; CALLING SEQUENCE
                                        ;               JSR     PC,LDRPLS
                                        ;

046506  004737  047154          LDRPLS: JSR     PC,GETIND               ;GET INDW FOR THIS TRIBN
046512  013703  015760                  MOV     INDW,R3                 ;MOVE WORD INDEX TO R3
046516  013763  017336  015412          MOV     CPTRR,CPTRLS(R3)        ;LOAD CPTRLS LIST
046524  000207                          RTS     PC                      ;RETURN TO CALLER

                                        .SBTTL          UNLOAD CTPRR LIST
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:       ULRPLS   UNLOAD RX POINTER LIST
                                        ;               THIS ROUTINE MOVES DATA FROM CPTRLS SLOT INDEXED
                                        ;               BY INDW TO  CPTRR.
                                        ; IMPLICIT INPUTS:
                                        ;               TRIBN           ADDRESS OF CURRENT TRIB
                                        ; OUTPUTS:      CPTRR           VALUE FROM CPTRLS
                                        ; SUBORDINATE ROUTINES USED:
                                        ;               GETIND          GET INDW FOR THIS TRIBN
                                        ; CALLING SEQUENCE:
                                        ;               JSR     PC,ULRPLS
                                        ;-

046526  004737  047154          ULRPLS: JSR     PC,GETIND               ;GET INDEX
046532  013703  015760                  MOV     INDW,R3                 ;MOVE WORD INDEX TO R3
046536  016337  015412  017336          MOV     CPTRLS(R3),CPTRR        ;LOAD CPTRR FROM LIST INDEX
046544  000207                          RTS     PC                      ;RETURN TO CALLER
```

```
                                .SBTTL          GET REC POINTER TO CPTR
                                ;**
                                ; FUNCTIONAL DESCRIPTION:       GRPTCP   GET RX POINTER TO CPTR
                                ;       THIS ROUTINE GETS THE RX POINTER TO CPTR FOR USE IN BUILD
                                ;       BUFFER
                                ;
                                ; INPUTS:        INDEX   INDEX VALUE FOR TRIB
                                ;
                                ; OUTPUTS:       CPTR  - LOADED WITH ADDRESS OF RX BUFFER FOR THIS TRIB
                                ; SUBORDINATE ROUTINES USED:
                                ;                MTPLY   MULTIPLIES INDEX BY TEMP AND ADDS TEMP2 TO RESULT
                                ; CALLING SEQUENCE:
                                ;                JSR     PC,GRPTCP
                                ; -

046546  013737  015762  017232  GRPTCP: MOV     INDEX,MPLY      ;SET UP MULPILIER
046554  012737  000074  017350           MOV     #60.,TEMP
046562  013737  017234  017354           MOV     RXPTR,TEMP2
046570  004737  046436                   JSR     PC,MTPLY        ;[INDEX VALUE X 60.] + RXPTR   POINTER ADDRESS
046574  013737  017354  017340           MOV     TEMP2,CPTR      ;SET UP POINTER ADDR.
046602  000207                           RTS     PC
```

```
                                .SBTTL          LOAD DVRCT LIST
                                ;++
                                ; FUNCTIONAL DESCRIPTION:      LDRCLS - LOAD RX COUNT LIST
                                ;                   THIS ROUTINE LOADS  THE VALUE FROM DVRCT TO
                                ;                   THE SLOT IN DVRCLS INDEXED BY TRIBN
                                ; INPUTS:           TRIBN - ADDRESS OF TRIB IN USE
                                ;                   DRVCT - COUNT VALUE TO GO TO LIST
                                ; OUTPUTS:          DVRCLS  VALUE OF DRVCT
                                ; SUBORDINATE ROUTINES USED:
                                ;                   GETIND          GET INDEX FROM TRIBLS
                                ; CALLING SEQUENCE:
                                ;                   JSR     PC,LDRCLS
                                ;--

046604  004737  047154          LDRCLS: JSR     PC,GETIND               ;GET INDEX
046610  013703  015762                  MOV     INDEX,R3                ;LOAD R3 WITH BYTE INDEX
046614  113763  017274  015612          MOVB    DVRCT,DVRCLS(R3)        ;LOAD LIST WITH COUNT
046622  000207                          RTS     PC                      ;RETURN TO CALLER

                                .SBTTL          UNLOAD DVRCT LIST
                                ;++
                                ; FUNCTIONAL DESCRIPTION:      ULRCLS   UNLOAD RX COUNT LIST
                                ;                   THIS ROUTINE UNLOADS  THE VALUE TO DVRCT FROM
                                ;                   THE SLOT IN DVRCLS INDEXED BY TRIBN
                                ; INPUTS:           TRIBN - ADDRESS OF TRIB IN USE
                                ;                   DVRCLS  VALUE OF DRVCT
                                ; OUTPUTS:
                                ;                   DRVCT - COUNT VALUE FROM LIST
                                ; SUBORDINATE ROUTINES USED:
                                ;                   GETIND  -       GET INDEX FROM TRIBLS
                                ; CALLING SEQUENCE:
                                ;                   JSR     PC,ULRCLS
                                ;

046624  004737  047154          ULRCLS: JSR     PC,GETIND               ;GET INDEX
046630  013703  015762                  MOV     INDEX,R3                ;MOVE INDEX TO R3
046634  116337  015612  017274          MOVB    DVRCLS(R3),DVRCT        ;UNLOAD LIST
046642  000207                          RTS     PC                      ;RETURN TO CALLER
```

```
                                .SBTTL          LOAD CPTR LIST (TRANSMIT POINTER)

                                ;++
                                ; FUNCTIONAL DESCRIPTION:       LDTPLS - LOAD TX POINTER LIST
                                ;                               THIS ROUTINE LOADS THE VALUE FROM CPTR TO
                                ;                               THE TX POINTER LIST INDEXED BY TRIBN INDEX.
                                ; INPUTS:                       TRIBN - ADDRESS OF TRIB IN USE
                                ; OUTPUTS:                      CPTTLS - SLOT LOADED WITH CPTR DATA
                                ; SUBORDINATE ROUTINES USED:
                                ;                               GETIND  -       GET INDEX VALUE FROM TRIBLS
                                ; CALLING SEQUENCE:
                                ;                               JSR     PC,LDTPLS
                                ;

046644  004737  047154          LDTPLS: JSR     PC,GETIND       ;GET INDEX
046650  013703  015760                  MOV     INDW,R3         ;MOVE INDEX TO R3
046654  013763  017340  015512          MOV     CPTR,CPTTLS(R3) ;LOAD LIST
046662  000207                          RTS     PC              ;RETURN TO CALLER

                                .SBTTL          UNLOAD CPTR LIST (TRANSMIT POINTER)

                                ;++
                                ; FUNCTIONAL DESCRIPTION:       ULTPLS - UNLOAD TX POINTER LIST
                                ;                               THIS ROUTINE MOVES DATA FROM TX POINTER LIST
                                ;                               TO CPTR.
                                ; INPUTS:                       TRIBN   ADDRESS OF TRIB IN USE
                                ; OUTPUTS:                      CPTR  - VALUE FROM THE TX POINTER LIST
                                ; SUBORDINATE ROUTINES USED:
                                ;                               GETIND  - GET INDEX FROM TRIBLS
                                ; CALLING SEQUENCE:
                                ;                               JSR     PC,ULTPLS
                                ; -

046664  004737  047154          ULTPLS: JSR     PC,GETIND       ;GET INDEX
046670  013703  015760                  MOV     INDW,R3         ;MOVE WORD INDEX TO R3
046674  016337  015512  017340          MOV     CPTTLS(R3),CPTR ;GET PTR FROM LIST
046702  000207                          RTS     PC              ;RETURN TO CALLER
```

```
                                        .SBTTL          LOAD DVTCT LIST (TRANSMIT COUNT)

                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:       LDTCLS - LOAD TX COUNT LIST
                                        ;                       THIS ROUTINE LOADS A VALUE FROM DVTCT TO
                                        ;                       THE TX COUNT LIST (DVTCLS). INDEXED BY TRIBN.
                                        ;
                                        ; INPUTS:               TRIBN   -       ADDRESS OF TRIB IN USE
                                        ;                       DVTCT   -       CURRENT TX COUNT FOR TRIB
                                        ; OUTPUTS:              DVTCLS          SLOT LOADED WITH DVTCT
                                        ; SUBORDINATE ROUTINES USED:
                                        ;                       GETIND          GET INDEX FROM TRIBLS
                                        ; CALLING SEQUENCE:
                                        ;                       JSR     PC,LDTCLS
                                        ;-

046704  004737  047154          LDTCLS: JSR     PC,GETIND       ;GET INDEX
046710  013703  015762                  MOV     INDEX,R3        ;MOVE BYTE INDEX TO R3
046714  113763  017256  015652          MOVB    DVTCT,DVTCLS(R3);LOAD LIST
046722  000207                          RTS     PC              ;RETURN TO CALLER

                                        .SBTTL          UNLOAD DVTCT LIST (TX COUNT)
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:       ULTCLS - UNLOAD TX COUNT LIST
                                        ;                       THIS ROUTINE TAKES DATA FROM DVTCLS AND MOVES
                                        ;                       IT TO DVTCT
                                        ; INPUTS:               TRIBN           - ADDRESS OF TRIBN IN USE
                                        ; OUTPUTS:              DVTCT   -       VLAUE
                                        ; SUBORDINATE ROUTINES USED:
                                        ;                       GETIND  -       GET INDEX VALUE FROM TRIBLS
                                        ; CALLING SEQUENCE:
                                        ;                       JSR     PC,ULTCLS
                                        ; -

046724  004737  047154          ULTCLS: JSR     PC,GETIND       ;GET INDEX
046730  013703  015762                  MOV     INDEX,R3        ;MOVE BYTE INDEX TO R3
046734  116337  015652  017256          MOVB    DVTCLS(R3),DVTCT
046742  000207                          RTS     PC              ;RETURN TO CALLER
```

```
                                        .SBTTL          GET ALL RX POINTERS FROM LIST TO CPTRR
                                        ;**
                                        ; FUNCTIONAL DESCRIPTION:       GARPFL - GET ALL RX POINTERS FROM LIST
                                        ;                       THIS ROUTINE CHECKS ALL RX POINTERS FOR VALID TRIBS
                                        ;                        IN CPTRLS AND MAKES SURE THEY ARE ALL ZERO.
                                        ; OUTPUTS:      CPTRR - ZERO IF ALL CPTRLS IS ZERO
                                        ;                       NON ZERO IF NOT.
                                        ;
                                        ; SUBORDINATE ROUTINES USED:
                                        ;                       GTVIND  - GET VALID INDEX
                                        ;                       ULRPLS    UNLOAD CPTRR LIST TO CPTRR
                                        ; CALLING SEQUENCE:
                                        ;                       JSR     PC,GARPFL
                                        ;--

046744  013737  015756  017362  GARPFL: MOV     TRIBN,TEMP5
046752  012737  177777  015762          MOV     #-1,INDEX
046760  004737  046462          GARP1:  JSR     PC,GTVIND       ;GET VALID INDEX
046764  022737  000040  015762          CMP     #32.,INDEX      ;COMPARE INDEX
046772  001405                          BEQ     GARPEX          ;EXIT  IF DONE
046774  004737  046526                  JSR     PC,ULRPLS       ;LOAD CPTRR WITH VALUE
047000  005737  017336                  TST     CPTRR           ;TEST THE VALUE
047004  001765                          BEQ     GARP1           ;IF ZERO CHECK NEXT
047006  013737  017362  015756  GARPEX: MOV     TEMP5,TRIBN
047014  000207                          RTS     PC              ;RETURN TO CALLER WHEN DONE
```

```
                                        .SBTTL          GET ALL TX COUNTS FROM LIST TO DVTCT
                                        ;RETURN WITH DVTCT=1 IF ANY COUNT HAS SOME IN IT
                                        ;IF ALL COUNTS ARE ZERO EXIT
                                        ;
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:       GATCFL - GET ALL TX COUNTS FROM LIST
                                        ;                       THIS ROUTINE GETS AND CHECKS ALL TX COUNTS TO BE ZERO
                                        ; OUTPUTS:      DVTCT   ZERO IF LIST IS ZERO
                                        ;                       NON ZERO IF NOT
                                        ; SUBORDINATE ROUTINES USED:
                                        ;                       GTVIND          GET NEXT VALID INDEX
                                        ; CALLING SEQUENCE:
                                        ;                       JSR     PC,GATCFL
                                        ;-
 047016  013737  015756  017362 GATCFL: MOV     TRIBN,TEMP5
 047024  012737  177777  015762         MOV     #-1,INDEX
 047032  005037  017256                 CLR     DVTCT           ;CLEAR COUNT
 047036  004737  046462         GATC1:  JSR     PC,GTVIND       ;GET VALID INDEX
 047042  022737  000040  015762         CMP     #32.,INDEX      ;IS INDEX =32 ALL DONE
 047050  001410                         BEQ     GATCEX          ;IF SO EXIT
 047052  013703  015762                 MOV     INDEX,R3
 047056  105763  015652                 TSTB    DVTCLS(R3)      ;IS THIS COUNT 0
 047062  001765                         BEQ     GATC1           ;IF THIS ONE IS ZERO
 047064  012737  000001  017256         MOV     #01,DVTCT       ;LOAD  COUNT WITH A 1
 047072  013737  017362  015756 GATCEX: MOV     TEMP5,TRIBN
 047100  000207                         RTS     PC              ;RETURN TO CALLERR
```

```
                                        .SBTTL          GET NEXT TX POINTER FROM LIST
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:       GNTXPR - GET NEXT TX POINTER
                                        ;               THIS ROUTINE GETS THE NEXT TX POINTER TO CPTR
                                        ; OUTPUTS:      CPTR - POINTER FOR NEXT TRANSMIT MESG
                                        ; SUBORDINATE ROUTINES USED:
                                        ;               GTVIND  -       GET VALID INDEX
                                        ; CALLING SEQUENCE:
                                        ;               JSR     PC,GNTXPR
                                        ;--
047102  022737  000040  015762  GNTXPR: CMP     #32.,INDEX      ;IS INDEX = DONE
047110  001003                         BNE     GNTX1
047112  012737  177777  015762  GNTX2:  MOV     #-1,INDEX
047120  004737  046462          GNTX1:  JSR     PC,GTVIND
047124  022737  000040  015762          CMP     #32.,INDEX
047132  001767                          BEQ     GNTX2
047134  004737  046724                  JSR     PC,ULTCLS       ;GET COUNT FROM LIST
047140  005737  017256                  TST     DVTCT           ;TEST COUNT
047144  001756                          BEQ     GNTXPR
047146  004737  046664                  JSR     PC,ULTPLS       ;UNLOAD POINTER
047152  000207                          RTS     PC              ;RETURN TO CALLER

                                        .SBTTL          GET INDEX BYTE AND WORD

                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:       GETIND - GET INDEX FOR WORD AND BYTE
                                        ;       THIS ROUTINE GETS INDEX LOADED WITH INDEX AND INDW WITH INDEX
                                        ;       FOR WORD. IF TRIBLS ENTRY IS EQUAL TO TRIBN
                                        ; OUTPUTS:      INDEX   BYTE INDEX
                                        ;               INDW    - WORD INDEX
                                        ; CALLING SEQUENCE:
                                        ;               JSR     PC,GETIND
                                        ;--

047154  012703  177777          GETIND: MOV     #-1,R3          ;LOAD R3 WITH  1
047160  005203                  GETI1:  INC     R3              ;BUMP R3
047162  022703  000040                  CMP     #32.,R3         ;ARE WE ALL DONE
047166  001772                          BEQ     GETIND          ;IF SO GO BACK
047170  126337  015712  015756          CMPB    TRIBLS(R3),TRIBN ;ELSE COMPARE FOR THIS TRIB
047176  001370                          BNE     GETI1           ;BRANCH IF NO MATCH
047200  010337  015762          GETI2:  MOV     R3,INDEX        ;STORE OFF BYTE INDEX
047204  006303                          ASL     R3              ;MAKE UP WORD INDEX
047206  010337  015760                  MOV     R3,INDW         ;STORE OFF WORD INDEX
047212  000207                          RTS     PC              ;RETURN TO CALLER
```

```
                                        .SBTTL          WRITE DEFAULTS TO TRIB AND GLOBAL SLOTS
                                        ;**
                                        ; FUNCTIONAL DESCRIPTION:       WRDEFP - WRITE  DEFAULT POLL PARAMETERS
                                        ;
                                        ;       THIS ROUTINE WRITES ALL POLLIS WITH DEFAULTS AND ALSO
                                        ;       WRITE S THE GLOBAL LIST WITH DEFAULTS
                                        ; INPUTS:
                                        ;
                                        ;
                                        ; CALLING SEQUENCE:
                                        ;
                                        ;
                                                ;WRITE DEFAULT POLL PARMS FOR TRIBS

047214  010246                  WRDEFP: MOV     R2,-(SP)        ;SAVE R2,R3,R4 ON THE STACK
047216  010346                          MOV     R3,-(SP)
047220  010446                          MOV     R4,-(SP)

047222  012704  000040                  MOV     #32.,R4
047226  012703  016220                  MOV     #POLLIS,R3
047232  012702  016166          WRDE5B: MOV     #POLDEF,R2
047236  012223                  WRDE5A: MOV     (R2)+,(R3)+
047240  022702  016206                  CMP     #GLBDEF,R2      ;ARE WE THRU ONE SET?
047244  001374                          BNE     WRDE5A
047246  005304                          DEC     R4
047250  001370                          BNE     WRDE5B

                                                ;WRITE DEFAULTS FOR GLOBAL

047252  012703  017220                  MOV     #GLBPLS,R3
047256  012702  016206                  MOV     #GLBDEF,R2
047262  012223                  WRDE5D: MOV     (R2)+,(R3)+
047264  022702  016220                  CMP     #GLBEND,R2
047270  001374                          BNE     WRDE5D
047272  012604                          MOV     (SP)+,R4        ;RESTORE R4,R3,R2
047274  012603                          MOV     (SP)+,R3
047276  012602                          MOV     (SP)+,R2
047300  000207                          RTS     PC              ;RETURN TO CALLING ROUTINE
```

```
                                        .SBTTL          LOG AND QUE REC BUFFERS
                                        ;**
                                        ; FUNCTIONAL DESCRIPTION:       LOGAQR - QUE AND LOG RX BUFFERS
                                        ;                       THIS ROUTINE QUEUES THE REC BUFFER POINTED TO BY
                                        ;                       CPTRR
                                        ; INPUTS:               CPTRR - POINTS TO POINTER TABLE ENTRY
                                        ; IMPLICIT OUTPUTS:
                                        ;                       BUFFER QUEUED FOR THIS ENTRY
                                        ; CALLING SEQUENCE:
                                        ;                       JSR     PC,LOGAQR
                                        ;

047302  013702  017336          LOGAQR: MOV     CPTRR,R2        ;LOAD R2 FROM POINTER
047306  011237  017354                  MOV     (R2),TEMP2      ;SET UP ADDRESS FOR LOGGING
047312  012237  017270                  MOV     (R2)+,DVRXA     ;SET UP ADDRESS FOR DEVICE
047316  011237  017356                  MOV     (R2),TEMP3      ;SET UP CHAR COUNT FOR LOGGING
047322  011237  017272                  MOV     (R2),DVRCC      ;SET UP COUNT FOR DEVICE
047326  010237  017336                  MOV     R2,CPTRR        ;RESTORE POINTER
047332  004737  064006                  JSR     PC,DVRXQ        ;QUEUE  REC BUFFER
047336  004737  042056                  JSR     PC,LOGRXQ       ;LOG RXQ
047342  000207                          RTS     PC              ;RETURN TO CALLER
```

```
                                        .SBTTL          SHOW MODE OF OPERATION, LOOP TYPE AND QUALIFIERS
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:
                                        ;       SHWOP   SHOW MODE OF OPERATION, LOOP, QULAIFIERS
                                        ;               PRINTED ON THE OPERATOR'S CONSOLE.
                                        ;
                                        ; INPUTS:
                                        ;       DEV1=   MODE TYPE (MODTYP)
                                        ;       DEV2=   MAINT LOOP TYPE (MLTYP)
                                        ;       DEV3=   "RUN PASS" COUNT (RPASS)   COUNT DOWN
                                        ;       DEV4=   PARAMTERS WORD (PARAM)
                                        ;
                                        ; IMPLICIT INPUTS:
                                        ;       MODES= TABLE OF ADDRESSES OF MODE NAME STRINGS
                                        ;       LOOPS= TABLE OF ADDRESSES OF LOOP TYPE NAMES
                                        ;
                                        ; CALLING SEQUENCE:
                                        ;       JSR PC,SHWOP
                                        ;--
047344  013702  020652          SHWOP:  MOV     DEV1,R2         ;GET THE MODE TYPE IN R2
047350  006302                          ASL     R2              ;MAKE IT A WORD TABLE OFFSET
047352  016237  003344  017350          MOV     MODES(R2),TEMP  ;GET ADDRESS OF MODE IN ASCII
047360  013702  020654                  MOV     DEV2,R2         ;GET MAINTENANCE LOOP TYPE
047364  006302                          ASL     R2
047366  012737  026766  017356          MOV     #LP00,TEMP3     ;LOAD TEMP3 TO POINT TO "/LOOP="
047374  005702                          TST     R2              ;SEE IF /LOOP=XXXXX OR NONE
047376  001003                          BNE     10$             ; BR IF /LOOP= OF SOME KIND
047400  012737  026765  017356          MOV     #LP0,TEMP3      ;IF NO LOOP THEN DON'T PRINT  /LOOP-
047406  016237  003362  017352  10$:    MOV     LOOPS(R2),TEMP1 ;GET ADDRESS OF LOOP-IN ASCII
047414  013737  020656  017354          MOV     DEV3,TEMP2      ;GET NUMBER OF PASSES
047422                                  PRINTS  #SMF0,TEMP,TEMP3,TEMP1,TEMP2
047422  013746  017354                                                          MOV     TEMP2,(SP)
047426  013746  017352                                                          MOV     TEMP1,(SP)
047432  013746  017356                                                          MOV     TEMP3,(SP)
047436  013746  017350                                                          MOV     TEMP,(SP)
047442  012746  027531                                                          MOV     #SMF0,(SP)
047446  012746  000005                                                          MOV     #5,(SP)
047452  010600                                                                  MOV     SP,R0
047454  104416                                                                  TRAP    C$PNTS
047456  062706  000014                                                          ADD     #14,SP

047462  005002                          CLR     R2              ;NOW SET UP FOR QUALIFIERS IN ASCII
047464  012737  027045  017350          MOV     #PST,TEMP
047472  032737  000001  020660          BIT     #STATB,DEV4     ;SEE IF /STATUS OR /NOSTATUS
047500  001003                          BNE     1$              ;BR IF /STATUS
047502  012737  027043  017350          MOV     #PNST,TEMP
047510  012737  027056  017352  1$:     MOV     #PCK,TEMP1
047516  032737  000002  020660          BIT     #DATCKB,DEV4    ;SEE IF /CHECK OR /NOCHECK
047524  001003                          BNE     2$              ;BR IF /CHECK
047526  012737  027054  017352          MOV     #PNCK,TEMP1
047534  012737  027066  017354  2$:     MOV     #PEC,TEMP2
047542  032737  000004  020660          BIT     #ECHOB,DEV4     ;SEE IF /ECHO OR /NOECHO
047550  001003                          BNE     3$              ;BR IF /ECHO
047552  012737  027064  017354          MOV     #PNEC,TEMP2
```

```
65
66 047560  012737  027075  017362  3$:   MOV     #PMS,TEMP5
67 047566  032737  000010  020660        BIT     #MOCHK,DEV4       ;SEE IF MODEM OR /NOMODEM
68 047574  001003                        BNE     5$                ;BRANCH IF MODEM
69 047576  012737  027073  017362        MOV     #PNMS,TEMP5
70
71 047604                          5$:   PRINTS  #SHF1,TEMP,TEMP1,TEMP2,TEMP5     ;,TEMP3,TEMP4 **RFU**
   047604  013746  017362                                                          MOV     TEMP5,-(SP)
   047610  013746  017354                                                          MOV     TEMP2,-(SP)
   047614  013746  017352                                                          MOV     TEMP1,-(SP)
   047620  013746  017350                                                          MOV     TEMP, (SP)
   047624  012746  027567                                                          MOV     #SHF1,-(SP)
   047630  012746  000005                                                          MOV     #5,-(SP)
   047634  010600                                                                  MOV     SP,R0
   047636  104416                                                                  TRAP    C$PNTS
   047640  062706  000014                                                          ADD     #14,SP
72 047644  000207                        RTS     PC                ;RETURN
73
74
```

```
                                        .SBTTL          TRAVERSE COMMAND LINE SUBROUTINES
                                        ;**
                                        ;       P$TRV SUBROUTINE
                                        ;
                                        ;PARSE THE COMMAND LINE SUBROUTINE
                                        ;TAKE ACTIONS (VIA ACTION TREE) AS PARSING LINE
                                        ;PARSING DIRECTIONS FROM 'CLI PARSING NODES'
                                        ;   REGS USED:
                                        ;
                                        ;       R1,R5=SCRATCH                           P$NUM=NUMERIC CODE FROM DATA
                                        ;       R2=ACTION CODE PARAMETER FROM TREE
                                        ;       R3=PARSE TREE POINTER
                                        ;       R4=INPUT STRING POINTER
                                        ; CALLING SEQUENCE:
                                        ;       JSR     PC,P$TRV
                                        ;
047646                                  P$TRV:
047646  013704  003374                          MOV     P$BUFA,R4
047652  013703  003376                          MOV     P$TREE,R3
047656  105714                          P$TR5:  TSTB    (R4)            ;SEE IF ANY CHARS LEFT IN INPUT STRING
047660  001441                                  BEQ     P$EXIT          ;BR IF NO
047662  121327  000013                          CMPB    (R3),#11.       ;SEE IF SPECIAL CLI CHAR CODE OR ASCII
047666  003023                                  BGT     20$             ;BR IF REGULAR ASCII CHAR.
047670  111305                                  MOVB    (R3),R5         ;GET SPECIAL CHAR CODE INTO R5
047672  006305                                  ASL     R5
047674  016505  047710                          MOV     10$(R5),R5      ;BUILD TRAVERSE ROUTINE ADDRESS
047700  062705  047710                          ADD     #10$,R5
047704  004715                                  JSR     PC,(R5)         ;JSR TO SPECIAL CLI TRAVERSE ROUTINE
047706  000763                                  BR      P$TR5           ;GO SEE IF MORE OF STRING LEFT

047710  000114                          10$:    .WORD   TRVERR-10$      ;TRAVERSE TABLE FOR "CLI FUNCTIONS'
047712  000134                                  .WORD   TRVEXI-10$      ;1
047714  000152                                  .WORD   TRVBR-10$       ;2
047716  000162                                  .WORD   TRVBIF-10$      ;3
047720  000204                                  .WORD   TRVSPA-10$      ;4
047722  000270                                  .WORD   TRVNUM-10$      ;5
047724  000604                                  .WORD   TRVALP-10$      ;6
047726  000650                                  .WORD   TRVALN-10$      ;7
047730  000270                                  .WORD   TRVOCT-10$      ;8
047732  000256                                  .WORD   TRVDEC-10$      ;9
047734  000736                                  .WORD   TRVSTR-10$      ;10

                                        ;NOT A SPECIAL CODE

047736  121314                          20$:    CMPB    (R3),(R4)       ;SEE IF FIRST CHAR OF STRING IS A MATCH
047740  001403                                  BEQ     22$             ;BR IF A MATCH
047742  004737  050006                          JSR     PC,TRVBRC       ;IF NOT A MATCH, GO TAKE MISS BRANCH
047746  000743                                  BR      P$TR5           ;  THEN GO BACK PTG TO MISS NODE
047750  004737  047766                  22$:    JSR     PC,TRVACT       ;IF A MATCH, GO DO ACTION DEFINED BY
047754  062703  000004                          ADD     #4,R3           ;  ACTION CODE IN CLI NODE, THEN
                                                                        ;  ADJUST PTR TO NEXT CLI NODE
047760  005204                                  INC     R4              ;ADJUST BUF PTR TO NEXT CHAR IF MATCH
047762  000735                                  BR      P$TR5
```

```
047764  000207                          P$EXIT: RTS     PC              ;RETURN FROM PARSER
                                        ;- - - - - - - - - - - - - - - - - - - - - - - - - -
                                        ;GOTO USER ACTION ROUTINE
047766  116302  000001                  TRVACT: MOVB    1(R3),R2        ;GET ACTION CODE FROM CLI NODE
047772  042702  177400                          BIC     #177400,R2      ;CLEAR ANY SIGN EXTENSION
047776  013705  003400                          MOV     P$ACT,R5        ;GET ADDRESS OF CLI ACTION ROUTINE
050002  004715                                  JSR     PC,(R5)         ;GO DO ACTION DEFINED BY CODE
050004  000207                                  RTS     PC              ;RETURN TO CALLING CODE
                                        ;TAKE BRANCH IN TREE
050006  016305  000002                  TRVBRC: MOV     2(R3),R5        ;GET BRANCH DISPLACEMENT FROM TREE
050012  060503                                  ADD     R5,R3           ; AND POINT R3 TO THE "MISS" NODE
050014  000207                                  RTS     PC              ; RETURN TO P$TRV
                                        ;NO BRANCH TAKEN
050016  062703  000004                  TRVNOB: ADD     #4,R3           ;THINGS OK, UPDATE R3 TO POINT TO NEXT
050022  000207                                  RTS     PC              ; NODE AND RETURN TO P$TRV
                                        ;- - - - - - - - - - - - - - - - - - - - - - - - - -
050024  004737  047766                  TRVERR: JSR     PC,TRVACT       ;TAKE ERROR ACTION
050030  112737  177777  003411                  MOVB    #-1,P$GDBD      ;SET ERROR RETURN FLAG
050036  005726                                  TST     (SP)+           ;GET RID OF "JSR PUSH TO TRVERR
050040  000137  047764                          JMP     P$EXIT          ;RETURN DIRECT TO EXIT OF P$TRV ROUTINE
050044  004737  047766                  TRVEXI: JSR     PC,TRVACT       ;TAKE EXIT ACTION
050050  105037  003411                          CLRB    P$GDBD          ;SET GOOD/BAD FLAG TO "SUCCESS (0)
050054  005726                                  TST     (SP)+           ;GET RID OF "JSR PUSH TO TRVEXI"
050056  000137  047764                          JMP     P$EXIT          ;RETURN DIRECT TO EXIT OF P$TRV ROUTINE
050062  004737  047766                  TRVBR:  JSR     PC,TRVACT       ;GO TAKE BRANCH ACTION
050066  000137  050006                          JMP     TRVBRC
050072  004737  047766                  TRVBIF: JSR     PC,TRVACT
050076  105737  003411                          TSTB    P$GDBD          ;SEE IF P$GDBD SET OR CLEARED BY ACTION
050102  001402                                  BEQ     1$              ;IF CLEAR FALL THRU TO NEXT NODE
050104  000137  050006                          JMP     TRVBRC          ;ELSE TAKE THE "MISS" BRANCH
050110  000137  050016                  1$:     JMP     TRVNOB          ;JUST UPDATE TO NEXT NODE IF THINGS OK
050114  005005                          TRVSPA: CLR     R5              ;CLEAR "SPACE OR TAB FOUND' FLAG
050116  121427  000011                  1$:     CMPB    (R4),#11        ;SEE IF CHAR. IN CMD LINE= TAB
050122  001003                                  BNE     2$              ;BR IF NO, NOT A TAB
050124  005204                                  INC     R4              ;INC INPUT STRING POINTER
050126  005205                                  INC     R5              ;INDICATE A TAB FOUND
050130  000772                                  BR      1$              ;GO CHECK NEXT CHAR
050132  121427  000040                  2$:     CMPB    (R4),#40        ;SEE IF CHAR. IN CMD LINE= SPACE
050136  001003                                  BNE     10$             ;BR IF NO, NON-SPACE OR NON TAB CHAR.
050140  005204                                  INC     R4              ;INC INPUT STRING POINTER
050142  005205                                  INC     R5              ;INDICATE A SPACE FOUND
050144  000764                                  BR      1$              ;GO CHECK NEXT CHAR
050146  005705                          10$:    TST     R5              ;SEE IF ANY SPACES OR TABS FOUND
050150  001404                                  BEQ     15$             ;BR IF NO, TAKE NO ACTION
050152  004737  047766                          JSR     PC,TRVACT       ;GO TAKE ACTION IF ANY FOUND
050156  000137  050016                          JMP     TRVNOB          ;JUST GO UPDATE R3 TO NEXT NODE IF OK
050162  000137  050006                  15$:    JMP     TRVBRC          ;TAKE BRANCH (MISS) IF NONE FOUND
```

```


050166  012737  000012  003406  TRVDEC: MOV     #10.,P$RADX             ;USE DECIMAL AS RADIX AND ASSUME +
050174  000137  050206                  JMP     TRVNMA
050200                          TRVOCT: ;(SAME AS TRVNUM SINCE DEFAULT RADIX IS OCTAL)
050200  012737  000010  003406  TRVNUM: MOV     #8.,P$RADX              ;USE OCTAL AS RADIX AND ASSUME +
050206  005005                  TRVNMA: CLR     R5                      ;CLEAR DIGIT COUNTER
050210  121427  000053                  CMPB    (R4),#'+                ;SEE IF THERE'S A + SIGN THERE
050214  001001                          BNE     10$                     ; BR IF NO
050216  000406                          BR      11$                     ; ELSE P$RADX ALREADY SAYS +, JUST BR
050220  121427  000055          10$:    CMPB    (R4),#'-                ;SEE IF THERE'S A   SIGN THERE
050224  001004                          BNE     1$                      ; BR IF NO
050226  11273   177777  003407          MOVB    #-1,P$RADX+1            ;SET "MINUS FLAG" (HI BYTE OF P$RADX)
050234  00520                   11$:    INC     R4                      ;BUMP R4 TO POINT TO FIRST CHAR

050236  121427  000060          1$:     CMPB    (R4),#60                ;SEE IF CHAR. LESS THAN A "0"
050242  002434                          BLT     2$                      ;BR IF YES (NOT NUMERIC)
050244  121427  000067                  CMPB    (R4),#67                ;SEE IF CHAR. GREATER THAN A '7"
050250  003426                          BLE     13$                     ; BR IF YES
050252  123727  003406  000012          CMPB    P$RADX,#10.             ;SEE IF IN DECIMAL MODE
050260  001417                          BEQ     12$                     ; BR IF YES (CAN USE HIGHER LIMIT)
050262  121427  000071                  CMPB    (R4),#71                ;SEE IF DIGIT WAS A 8 OR 9
050266  003022                          BGT     2$                      ;BR IF NON NUMERIC
050270                                  PRINTF  #CLIBRX                 ;ELSE WAS A 8 OR 9 WHEN IN OCTAL RADIX
050270  012746  023457                                                                  MOV     #CLIBRX,(SP)
050274  012746  000001                                                                  MOV     #1,-(SP)
050300  010600                                                                          MOV     SP,R0
050302  104417                                                                          TRAP    C$PNTF
050304  062706  000004                                                                  ADD     #4,SP
050310  112737  177777  003411          MOVB    # 1,P$GDBD              ;SET ERROR RETURN FLAG
050316  000474                          BR      5$                      ; PRINT ERROR AND TAKE MISS

050320  121427  000071          12$:    CMPB    (R4),#71                ;SEE IF CHAR. GREATER THAN A "9'
050324  003003                          BGT     2$                      ;BR IF YES (NOT NUMERIC)
050326  005204                  13$:    INC     R4                      ;UPDATE CMD LINE PTR TO NEXT CHAR.
050330  005205                          INC     R5                      ;INDICATE A NUMERIC FOUND
050332  000741                          BR      1$                      ;GO LOOK AT NEXT CHAR.

050334  005705                  2$:     TST     R5                      ;SEE IF FOUND ANY NUMERICS
050336  001464                          BEQ     5$                      ;BR IF NO, TAKE "MISS' BRANCH
050340  010401                          MOV     R4,R1                   ;GET POINTER TO START OF NUMERIC STRING
050342  160501                          SUB     R5,R1
050344  005037  003404                  CLR     P$NUM                   ;CLEAR LOC. WHERE VALUE WILL BE STORED
050350  112102                  3$:     MOVB    (R1)+,R2                ;GET ASCII CHAR AND CONVERT IT TO A #
050352  162702  000060                  SUB     #60,R2
050356  006337  003404                  ASL     P$NUM                   ;SHIFT CURRENT VALUE TO MAKE ROOM
050362  103437                          BCS     7$                      ;ERROR IF NUMBER TOO BIG
050364  013737  003404  003402          MOV     P$NUM,P$CNT             ;SAVE FOR LATER IN CASE DECIMAL RADIX
050372  006337  003404                  ASL     P$NUM
050376  103431                          BCS     7$                      ;ERROR IF NUMBER TOO BIG
050400  006337  003404                  ASL     P$NUM
050404  103426                          BCS     7$                      ;ERROR IF NUMBER TOO BIG
050406  123727  003406  000012          CMPB    P$RADX,#10.             ;SEE IF DECIMAL RADIX
050414  001004                          BNE     4$                      ;BR IF NOT EQUAL
050416  063737  003402  003404          ADD     P$CNT,P$NUM
050424  103416                          BCS     7$                      ;ERROR IF NUMBER TOO BIG
050426  060237  003404          4$:     ADD     R2,P$NUM
```

```
                                        BCS     7$                      ;ERROR IF NUMBER TOO BIG
                                        DEC     R5
                                        BNE     3$
                                        TSTB    P$RADX+1                ;SEE IF NUM WAS PRECEDED BY A   SIGN
                                        BEQ     15$                     ; BR IF NO
                                        NEG     P$NUM                   ; ELSE NEGATE THE NUMBER BEFORE LEAVING
                                15$:    JSR     PC,TRVACT               ;SINCE NUMERIC FOUND, GO TAKE ACTION
                                        JMP     TRVNOB                  ;GO POINT R3 TO NEXT NODE

                                7$:     PRINTF  #CLINBG                 ;PRINT NUMBER TOO BIG ERROR
                                                                                MOV     #CLINBG, (SP)
                                                                                MOV     #1, (SP)
                                                                                MOV     SP,R0
                                                                                TRAP    C$PNTF
                                                                                ADD     #4,SP
                                        MOVB    #-1,P$GDBD              ;SET ERROR RETURN FLAG
                                5$:     JMP     TRVBRC                  ;TAKE "MISS" BRANCH


                                TRVALP: CLR     R5                      ;CLEAR ALPHA FOUND FLAG
                                1$:     CMPB    (R4),#101               ;SEE IF CHAR. LESS THAN A "A"
                                        BLT     2$                      ;BR IF YES (NOT ALPHA)
                                        CMPB    (R4),#132               ;SEE IF CHAR. GREATER THAN A 'Z
                                        BGT     2$                      ;BR IF YES (NOT ALPHA)
                                        INC     R4                      ;UPDATE CMD LINE PTR TO NEXT CHAR
                                        INC     R5                      ;INDICATE AN ALPHA WAS FOUND
                                        BR      1$                      ;GO LOOK AT NEXT CHAR.
                                2$:     TST     R5                      ;SEE IF ANY ALPHA'S WERE FOUND
                                        BEQ     3$                      ;BR IF NO
                                        JSR     PC,TRVACT               ;IF ANY FOUND TAKE ACTION
                                        JMP     TRVNOB                  ;THEN UPDATE R3 TO NEXT NODE  NO BRANCH
                                3$:     JMP     TRVBRC                  ;NONE FOUND, TAKE MISS BRANCH

                                TRVALN: CLR     R5                      ;CLEAR ALPHANUM FOUND FLAG
                                10$:    CMPB    (R4),#60                ;SEE IF CHAR. LESS THAN A "0"
                                        BLT     2$                      ;BR IF YES (NOT NUMERIC OR ALPHA)
                                        CMPB    (R4),#72                ;SEE IF CHAR. GREATER THAN A "9"
                                        BGT     1$                      ;BR IF YES (NOT NUMERIC)
                                        INC     R4                      ;UPDATE CMD LINE PTR TO NEXT CHAR.
                                        INC     R5                      ;INDICATE A NUMERIC FOUND
                                        BR      10$                     ;GO LOOK AT NEXT CHAR.
                                1$:     CMPB    (R4),#101               ;SEE IF CHAR. LESS THAN A "A"
                                        BLT     2$                      ;BR IF YES (NOT ALPHA)
                                        CMPB    (R4),#132               ;SEE IF CHAR. GREATER THAN A 'Z
                                        BGT     2$                      ;BR IF YES (NOT ALPHA)
                                        INC     R4                      ;UPDATE CMD LINE PTR TO NEXT CHAR
                                        INC     R5                      ;INDICATE AN ALPHA FOUND
                                        BR      10$                     ;GO LOOK AT NEXT CHAR.
                                2$:     TST     R5                      ;SEE IF ANY ALPHANUM'S WERE FOUND
                                        BEQ     3$                      ;BR IF NO
                                        JSR     PC,TRVACT               ;IF ANY FOUND TAKE ACTION
                                        JMP     TRVNOB                  ;THEN UPDATE R3 TO NEXT NODE  NO BRANCH
                                3$:     JMP     TRVBRC                  ;NONE FOUND, TAKE MISS BRANCH


                                TRVSTR: MOV     R4,R1                   ;POINT R1 TO CMD STRING
```

```
219 050650  010305                      MOV     R3,R5
220 050652  062705  000006              ADD     #6,R5               ;POUNT R5 TO MATCH STRING FROM CLI NODE
221 050656  005037  003402              CLR     P$CNT               ;CLEAR CHAR MATCH COUNT
222 050662  105715              2$:     TSTB    (R5)                ;SEE IF END OF MATCH STRING YET
223 050664  001411                      BEQ     10$                 ;BR IF YES
224 050666  105711                      TSTB    (R1)                ;SEE IF END OF CMD LINE YET
225 050670  001407                      BEQ     10$                 ;BR IF YES
226 050672  121115                      CMPB    (R1),(R5)           ;SEE IF CHARACTERS MATCH
227 050674  001005                      BNE     10$                 ;BR IF NO
228 050676  005237  003402              INC     P$CNT               ;MATCH -INCREMENT MATCH COUNT
229 050702  005201                      INC     R1                  ;UPDATE STRING POINTERS
230 050704  005205                      INC     R5
231 050706  000765                      BR      2$                  ;BR TO CONTINUE CHECKING CHARS.
232
233 050710  005737  003402      10$:    TST     P$CNT               ;WHEN DONE SEE IF ANY MATCHES FOUND
234 050714  001406                      BEQ     15$                 ;BR IF NO, GO TAKE THE MISS BRANCH
235 050716  010104                      MOV     R1,R4               ;POINT CMD POINTER TO END OF STRING &
236 050720  004737  047766              JSR     PC,TRVACT           ;IF A MATCH FOUND, GO DO MATCH ACTION
237 050724  066303  000004              ADD     4(R3),R3            ;UPDATE R3 TO NEXT NODE (NO BRANCH)
238 050730  000207                      RTS     PC                  ; (NO RETURN THRU TRVNOB SINCE DIFFERENT
239                                                                 ;  DISPLACEMENT DUE TO MATCH STRING)
240 050732  000137  050006      15$:    JMP     TRVBRC              ; GO TAKE BRANCH
241
242                                                                 ; (PARSED OK),  1 IF ILL CMD.....
243                             ;--- - ---------------------- --- --  --  ---  -                       - -
244
```

```
                                .SBTTL  REPORT CODING SECTION


                                ;++
                                ; THE REPORT CODING SECTION CONTAINS THE
                                ;  'PRINTS" CALLS THAT GENERATE STATISTICAL REPORTS.
                                ;

 050736                                 BGNRPT
 050736                                                                  L$RPT::

 050736  004737  042554                 JSR     PC,REPORT              ;CALL SUBROUTINE TO DUMP EVENT LOG
                                                                        ; AND BASE TABLE


 050742                                 ENDRPT
 050742                                                                  L10011:
 050742  104425                                                                 TRAP    C$RPT
```

```
      1                                 .SBTTL  PROTECTION TABLE
      2
      3                                 ;++
      4                                 ; THIS TABLE IS USED BY THE RUNTIME SERVICES
      5                                 ; TO PROTECT THE LOAD MEDIA.
      6                                 ;
      7
      8 050744                                BGNPROT
        050744                                                                  L$PROT::
      9
     10 050744  177777                           1              ;OFFSET INTO P-TABLE FOR CSR ADDRESS
     11 050746  177777                           1              ;OFFSET INTO P TABLE FOR MASSBUS ADDRESS
     12 050750  177777                           1              ;OFFSET INTO P TABLE FOR DRIVE NUMBER
     13
     14 050752                                ENDPROT
     15
```

```
                                .SBTTL  INITIALIZE SECTION
                                ;++
                                ; THE INITIALIZE SECTION CONTAINS THE CODING THAT IS PERFORMED
                                ; AT THE BEGINNING OF EACH PASS.
                                ;

 8 050752                               BGNINIT
   050752                                                                   L$INIT::
 9
33
34 050752  005737  017376              TST     DCLFLG                  ;IS DOCLEAN SET
35 050756  001403                      BEQ     INIT1                   ;BRANCH IF NOT
36 050760  005037  017376              CLR     DCLFLG                  ;IF SET CLEAR IT
37 050764                              DOCLN
   050764  104444                                                               TRAP    C$DCLN
38 050766  005037  017416      INIT1:  CLR     RUNING                  ; INIT "DCLT RUNNING" FLAG
39 050772  012737  177777  017400    MOV     #-1,RESFLG              ;SET RESTART FLAG
40 051000                              READEF  #EF.START               ;IF HERE CAUSE OF START,DO SOME INIT
   051000  012700  000040                                                       MOV     #EF.START,R0
   051004  104447                                                               TRAP    C$REFG
41 051006                              BCOMPLETE       START
   051006  103417                                                               BCS     START
42 051010                              READEF  #EF.RESTART             ;IF HERE CAUSE OF RESTART, DO SOME INIT
   051010  012700  000037                                                       MOV     #EF.RESTART,R0
   051014  104447                                                               TRAP    C$REFG
43 051016                              BCOMPLETE       RESTRT
   051016  103514                                                               BCS     RESTRT
44 051020                              READEF  #EF.CONTINUE            ;SEE IF WE RE HERE CAUSE OF A CONTINUE
   051020  012700  000036                                                       MOV     #EF.CONTINUE,R0
   051024  104447                                                               TRAP    C$REFG
45 051026                              BNCOMPLETE      S1              ;BR IF NOT HERE CAUSE OF CONTINUE
   051026  103002                                                               BCC     S1
46 051030  000137  051652              JMP     ENDIT                   ;JMP IF HERE CAUSE OF A CONTINUE
47 051034                      S1:     READEF  #EF.NEW                 ;SEE IF THIS IS A "NEW PASS"
   051034  012700  000035                                                       MOV     #EF.NEW,R0
   051040  104447                                                               TRAP    C$REFG
48 051042                              BCOMPLETE       NEW             ;IF YES, BR AROUND LOGUNIT # SETUP
   051042  103522                                                               BCS     NEW
49 051044  000524                      BR      GETPRM
50
51 051046  005037  017400      START:  CLR     RESFLG                  ;CLEAR RESTART FLAG SINCE HERE ON START
52 051052                              BRESET                          ;INIT ENTIRE BUS
   051052  104433                                                               TRAP    C$RESET
53 051054  005037  017442              CLR     CLKVEC                  ;CLEAR CLK VECTOR PTR. AS A FLAG IN
54                                                                     ; NO CLOCK IS FOUND.
55 051060  012702  017436              MOV     #CLKCSR,R2              ;SETUP R2 AS A PTR. TO CLOCK INFO BLOCK
56 051064                              CLOCK   L,R1                    ;LOOK FOR A LINE CLOCK
   051064  012700  000114                                                       MOV     #'L,R0
   051070  104462                                                               TRAP    C$CLCK
   051072  010001                                                               MOV     R0,R1
57 051074                              BNCOMPLETE      S2              ; IF NONE THERE GO LOOK FOR A P CLOCK
   051074  103006                                                               BCC     S2
58 051076  004737  041654              JSR     PC,CLKSET               ; GO SET UP CLOCK INFO TABLE & CLK VEC.
59 051102  012737  000100  017446      MOV     #LCLKEN,CLKFN           ;SETUP THE ENABLE LINE CLOCK DATA
60 051110  000457                      BR      RESTRT
61
```

```
     62 051112                          S2:     CLOCK   P,R1                    ;LOOK FOR A P CLOCK SINCE NO LINE CLOCK
        051112  012700  000120                                                          MOV     #'P,R0
        051116  104462                                                                  TRAP    C$CLCK
        051120  010001                                                                  MOV     R0,R1
     63 051122                                  BNCOMPLETE      S3                   ; IF NONE THERE GO SEE IF THIS IS LSI
        051122  103017                                                                  BCC     S3
     64 051124  004737  041654                  JSR     PC,CLKSET                   ; ELSE GO SET UP CLOCK INFO & VECTOR
     65 051130  062737  000002  017436          ADD     #2,CLKCSR                   ;POINT CLKCSR TO P-CLK COUNT SET REG.
     66 051136  012777  001600  146272          MOV     #PCLKCT,@CLKCSP             ;LOAD CLK SET REG. WITH COUNT VALUE
     67 051144  162737  000002  017436          SUB     #2,CLKCSR                   ;POINT CLKCSR BAC TO P CLK CSR
     68 051152  012737  000111  017446          MOV     #PCLKEN,CLKEN               ;SETUP THE ENABLE THE P-CLK DATA
     69 051160  000433                          BR      RESTRT
     70
     71 051162                          S3:     READBUS                             ;READ BUS TYPE TO SEE IF ON AN LSI
        051162  104407                                                                  TRAP    C$RDBU
     72 051164                                  BNCOMPLETE      S4                  ;BR IF NOT, NO CHANCE OF A CLOCK
        051164  103021                                                                  BCC     S4
     73 051166  012737  000100  017442          MOV     #100,CLKVEC                 ;LOAD 100 AS CLK VECTOR
     74 051174  005037  017440                  CLR     CLKBR                       ;LOAD 0 AS CLK INT. LEVEL
     75 051200  012737  017446  017436          MOV     #CLKEN,CLKCSR               ;KLUDGE UP THE CSR & ENABLE DATA LOCS
     76 051206                                  GMANID  L5060,CLKHZ,D,377,50.,60.,YES
        051206  104443                                                                  TRAP    C$GMAN
        051210  000406                                                                  BR      10000$
        051212  017444                                                                  .WORD   CLKHZ
        051214  000052                                                                  .WORD   T$CODE
        051216  027121                                                                  .WORD   L5060
        051220  000377                                                                  .WORD   377
        051222  000062                                                                  .WORD   T$LOLIM
        051224  000074                                                                  .WORD   T$HILIM
        051226                                                                  10000$:
     77 051226  000410                          BR      RESTRT
     78
     79
     80 051230                          S4:     PRINTF  #BDCLK
        051230  012746  027232                                                          MOV     #BDCLK, (SP)
        051234  012746  000001                                                          MOV     #1,-(SP)
        051240  010600                                                                  MOV     SP,R0
        051242  104417                                                                  TRAP    C$PNTF
        051244  062706  000004                                                          ADD     #4,SP
     81 051250  005037  017450          RESTRT: CLR     TIMMIN                      ;CLEAR TIME SINCE START LOCATIONS
     82 051254  005037  017452                  CLR     TIMSEC
     83 051260  013737  017444  017454          MOV     CLKHZ,TIMTCK                ;LOAD TICKS/SEC
     84 051266  012702  017466                  MOV     #EVTLOG,R2                  ;INIT EVENT TABLE TO ALL 1 S AFTER EACH
     85 051272  010237  017464                  MOV     R2,EVTPTR                   ; START OR RES AND INIT TABLE POINTER
     86 051276  012722  177777          1$:     MOV     #-1,(R2)+
     87 051302  020227  020522                  CMP     R2,#EVTEND                  ;SEE IF REACHED END OF TABLE
     88 051306  001373                          BNE     1$                          ;LOOP UNTIL DONE
     89
     90 051310  012737  177777  017372  NEW:    MOV     #-1,LOGUNT                  ;INITIALIZE LOGICAL UNIT #
     91
     92 051316  005237  017372          GETPRM: INC     LOGUNT                      ;POINT TO NEXT LOGICAL UNIT
     93 051322  023737  017372  002012          CMP     LOGUNT,L$UNIT               ;SEE IF PAST MAX. LOG. UNIT #
     94 051330  002367                          BGE     NEW                         ;BR IF YES, AND START OVER
     95
     96 051332                                  GPHARD  LOGUNT,R1                   ;GET THE P TABLE FOR THIS LOG. UNIT
        051332  013700  017372                                                          MOV     LOGUNT,R0
        051336  104442                                                                  TRAP    C$GPHRD
```

```
051340  010001                                                                     MOV     R0,R1
051342                                BNCOMPLETE      GETPRM          ;IF NO P TABLE AVAIL., GO GET NEXT ONE
051342  103365                                                                     BCC     GETPRM

051344  011137  017406                MOV     (R1),FHDPLX             ;PUT FULL OR HALF DUPLEX ANSWER IN LOC.



                                      ;DEVICE DEPENDENT PART OF GETTING INFO FROM P TABLE

051350  016137  000002  023052        MOV     2(R1),SEL0              ;STORE AWAY CSR ADDRESSES
051356  016137  000002  023054        MOV     2(R1),BSEL1
051364  005237  023054                INC     BSEL1
051370  016137  000002  023056        MOV     2(R1),SEL2
051376  062737  000002  023056        ADD     #2,SEL2
051404  016137  000002  023060        MOV     2(R1),BSEL3
051412  062737  000003  023060        ADD     #3,BSEL3
051420  016137  000002  023062        MOV     2(R1),SEL4
051426  062737  000004  023062        ADD     #4,SEL4
051434  016137  000002  023064        MOV     2(R1),BSEL5
051442  062737  000005  023064        ADD     #5,BSEL5
051450  016137  000002  023066        MOV     2(R1),SEL6
051456  062737  000006  023066        ADD     #6,SEL6
051464  016137  000002  023070        MOV     2(R1),BSEL7
051472  062737  000007  023070        ADD     #7,BSEL7

051500  016137  000004  023072        MOV     4(R1),INVEC             ;STORE AWAY INPUT INTERRUPT VECTOR
051506  016137  000004  023074        MOV     4(R1),OUTVEC
051514  062737  000004  023074        ADD     #4,OUTVEC               ;BUILD OUTPUT INTERRUPT VECTOR
051522  016137  000006  023076        MOV     6(R1),INTPRI            ;STORE AWAY INTERRUPT PRIORITY
051530  016137  000010  023102        MOV     10(R1),DEVPAR           ;SORE AWAY PARAMS
051536  016137  000012  023100        MOV     12(R1),OPTYP            ;STORE AWAY DEVICE OPTION TYPE
051544  032737  000003  023100        BIT     #3,OPTYP                ;IS THIS A DMV
051552  001417                        BEQ     11$
051554  012737  000454  016202        MOV     #300.,DMVDF1
051562  012737  001130  016204        MOV     #600.,DMVDF2
051570  012737  001130  016210        MOV     #600.,DMVDF3
051576  012737  000024  016212        MOV     #24,DMVDF4
051604  012737  001750  016214        MOV     #1000.,DMVDF5           ;SET UP DMV DEFAULTS
051612  005037  023104          11$:  CLR     STATYP                  ;CLEAR STATION TYPE
051616  032737  000001  023102        BIT     #MTP,DEVPAR             ;IS THIS MULTIPOINT
051624  001407                        BEQ     1$                      ;BRANCH IF PT TO PT
051626  052737  000004  023104        BIS     #BIT2,STATYP            ;IF MULTIPOINT SET BIT
051634  032737  000002  023102        BIT     #TRBB,DEVPAR            ;IS THIS A TRIB
051642  001003                        BNE     ENDIT                   ;BRANCH IF  CONTROL
051644  052737  000002  023104   1$:  BIS     #BIT1,STATYP            ;SET STATION TYPE
051652                          ENDIT:
051652                                SETVEC  CLKVEC,#CLKINT,#340     ;SETUP CLOCK VECTOR
051652  012746  000340                                                             MOV     #340,-(SP)
051656  012746  041700                                                             MOV     #CLKINT,-(SP)
051662  013746  017442                                                             MOV     CLKVEC,-(SP)
051666  012746  000003                                                             MOV     #3,-(SP)
051672  104437                                                                     TRAP    C$SVEC
051674  062706  000010                                                             ADD     #10,SP


                                      ;DEVICE DEPENDENT VECTOR SETUP

051700                                SETVEC  INVEC,#DVINS,INTPRI     ;SETUP INPUT INTERRUPT VECTOR
```

INITIALIZE SECTION

```
        051700  013746  023076                                                          MOV     INTPRI,-(SP)
        051704  012746  066656                                                          MOV     @DVINS, (SP)
        051710  013746  023072                                                          MOV     INVEC,-(SP)
        051714  012746  000003                                                          MOV     #3,-(SP)
        051720  104437                                                                  TRAP    C$SVEC
        051722  062706  000010                                                          ADD     #10,SP
    166 051726                          SETVEC  OUTVEC,@DVOUTS,INTPRI   ;SETUP OUTPUT INTERRUPT VECTOR
        051726  013746  023076                                                          MOV     INTPRI, (SP)
        051732  012746  066674                                                          MOV     @DVOUTS,-(SP)
        051736  013746  023074                                                          MOV     OUTVEC,-(SP)
        051742  012746  000003                                                          MOV     #3, (SP)
        051746  104437                                                                  TRAP    C$SVEC
        051750  062706  000010                                                          ADD     #10,SP
    167
    168 051754                          SETPRI  @PRI00                  ;SET THE "RUN" PRIORITY TO 0
        051754  012700  000000                                                          MOV     @PRI00,R0
        051760  104441                                                                  TRAP    C$SPRI
    169 051762                          EXIT    INIT
        051762  104432                                                                  TRAP    C$EXIT
        051764  000002                                                                  .WORD   L10013 .
    170
    182
    183                                 .EVEN
    184
    185 051766                          ENDINIT
        051766                                                          L10013:
        051766  104411                                                                  TRAP    C$INIT
```

```
      1                                 .SBTTL  AUTODROP SECTION
      2
      3                                 ;++
      4                                 ; THIS CODE IS EXECUTED IMMEDIATELY AFTER THE INITIALIZE CODE IF
      5                                 ; THE "ADR" FLAG WAS SET.  THE UNIT(S) UNDER TEST ARE CHECKED TO
      6                                 ; SEE IF THEY WILL RESPOND.  THOSE THAT DON'T ARE IMMEDIATELY
      7                                 ; DROPPED FROM TESTING.
      8                                 ;-
      9
     10 051770                                  BGNAUTO
        051770                                                                  L$AUTO::
     11
     18
     19 051770                                  ENDAUTO
        051770                                                                  L10014:
        051770  104461                                                                  TRAP    C$AUTO
```

```
                                .SBTTL  CLEANUP CODING SECTION

                                ;**
                                ; THE CLEANUP CODING SECTION CONTAINS THE CODING THAT IS PERFORMED
                                ; AFTER THE HARDWARE TESTS HAVE BEEN PERFORMED.
                                ;

 051772                                 BGNCLN
 051772                                                                  L$CLEAN::

 051772  005037  017416                 CLR     RUNING          ; INIT DCLT RUNNING FLAG
 051776  012737  177777  017320         MOV     #-1,CLNSET      ;SET THE CLEANUP FLAG
 052004  004737  064776                 JSR     PC,HLTTRB       ;HALT ALL TRIBS
 052010  005037  017320                 CLR     CLNSET
 052014  105037  015756                 CLRB    TRIBN           ;
 052020  005037  017350                 CLR     TEMP            ; MODEM SIGNALS TO CLEAR
 052024  004737  064732                 JSR     PC,WRMCS        ; GO CLEAR MODEM SIGNALS
 052030  005077  145402                 CLR     @CLKCSR         ;DISABLE CLOCK
 052034                                 SETPRI  #PRIO7          ;SET PROCESSOR PRIORITY BACK TO 7
 052034  012700  000340                                                  MOV     #PRIO7,R0
 052040  104441                                                         TRAP    C$SPRI
 052042                                 EXIT    CLN
 052042  104432                                                         TRAP    C$EXIT
 052044  000002                                                         .WORD   L10015-.

                                .EVEN

 052046                                 ENDCLN
 052046                                                                  L10015:
 052046  104412                                                         TRAP    C$CLEAN
```

```
                                .SBTTL  DROP UNIT SECTION
                                ;**
                                ; THE DROP-UNIT SECTION CONTAINS THE CODING THAT CAUSES A DEVICE
                                ; TO NO LONGER BE TESTED.
                                ;--

052050                          BGNDU
052050                                                          L$DU::

                                EXIT    DU
052050  000167                                                          .WORD   J$JMP
052052  000000                                                          .WORD   L10016 2 .

                                .EVEN

                                ENDDU
052054                                                          L10016:
052054  104453                                                          TRAP    C$DU
```

```
                                .SBTTL  ADD UNIT SECTION

                                ;++
                                ; THE ADD-UNIT SECTION CONTAINS ANY CODE THE PROGRAMMER WISHES
                                ;  TO BE EXECUTED IN CONJUNCTION WITH THE ADDING OF A UNIT BACK
                                ;  TO THE TEST CYCLE.
                                ;

052056                                  BGNAU
052056                                                                  L$AU::

                                        EXIT    AU
052056  000167                                                                  .WORD   J$JMP
052060  000000                                                                  .WORD   L10017-2-.

                                        .EVEN

052062                                  ENDAU
052062                                                                  L10017:
052062  104452                                                                  TRAP    C$AU
```

```
                                .SBTTL  TEST 1:  SETUP AND MODES OF OPERATION


                                ;++
                                ; TEST TO DETECT FAULTS IN THE DATA COMMUNICATION LINK.  THIS TEST WILL
                                ; THE PROVIDE COVERAGE NECESSARY TO ISOLATE FAILURES TO THE COMPUTER
                                ; EQUIPMENT, THE COMMUNICATION LINK, OR THE MODEM.
                                ;--


052064                                  BGNTST
052064                                                                          T1::

                                .SBTTL          PROGRAM SETUP SECTION

052064  013777  017446  145344          MOV     CLKEN,@CLKCSR   ;ENABLE THE CLOCK

052072                          GTXRXB:
052072  005001                  GTRA2:  CLR     R1
052074  012737  000001  017456          MOV     #1,TIMER1       ;SET TIMER TO COUNT 1 TICK
052102  005737  017456          1$:     TST     TIMER1          ;CHECK FOR IT TO BE COUNTED OFF
052106  001412                          BEQ     GTRA3           ;BRANCH IF CLOCK EXISTS (COUNTED A TICK)
052110  005301                          DEC     R1
052112  001373                          BNE     1$              ;KEEP CHECKING UNTIL R1 DOES FULL COUNTDWN
052114                                  PRINTF  #NOCLK          ;PRINT BAD CLK MSG AND WARN OF HANG IF TIMEOUT
052114  012746  027256                                                  MOV     #NOCLK,-(SP)
052120  012746  000001                                                  MOV     #1,-(SP)
052124  010600                                                          MOV     SP,R0
052126  104417                                                          TRAP    C$PNTF
052130  062706  000004                                                  ADD     #4,SP

052134  005737  017400          GTRA3:  TST     RESFLG          ;SEE IF HERE AFTER A RESTART.
052140  001120                          BNE     GTRA5           ;BR IF HERE CAUSE OF A RESTART

                                        ; CLEAR COUNTS AND SET UP DEFAULTS

052142  005037  017344          GTRA4:  CLR     TOTCC           ;CLEAR TOTAL CHAR. COUNT TEMP. LOC.
052146  005037  017262                  CLR     TTOTCC          ; CLEAR TOTAL CHAR. COUNT FOR TX BUFF
052152  005037  017244                  CLR     CTOTCC          ; CLEAR TOTAL CHAR. COUNT FOR CMP BUFF
052156  012737  011416  017236          MOV     #PTRTAB,TXPTR   ;INIT TRANSMIT MESSAGE POINTER

052164  005037  017234                  CLR     RXPTR           ; ZERO RX POINTER
052170  012737  011512  017240          MOV     #PTR13,CMPPTR   ;INIT COMP POINTER

052176  012737  000005  017332          MOV     #5,MSGTYP       ;SET UP DEFAULT MSG TYPE (QUICK FOX   ITEP MSG)
052204  013737  002162  017334          MOV     MSG5C,CURCC     ;SET UP DEFAULT CHAR COUNT
052212  012737  003416  017264          MOV     #TXBUF,TCURAD   ;SET UP CURRENT ADD TO START OF TX BUFFER
052220  012737  004416  017246          MOV     #CMPBUF,CCURAD  ;SET UP CURRENT ADD TO START OF CMP BUFFER

052226  013737  017264  017342          MOV     TCURAD,CURADD   ;SETUP CURRENT ADDR TO START OF TXBUF
052234  013737  017236  017340          MOV     TXPTR,CPTR      ;SETUP CURRENT POINTER TABLE POINTER FOR TXBUF
052242  004737  045446                  JSR     PC,BLDBUF       ; GO BUILD POINTER TABLE AND BUFFER
052246  012737  000001  017260          MOV     #1,TXMTOT       ;BUMP TOTAL MESSAGE COUNT

052254  013737  017240  017340          MOV     CMPPTR,CPTR     ;SET UP START OF COMPARE POINTER TABLE
```

PROGRAM SETUP SECTION

```
     68 052262  013737  017246  017342          MOV     CCURAD,CURADD   ;SET UP CURRENT ADDR. TO START OF CMPBUF
     69 052270  012737  000005  017332          MOV     #5,MSGTYP
     70 052276  013737  002162  017334          MOV     MSG5C,CURCC
     71 052304  004737  045446                  JSR     PC,BLDBUF       ;PUT DEFAULT MESSAGE INTO CMPBUF
     72 052310  012737  000001  017242          MOV     #1,CMPTOT       ;BUMP THE COMP MESG COUNT
     73 052316  012737  000003  017402          MOV     #ACT,MODTYP     ;SET DEFAULT MODE= ACTIVE
     74 052324  005037  017404                  CLR     MLTYP           ;SET DEFAULT MAINTENANCE LOOP MODE =NONE
     75 052330  012737  000001  017412          MOV     #1,RPASS        ;SET UP DEFAULT "RUN PASS" COUNT TO 1
     76 052336  012737  000002  017410          MOV     #2,PARAM        ;SET UP PROG. PARAMETERS   DATA CHECKING ENABLD
     77                                                                 ;OPERATOR STATUS MSGS. PRINT OFF
     78 052344  012737  000061  003252          MOV     #KTRB,KEYWD1    ;SET UP KEYWRD.
     79 052352  004737  055472                  JSR     PC,ACTKAL       ;ZERO TRIB LIST
     80
     81 052356  004737  047214                  JSR     PC,WRDEFP       ;GO WRITE DEFAULTS TO TRIBS
     82
     83 052362                                  PRINTF  #HLP0
        052362  012746  024040                                                  MOV     #HLP0,-(SP)
        052366  012746  000001                                                  MOV     #1, (SP)
        052372  010600                                                          MOV     SP,R0
        052374  104417                                                          TRAP    C$PNTF
        052376  062706  000004                                                  ADD     #4,SP
     84 052402  010637  017364          GTRA5:  MOV     SP,SAVSP        ;SAVE OFF STACK
     85 052406  013737  017402  020652          MOV     MODTYP,DEV1
     86 052414  013737  017404  020654          MOV     MLTYP,DEV2
     87 052422  013737  017412  020656          MOV     RPASS,DEV3
     88 052430  013737  017410  020660          MOV     PARAM,DEV4
     89 052436  004737  047344                  JSR     PC,SHWOP        ;PRINT TO OPERATOR THE CURRENT MODE......
     90
     91 052442                                  MANUAL                  ;SEE IF MANUAL INTERVENTION ALLOWED
        052442  104450                                                          TRAP    C$MANI
     92 052444                                  BCOMPLETE       GETCL   ;  BR IF YES (UAM=0 AND NOT CHAINED)
        052444  103412                                                          BCS     GETCL
     93 052446  005737  017412                  TST     RPASS           ;SEE IF THIS IS FIRST "DCLT PASS"
     94 052452  001002                          BNE     1$              ; BR IF NOT COMPLETED 1 PASS
     95 052454                                  EXIT    TST             ; IF DONE 1 PASS IN UNATTENDED MODE   EXIT
        052454  104432                                                          TRAP    C$EXIT
        052456  014226                                                          .WORD   L10020-.
     96 052460  012737  000001  017404  1$:     MOV     #TTL,MLTYP      ;SET UP DEFAULT FOR UNATTENDED MODE
     97 052466  000137  057056                  JMP     GTR9            ;  "R M=ACT/LO=I/PAS=1/NOST/CH" AND RUN
     98
     99                                 .SBTTL          COMMAND LINE FETCH & INTERPRETATION SECTION
    100
    101 052472  105037  003411          GETCL:  CLRB    P$GDBD          ;CLEAR CMD LINE PARSING ERROP FLAGS
    102 052476  105037  003410                  CLRB    P$NNUF
    103 052502                                  GMANID  CLI$PM,CMDBUF,A,0,1,72.,NO      ;GET A COMMAND LINE FROM OPR.
        052502  104443                                                          TRAP    C$GMAN
        052504  000406                                                          BR      10000$
        052506  003130                                                          .WORD   CMDBUF
        052510  000142                                                          .WORD   T$CODE
        052512  023354                                                          .WORD   CLI$PM
        052514  000000                                                          .WORD   0
        052516  000001                                                          .WORD   T$LOLIM
        052520  000110                                                          .WORD   T$HILIM
        052522                                                          10000$:
    104 052522  012737  003130  003374          MOV     #CMDBUF,P$BUFA
    105 052530  012737  021170  003376          MOV     #CLITRE,P$TREE
    106 052536  012737  053436  003400          MOV     #CLIACT,P$ACT
```

```
    107 052544  005037  003254                  CLR     QUALFG                  ;CLEAR QUALIFIER FLAG LOCATION
    108 052550  004737  047646                  JSR     PC,P$TRV                ;GO PARSE COMMAND LINE
    109 052554  105737  003411                  TSTB    P$GDBD                  ;SEE IF PARSED OK OR AN ERROR
    110 052560  001412                          BEQ     1$
    111 052562                                  PRINTF  @CLIERM
        052562  012746  023362                                                  MOV     @CLIERM, (SP)
        052566  012746  000001                                                  MOV     #1, (SP)
        052572  010600                                                          MOV     SP,R0
        052574  104417                                                          TRAP    C$PNTF
        052576  062706  000004                                                  ADD     #4,SP
    112 052602  000137  052472                  JMP     GETCL
    113 052606  105737  003410          1$:     TSTB    P$NNUF                  ;SEE IF INCOMPLETE COMMAND TYPED
    114 052612  001412                          BEQ     10$
    115 052614                                  PRINTF  @CLINUF
        052614  012746  023412                                                  MOV     @CLINUF, (SP)
        052620  012746  000001                                                  MOV     #1, (SP)
        052624  010600                                                          MOV     SP,R0
        052626  104417                                                          TRAP    C$PNTF
        052630  062706  000004                                                  ADD     #4,SP
    116 052634  000137  052472                  JMP     GETCL
    117
    118 052640  023727  003252  000067  10$:     CMP     KEYWD1,#SETET           ;WAS "SET E=T" ENTERED ?
    119 052646  001711                          BEQ     GETCL                   ;YES,BRANCH
    120 052650  023727  003252  000004          CMP     KEYWD1,#RUN             ;SEE IF RUN WAS TYPED
    121 052656  001002                          BNE     11$                     ; BR IF NO
    122 052660  000137  057056                  JMP     GTR9                    ; START EXEC. IF YES
    123 052664  023727  003252  000052  11$:     CMP     KEYWD1,#DMPS            ;IS IT DUMP
    124 052672  001004                          BNE     14$
    125 052674  004737  045212                  JSR     PC,DUMPSR               ;GO TO DUMPSR
    126 052700  000137  052472                  JMP     GETCL                   ;AND GO BACK
    127 052704  023727  003252  000066  14$:     CMP     KEYWD1,#EXIT            ;IS IT EXIT
    128 052712  001005                          BNE     40$                     ;BRANCH IF NOT
    129 052714  012737  177777  017376          MOV     #-1,DCLFLG              ;SET DO CLEAN FLAG
    130 052722                                  EXIT    TST
        052722  104432                                                          TRAP    C$EXIT
        052724  013760                                                          .WORD   L10020-.
    131 052726  023727  003252  000010  40$:     CMP     KEYWD1,#SETEXP          ;SEE IF SET EXPECTED
    132 052734  001001                          BNE     4$                      ; BR IF YES (A SETEXP WAS TYPED
    133 052736  000525                          BR      2$
    134 052740  023727  003252  000011  4$:      CMP     KEYWD1,#SETTRN          ;SEE IF SET TX
    135 052746  001407                          BEQ     5$                      ; BR IF YES
    136 052750  105737  003412                  TSTB    WRFLG
    137 052754  001402                          BEQ     77$
    138 052756  004737  045776                  JSR     PC,DOGLOB               ;DO GLOBAL
    139 052762  000137  052472          77$:     JMP     GETCL
    140
    141 052766  013737  017262  017344  5$:      MOV     TTOTCC,TOTCC
    142 052774  023727  017344  001000          CMP     TOTCC,#BUFLIM           ;SEE IF BUFFER ALREADY FULL
    143 053002  002414                          BLT     15$                     ; BR IF NOT FULL (BUFLIM # OF CHARS.)
    144 053004                                  PRINTF  #MSGTRN,#BUFEX          ; ELSE TELL OPR. AND DON'T BUILD MSG.
        053004  012746  027377                                                  MOV     #BUFEX, (SP)
        053010  012746  027415                                                  MOV     #MSGTRN, (SP)
        053014  012746  000002                                                  MOV     #2, (SP)
        053020  010600                                                          MOV     SP,R0
        053022  104417                                                          TRAP    C$PNTF
        053024  062706  000006                                                  ADD     #6,SP
    145 053030  000137  052472                  JMP     GETCL                   ; THEN GO GET A NEW COMMAND
```

```
053034  005737  017262          15$:    TST     TTOTCC                  ;IF FIRST "SET" THEN GET RID OF DEFAULT
053040  001002                          BNE     6$
053042  005037  017260                  CLR     TXMTOT
053046  012737  011416  017236  6$:     MOV     #PTRTAB,TXPTR           ;GET POSITION OF END OF TX LIST
053054  013701  017260                  MOV     TXMTOT,R1
053060  020127  000017                  CMP     R1,#MSGLIM              ;SEE IF MSG COUNT EXCEEDED.
053064  002414                          BLT     17$                     ; BR IF NO
053066                                  PRINTF  #MSGTRN,#TABEX          ; ELSE TELL OPR. AND DON'T BUILD MSG.
053066  012746  027337                                                          MOV     #TABEX, (SP)
053072  012746  027415                                                          MOV     #MSGTRN, (SP)
053076  012746  000002                                                          MOV     #2,-(SP)
053102  010600                                                                  MOV     SP,R0
053104  104417                                                                  TRAP    C$PNTF
053106  062706  000006                                                          ADD     #6,SP
053112  000137  052472                  JMP     GETCL                   ; THEN GO GET A NEW COMMAND.
053116  006301                  17$:    ASL     R1                      ;# OF MSGS *4 = NEXT FREE PTR BLOCK
053120  006301                          ASL     R1
053122  060137  017236                  ADD     R1,TXPTR
053126  013737  017236  017340          MOV     TXPTR,CPTR              ;SETUP CHAR. COUNT, CURRENT ADDR, & PTR
053134  013737  017264  017342          MOV     TCURAD,CURADD
053142  004737  045350                  JSR     PC,ADDCC                ;ADD IN CHAR. COUNT AND CHECK TOTAL
053146  004737  045446                  JSR     PC,BLDBUF               ;GO BUILD MESSAGE IN BUFFER AND PTRS.
053152  013737  017340  017236          MOV     CPTR,TXPTR
053160  013737  017344  017262          MOV     TOTCC,TTOTCC            ;UPDATE CHAR. COUNT, CURR ADDR, & PTR
053166  013737  017342  017264          MOV     CURADD,TCURAD
053174  005237  017260                  INC     TXMTOT
053200  005337  003256                  DEC     QUALVL                  ;DEC THE COPY COUNT
053204  001270                          BNE     5$
053206  000137  052472                  JMP     GETCL

053212  013737  017244  017344  2$:     MOV     CTOTCC,TOTCC            ;SETUP CHAR. COUNT, CURR. ADDR. & PTR
053220  023727  017344  001000          CMP     TOTCC,#BUFLIM           ;SEE IF BUFFER ALREADY FULL
053226  002414                          BLT     16$                     ; BR IF NOT FULL (BUFLIM # OF CHARS.)
053230                                  PRINTF  #MSGTRN,#BUFEX          ; ELSE TELL OPR. AND DON'T BUILD MSG.
053230  012746  027377                                                          MOV     #BUFEX, (SP)
053234  012746  027415                                                          MOV     #MSGTRN, (SP)
053240  012746  000002                                                          MOV     #2, (SP)
053244  010600                                                                  MOV     SP,R0
053246  104417                                                                  TRAP    C$PNTF
053250  062706  000006                                                          ADD     #6,SP
053254  000137  052472                  JMP     GETCL                   ; THEN GO GET A NEW COMMAND
053260  005737  017244          16$:    TST     CTOTCC                  ;IF FIRST "SET" THEN GET RID OF DEFAULT
053264  001002                          BNE     7$
053266  005037  017242                  CLR     CMPTOT
053272                          7$:
053272  012737  011512  017240          MOV     #PTR13,CMPPTR           ;INIT COMPARE MESSAGE POINTER
053300  013701  017242                  MOV     CMPTOT,R1

053304  020127  000017                  CMP     R1,#MSGLIM              ;SEE IF MSG COUNT EXCEEDED.
053310  002414                          BLT     18$                     ; BR IF NO
053312                                  PRINTF  #MSGTRN,#TABEX          ; ELSE TELL OPR. AND DON'T BUILD MSG.
053312  012746  027337                                                          MOV     #TABEX, (SP)
053316  012746  027415                                                          MOV     #MSGTRN, (SP)
053322  012746  000002                                                          MOV     #2, (SP)
053326  010600                                                                  MOV     SP,R0
053330  104417                                                                  TRAP    C$PNTF
053332  062706  000006                                                          ADD     #6,SP
```

```
    185 053336  000137  052472                  JMP     GETCL                   ; THEN GO GET A NEW COMMAND.
    186 053342  006301                  18$:    ASL     R1                      ;# OF MSGS *4 = NEXT FREE PTR BLOCK
    187 053344  006301                          ASL     R1
    188 053346  060137  017240                  ADD     R1,CMPPTR
    189 053352  013737  017240  017340          MOV     CMPPTR,CPTR
    190 053360  013737  017246  017342          MOV     CCURAD,CURADD
    191 053366  004737  045350                  JSR     PC,ADDCC                ;ADD IN XHAR. COUNT AND CHECK TOTAL
    192 053372  004737  045446                  JSR     PC,BLDBUF
    193 053376  013737  017340  017240          MOV     CPTR,CMPPTR
    194 053404  005237  017242                  INC     CMPTOT
    195 053410  013737  017342  017246          MOV     CURADD,CCURAD           ;UPDATE CHAR. COUNT, CURR ADDR. & PTR
    196 053416  013737  017344  017244          MOV     TOTCC,CTOTCC
    197 053424  005337  003256                  DEC     QUALVL                  ;IF COPY WAS GIVEN, PUT MSG IN BUFF
    198 053430  001270                          BNE     2$                      ; AGAIN
    199 053432  000137  052472                  JMP     GETCL                   ;GO BACK UNTIL GET A "RUN'
    200
    201
    202
    203
    204
```

```
                                        .SBTTL          ACTION TABLE AND ROUTINES
                                        ;       USER MUST CLEAR/SET P$GDBD IF USE  CLIBIF  IN CONNECTION WITH ACTION
                                        ;       R2 WILL HOLD ACTION CODE FROM PARSING (CLI) MODE
053436                                  CLIACT:
053436  006302                                  ASL     R2              ;MULTIPLY ACTION CODE BY 2
053440  016202  053454                          MOV     10$(R2),R2      ;OFFSET VALUE
053444  062702  053454                          ADD     #10$,R2         ;ADD BASE VALUE
053450  004712                                  JSR     PC,(R2)         ;GO DO ACTION
053452  000207                                  RTS     PC              ;RETURN TO TRVACT:

                                                                        ;BRIEF DESCRIPTION OF ACTIONS TAKEN
053454  000166                          10$:    .WORD   ACTNUL-10$      ;NULL
053456  000170                                  .WORD   ACTCLR-10$      ;CLEAR
053460  000200                                  .WORD   ACTSHO-10$      ;SHOW
053462  001566                                  .WORD   ACTCHK-10$      ;CHECK
053464  000300                                  .WORD   ACTRUN-10$      ;RUN
053466  000210                                  .WORD   ACTHLP-10$      ;HELP
053470  000324                                  .WORD   ACTCSE-10$      ;CLEAR OR SHOW EXPECTED
053472  000416                                  .WORD   ACTCST-10$      ;CLEAR OR SHOW TRANSMIT
053474  000740                                  .WORD   ACTSTE-10$      ;SET EXPECTED
053476  000750                                  .WORD   ACTSTT-10$      ;SET TRANSMIT
053500  000766                                  .WORD   ACTSZE-10$      ;SIZE
053502  000776                                  .WORD   ACTCOP-10$      ;COPY
053504  001006                                  .WORD   ACTNUM-10$      ;NUMERIC VALUE FOR SIZE OR COPY
053506  001100                                  .WORD   ACTQPM-10$      ;QUOTED MESSAGE FROM USER
053510  001574                                  .WORD   ACTSTS-10$      ;STATUS
053512  001120                                  .WORD   ACTEQQ-10$      ;END OF QUOTED MESSAGE FROM USER
053514  001200                                  .WORD   ACTMSO-10$      ;ONES DATA
053516  001206                                  .WORD   ACTMS1-10$      ;ZEROS DATA
053520  001216                                  .WORD   ACTMS2-10$      ;1ALT
053522  001226                                  .WORD   ACTMS3-10$      ;0ACT
053524  001236                                  .WORD   ACTMS4-10$      ;ITEP
053526  001246                                  .WORD   ACTMS5-10$      ;CCITT
053530  001264                                  .WORD   ACTMS6-10$      ;ALPHA
053532  001352                                  .WORD   ACTATV 10$      ;ACTIVE MODE
053534  001362                                  .WORD   ACTPAS-10$      ;PASSIVE MODE
053536  001402                                  .WORD   ACTREC-10$      ;RECEIVE MODE
053540  001410                                  .WORD   ACTLIS-10$      ;LISTEN MODE
053542  001420                                  .WORD   ACTDLL-10$      ;DOWNLINE LOAD
053544  001430                                  .WORD   ACTTRA-10$      ;TRANSMIT MODE
053546  001440                                  .WORD   ACTTAL-10$      ;TALK MODE
053550  001466                                  .WORD   ACTNO 10$       ;/NO
053552  001476                                  .WORD   ACTECH-10$      ;ECHO
053554  001602                                  .WORD   ACTCRC-10$      ;SET CRC BIT
053556  001616                                  .WORD   ACTPRO-10$      ;SET PROTOCOL BIT
053560  001650                                  .WORD   ACTRPS-10$      ;STATUS
053562  001660                                  .WORD   ACTMOP-10$      ;REMOTE STATION IN MAINTENACE LOOP MODE
053564  001670                                  .WORD   ACTTLP-10$      ;INTERNAL TTL
053566  001700                                  .WORD   ACTCLP 10$      ;CABLE LOOP
053570  001710                                  .WORD   ACTLLP-10$      ;LOCAL MODEM LOOP
053572  001720                                  .WORD   ACTRLP 10$      ;REMOTE MODEM LOOP
053574  000160                                  .WORD   ACTNUF-10$      ;MORE COMMAND LINE NEEDED
053576  001156                                  .WORD   ACTBCR 10$      ;BAD CHARACTER IN OPERATOR MESSAGE
053600  000674                                  .WORD   ACTDMS 10$      ;DUMP MEMORY START ADDRESS
053602  000724                                  .WORD   ACTDME 10$      ;DUMP MEMORY END ADDRESS
053604  000716                                  .WORD   ACTDMQ 10$      ;DUMP WORD
```

ACTION TABLE AND ROUTINES

```
     58 053606  000264                    .WORD   ACTPRT-10$      ;PRINT
     59 053610  001610                    .WORD   ACTMOS 10$      ;MODEM STATUS CHANGE
     60 053612  002474                    .WORD   ACTSLS 10$      ;SHOW TRIB LIST
     61 053614  001776                    .WORD   ACTETB 10$      ;ESTABLISH TRIB
     62 053616  002006                    .WORD   ACTKTB-10$      ;KILL TRIB
     63 053620  002016                    .WORD   ACTKAL-10$      ;KILL ALL
     64 053622  002730                    .WORD   ACTEKT 10$      ;FLAG TRIB KILLED
     65 053624  003334                    .WORD   ACTCKT-10$      ;CHECK VALID TRIB
     66 053626  002100                    .WORD   ACTEWS 10$      ;POLL PARAMETERS
     67 053630  000254                    .WORD   ACTEXT-10$      ;EXIT
     68 053632  001310                    .WORD   ACTSEX 10$      ;SET E-T COMMAND REV B EC
     69
```

```
   053634  112737  177777  003410  ACTNUF: MOVB    #-1,P$NNUF       ;SET FLAG TO SAY NEED MORE OF COMMAND
   053642  000207                  ACTNUL: RTS     PC               ;RETURN TO PARSER

   053644  012737  000001  003252  ACTCLR: MOV     #CLEAR,KEYWD1    ;SET LOC TO SAY A CLEAR WAS TYPED
   053652  000207                          RTS     PC

   053654  012737  000002  003252  ACTSHO: MOV     #SHOW,KEYWD1     ;SET LOC. TO SAY A SHOW WAS TYPED
   053662  000207                          RTS     PC

   053664  012702  003260          ACTHLP: MOV     #HLPTAB,R2       ;SETUP R2 AS A POINTER TO HELP MSG TABLE
   053670                          1$:     PRINTF  #HLPF,(R2)+      ;PRINT HELP INFORMATION MESSAGES
   053670  012246                                                                     MOV     (R2)+,(SP)
   053672  012746  024116                                                             MOV     #HLPF,(SP)
   053676  012746  000002                                                             MOV     #2,(SP)
   053702  010600                                                                     MOV     SP,R0
   053704  104417                                                                     TRAP    C$PNTF
   053706  062706  000006                                                             ADD     #6,SP
   053712  020227  003304                  CMP     R2,#HLPEND       ;SEE IF ALL INFO PRINTED YET
   053716  001364                          BNE     1$               ;IF NO KEEP PRINTING
   053720  012737  000005  003252          MOV     #HLP,KEYWD1      ;SET LOC. TO SAY A HELP WAS TYPED
   053726  000207                          RTS     PC
   053730  012737  000066  003252  ACTEXT: MOV     #EXIT,KEYWD1
   053736  000207                          RTS     PC               ;SET UP KEYWORD AND SCOOT OUT OF HERE
   053740  012737  000055  003252  ACTPRT: MOV     #PRNT,KEYWD1     ;SET LOC. TO SAY A HELP WAS TYPED
   053746  004737  042554                  JSR     PC,REPORT        ;CALL ROUTINE TO PRINT EVENT LOG AND BASE TABLE
   053752  000207                          RTS     PC

   053754  012737  000004  003252  ACTRUN: MOV     #RUN,KEYWD1      ;SET RUN FLAG
   053762  112737  177777  003410          MOVB    #-1,P$NNUF       ;SET FLAG TO SAY NEED MORE OF COMMAND
   053770  012737  000001  017412          MOV     #1,RPASS         ;SET DEFAULT RUN "PASS" TO 1
   053776  000207                          RTS     PC

   054000  012737  011512  017240  ACTCSE: MOV     #PTR13,CMPPTR    ;INIT COMPARE MESSAGE POINTER
   054006  013701  017240                  MOV     CMPPTR,R1

   054012  013702  017242                  MOV     CMPTOT,R2
   054016  105037  003410                  CLRB    P$NNUF           ;FLAG THAT HAVE VALID COMMAND AT THIS PT.
   054022  023727  003252  000002          CMP     KEYWD1,#SHOW     ;SEE IF A CLEAR OR SHOW WAS TYPED
   054030  001471                          BEQ     ACTSHW           ;BR IF A SHOW WAS TYPED
   054032  012737  000001  017242          MOV     #1,CMPTOT        ;CLEAR COMPARE MESSAGE COUNT, CHAR. COUNT
   054040  005037  017244                  CLR     CTOTCC           ; AND RESET POINTER

   054044  012737  011512  017240          MOV     #PTR13,CMPPTR    ;INIT COMPARE MESSAGE POINTER
   054052  013737  017240  017340          MOV     CMPPTR,CPTR      ;SET UP TO FILL IN DEFAULT MESSAGE
   054060  012701  004416                  MOV     #CMPBUF,R1
   054064  010137  017246                  MOV     R1,CCURAD
   054070  000431                          BR      ACTCLB

   054072  012701  011416          ACTCST: MOV     #PTRTAB,R1
   054076  013702  017260                  MOV     TXMTOT,R2
   054102  105037  003410                  CLRB    P$NNUF           ;FLAG THAT HAVE VALID COMMAND AT THIS PT
   054106  023727  003252  000002          CMP     KEYWD1,#SHOW     ;SEE IF A CLEAR OR SHOW WAS TYPED
   054114  001437                          BEQ     ACTSHW           ;BR IF A SHOW WAS TYPED
   054116  012737  000001  017260          MOV     #1,TXMTOT        ;CLEAR TRANSMIT MESSAGE COUNT, CHAR. COUNT
   054124  005037  017262                  CLR     TTOTCC           ; AND RESET POINTER
   054130  012737  011416  017236          MOV     #PTRTAB,TXPTR
```

ACTION TABLE AND ROUTINES

```
     054136  013737  017236  017340          MOV     TXPTR,CPTR
     054144  012701  003416                  MOV     #TXBUF,R1
     054150  010137  017264                  MOV     R1,TCURAD

     054154  012702  001000          ACTCLB: MOV     #BUFLIM,R2
     054160  010137  017342                  MOV     R1,CURADD       ;SET UP TO PUT DEFAULT MSG IN LIST AFTER 033'S
     054164  012737  000005  017332          MOV     #5,MSGTYP
     054172  013737  002162  017334          MOV     MSGSC,CURCC
     054200  105021                  1$:     CLRB    (R1)+           ;FILL EXPT OR TRAN BUFFER WITH 0'S IF A CLEAR
     054202  005302                          DEC     R2              ;DO "BUFLIM" NUMBER OF BYTE LOCATIONS
     054204  001375                          BNE     1$
     054206  004737  045446                  JSR     PC,BLDBUF       ;"CLEAR" REALLY MEANS TO PUT DEFAULT MSG IN
     054212  000207                          RTS     PC              ;WHEN DONE, RETURN TO PARSER

     054214  012705  003334          ACTSHW: MOV     #SHTAB,R5
     054220  122571  000000          5$:     CMPB    (R5)+,@(R1)     ;LOOK AT FIRST BYTE OF MSG TO DECIPHER TYPE
     054224  001404                          BEQ     6$
     054226  020527  003343                  CMP     R5,#SHTEND      ;SEE IF LOOKED AT ALL OF DEFAULTS YET
     054232  001372                          BNE     5$
     054234  005205                          INC     R5              ;MUST BE OPR. SPEC'D THEN
     054236  162705  003335          6$:     SUB     #SHTAB+1,R5
     054242  006305                          ASL     R5
     054244  016137  000002  017350          MOV     2(R1),TEMP
     054252                                  PRINTF  #SHMSG,SHTYTB(R5),TEMP  ;PRINT MSG SIZE & TYPE
     054252  013746  017350                                                          MOV     TEMP,(SP)
     054256  016546  003314                                                          MOV     SHTYTB(R5),(SP)
     054262  012746  025613                                                          MOV     #SHMSG,-(SP)
     054266  012746  000003                                                          MOV     #3,-(SP)
     054272  010600                                                                  MOV     SP,R0
     054274  104417                                                                  TRAP    C$PNTF
     054276  062706  000010                                                          ADD     #10,SP
     054302  062701  000004                  ADD     #4,R1           ;BUMP R1 TO NEXT SET OF POINTERS
     054306  005302                          DEC     R2
     054310  001341                          BNE     ACTSHW
     054312  013737  017402  020652          MOV     MODTYP,DEV1
     054320  013737  017404  020654          MOV     MLTYP,DEV2
     054326  013737  017412  020656          MOV     RPASS,DEV3
     054334  013737  017410  020660          MOV     PARAM,DEV4
     054342  004737  047344                  JSR     PC,SHWOP        ;SHOW THE OPERATOR THE CURRENT MODE..... ALSO
     054346  000207                          RTS     PC

     054350  013737  003404  017312  ACTDMS: MOV     P$NUM,STADD     ;SETUP STARTING ADDRESS FOR DUMP
     054356  005037  017316                  CLR     BYTBIT          ;SET DEFAULT OF WORD DUMP
     054362  012737  000052  003252          MOV     #DMPS,KEYWD1    ;FLAG THAT A DUMP WAS TYPED
     054370  000403                          BR      ACTDME

     054372  012737  177777  017316  ACTDMQ: MOV     #-1,BYTBIT      ;SET DUMP FLAG TO 'DUMP WORD
     054400  013737  003404  017314  ACTDME: MOV     P$NUM,ENADD     ;SETUP END ADDRESS FOR DUMP (=START IF NO 'EEE
     054406  105037  003410          ACTDMX: CLRB    P$NNUF          ;CLEAR NOT ENOUGH FLAG,  DUMP N N/B' IS VALID
     054412  000207                          RTS     PC
```

ACTION TABLE AND ROUTINES

```
      1
      2
      3 054414  012737  000010  003252  ACTSTE: MOV     #SETEXP,KEYWD1
      4 054422  000403                  BR      ACTSTX
      5
      6 054424  012737  000011  003252  ACTSTT: MOV     #SETTRN,KEYWD1
      7 054432  012737  000001  003256  ACTSTX: MOV     #1,QUALVL       ;SET UP DEFAULT COPY TO 1 (/COPY=0)
      8 054440  000207                  RTS     PC
      9
     10 054442  012737  000012  003254  ACTSZE: MOV     #SIZE,QUALFG
     11 054450  000207                  RTS     PC
     12
     13 054452  012737  000013  003254  ACTCOP: MOV     #QCOPY,QUALFG
     14 054460  000207                  RTS     PC
     15
     16 054462  023727  003254  000012  ACTNUM: CMP     QUALFG,#SIZE    ;SEE IF A SIZE OR COPY TYPED
     17 054470  001023                  BNE     1$              ;BR IF IT WAS A COPY
     18 054472  005737  003404                  TST     P$NUM           ;CHECK TO BE SURE DIDN'T TRY SIZE=0
     19 054476  001014                  BNE     3$              ; BR IF NO
     20 054500                          PRINTF  #CLISEO
        054500  012746  023651                                                  MOV     #CLISEO, (SP)
        054504  012746  000001                                                  MOV     #1,-(SP)
        054510  010600                                                          MOV     SP,R0
        054512  104417                                                          TRAP    C$PNTF
        054514  062706  000004                                                  ADD     #4,SP
     21 054520  112737  177777  003411          MOVB    #-1,P$GDBD      ;SET ERROR IN-CMD FLAG
     22 054526  000411                  BR      2$
     23 054530  013737  003404  017334  3$:     MOV     P$NUM,CURCC     ;IF A SIZE LOAD CURCC WITH BYTE COUNT
     24 054536  000405                  BR      2$
     25 054540  013737  003404  003256  1$:     MOV     P$NUM,QUALVL    ;IF A COPY, LOAD COPY COUNT
     26 054546  005237  003256                  INC     QUALVL          ;INCREMENT SO FIRST DEC MAKES IT REAL 0
     27 054552  000522                  2$:     BR      ACTMEX
     28
     29 054554  012737  000007  017332  ACTUPM: MOV     #7,MSGTYP
     30 054562  010437  017350                  MOV     R4,TEMP         ;KEEP TRACK OF START OF QUOTED TEXT
     31 054566  005237  017350                  INC     TEMP            ; SO CAN CALC OPCNT AT END OF QUOTES
     32 054572  000207                  RTS     PC
     33
     34 054574  010402                  ACTEQO: MOV     R4,R2
     35 054576  163702  017350                  SUB     TEMP,R2
     36 054602  010237  017334                  MOV     R2,CURCC        ;CALC BYTE COUNT FOR QUOTED TEXT
     37 054606  010237  002166                  MOV     R2,OPCNT
     38 054612  013701  017350                  MOV     TEMP,R1
     39 054616  012705  002524                  MOV     #OPBUF,R5
     40 054622  112125                  1$:     MOVB    (R1)+,(R5)+     ;COPY QUOTED TEXT TO OPBUF
     41 054624  005302                  DEC     R2
     42 054626  001375                  BNE     1$
     43 054630  000473                  BR      ACTMEX
     44
     45 054632                          ACTBCR: PRINTF  #CLIBCR         ;BAD CHAR. IN OPR. QUOTED STRING
        054632  012746  023604                                                  MOV     #CLIBCR, (SP)
        054636  012746  000001                                                  MOV     #1, (SP)
        054642  010600                                                          MOV     SP,R0
        054644  104417                                                          TRAP    C$PNTF
        054646  062706  000004                                                  ADD     #4,SP
     46 054652  000207                  RTS     PC
     47
```

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ACTION TABLE AND ROUTINES

     48 054654  005037  017332          ACTMS0: CLR     MSGTYP
     49 054660  000435                          BR      ACTME1
     50 054662  012737  000001  017332  ACTMS1: MOV     #1,MSGTYP
     51 054670  000431                          BR      ACTME1
     52 054672  012737  000002  017332  ACTMS2: MOV     #2,MSGTYP
     53 054700  000425                          BR      ACTME1
     54 054702  012737  000003  017332  ACTMS3: MOV     #3,MSGTYP
     55 054710  000421                          BR      ACTME1
     56 054712  012737  000004  017332  ACTMS4: MOV     #4,MSGTYP
     57 054720  000415                          BR      ACTME1
     58 054722  012737  000005  017332  ACTMS5: MOV     #5,MSGTYP
     59 054730  013737  002162  017334          MOV     MSG5C,CURCC             ;SETUP DEFAULT SIZE FOR THIS TYPE
     60 054736  000430                          BR      ACTMEX
     61 054740  012737  000006  017332  ACTMS6: MOV     #6,MSGTYP
     62 054746  013737  002164  017334          MOV     MSG6C,CURCC             ;SETUP DEFAULT SIZE FOR THIS TYPE
     63
     64 054754  012737  000100  017334  ACTME1: MOV     #64.,CURCC              ;SETUP DEFAULT SIZE FOR MSGO 4
     65 054762  000416                          BR      ACTMEX                  ;EXIT
     66
     67
     68                                         ;REV B BY EC
     69 054764  022737  000010  003252  ACTSEX: CMP     #SETEXP,KEYWD1          ;DID WE GET HERE FROM "SET E =' COMMAND?
     70 054772  001404                          BEQ     10$                     ;YES,BRANCH
     71 054774  112737  177777  003411          MOVB    #-1,P$GDBD              ;SET ERROR FLAG
     72 055002  000406                          BR      ACTMEX                  ;GO TO EXIT
     73 055004  004737  045572          10$:    JSR     PC,FACSIMILE            ;GO COPY TRANMIT BUFFER TO EXPECT BUFFER
     74 055010  012737  000067  003252          MOV     #SETET,KEYWD1           ;SET FLAG TO BE USED IN T1::
     75 055016  000400                          BR      ACTMEX                  ;GO TO EXIT
     76
     77
     78
     79 055020  105037  003410  ACTMEX: CLRB    P$NNUF                  ;CLEAR NOT ENOUGH FLAG
     80 055024  000207                          RTS     PC
     81
```

ACTION TABLE AND ROUTINES

```
 1 055026  012737  000003  017402  ACTATV: MOV     #ACT,MODTYP
 2 055034  000432                  BR      ACTM2X
 3
 4 055036  012737  000002  017402  ACTPAS: MOV     #PAS,MODTYP
 5 055044  105037  003410          CLRB    P$NNUF          ;CLEAR NOT ENOUGH FLAG
 6 055050  005037  017404          CLR     MLTYP           ;CLEAR MAINT LOOP TYPE
 7 055054  000207                  RTS     PC
 8
 9 055056  005037  017402  ACTREC: CLR     MODTYP
10 055062  000417                  BR      ACTM2X
11
12 055064  012737  000006  017402  ACTLIS: MOV     #LIS,MODTYP
13 055072  000413                  BR      ACTM2X
14
15 055074  012737  000004  017402  ACTDLL: MOV     #DOW,MODTYP
16 055102  000407                  BR      ACTM2X
17
18 055104  012737  000001  017402  ACTTRA: MOV     #TRA,MODTYP
19 055112  000403                  BR      ACTM2X
20
21 055114  012737  000005  017402  ACTTAL: MOV     #TAL,MODTYP
22
23 055122  042737  000004  017410  ACTM2X: BIC     #ECHOB,PARAM    ;DISABLE /ECHO (ALL BUT PASSIVE MODE)
24 055130  105037  003410          CLRB    P$NNUF          ;CLEAR NOT ENOUGH FLAG
25 055134  005037  017404          CLR     MLTYP           ;CLEAR MAINT LOOP TYPE
26 055140  000207                  RTS     PC
27
```

ACTION TABLE AND ROUTINES

```
     1 055142  012737  000036  003254  ACTNO:  MOV     #NO,QUALFG
     2 055150  000207                  RTS     PC
     3
     4 055152  022737  000036  003254  ACTECH: CMP     #NO,QUALFG
     5 055160  001422                  BEQ     1$
     6 055162  052737  000004  017410          BIS     #ECHOB,PARAM
     7 055170  022737  000002  017402          CMP     #PAS,MODTYP             ;BE SURE IN PASSIVE MODE IF
     8 055176  001416                  BEQ     2$                              ;IF TRYING TO SET /ECHO
     9 055200                          PRINTF  #CLINPS
       055200  012746  023541                                                  MOV     #CLINPS,(SP)
       055204  012746  000001                                                  MOV     #1,(SP)
       055210  010600                                                          MOV     SP,R0
       055212  104417                                                          TRAP    C$PNTF
       055214  062706  000004                                                  ADD     #4,SP
    10 055220  112737  177777  003411          MOVB    #-1,P$GDBD
    11 055226  042737  000004  017410  1$:     BIC     #ECHOB,PARAM
    12 055234  005037  003254          2$:     CLR     QUALFG                  ;CLEAR "NO" OUT OF QUALIFIER FLAG
    13 055240  000501                  BR      ACTLXX
    14
    15 055242  012701  000002          ACTCHK: MOV     #DATCKB,R1              ;SET DATA CHECK BIT
    16 055246  000413                  BR      ACTQFG
    17
    18 055250  012701  000001          ACTSTS: MOV     #STATB,R1       ;SET THE STATUS BIT
    19 055254  000410                  BR      ACTQFG
    20
    21 055256  012701  000020          ACTCRC: MOV     #CRCB,R1        ;SET THE CRC BIT
    22 055262  000405                  BR      ACTQFG
    23
    24 055264  012701  000010          ACTMOS: MOV     #MOCHK,R1       ;SET THE MODEM BIT
    25 055270  000402                  BR      ACTQFG
    26
    27 055272  012701  000040          ACTPRO: MOV     #PROTOB,R1      ;SET THE PROTOCOL BIT
    28
    29 055276  050137  017410          ACTQFG: BIS     R1,PARAM
    30 055302  022737  000036  003254          CMP     #NO,QUALFG
    31 055310  001002                  BNE     1$
    32 055312  040137  017410                  BIC     R1,PARAM
    33 055316  005037  003254          1$:     CLR     QUALFG                  ;CLEAR "NO  OUT OF QUALIFIER FLAG
    34 055322  000450                  BR      ACTLXX
    35
    36 055324  013737  003404  017412  ACTRPS: MOV     P$NUM,RPASS             ;GET NUMBER OF "RUN PASSES
    37 055332  000444                  BR      ACTLXX
    38
    39 055334  012737  000005  017404  ACTMOP: MOV     #5,MLTYP
    40 055342  000417                  BR      ACTLPX
    41 055344  012737  000001  017404  ACTTLP: MOV     #1,MLTYP
    42 055352  000413                  BR      ACTLPX
    43 055354  012737  000002  017404  ACTCLP: MOV     #2,MLTYP
    44 055362  000407                  BR      ACTLPX
    45 055364  012737  000003  017404  ACTLLP: MOV     #3,MLTYP
    46 055372  000403                  BR      ACTLPX
    47 055374  012737  000004  017404  ACTRLP: MOV     #4,MLTYP
    48
    49 055402  022737  000003  017402  ACTLPX: CMP     #ACT,MODTYP     ;BE SURE IN ACTIVE IF TRYING TO SET LOOP
    50 055410  001415                  BEQ     ACTLXX          ; BR IF IN ACTIVE
    51 055412  112737  177777  003411          MOVB    #1,P$GDBD
    52 055420  005037  017404                  CLR     MLTYP           ;CLEAR ANY LOOP TYPE THAT MAY HAVE GOT SET
```

```
     53 055424                                    PRINTF  #CLIBDL
        055424  012746  023477                                                MOV     #CLIBDL, (SP)
        055430  012746  000001                                                MOV     #1, (SP)
        055434  010600                                                         MOV     SP,R0
        055436  104417                                                         TRAP    C$PNTF
        055440  062706  000004                                                 ADD     #4,SP
     54 055444  105037  003410          ACTLXX: CLRB    P$NNUF          ;CLEAR NOT ENOUGH FLAG
     55 055450  000207                          RTS     PC
     56
```

```
055452  012737  000060  003252  ACTETB: MOV     #ETRB,KEYWD1        ; RECORD THAT ESTABLISH TYPED
055460  000207                          RTS     PC                  ;RETURN TO CALL

055462  012737  000061  003252  ACTKTB: MOV     #KTRB,KEYWD1        ; RECORD THAT KILLTRIB TYPED
055470  000207                          RTS     PC                  ;RETURN TO CALL

055472  105037  003410          ACTKAL: CLRB    P$NNUF              ; CLEAR INCOMPLETE INFO FLAG
055476  022737  000061  003252          CMP     #KTRB,KEYWD1        ; BE SURE "ALL" IS AFTER A "KILL"
055504  001403                          BEQ     11$                 ; BR IF YES
055506  112737  177777  003411          MOVB    #-1,P$GDBD          ;  ELSE ERROR IN CMD
055514  105737  003411          11$:    TSTB    P$GDBD              ; SEE IF WAS AN ERROR FROM ..KTB
055520  001401                          BEQ     10$                 ; BR IF NO
055522  000413                          BR      2$                  ;   ELSE EXIT
055524  005037  015754          10$:    CLR     TRBTOT              ; ZERO TOTAL # OF TRIB ADDRESSES
055530  012702  015712                  MOV     #TRIBLS,R2          ; PT R2 TO TRIB ADDRESS TABLE
055534  012705  000020                  MOV     #16.,R5             ; SETUP R5 AS COUNTER
055540  005022                  1$:     CLR     (R2)+               ; CLEAR 32 BYTES OF TABLE
055542  005305                          DEC     R5
055544  001375                          BNE     1$
055546  004737  047214                  JSR     PC,WRDEFP           ;WRITE DEFAULTS TO POLL PARMS
055552  000207                  2$:     RTS     PC      ;RETURN TO CALL

055554  010246                  ACTEWS: MOV     R2,-(SP)            ;SAVE R2,R3,R4 ON THE STACK
055556  010346                          MOV     R3,-(SP)
055560  010446                          MOV     R4,-(SP)
055562  005737  003414                  TST     VALTRB                      ;VALID TRIB?  REV B EC
055566  001517                          BEQ     ACTW7B                      ;NO,BRANCH REV B EC
055570  112737  177777  003412  ACTWS9: MOVB    #-1,WRFLG                   ;SET WRITE GLOBAL FLAG
055576                                  PRINTF  #POLPM,INDW                 ;PRINT POLL PARAMS FOR TRIB #
055576  013746  015760                                                                  MOV     INDW,(SP)
055602  012746  025234                                                                  MOV     #POLPM,(SP)
055606  012746  000002                                                                  MOV     #2,(SP)
055612  010600                                                                          MOV     SP,R0
055614  104417                                                                          TRAP    C$PNTF
055616  062706  000006                                                                  ADD     #6,SP
055622  005037  017354                  CLR     TEMP2
055626  012737  000020  017350          MOV     #16.,TEMP                   ;USE 16 BYTES AS MULTIPLIER
055634  013737  015762  017232          MOV     INDEX,MPLY                  ;USE TRIB INDEX [BYTE]
055642  004737  046436                  JSR     PC,MTPLY                    ;ON RETURN TEMP2=START ADDR OF
                                                                            ;THIS TRIBS POLL PRAMS
055646  012702  000027                  MOV     #27,R2                      ;INIT INDEX OF POLL PARAMS
055652  032737  000002  023102          BIT     #TRBB,DEVPAR                ;IS THIS TRIB
055660  001002                          BNE     ACTWS5                      ;BRANCH IF NOT A TRIB
055662  012702  000034                  MOV     #34,R2                      ;ONLY 35 IS GOOD FOR TRIBS
055666  005202                  ACTWS5: INC     R2
055670  116205  020762                  MOVB    TSSIND(R2),R5               ;R5 = 0 FOR WORD 2 FOR BYTE
055674  010204                          MOV     R2,R4
055676  006304                          ASL     R4                          ;MAKE R4 WORD INDEX
055700  010403                          MOV     R4,R3
055702  042703  177760                  BIC     #^C<17>,R3                  ;MAKE R3 POLPARM INDEX
055706  063703  017354                  ADD     TEMP2,R3
055712  016337  016220  017350          MOV     POLLIS(R3),TEMP             ;GETS DEFAULT
055720  016437  020662  017366          MOV     TSSLST(R4),CONOTM
055726  000175  055732                  JMP     @ACTWS1(R5)                 ;GO TO CORRECT ACTION
055732  055736                  ACTWS1: .WORD   ACTWS2
055734  056036                          .WORD   ACTWS3
055736                          ACTWS2: PRINTF  CONOTM,TEMP
```

```
        055736  013746  017350                                                          MOV     TEMP,-(SP)
        055742  013746  017366                                                          MOV     CONOTM,-(SP)
        055746  012746  000002                                                          MOV     #2,-(SP)
        055752  010600                                                                  MOV     SP,R0
        055754  104417                                                                  TRAP    C$PNTF
        055756  062706  000006                                                          ADD     #6,SP
    52  055762                          GMANID  EQUQ,TEMP,0, 1,0, 1,YES         ;GET INPUT
        055762  104443                                                                  TRAP    C$GMAN
        055764  000406                                                                  BR      10001$
        055766  017350                                                                  .WORD   TEMP
        055770  000032                                                                  .WORD   T$CODE
        055772  025055                                                                  .WORD   EQUQ
        055774  177777                                                                  .WORD   -1
        055776  000000                                                                  .WORD   T$LOLIM
        056000  177777                                                                  .WORD   T$HILIM
        056002                                                                  10001$:
    53  056002  013763  017350  016220  ACTWS7: MOV     TEMP,POLLIS(R3)         ;PUT ANSWER BACK
    54  056010  032737  000002  023102          BIT     #TRBB,DEVPAR    ;IS THIS TRIB
    55  056016  001403                          BEQ     ACTW7B          ;BRANCH IF TRIB
    56
    57  056020  022702  000037          ACTW7A: CMP     #37,R2          ;ALL DONE
    58  056024  001320                          BNE     ACTWS5
    59  056026  012604                  ACTW7B: MOV     (SP)+,R4        ;RESTORE R4,R3,R2
    60  056030  012603                          MOV     (SP)+,R3
    61  056032  012602                          MOV     (SP)+,R2
    62  056034  000207                          RTS     PC              ;RETURN TO CALLING ROUTINE
    63
    64                                  ;GET INPUT FOR LO AND HI BYTES
    65
    66  056036                          ACTWS3: PRINTF  CONOTM,<B,TEMP><B,TEMP+1>
        056036  005046                                                                  CLR      (SP)
        056040  153716  017351                                                          BISB    TEMP+1,(SP)
        056044  005046                                                                  CLR      (SP)
        056046  153716  017350                                                          BISB    TEMP,(SP)
        056052  013746  017366                                                          MOV     CONOTM, (SP)
        056056  012746  000003                                                          MOV     #3, (SP)
        056062  010600                                                                  MOV     SP,R0
        056064  104417                                                                  TRAP    C$PNTF
        056066  062706  000010                                                          ADD     #10,SP
    67  056072                          GMANID  EQUQ1,TEMP,0,377,0,377,YES
        056072  104443                                                                  TRAP    C$GMAN
        056074  000406                                                                  BR      10002$
        056076  017350                                                                  .WORD   TEMP
        056100  000032                                                                  .WORD   T$CODE
        056102  025111                                                                  .WORD   EQUQ1
        056104  000377                                                                  .WORD   377
        056106  000000                                                                  .WORD   T$LOLIM
        056110  000377                                                                  .WORD   T$HILIM
        056112                                                                  10002$:
    68  056112  113737  017351  017356          MOVB    TEMP+1,TEMP3
    69  056120                          GMANID  EQUQ2,TEMP3,0,377,0,377,YES
        056120  104443                                                                  TRAP    C$GMAN
        056122  000406                                                                  BR      10003$
        056124  017356                                                                  .WORD   TEMP3
        056126  000032                                                                  .WORD   T$CODE
        056130  025151                                                                  .WORD   EQUQ2
        056132  000377                                                                  .WORD   377
```

```
                056134  000000                                                                  .WORD   T$LOLIM
                056136  000377                                                                  .WORD   T$HILIM
                056140                                                                  10003$:
     70 056140  113737  017356  017351          MOVB    TEMP3,TEMP+1
     71 056146  000715                          BR      ACTWS7
     72
     73 056150  105037  003410          ACTSLS: CLRB    P$NNUF          ; CLEAR THE INCOMPLETE CMD FLAG
     74 056154  012737  000002  003252          MOV     #SHOW,KEYWD1    ; SET UP TO LOOK LIKE A SHOW CMD
     75 056162  105737  003411                  TSTB    P$GDBD          ; SEE IF WAS AN ERROR FROM ..KTB
     76 056166  001401                          BEQ     10$             ; BR IF NO
     77 056170  000504                          BR      5$              ;   ELSE EXIT
     78 056172  005037  017300          10$:    CLR     LNCNT           ; INIT ADDR/LINE COUNTER
     79 056176  005737  015754                  TST     TRBTOT          ; SEE IF LIST EMPTY
     80 056202  001011                          BNE     1$              ;  BR IF NO
     81 056204                                  PRINTS  #SHTRE          ; PRINT THE TRIB LIST IS EMPTY
                056204  012746  025727                                                  MOV     #SHTRE,-(SP)
                056210  012746  000001                                                  MOV     #1,(SP)
                056214  010600                                                          MOV     SP,R0
                056216  104416                                                          TRAP    C$PNTS
                056220  062706  000004                                                  ADD     #4,SP
     82 056224  000456                          BR      4$
     83 056226  012702  015712          1$:     MOV     #TFIBLS,R2      ; POINT R2 TO THE TRIB ADDR LIST
     84 056232  012705  000040                  MOV     #32.,R5         ; SETUP R5 AS A COUNTER
     85 056236                                  PRINTS  #SHTRH          ; PRINT TRIB LIST HEADER
                056236  012746  025766                                                  MOV     #SHTRH,-(SP)
                056242  012746  000001                                                  MOV     #1,(SP)
                056246  010600                                                          MOV     SP,R0
                056250  104416                                                          TRAP    C$PNTS
                056252  062706  000004                                                  ADD     #4,SP
     86 056256  105712                  2$:     TSTB    (R2)            ; SEE IF A NULL ENTRY
     87 056260  001435                          BEQ     3$              ;  BR IF YES
     88 056262  111237  017350                  MOVB    (R2),TEMP
     89 056266                                  PRINTS  #SHTAP,<B,TEMP>
                056266  005046                                                          CLR     -(SP)
                056270  153716  017350                                                  BISB    TEMP,(SP)
                056274  012746  026017                                                  MOV     #SHTAP,(SP)
                056300  012746  000002                                                  MOV     #2,(SP)
                056304  010600                                                          MOV     SP,R0
                056306  104416                                                          TRAP    C$PNTS
                056310  062706  000006                                                  ADD     #6,SP
     90 056314  005237  017300                  INC     LNCNT           ; INCREMENT PRINT COUNTER
     91 056320  022737  000010  017300          CMP     #8.,LNCNT       ; SEE IF TIME FOR A CR YET
     92 056326  001012                          BNE     3$
     93 056330                                  PRINTS  #CR
                056330  012746  031566                                                  MOV     #CR,(SP)
                056334  012746  000001                                                  MOV     #1,(SP)
                056340  010600                                                          MOV     SP,R0
                056342  104416                                                          TRAP    C$PNTS
                056344  062706  000004                                                  ADD     #4,SP
     94 056350  005037  017300                  CLR     LNCNT
     95 056354  005202                  3$:     INC     R2              ; INCREMENT TABLE ADDRESS
     96 056356  005305                          DEC     R5              ; SEE IF CHECKED ALL OF LIST
     97 056360  001336                          BNE     2$              ; BR BACK IF NO
     98 056362                          4$:     PRINTS  #CR             ;  ELSE PRINT A PARTING CR
                056362  012746  031566                                                  MOV     #CR,(SP)
                056366  012746  000001                                                  MOV     #1,(SP)
                056372  010600                                                          MOV     SP,R0
```

```
        056374  104416                                                          TRAP    C$PNTS
        056376  062706  000004                                                  ADD     #4,SP
     99 056402  000207                  5$:     RTS     PC              ;RETURN TO CALL
    100
    101 056404                          ACTEKT:
    102 056404  005037  003414          CLR     VALTRB          ;INIT. VALID TRIB FLAG   REV B EC
    103 056410  105037  003410          CLRB    P$NNUF          ;CLEAR NOT ENOUGH INFO FLAG
    104 056414  105737  003411          TSTB    P$GDBD          ; SEE IF WAS AN ERROR FROM ..KTB
    105 056420  001401                  BEQ     10$             ; BR IF NO
    106 056422  000571                  BR      ACTEXX          ;   ELSE EXIT
    107 056424  013701  003404          10$:    MOV     P$NUM,R1
    108 056430  005701                  TST     R1              ; SEE THAT TRIB ADDR NOT 0,377
    109 056432  001403                  BEQ     1$
    110 056434  022701  000377          CMP     #377,R1
    111 056440  103012                  BHIS    2$              ;;REV B EC
    112 056442                          1$:     PRINTS  #SHTIV,R1
        056442  010146                                                          MOV     R1,-(SP)
        056444  012746  026543                                                  MOV     #SHTIV,-(SP)
        056450  012746  000002                                                  MOV     #2,-(SP)
        056454  010600                                                          MOV     SP,R0
        056456  104416                                                          TRAP    C$PNTS
        056460  062706  000006                                                  ADD     #6,SP
    113 056464  000550                  BR      ACTEXX
    114 056466  022737  000060  003252  2$:     CMP     #ETRB,KEYWD1    ; SEE IF KILL OR ESTABLISH
    115 056474  001452                  BEQ     ACTEKE          ; BR IF WAS AN ESTABLISH
    116 056476  012705  000040          MOV     #32.,R5         ;  ELSE LOOK FOR ADDR TO KILL
    117 056502  012702  015712          MOV     #TRIBLS,R2      ; SETUP TABLE PTR AND COUNTER
    118 056506  122201                  3$:     CMPB    (R2)+,R1        ; LOOK FOR ADDRESS TO KILL
    119 056510  001414                  BEQ     4$              ; BR IF FOUND
    120 056512  005305                  DEC     R5
    121 056514  001374                  BNE     3$              ; LOOP TIL ALL CHECKED
    122 056516                          PRINTF  #SHTNF,R1
        056516  010146                                                          MOV     R1,-(SP)
        056520  012746  026165                                                  MOV     #SHTNF,-(SP)
        056524  012746  000002                                                  MOV     #2,-(SP)
        056530  010600                                                          MOV     SP,R0
        056532  104417                                                          TRAP    C$PNTF
        056534  062706  000006                                                  ADD     #6,SP
    123 056540  000522                  BR      ACTEXX
    124 056542  105042                  4$:     CLRB    -(R2)           ;DELETE FOUND TRIB ADDR
    125 056544  005337  015754          DEC     TRBTOT          ; DECREMENT TOTAL # OF TRIBS
    126 056550  162702  015712          SUB     #TRIBLS,R2      ;MOV INDEX TO R2
    127 056554  010237  017232          MOV     R2,MPLY
    128 056560  012737  000020  017350  MOV     #16.,TEMP
    129 056566  012737  016220  017354  MOV     #POLLIS,TEMP2   ;GET THE  START ADDR OF THE
    130 056574  004737  046436          JSR     PC,MTPLY        ;POLL PARMS FOR THIS TRIB TO TEMP2
    131 056600  013705  017354          MOV     TEMP2,R5        ;THE PUT IT IN R5
    132 056604  012702  016166          ACTE5B: MOV     #POLDEF,R2      ;PUT START ADDR. OF DEFAULT LIST IN R2
    133 056610  012225                  ACTE5A: MOV     (R2)+,(R5)+     ;MOVE A DEFAULT PARAM TO LIST
    134 056612  022702  016206          CMP     #GLBDEF,R2      ;DONE ONE SET ?
    135 056616  001374                  BNE     ACTE5A          ;IF NOT GO BACK AND FINISH
    136 056620  000472                  BR      ACTEXX          ;ALL DONE EXIT.
    137
    138 056622  012737  000040  017350  ACTEKE: MOV     #32.,TEMP       ; SETUP TO ENTER A TRIB ADDRESS
    139
    140 056630  032737  000003  023100          BIT     #3,OPTYP
    141 056636  001403                  BEQ     1$              ;BRANCH IF DMP
```

ACTION TABLE AND ROUTINES

```
142 056640  012737  000014  017350          MOV     #12.,TEMP
143 056646  023737  015754  017350  1$:     CMP     TRBTOT,TEMP     ; SEE IF LIST ALREADY FULL
144 056654  002412                          BLT     2$              ; BR IF NOT FULL YET
145 056656                                  PRINTF  #SMTFL,R1       ;PRINT ERROR IS LIST FULL
    056656  010146                                                              MOV     R1,(SP)
    056660  012746  026027                                                      MOV     #SMTFL,-(SP)
    056664  012746  000002                                                      MOV     #2,-(SP)
    056670  010600                                                              MOV     SP,R0
    056672  104417                                                              TRAP    C$PNTF
    056674  062706  000006                                                      ADD     #6,SP
146 056700  000442                          BR      ACTEXX
147 056702  012702  015712          2$:     MOV     #TRIBLS,R2      ; NOW CHECK TO SEE ADDR IS UNIQUE
148 056706  013705  017350                  MOV     TEMP,R5
149 056712  122201          3$:     CMPB    (R2)+,R1        ; CHECK EACH ADDR AGAINST NEW ONE
150 056714  001423                          BEQ     5$              ; BR IF EQUAL
151 056716  005305                          DEC     R5
152 056720  001374                          BNE     3$              ; LOOP TIL ENTIRE TABLE CHECKED
153
154 056722  012702  015712                  MOV     #TRIBLS,R2      ; ONCE CHECKED LIST
155 056726  105722          4$:     TSTB    (R2)+           ;  LOOK FOR EMPTY SLOT TO LOAD
156 056730  001376                          BNE     4$
157 056732  110142                          MOVB    R1,-(R2)        ; LOAD TRIB ADDR IN EMPTY SLOT
158 056734  005237  015754                  INC     TRBTOT                  ; INC TOTAL # OF TRIB ADDRESSES
159 056740  162702  015712                  SUB     #TRIBLS,R2      ;SUBTRACT START OF LIST FROM POINT TO
160                                                                 ;GET INDEX
161 056744  012737  177777  003414          MOV     #-1,VALTRB      ;SET VALID TRIB FLAG   REV B EC
162 056752  010237  015762                  MOV     R2,INDEX        ;MOVE R2 TO INDEX
163 056756  010137  015760                  MOV     R1,INDW         ;MOVE TRIB NUMBER TO INDW
164 056762  000411                          BR      ACTEXX
165 056764                          5$:     PRINTF  #SMTUN,R1       ; PRINT ADDR NOT UNIQUE ERROR
    056764  010146                                                              MOV     R1,(SP)
    056766  012746  026115                                                      MOV     #SMTUN,(SP)
    056772  012746  000002                                                      MOV     #2,(SP)
    056776  010600                                                              MOV     SP,R0
    057000  104417                                                              TRAP    C$PNTF
    057002  062706  000006                                                      ADD     #6,SP
166
167 057006                          ACTEXX:
168 057006  000207                          RTS     PC      ;RETURN TO CALL
169
170 057010                          ACTCKT:
171 057010  112737  177777  003410          MOVB    #1,P$NNUF       ; SET INCOMPLETE INFO FLAG
172 057016  032737  000001  023102          BIT     #MTP,DEVPAR     ; SEE IF IN PT PT OR MULTIPT MODE
173 057024  001013                          BNE     1$              ; BR IF IN MULTIPT MODE
174 057026                                  PRINTF  #CLIPPE         ; TRIB CMDS INVALID IN PT PT MODE
    057026  012746  023702                                                      MOV     #CLIPPE,(SP)
    057032  012746  000001                                                      MOV     #1,(SP)
    057036  010600                                                              MOV     SP,R0
    057040  104417                                                              TRAP    C$PNTF
    057042  062706  000004                                                      ADD     #4,SP
175 057046  112737  177777  003411          MOVB    #1,P$GDBD       ; SET THE ERROR IN CMD FLAG
176 057054  000207          1$:     RTS     PC              ;RETURN TO CALL
177
178
179
```

```
                                                ; RX ALLOCATE CODE
057056  032737  000002  017410  GTR9:   BIT     #DATCKB,PARAM   ;IS THIS DATA CHECK
057064  001421                        BEQ     44$             ;BRANCH IF NO
057066  005737  017404                TST     MLTYP
057072  001416                        BEQ     44$             ;BRANCH IF NOT LOOP
057074  023737  017242  017260        CMP     CMPTOT,TXMTOT   ;ARE TX AND EX EQUAL
057102  001412                        BEQ     44$             ;BRANCH IF YES
057104                                PRINTF  #CLIPW
057104  012746  023750                                                MOV     #CLIPW,-(SP)
057110  012746  000001                                                MOV     #1,-(SP)
057114  010600                                                        MOV     SP,R0
057116  104417                                                        TRAP    C$PNTF
057120  062706  000004                                                ADD     #4,SP
057124  000137  052472                JMP     GETCL
057130  032737  000001  023102  44$:   BIT     #MTP,DEVPAR     ;IS THIS MULTIPOINT
057136  001004                        BNE     3$              ;BRANCH IF MULTIPOINT
057140  112737  000001  015712        MOVB    #1,TRIBLS       ;MAKE TRIBLS =1
057146  000570                        BR      2$
057150  005737  015754          3$:   TST     TRBTOT          ;IS TRIB TOTAL
057154  001013                        BNE     4$              ;ZERO?..BR IF NOT
057156                                PRINTF  #SMTLPA         ;PRINT ERROR MUST ESTABLISH TRIB
057156  012746  026316                                                MOV     #SMTLPA,-(SP)
057162  012746  000001                                                MOV     #1,-(SP)
057166  010600                                                        MOV     SP,R0
057170  104417                                                        TRAP    C$PNTF
057172  062706  000004                                                ADD     #4,SP

057176  112737  177777  003411        MOVB    #-1,P$GDBD      ;SET ERROR FLAG
057204  023727  017404  000001  4$:   CMP     MLTYP,#TTL      ;IS LOOP CABLE OR REMOTE
057212  003413                        BLE     5$              ;BRANCH IF INT OR NONE
057214                                PRINTF  #SMTLP          ;PRINT ERROR LOOP MUST BE INT FOR MTP
057214  012746  026231                                                MOV     #SMTLP,-(SP)
057220  012746  000001                                                MOV     #1,-(SP)
057224  010600                                                        MOV     SP,R0
057226  104417                                                        TRAP    C$PNTF
057230  062706  000004                                                ADD     #4,SP
057234  112737  177777  003411        MOVB    #-1,P$GDBD      ;SET ERROR FLAG
057242  022737  000001  017404  5$:   CMP     #TTL,MLTYP      ;IS IT INTERNAL
057250  001057                        BNE     10$             ;IF NOT THEN CHECK COMPARE TOTALS
057252  032737  000002  023102        BIT     #TRBB,DEVPAR    ;IS THIS CONTROL OR TRIB
057260  001013                        BNE     6$              ;BRANCH IF CONTROL
057262                                PRINTF  #SMTLPB         ;PRINT ERROR MUST BE CONTROL
057262  012746  026371                                                MOV     #SMTLPB,-(SP)
057266  012746  000001                                                MOV     #1,-(SP)
057272  010600                                                        MOV     SP,R0
057274  104417                                                        TRAP    C$PNTF
057276  062706  000004                                                ADD     #4,SP
057302  112737  177777  003411        MOVB    #-1,P$GDBD      ;SET ERROR FLAG
057310  022737  000001  015754  6$:   CMP     #1,TRBTOT       ;IS TRIB TOATAL = 1
057316  001011                        BNE     7$              ;BRANCH IF MORE
057320  012737  177777  015762        MOV     #-1,INDEX
057326  004737  046462                JSR     PC,GTVIND       ;GET TRIBN WITH ADDRESS
057332  022737  000001  015756        CMP     #1,TRIBN
057340  001423                        BEQ     10$             ;OK IF ADD 1
057342                          7$:   PRINTF  #SMTLPC
```

```
                057342  012746  026433                                                          MOV     @SMTLPC,-(SP)
                057346  012746  000001                                                          MOV     #1, (SP)
                057352  010600                                                                  MOV     SP,R0
                057354  104417                                                                  TRAP    C$PNTF
                057356  062706  000004                                                          ADD     #4,SP
     38         057362                                  PRINTF  @SMTLPD         ;PRINT ERROR
                057362  012746  026504                                                          MOV     @SMTLPD, (SP)
                057366  012746  000001                                                          MOV     #1, (SP)
                057372  010600                                                                  MOV     SP,R0
                057374  104417                                                                  TRAP    C$PNTF
                057376  062706  000004                                                          ADD     #4 SP
     39         057402  112737  177777  003411              MOVB    #-1,P$GDBD      ;SET ERROR FLAG
     40         057410  105737  003411          10$:        TSTB    P$GDBD          ;TEST ERROR FLAG
     41         057414  001043                              BNE     12$             ;BRANCH IF ERROR
     42         057416  013737  017244  017334              MOV     CTOTCC,CURCC    ;MAKE CURRENT COUNT= COMPARE COUNT
     43         057424  005737  017334                      TST     CURCC           ;TEST TOTAL COMPARE COUNT
     44         057430  001003                              BNE     1$              ;BRANCH IF NON DEFAULT
     45         057432  012737  000072  017334              MOV     #58.,CURCC      ;SET UP DEFAULT
     46         057440  032737  000002  017410  1$:         BIT     #DATCKB,PARAM
     47         057446  001430                              BEQ     2$              ;BRANCH IF NOT CHECKING
     48         057450  013737  015754  017232              MOV     TRBTOT,MPLY
     49         057456  013737  017334  017350              MOV     CURCC,TEMP
     50         057464  005037  017354                      CLR     TEMP2
     51         057470  004737  046436                      JSR     PC,MTPLY        ;MULTIPY TRBTOT BY CURCC
     52                                                                              ;RESULT IN TEMP2
     53         057474  022737  004000  017354              CMP     #RBFLIM,TEMP2   ;IS IT MUCH TO MUCH
     54         057502  002012                              BGE     2$              ;NO EVERTHING IS HUNKY DORY
     55         057504                                  PRINTF  @SMTBR          ;ERROR
                057504  012746  026605                                                          MOV     @SMTBR, (SP)
                057510  012746  000001                                                          MOV     #1, (SP)
                057514  010600                                                                  MOV     SP,R0
                057516  104417                                                                  TRAP    C$PNTF
                057520  062706  000004                                                          ADD     #4,SP
     56         057524  000137  052472          12$:        JMP     GETCL           ;GO BACK TO GET NEW COMMAND
     57         057530  012737  011416  017236  2$:         MOV     #PTRTAB,TXPTR   ;INIT TRANSMIT MESSAGE POINTER
     58         057536  012737  011512  017240              MOV     #PTR13,CMPPTR   ;INIT COMPARE MESSAGE POINTER
     59         057544  012737  011606  017234              MOV     #PTR23,RXPTR    ;INIT RECEIVE MESSAGE POINTER
     60
     61         057552  013737  017242  017276              MOV     CMPTOT,RXMTOT   ;MAKE COMPARE AND RX MESSAGE COUNTS EQUAL
     62         057560  032737  000002  017410              BIT     #DATCKB,PARAM   ;IS IT DATA CHECK
     63         057566  001003                              BNE     GTREX           ;BRANCH IF CHECKING
     64         057570  012737  000001  017276              MOV     #1,RXMTOT       ;IF NOCHK MAKE RXCOUNT =1
     65         057576  005037  017320          GTREX:      CLR     CLNSET
     66         057602  005037  015764                      CLR     CTX
     67         057606  005037  015766                      CLR     CRX
     68         057612  012737  016012  015770              MOV     #RXSTAK,RSPTRS
     69         057620  012737  016012  015772              MOV     #RXSTAK,RSPTRE  ;
     70         057626  012737  015776  015774              MOV     #TXSTAK,TSPTR   ;SET UP INT STAK POINTERS
     71         057634  005037  017414                      CLR     FLAG            ;CLEAR FLAG
     72         057640  005037  017302                      CLR     OPVAR           ;CLEAR NO BUFFER COUNTER
     73         057644  005037  017304                      CLR     OPVAR1          ;CLEAR OPVAR1
     74         057650  005037  017306                      CLR     PSCNT           ;CLEAR PASS COUNT
     75         057654  005037  017310                      CLR     ERRCNT          ;CLEAR ERROR COUNT
     76         057660  005037  017300                      CLR     LNCNT           ;CLEAR COUNTER THAT IS USED FOR STATUS
     77         057664  004737  042122                      JSR     PC,LOGDVI       ;LOG ABOUT TO INIT DEVICE
     78         057670  004737  062752                      JSR     PC,DVINIT       ;INIT DEVICE
     79
```

```
 80
 81 057674  012737  177777  015762  GTRX2:   MOV     #1,INDEX        ;MAKE INDEX = 1
 82 057702  013737  017334  017350  GTRX2C:  MOV     CURCC,TEMP
 83 057710  032737  000001  023102           BIT     #MTP,DEVPAR
 84 057716  001404                           BEQ     GTRX22          ;IF NOT MULTI GO TO 22
 85 057720  032737  000002  017410           BIT     #DATCKB,PARAM   ;IS THERE DATA CHECKING
 86 057726  001005                           BNE     GTRX2A          ;BRANCH IF CHECKING
 87 057730  012737  001000  017334  GTRX22:  MOV     #BUFLIM,CURCC   ;SET UP CHAR COUNT TO 'BUFLIM
 88 057736  005037  017350                   CLR     TEMP
 89 057742  004737  046462          GTRX2A:  JSR     PC,GTVIND       ;GET VALID INDEX
 90 057746  022737  000040  015762           CMP     #32.,INDEX      ;IS IT 32
 91 057754  001423                           BEQ     GTRX2B          ;YES.. ALL DONE GO EXECUTE MODE
 92
 93                                          ;GET RXBUFF PTR FIGURE
 94
 95 057756  012737  005416  017354           MOV     #RXBUF,TEMP2    ;TEMP = 0 FOR PTP OR MTP/W NO CHK
 96 057764  013737  015762  017232           MOV     INDEX,MPLY      ;INDEX X TEMP+ RXBUF ADDDR =
 97 057772  004737  046436                   JSR     PC,MTPLY        ;NEW RXBUF ADDR.
 98 057776  013737  017354  017342           MOV     TEMP2,CURADD    ;SET UP RX BUFFER ADDRESS
 99
100                                          ;GET CURRENT POINTER FIGURE
101
102 060004  004737  046546                   JSR     PC,GRPTCP
103
104                                          ;GO LOAD '33' TO BUFFER
105
106 060010  012737  000010  017332           MOV     #10,MSGTYP      ;SET UP FOR 33 TO FILL RX BUFFERS
107 060016  004737  045446                   JSR     PC,BLDBUF       ;CLEAR RX BUFFER
108 060022  000727                           BR      GTRX2C          ;GO BACK FOR MORE
109 060024  013702  017402          GTRX2B:  MOV     MODTYP,R2
110 060030  006302                           ASL     R2
111 060032  000172  017420                   JMP     @MODE(R2)       ;MODE DISPATCH
112
```

```
                                        .SBTTL          RECEIVE MODE SECTION
                                        ;**
                                        ; FUNCTIONAL DESCRIPTION:
                                        ;       RECEIVE-ONLY (OR ONE-WAY-IN) ROUTINE
                                        ;       IN THIS MODE OF TESTING THE DEVICE'S RECEIVER IS ENABLED IN EXPECTATION
                                        ;       OF RECEIVING A MESSAGE.  AFTER RECEIVING AN "EXPECTED" NUMBER OF
                                        ;       MESSAGES, THE DATA RECEIVED CAN BE COMPARED AGAINST A LIST OF 'EXPECT
                                        ;       TO RECEIVE" MESSAGES IF DATA-CHECKING IS ENABLED.
                                        ;
                                        ; SUBORDINATE ROUTINES USED:
                                        ;               "ALLTR"
                                        ;
                                        ; CALLING SEQUENCE:
                                        ;       JMP     @MODE(R2)       ;DISPATCH TO MODE BASED ON MODE TYPE IN R2
                                        ;--

060036  052737  000104  017414  RXONLY: BIS     #QRX!ERX,FLAG   ;SET UP RX QUE
060044  004737  046234                  JSR     PC,LCPRLS       ;LOAD CPTRLS (RX PTRS)
060050  004737  046164                  JSR     PC,RXQUAL       ;GO QUE ALL VALID RX S
060054  005037  017340          RXON3:  CLR     CPTR
060060  000137  060210                  JMP     ALLTR           ;GO RX.
```

```
                                        .SBTTL          TRANSMIT MODE SECTION
                                ;
                                ;**
                                ; FUNCTIONAL DESCRIPTION:
                                ;       TRANSMIT-ONLY (OR ONE-WAY-OUT) ROUTINE
                                ;       IN THIS MODE OF TESTING A LIST OF MESSAGES IS TRANSMITTED WITHOUT
                                ;       EXPECTING ANY DATA TO BE RECEIVED.  A REPETITION COUNT CAN BE
                                ;       SPECIFIED TO REPETITIVELY TRANSMIT THE LIST.
                                ;
                                ; SUBORDINATE ROUTINES USED:
                                ;               "ALLTR"
                                ;
                                ; CALLING SEQUENCE:
                                ;       JMP     @MODE(R2)       ;DISPATCH TO MODE BASED ON MODE TYPE IN R2
                                ; -

060064  042737  000002  017410  TXONLY: BIC     #DATCKB,PARAM   ;SET NOCHECK
060072  004737  046364          TXON2:  JSR     PC,LCPTLS       ;LOAD TX POINTERS AND TX COUNTS
060076  052737  000210  017414          BIS     #QTX!ETX,FLAG   ;SET THE QUE TX FLAG
060104  004737  046340                  JSR     PC,CLRPLS       ;CLEAR RXPRT LIST
060110  012737  000040  015762          MOV     #32.,INDEX
060116  000137  060210                  JMP     ALLTR           ;GO TX.
```

```
                                .SBTTL          PASSIVE MODE SECTION
                                ;++
                                ; FUNCTIONAL DESCRIPTION:
                                ;       PASSIVE MODE SECTION
                                ;       IN THIS MODE OF TESTING, THE DEVICE'S RECEIVER IS ENABLED IN
                                ;       EXPECTATION OF RECEIVING A MESSAGE.  THEN EVERY TIME A MESSAGE IS
                                ;       RECEIVED, A MESSAGE IS TRANSMITTED.  DATA CHECKING CAN BE DONE ON THE
                                ;       RECEIVED DATA.
                                ;
                                ; SUBORDINATE ROUTINES USED:
                                ;
                                ;               'ALLTR'
                                ;
                                ; CALLING SEQUENCE:
                                ;       JMP     @MODE(R2)       ;DISPATCH TO MODE BASED ON MODE TYPE IN R2
                                ;-

060122  004737  046364          PLCK:   JSR     PC,LCPTLS       ;LOAD TX POINTERS AND TX COUNTS
060126  004737  046234                  JSR     PC,LCPRLS       ;SET UP CPTRR TO REC POINTERS
060132  052737  000104  017414          BIS     #QRX!ERX,FLAG   ;SET UP Q AND EXPECT RX
060140  004737  046164                  JSR     PC,RXQUAL       ;QUE ALL
060144  000137  060210                  JMP     ALLTR           ;AND GO RX FIRST MSG.
```

```
                                        .SBTTL          ACTIVE MODE SECTION
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:
                                        ;       ACTIVE MODE SECTION
                                        ;       IN THIS MODE OF TESTING A LIST OF MESSAGES IS TRANSMITTED AND
                                        ;       MESSAGES ARE EXPECTED TO BE RECEIVED.  RECEIVED DATA CAN BE COMPARED
                                        ;       AGAINST "EXPECTED" DATA IF DATA-CHECKING IS ENABLED.
                                        ;               NOTE: IF BOTH ENDS OF THE LINK ARE IN ACTIVE MODE, THEN THE
                                        ;                       LINK MUST BE A FULL DUPLEX LINK!
                                        ;
                                        ; SUBORDINATE ROUTINES USED:
                                        ;
                                        ;               "ALLTR"
                                        ;
                                        ; CALLING SEQUENCE:
                                        ;       JMP     @MODE(R2)       ;DISPATCH TO MODE BASED ON MODE TYPE IN R2
                                        ;--

060150                                  ALCK:
060150  032737  000002  017410          BIT     #DATCKB,PARAM   ;IS IT DATA CHECK
060156  001003                          BNE     1$              ;BRANCH IF CHECK
060160  013737  017260  017276          MOV     TXMTOT,RXMTOT   ;IF NOCH MAKE RX=TX
060166  004737  046364                  1$:     JSR     PC,LCPTLS       ;LOAD TX POINTERS AND COUNTS
060172  004737  046234                          JSR     PC,LCPRLS       ;LOAD RX POINTERS
060176  052737  000314  017414          BIS     #QRX!QTX!ETX!ERX,FLAG
060204  004737  046164                  JSR     PC,RXQUAL       ;QUE UP 1 RX BUFFER FOR ALL VAID
```

```
                                .SBTTL          TRANSMIT  RECEIVE FOR ALL STANDARD MODES
                                ;++
                                ; FUNCTIONAL DESCRIPTION:
                                ;       THIS CODE PERFORMS THE FOLLOWING FUNCTIONS
                                ;       1.) IF RX BUFFERS ARE TO BE QUED,TELL DEVICE
                                ;           CODE TO QUE THEM ,LOG RECEIVE QUED.
                                ;       2.) IF TX BUFFERS ARE TO BE QUED ,TELL DEVICE
                                ;           CODE TO QUE THEM, LOG TRANSMIT QUED.
                                ;       3.) WAIT FOR EITHER RECIVE BUFFER OR TRANSMIT BUFFER OR
                                ;           BOTH TO COMPLETE
                                ;       4.) IF RECEIVE COMPLETE LOG IT UPDATE RX TABLE IF DATA
                                ;           CHECKING.
                                ;       5.) IF TRANSMIT COMPLETE LOG IT.
                                ;       6.) WHEN BOTH TRANSMIT AND RECEIVE LISTS ARE DONE
                                ;           GO TO THE COMPARE BUFFER CODE
                                ;
                                ; SUBORDINATE ROUTINES USED:
                                ;               "DVRXQ"  QUE RECEIVE BUFFER SPACE TO DEVICE
                                ;               "LOGRXQ"-LOG RECEIVE BUFFER SPACE TO EVENT LOG
                                ;               "LOGTXQ"-LOG TRANSMIT BUFFER QUED TO EVENT LOG
                                ;               "DVTXRX"-QUE TRANSMIT BUFFER AND WAIT FOR RX
                                ;                        OR TX TO COMPLETE
                                ;               "LOGRXC" LOG RECEIVE BUFFER COMPLETED TO EVENT LOG
                                ;               "LOGTXC" LOG TRANSMIT BUFFER COMPLETED TO EVENT LOG
                                ;
                                ; USE OF FLAG BITS:
                                ;               QRX   SET ON INPUT TO ALLTR IF REC IS TO BE QUED TO
                                ;                     DEVICE. CLEARED BY DVRXQ AND THEN SET BY DVTXRX
                                ;                     WHEN RX BUFFER IS COMPLETED.
                                ;               QTX - SET ON INPUT TO ALLTR IF TRANSMIT IS TO BE QUED TO
                                ;                     DEVICE. CLEARED ON ENTRY TO DVTXRX AND SET BY DVTXRX
                                ;                     WHEN TX BUFFER IS COMPLETED.
                                ;               ETX - USED BY DVTXRX TO DETERMINE IF TX BUFFER COMPLETED IS
                                ;                     EXPECTED.
                                ;               ERX - USED BY DVTXRX TO DETERMINE IF RX BUFFER COMPLETED IS
                                ;                     EXPECTED.
                                ;
                                ;
                                ; CALLING SEQUENCE:
                                ;       JMP     ALLTR           ;GO TO TRANSMIT RECEIVE FOR ALL STANDARD MODES
                                ;--

060210                          ALLTR:
060210  032737  000004  017414  ALCK5:  BIT     #QRX,FLAG
060216  001406                         BEQ     ALCK1           ;IF NOT RX GO TO TX'S
060220  004737  046526          ALCK5B: JSR     PC,ULRPLS       ;GET RX INDEX
060224  004737  047302                  JSR     PC,LOGAQR       ;LOG AND QUE REC.
060230  004737  046506                  JSR     PC,LDRPLS       ;RESTORE RX PTR TO LIST
060234  032737  000010  017414  ALCK1:  BIT     #QTX,FLAG
060242  001422                         BEQ     ALCK2           ;IF NO TX"S GO TO 2
060244  004737  047102                  JSR     PC,GNTXPR
060250  013702  017340                  MOV     CPTR,R2
060254  011237  017354                  MOV     (R2),TEMP2
060260  012237  017250                  MOV     (R2)+,DVTXA
060264  011237  017356                  MOV     (R2),TEMP3
```

```
     58 060270  012237  017252                MOV     (R2)+,DVTCC
     59 060274  010237  017340                MOV     R2,CPTR
     60 060300  004737  046644                JSR     PC,LDTPLS       ;RELOAD LIST
     61 060304  004737  042022                JSR     PC,LOGTXQ
     62
     63 060310  004737  064070        ALCK2:  JSR     PC,DVTXRX       ;GO TO TX AND RX SUB ROUT.
     64
     65 060314  032737  000004  017414        BIT     #QRX,FLAG       ;CHECK FOR REC. MSG.
     66 060322  001532                        BEQ     ALCK3
     67 060324  013737  017270  017354        MOV     DVRXA,TEMP2
     68 060332  013737  017272  017356        MOV     DVRCC,TEMP3
     69 060340  013737  017266  015756        MOV     DVRTB,TRIBN
     70 060346  004737  042074                JSR     PC,LOGRXC       ;LOG REC COMPLETE
     71 060352  032737  000004  017410  UPTABL: BIT     #ECHOB,PARAM    ;IS THIS ECHO MODE(PASSIVE)
     72 060360  001410                        BEQ     UPTA4           ;IF NOT GO TO 4
     73 060362  004737  046664                JSR     PC,ULTPLS
     74 060366  013702  017340                MOV     CPTR,R2         ;ELSE SET R2 TO PRESENT TX TABLE
     75 060372  013722  017354                MOV     TEMP2,(R2)+     ;STORE OFF RX ADD
     76 060376  013712  017356                MOV     TEMP3,(R2)      ;AND CC
     77 060402  032737  000002  017410  UPTA4: BIT     #DATCKB,PARAM   ;IS DATA CHECKING ASKED FOR
     78 060410  001012                        BNE     UPTA1           ;IF SO GO TO UPTA1
     79 060412  004737  047154                JSR     PC,GETIND       ;GET INDEX
     80 060416  004737  046266                JSR     PC,LCPRL1       ;RESTORE POINTER
     81 060422  013737  017354  017336        MOV     TEMP2,CPTRR     ;RESTORE POINTER
     82 060430  004737  046506                JSR     PC,LDRPLS       ;LOAD COUNT AND LIST
     83 060434  000430                        BR      UPTEX
     84
     85 060436  004737  046526        UPTA1:  JSR     PC,ULRPLS       ;GET PTR FROM LIST
     86 060442  013702  017336                MOV     CPTRR,R2
     87 060446  011237  017350                MOV     (R2),TEMP       ;LOAD TEMP WITH PREV. COUNT
     88 060452  163737  017356  017350        SUB     TEMP3,TEMP      ;LOAD TEMP WITH PREV.COUNT CURRENT
     89 060460  013722  017356                MOV     TEMP3,(R2)+
     90 060464  063737  017356  017354        ADD     TEMP3,TEMP2
     91 060472  013722  017354                MOV     TEMP2,(R2)+     ;STORE OF NEW ADD
     92 060476  013712  017350                MOV     TEMP,(R2)       ;AND NEW CC
     93 060502  162702  000002                SUB     #2,R2           ;PUT POINTER BACK TO ADDR.
     94 060506  010237  017336                MOV     R2,CPTRR        ;AND RESTORE IT.
     95 060512  004737  046506                JSR     PC,LDRPLS
     96 060516                        UPTEX:
     97 060516  022737  000002  017402        CMP     #PAS,MODTYP
     98 060524  001011                        BNE     ALCK2A          ;IF NOT PASSIVE LOOP THEN GO TO 2A
     99 060526  005337  015762                DEC     INDEX           ;IF PASSIVE NEXT TXQ WILL BE FOR THIS TRIB
    100 060532  042737  000004  017414        BIC     #QRX,FLAG       ;CLEAR BOTH EXPECTED AND COMPLETED FLAGS
    101 060540  052737  000210  017414        BIS     #QTX!ETX,FLAG   ;SET THE TX FLAGS
    102 060546  000632                        BR      ALCK1
    103
    104 060550  004737  046624        ALCK2A: JSR     PC,ULRCLS       ;GET COUNT
    105 060554  005337  017274                DEC     DVRCT           ;DEC REC COUNT
    106 060560  004737  046604                JSR     PC,LDRCLS       ;RESTORE COUNT
    107 060564  005737  017274                TST     DVRCT           ;IS IT ALL DONE
    108 060570  001007                        BNE     ALCK3           ;NO. GO CHECK TX
    109 060572  042737  000004  017414        BIC     #QRX,FLAG       ;CLEAR THE RX FLAG
    110 060600  005037  017336                CLR     CPTRR           ;YES. CLEAR POINTER
    111 060604  004737  046506                JSR     PC,LDRPLS       ;AND RELOAD LIST
    112 060610  032737  000010  017414  ALCK3: BIT     #QTX,FLAG       ;IS IT TX
    113 060616  001467                        BEQ     ALCK4           ;IF NOT TX THEN GO BACK
    114 060620  013737  017250  017354        MOV     DVTXA,TEMP2
```

```
060626  013737  017252  017356              MOV     DVTCC,TEMP3      ;LOG TX COMPLETED
060634  013737  017254  015756              MOV     DVTTB,TRIBN
060642  004737  042040                      JSR     PC,LOGTXC
060646  004737  046724                      JSR     PC,ULTCLS        ;GET COUNT TO DVTCT
060652  005337  017256                      DEC     DVTCT            ;DEC TX COUNT
060656  004737  046704                      JSR     PC,LDTCLS        ;AND RELOAD LIST
060662  022737  000002  017402              CMP     #PAS,MODTYP
060670  001020                              BNE     ALCK3A           ;IF NOT PASSIVE MODE GO TO 3A
060672  042737  000010  017414              BIC     #QTX,FLAG        ;CLEAR THE TX FLAGS
060700  005737  017256                      TST     DVTCT
060704  001403                              BEQ     ALCK3D           ;IF NO MORE MESG TO RX FOR THIS TRIB
                                                                     ;EXIT WITHOUT RESETING QRX
060706  052737  000104  017414              BIS     #QRX+ERX,FLAG    ;AND SET THE RX FLAGS
060714  004737  047016          ALCK3D:     JSR     PC,GATCFL
060720  005737  017256                      TST     DVTCT
060724  001007                              BNE     ALCK3C           ;IF MORE TX'S TO IT
060726  000137  061022                      JMP     CMPSR            ; ELSE COMPARE
060732  004737  047016          ALCK3A:     JSR     PC,GATCFL        ;GET ALL TX COUNTS FROM LIST
060736  005737  017256                      TST     DVTCT            ;IS IT ALL DONE
060742  001404                              BEQ     ALCK3B           ;IF NOT GO BACK TO 5
060744  004737  047154          ALCK3C:     JSR     PC,GETIND
060750  000137  060210                      JMP     ALCK5
060754  005037  017340          ALCK3B:     CLR     CPTR             ;CLEAR POINTER
060760  042737  000010  017414              BIC     #QTX,FLAG        ;CLEAR TX FLAG
060766  032737  000002  017410              BIT     #DATCKB,PARAM    ;IS IT DAT CHECK
060774  001405                              BEQ     ALCK4A           ;IF NOT THEN END WO CKING RX.
060776  004737  046744          ALCK4:      JSR     PC,GARPFL
061002  005737  017336                      TST     CPTRR
061006  001356                              BNE     ALCK3C           ;IF SOMF RX"S LEFT GO BACK
061010  005737  017340          ALCK4A:     TST     CPTR
061014  001402                              BEQ     CMPSR            ;BRANCH IF ANY TX S LEFT
061016  000137  060310                      JMP     ALCK2
```

```
                                .SBTTL          DATA COMPARISON CODE


                                ;++
                                ; FUNCTIONAL DESCRIPTION:
                                ;
                                ;       CMPSR   COMPARE CODE
                                ;       THIS CODE COMPARES THE RECEIVED DATA AGAINST THE
                                ;       EXPECTED AND FILLS THE EVENT LOG WITH 1 OF 3 MSGS.
                                ;
                                ;       NOTE: IF NO DATA CHECKING SKIP THIS CODE
                                ;
                                ;       1.) A DATA COMPARISON ENTRY WHICH REPORTS THE NUMBER
                                ;           OF COMPARISON ERRORS FOUND
                                ;       2.) A DATA COMPARISON ENTRY WHICH REPORTS DIFFERENCES
                                ;           IN REC LENGTH TO COMPARE LENGTH.
                                ;       3.) A DATA COMPARISON STARTED ENTRY WHICH REPORTS ADDRESS
                                ;           OF RECEIVE BUFFER AND BYTE COUNT.
                                ;       THIS CODE ALSO REPORTS SOFT ERRORS FOR DATA COMPARISON
                                ;       (THE FIRST 5 ONLY),LENGTH ERROR,AND TOTAL NUMBER OF ERRORS
                                ;
                                ;
                                ; SUBORDINATE ROUTINES USED:
                                ;
                                ;               "LOGCMP" - SEE ITEM 3 ABOVE
                                ;               "LOGCML" - SEE ITEM 2 ABOVE
                                ;               "LOGCMD"   SEE ITEM 1 ABOVE
                                ;
                                ; CALLING SEQUENCE:
                                ;       JMP     CMPSR           ;JUMP TO DATA COMPARISON CODE
                                ;--
061022  032737  000002  017410  CMPSR:  BIT     #DATCKB,PARAM   ;IS DATA CHECKING TO BE DONE
061030  001534                         BEQ     CMPSEX          ;IF NOT THEN EXIT
061032  012737  177777  015762         MOV     # 1,INDEX
061040  004737  046462         CMPNEW: JSR     PC,GTVIND
061044  022737  000040  015762         CMP     #32.,INDEX
061052  001523                         BEQ     CMPSEX          ;END IF NO MORE TRIBS

061054  004737  046546                 JSR     PC,GRPTCP
061060  013737  017240  017336         MOV     CMPPTR,CPTRR    ; AND START OF COMPARE POINTS TO CPTRR
061066  013737  017276  017274         MOV     RXMTOT,DVRCT

061074                         CMPS3:
061074  013702  017340                 MOV     CPTR,R2         ;MOVE CURRET RX PT.TO R2
061100  011237  017354                 MOV     (R2),TEMP2      ;MOVE RX ADD TO EVENT LOG
061104  012201                         MOV     (R2)+,R1        ;SET R1 TO START ADD OF RX
061106  012237  017356                 MOV     (R2)+,TEMP3     ;SET CHAR  COUNT TO EVENT LOG
061112  010237  017340                 MOV     R2,CPTR         ;RESTORE RX POINT

061116  013702  017336                 MOV     CPTRR,R2        ;PUT R2 AT COMPARE TABLE
061122  012203                         MOV     (R2)+,R3        ;SET R3 TO COMPARE ADD
061124  012204                         MOV     (R2)+,R4        ;SET R4 TO COMP CC
061126  010237  017336                 MOV     R2,CPTRR        ;RESTORE POINTER
061132  010437  017360                 MOV     R4,TEMP4
061136  004737  042170                 JSR     PC,LOGCMP       ;LOG COMPARE START.
```

DATA COMPARISON CODE

```
     061142  020437  017356                CMP     R4,TEMP3        ;IS COMPARE COUNT = TO RX COUNT
     061146  001410                        BEQ     CMPS7           ;IF SO GO TO 7
     061150  005237  017310                INC     ERRCNT
     061154                                ERRSOFT 1,EDDLE,ERR10   ;PRINT ERROR
     061154  104457                                                TRAP    C$ERSOFT
     061156  000001                                                .WORD   1
     061160  030222                                                .WORD   EDDLE
     061162  041430                                                .WORD   ERR10
     061164  004737  042206                JSR     PC,LOGCML       ;LOG LENGTH ERROR

     061170  005037  017360        CMPS7:  CLR     TEMP4           ;CLEAR BAD BYTE COUNTER
     061174  012737  000001  017346        MOV     #1,OFSET        ;SET OFSET BYTE COUNT TO 1
     061202  122123                CMPS1:  CMPB    (R1)+,(R3)+     ;COMPARE RX WITH EXPETED
     061204  001422                        BEQ     CMPS6           ;IF EQUAL THEN GO TO 6

     061206  005237  017360        CMPS2:  INC     TEMP4           ;INC BAD COUNT
     061212  023727  017360  000005        CMP     TEMP4,#5        ;IS IT MORE THEN 5
     061220  101014                        BHI     CMPS6           ;IF SO GO  FOR MORE
     061222  114337  017370                MOVB    -(R3),GOOD      ;STORE GOOD BYTE FOR ERROR
     061226  114137  017371                MOVB    -(R1),BAD       ;STORE BAD BYTE FOR ERROR
     061232  005237  017310                INC     ERRCNT
     061236                                ERRSOFT 2,EDDDE,ERR1    ;REPORT COMPARISON FAILURE TO OPR.
     061236  104457                                                TRAP    C$ERSOFT
     061240  000002                                                .WORD   2
     061242  030257                                                .WORD   EDDDE
     061244  041340                                                .WORD   ERR1
     061246  005201                        INC     R1
     061250  005203                        INC     R3
     061252  005237  017346        CMPS6:  INC     OFSET           ;INC OFFSET
     061256  005304                        DEC     R4              ;ELSE DEC CHAR COUNT AND SEE IF 0
     061260  001350                        BNE     CMPS1           ;IF NOT GO BACK
     061262  005737  017360                TST     TEMP4           ;SEE IF ANY CMP ERRS FOR THIS MSG
     061266  001410                        BEQ     CMPS5A          ;BR IF NONE
     061270  005237  017310                INC     ERRCNT
     061274                                ERRSOFT 3,EDDDE,ERR2    ;REPORT # OF MISMATCHES FOR MESSAGE
     061274  104457                                                TRAP    C$ERSOFT
     061276  000003                                                .WORD   3
     061300  030257                                                .WORD   EDDDE
     061302  041402                                                .WORD   ERR2
     061304  004737  042224        CMPS5:  JSR     PC,LOGCMD       ;LOG DATA ERROR IN COMPARE
     061310                        CMPS5A:
     061310  005337  017274                DEC     DVRCT
     061314  001267                        BNE     CMPS3           ;IF NOT ALL DONE GO BACK
     061316  000137  061040                JMP     CMPNEW          ;GO BACK FOR  NEXT TRIB
```

```
                                .SBTTL          INTERNAL END OF PASS CODE


                                ;**
                                ; FUNCTIONAL DESCRIPTION:
                                ;       THIS CODE INCREMENTS THE PASS COUNT FOR THE
                                ;       EVENT LOG. LOGS THE END OF PASS EVENT
                                ;       IF "RPASS" IS A MINUS ONE RETURN TO MODE
                                ;       DISPATCHER. IF NOT  1 THEN DECREMENT RPASS
                                ;       AND IF "RPASS" IS THEN = TO 0 GO TO DCLT PROMPT
                                ;       IN NOT = TO 0 THEN GO BACK TO MODE DISPATCHER
                                ;
                                ; SUBORDINATE ROUTINES USED:
                                ;
                                ;               "LOGEOP" - LOG END OF PASS TO EVENT LOG
                                ;

061322  005237  017306          CMPSEX: INC     PSCNT           ;BUMP PASS COUNT

061326  013737  017304  017362          MOV     OPVAR1,TEMP5    ;LOG TX THRES
061334  013737  017302  017360          MOV     OPVAR,TEMP4     ;LOG RX THRESH
061342  013737  017306  017354          MOV     PSCNT,TEMP2     ;LOG PASS COUNT
061350  013737  017310  017356          MOV     ERRCNT,TEMP3
061356  004737  042250                  JSR     PC,LOGEOP       ;LOG END OF PASS

061362  022737  177777  017412          CMP     #-1,RPASS       ;SEE IF RPASS=-1
061370  001403                          BEQ     1$              ;IF IT IS DON'T DECREMENT, LOOP FOREVER
061372  005337  017412                  DEC     RPASS           ;DEC PASS COUNT
061376  001402                          BEQ     2$              ;IF DONE EXIT TEST
061400  000137  057674          1$:     JMP     GTRX2           ;ELSE GO BACK AND DISPATCH
061404  005037  017416          2$:     CLR     RUNING          ; INIT "DCLT RUNNING" FLAG
061410  004737  064776                  JSR     PC,HLTTRB       ;GO HALT ALL TRIBS BEFORE GOING BACK
061414  000137  052402                  JMP     GTRA5           ;WHEN RPASS=0 GO BACK TO  DCLT>


```

```
                                        .SBTTL          DOWN LINE LOAD SECTION
                                        ;+
                                        ; FUNCTIONAL DESCRIPTION:
                                        ;       DOWN-LINE-LOAD SECTION
                                        ;       IN THIS MODE OF TESTING THE "HOST" OR ORIGINATING STATION
                                        ;       REQUESTS THE "SATELLITE" OR BOOT STATION TO ENTER MOP MODE.
                                        ;       THE BOOT STATION THEN SENDS A  "REQUEST PROGRAM MESSAGE".
                                        ;       THE "HOST" THEN SENDS A "MEMORY LOAD WITH TRANSFER ADDRESS"
                                        ;       THAT CONTAINS IMAGE DATA TO BE LOADED BY THE BOOT STATION'S
                                        ;       DMP 11 MICROCODE STARTING AT LOC. 0.  THIS IMAGE DATA WILL CONTAIN A
                                        ;       PROGRAM THAT WILL PRINT A MSG THAT DOWN LINE LOAD WAS SUCESSFUL.
                                        ;
                                        ; SUBORDINATE ROUTINES USED:
                                        ;
                                        ;               "DLTXRX" - SPECIAL TX RX ROUTINE FOR DLL
                                        ;               "DVRXQ"  - QUE RX BUFFER SPACE TO DEVICE
                                        ;               "LOGRXQ" - LOG RX SPACE QUED TO EVENT LOG
                                        ;               "LOGTXQ" - LOG TX BUFFER QUED TO EVENT LOG
                                        ;               "DVTXRX" - QUE TX BUFFER AND WAIT FOR RX OR TX TO COMPLETE
                                        ;               "LOGTXC" - LOG TX COMPLETED TO EVENT LOG
                                        ;               "LOGRXC" - LOG RX COMPLETED TO EVENT LOG
                                        ;
                                        ; CALLING SEQUENCE:
                                        ;       JMP     @MODE(R2)       ;DISPATCH TO MODE BASED ON MODE TYPE IN R2
                                        ;-
061420  012737  177777  015762  DLL:    MOV     #-1,INDEX
061426  004737  046462                  JSR     PC,GTVIND       ;GET VALID INDEX ALSO FIRST TRIBN
061432  013737  015756  017356          MOV     TRIBN,TEMP3     ;MOV TRIBN TO TEMP3 FOR MTP DEFAULT
061440  032737  000001  023102          BIT     #MTP,DEVPAR     ;IS THIS MULITPOINT
061446  001010                          BNE     1$              ;IF SO BRANCH
061450                                  GMANID  DLLQ1,TEMP3,0,377,0,377,NO
061450  104443                                                                  TRAP    C$GMAN
061452  000406                                                                  BR      10004$
061454  017356                                                                  .WORD   TEMP3
061456  000022                                                                  .WORD   T$CODE
061460  025210                                                                  .WORD   DLLQ1
061462  000377                                                                  .WORD   377
061464  000000                                                                  .WORD   T$LOLIM
061466  000377                                                                  .WORD   T$HILIM
061470                                                                  10004$:

061470  113737  017356  002650  1$:     MOVB    TEMP3,PASS1
061476  113737  017356  002651          MOVB    TEMP3,PASS2
061504  113737  017356  002652          MOVB    TEMP3,PASS3
061512  113737  017356  002653          MOVB    TEMP3,PASS4
061520  052737  000100  017414          BIS     #ERX,FLAG       ;SET EXPECTED TO RX
061526  042737  000002  017410          BIC     #DATCKB,PARAM   ;CLEAR NOCHECK
061534  012737  002647  017342          MOV     #DLLM1,CURADD   ;SET THE DOWN LINE LOAD MSG TO #1
061542  013737  002172  017334          MOV     DLLM1C,CURCC    ;SET THE CC
061550  004737  061642                  JSR     PC,DLTXRX       ;GO TO THE DOWN LINE TX RX ROUTINE

                                        ;RETURN WHEN TX AND RX ARE COMPLETED
```

DOWN LINE LOAD SECTION

```
     56 061554  012737  002654  017342          MOV     #DLLM2,CURADD   ;SET THE DOWN LINE LOAD MSG TO #2
     57 061562  013737  002174  017334          MOV     DLLM2C,CURCC    ;SET CC
     58 061570  042737  001000  017414          BIC     #DLLGA,FLAG     ;CLEAR THE GO AHEAD FLAG
     59 061576  004737  061642                  JSR     PC,DLTXRX       ;GO TO THE DOWN LINE TX RX ROUTINE
     60
     61                                         ; RETURN WHEN TX AND RX ARE COMPLETED
     62 061602                          DLLPRI:
     63 061602                                  PRINTF  #DLLCM
        061602  012746  027160                                                          MOV     #DLLCM,-(SP)
        061606  012746  000001                                                          MOV     #1,(SP)
        061612  010600                                                                  MOV     SP,R0
        061614  104417                                                                  TRAP    C$PNTF
        061616  062706  000004                                                          ADD     #4,SP
     64 061622  000137  052402                  JMP     GTRA5
     65
     66 061626                          DLLEA:
     67 061626                                  ERRSOFT 13,DLLAB,ERR14
        061626  104457                                                                  TRAP    C$ERSOFT
        061630  000015                                                                  .WORD   13
        061632  040022                                                                  .WORD   DLLAB
        061634  041512                                                                  .WORD   ERR14
     68
     69 061636  000137  052402                  JMP     GTRA5           ;PRINT ABORT AND EXIT
     70
     71
     72
     73 061642                          DLTXRX:
     74 061642  052737  000004  017414          BIS     #QRX,FLAG       ;SET THE QUE RX FLAG
     75 061650  012737  005416  017270          MOV     #RXBUF,DVRXA    ;SET THE DEVICE RX BUFFER TO RXBUF
     76 061656  012737  005416  017354          MOV     #RXBUF,TEMP2    ;SET UP FOR LOG
     77 061664  012737  000400  017272          MOV     #256.,DVRCC     ;SET UP FOR CC OF 256
     78 061672  012737  000400  017356          MOV     #256.,TEMP3     ;SET UP FOR LOG
     79 061700  004737  064006                  JSR     PC,DVRXQ        ; GO QUE RX
     80 061704  004737  042056                  JSR     PC,LOGRXQ       ;AND LOG IT...
     81
     82 061710  013737  017342  017250          MOV     CURADD,DVTXA    ;SET UP FOR TX
     83 061716  013737  017342  017354          MOV     CURADD,TEMP2    ;AND LOG
     84 061724  013737  017334  017252          MOV     CURCC,DVTCC     ;SE UP FOR TX COUNT
     85 061732  013737  017334  017356          MOV     CURCC,TEMP3     ;AND LOG IT
     86 061740  004737  042022                  JSR     PC,LOGTXQ       ;LOG THE TX QUEUED
     87 061744  052737  000210  017414          BIS     #QTX!ETX,FLAG   ;SET UP TO QUE AND EXPECTED
     88 061752  004737  064070          DLLE2:  JSR     PC,DVTXRX       ;GO TO DEVICE ROUTINE
     89 061756  032737  001000  017414          BIT     #DLLGA,FLAG     ;TEST FOR GO AHEAD BIT
     90 061764  001047                          BNE     DLLE1           ;IF SET GO TO ONE
     91 061766  032737  000010  017414          BIT     #QTX,FLAG       ;ELSE CHECK FOR TX DONE
     92 061774  001020                          BNE     DLLE6           ;IF DONE THEN BRANCH
     93                                                                 ;ELSE ERROR
     94 061776  012737  041232  017366          MOV     #TXNC,CONOTM
     95 062004  013737  005416  017356  DLLE7:  MOV     RXBUF,TEMP3
     96 062012  013737  003416  017360          MOV     TXBUF,TEMP4
     97 062020  012737  040022  017354  DLLE7A: MOV     #DLLAB,TEMP2
     98 062026  004737  042104                  JSR     PC,LGDVE        ;LOG ERROR
     99 062032  000137  061626                  JMP     DLLEA           ;ABORT TEST
    100
    101 062036  013737  017250  017354  DLLE6:  MOV     DVTXA,TEMP2
    102 062044  013737  017252  017356          MOV     DVTCC,TEMP3
    103 062052  004737  042040                  JSR     PC,LOGTXC       ;LOG TX DONE
```

```
DOWN LINE LOAD SECTION

    104 062056  042737  000210  017414          BIC     #QTX!ETX,FLAG   ;CLEAR QUE AND EXPECTED
    105 062064  052737  001000  017414          BIS     #DLLGA,FLAG     ;SET THE GO AHEAD BIT
    106 062072  023737  002174  017252          CMP     DLLM2C,DVTCC
    107 062100  001475                          BEQ     DLLE5           ;EXIT IF SECOND MSG.
    108 062102  000723                          BR      DLLE2           ;AND GO BACK TO 2
    109 062104  032737  000004  017414  DLLE1:  BIT     #QRX,FLAG       ;IS THE A RX COMPLETED
    110 062112  001004                          BNE     DLLE8           ;IF SO GO TO 8
    111 062114  012737  041252  017366          MOV     #RXNC,CONOTM    ;ELSE SET UP ERROR AND ABORT.
    112 062122  000730                          BR      DLLE7
    113 062124  013737  017270  017354  DLLE8:  MOV     DVRXA,TEMP2
    114 062132  013737  017272  017356          MOV     DVRCC,TEMP3
    115 062140  004737  042074                  JSR     PC,LOGRXC       ;LOG RECEIVE COMPLETE
    116 062144  122737  000010  005416          CMPB    #10,RXBUF       ;CHECK FOR FIRST WORD OF RX
    117                                                                 ;SEC BOOT MSG.
    118 062152  001404                          BEQ     DLLE3
    119 062154  012737  041272  017366  DLLE4:  MOV     #RXM1,CONOTM    ;SET UP MESG AND ABORT
    120 062162  000710                          BR      DLLE7           ;ABORT TEST
    121
    122 062164  122737  000001  005420  DLLE3:  CMPB    #1,RXBUF+2      ;IS SECOND WORD 1 ?
    123 062172  001407                          BEQ     DLLE5A          ;YES,BRANCH
    124 062174  012737  041315  017366          MOV     #RXM2,CONOTM
    125 062202  013737  005420  017356          MOV     RXBUF+2,TEMP3
    126 062210  000703                          BR      DLLE7A          ;SET UP MESSAGE AND ABORT
    127
    128
    129                                  ;;PRINT ID OF DEVICE REQUESTING LOAD    REV B BY EC
    130 062212  012737  032062  017350  DLLE5A: MOV     #UNKM,TEMP      ;SET UP FOR UNKNOWN DEVICE
    131 062220  113703  005417                  MOVB    RXBUF+1,R3      ;GET DEVTYPE FROM MESSAGE
    132 062224  120327  000042                  CMPB    R3,#34.         ;OUT OF LEGAL RANGE ?
    133 062230  101006                          BHI     DLLE58          ;YES,BRANCH
    134 062232  132703  000001                  BITB    #1,R3           ;ODD ?
    135 062236  001003                          BNE     DLLE58          ;YES,BRANCH
    136 062240  016337  023222  017350          MOV     DLLIND(R3),TEMP ;GET ASCIZ MESSAGE FROM TABLE
    137
    138 062246                           DLLE58: PRINTF  #SECRM,TEMP,R3  ;PRINT ID MESSAGE
        062246  010346                                                                  MOV     R3,-(SP)
        062250  013746  017350                                                          MOV     TEMP,(SP)
        062254  012746  031724                                                          MOV     #SECRM,-(SP)
        062260  012746  000003                                                          MOV     #3,(SP)
        062264  010600                                                                  MOV     SP,R0
        062266  104417                                                                  TRAP    C$PNTF
        062270  062706  000010                                                          ADD     #10,SP
    139
    140
    141 062274  000207                   DLLE5:  RTS     PC              ;RETURN TO CALLER
    142
    143
    144
```

```
                                .SBTTL          TALK MODE SECTION

                                ;++
                                ; FUNCTIONAL DESCRIPTION:
                                ;       TALK MODE SECTION
                                ;       IN THIS MODE, THE "TALK" END OF THE LINK TRANSMITS OPERATOR
                                ;       SPECIFIED MESSAGES UNTIL A "EXIT" MESSAGE IS TYPE.  AT THAT POINT,
                                ;       THIS END OF THE LINK GOES INTO "LISTEN" MODE.
                                ;
                                ; SUBORDINATE ROUTINES USED:
                                ;
                                ;               "LOGTXQ" - LOG TX BUFFER QUED TO EVENT LOG
                                ;               "DVTXRX"   QUE TX BUFFER TO DEVICE AND WAIT FOR COMPLETE
                                ;               "LOGTXC"   LOG TX COMPLETE TO EVENT LOG
                                ;
                                ; CALLING SEQUENCE:
                                ;       JMP     @MODE(R2)       ;DISPATCH TO MODE BASED ON MODE TYPE IN R2
                                ;--

062276  012737  177777  015762  TALCK:  MOV     #-1,INDEX
062304  004737  046462                  JSR     PC,GTVIND       ;GET FIRST TRIB
062310  042737  000002  017410          BIC     #DATCKB,PARAM   ;SET NOCHECK
062316  012702  002524                  MOV     #OPBUF,R2
062322  012722  177777          1$:     MOV     #-1,(R2)+       ;CLEAR OUT OPBUFFER FIRST
062326  022702  002646                  CMP     #OPEND,R2
062332  001373                          BNE     1$
062334                                  GMANID  OPRMM,OPBUF,A,0,1,72.,NO        ;GET TALK MESSAGE
062334  104443                                                                          TRAP    C$GMAN
062336  000406                                                                          BR      10005$
062340  002524                                                                          .WORD   OPBUF
062342  000142                                                                          .WORD   T$CODE
062344  027114                                                                          .WORD   OPRMM
062346  000000                                                                          .WORD   0
062350  000001                                                                          .WORD   T$LOLIM
062352  000110                                                                          .WORD   T$HILIM
062354                                                                          10005$:
062354  005002                          CLR     R2              ;NOW GET CHAR COUNT
062356  122762  000377  002524  2$:     CMPB    #377,OPBUF(R2)
062364  001402                          BEQ     3$
062366  005202                          INC     R2
062370  000772                          BR      2$
062372  010237  002166          3$:     MOV     R2,OPCNT

062376  012737  002524  017250          MOV     #OPBUF,DVTXA    ;SET UP TX ADDR.
062404  012737  002524  017354          MOV     #OPBUF,TEMP2
062412  013737  002166  017356          MOV     OPCNT,TEMP3
062420  013737  002166  017252          MOV     OPCNT,DVTCC     ;SET UP TX CC
062426  004737  042022                  JSR     PC,LOGTXQ
062432  052737  000210  017414          BIS     #QTX!ETX,FLAG   ;SET UP FLAGS
062440  005037  017336                  CLR     CPTRR           ;CLEAR RX POINTER

062444  004737  064070                  JSR     PC,DVTXRX

062450  013737  017250  017354          MOV     DVTXA,TEMP2
062456  013737  017252  017356          MOV     DVTCC,TEMP3
062464  004737  042040                  JSR     PC,LOGTXC
062470  022737  054105  002524          CMP     #"EX,OPBUF      ;CHECK FOR EXIT
```

TALK MODE SECTION

```
     49 062476  001277                        BNE     TALCK
     50 062500  022737  052111  002526        CMP     @"IT,OPBUF+2
     51 062506  001273                        BNE     TALCK
     52 062510  042737  000210  017414        BIC     @QTX!ETX,FLAG   ;CLEAR THE TX BITS
     53 062516  012737  000006  017402        MOV     @LIS,MODTYP     ;CHANGE TO LISTEN MODE
     54 062524  000137  057674                JMP     GTRX2           ;AND GO BACK TO DISPATCH
```

```
                                        .SBTTL          LISTEN MODE SECTION
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:
                                        ;       LISTEN MODE SECTION
                                        ;       IN THIS MODE, THE "LISTEN' END OF TH' LINK PRINTS ALL OF THE MESSAGES
                                        ;       RECEIVED BY THE DEVICE ON THE OPERATOR'S CONSOLE.  IF THE MESSAGE
                                        ;       RECEIVED IS AN "EXIT" MESSAGE, THEN THE NODE ENTERS 'TALK  MODE.
                                        ;
                                        ; SUBORDINATE ROUTINES USED:
                                        ;
                                        ;               "DVRXQ" - QUE RECEIVE BUFFER SPACE TO DEVICE
                                        ;               "LOGRXQ"   LOG RECEIVE BUFFER QUED TO EVENT LOG
                                        ;               "DVTXRX"   WAIT FOR RX TO COMPLETE
                                        ;               "LOGRXC"   LOG RX COMPLETE TO EVENT LOG
                                        ;
                                        ; CALLING SEQUENCE:
                                        ;       JMP     @MODE(R2)       ;DISPATCH TO MODE BASED ON MODE TYPE IN R2
                                        ;--
062530  012737  177777  015762  LISCK:  MOV     #-1,INDEX
062536  004737  046462                  JSR     PC,GTVIND       ;GET FIRST TRIB
062542  042737  000002  017410          BIC     #DATCK8,PARAM   ;CLEAR CHECK BIT
062550                                  PRINTF  #LISP           ;PRINT PROMPT FOR OPR.
062550  012746  027103                                                  MOV     #LISP, (SP)
062554  012746  000001                                                  MOV     #1,-(SP)
062560  010600                                                          MOV     SP,R0
062562  104417                                                          TRAP    C$PNTF
062564  062706  000004                                                  ADD     #4,SP
062570  012737  002524  017270  LISCKA: MOV     #OPBUF,DVRXA    ;SET DEVICE UP TO REC AT OPBUF
062576  012737  002524  017354          MOV     #OPBUF,TEMP2
062604  012737  000122  017272          MOV     #82.,DVRCC      ;SET UP CHAR COUNT TO 82.
062612  012737  000122  017356          MOV     #82.,TEMP3
062620  052737  000104  017414          BIS     #QRX!ERX,FLAG   ;SET UP FLAG
062626  005037  017340                  CLR     CPTR            ;CLEAR THE TX.

062632  004737  064006                  JSR     PC,DVRXQ        ;QUE RX
062636  004737  042056                  JSR     PC,LOGRXQ

062642  004737  064070                  JSR     PC,DVTXRX       ;GO TO DEVICE RX. SUBROUTINE

062646  013737  017270  017354          MOV     DVRXA,TEMP2
062654  013737  017272  017356          MOV     DVRCC,TEMP3     ;SET UP ADDR.AND CC.
062662  004737  042074                  JSR     PC,LOGRXC       ;LOG COMPLETED
062666  063737  017270  017272          ADD     DVRXA,DVRCC
062674  105077  134372                  CLRB    @DVRCC
062700                                  PRINTF  #OPBFPT
062700  012746  002520                                                  MOV     #OPBFPT, (SP)
062704  012746  000001                                                  MOV     #1, (SP)
062710  010600                                                          MOV     SP,R0
062712  104417                                                          TRAP    C$PNTF
062714  062706  000004                                                  ADD     #4,SP
062720  022737  054105  002524          CMP     #"EX,OPBUF      ;COMPARE FOR EX OF  EXIT'
062726  001320                          BNE     LISCKA          ;IF NOT EXIT THEN GO BACK
062730  022737  052111  002526          CMP     #"IT,OPBUF+2    ;IF FIRST HALF OK CHECK NEXT PART
062736  001314                          BNE     LISCKA          ;IF NOT EXIT THE GO BACK
062740  012737  000005  017402          MOV     #TAL,MODTYP     ;CHANGE MODE TO TALK
```

```
LISTEN MODE SECTION

     48 062746  000137  057674                    JMP     GTRX2           ;RETURN TO DISPATCHER
     49
     50
```

```
                                        .SBTTL          DEVICE FUNCTION SUBROUTINES
                                        .SBTTL                  DEVICE INIT SUBROUTINE

                                        ;**
                                        ; FUNCTIONAL DESCRIPTION:
                                        ;       DVINIT  DEVICE INIT ROUTINE
                                        ;       THIS ROUTINE IS DEVICE DEPENDENT CODE THAT INITS
                                        ;       THE DEVICE BEING TESTED.
                                        ;
                                        ; INPUTS:       "FHDPLX" INDICATES IF MODE IS FULL OR HALF DUPLEX. (1=FULL)
                                        ;               ADDRESS POINTERS (SEL0,...) ALREADY POINT TO DEVICE'S REG.S
                                        ;
                                        ; SUBORDINATE ROUTINES USED:
                                        ;
                                        ;                "LGDVE" - LOG DEVICE ERROR TO EVENT LOG
                                        ;
                                        ;
                                        ; CALLING SEQUENCE:
                                        ;               JSR     PC,DVINIT
                                        ; -
062752                                  DVINIT:
062752  012737  001000  017456          MOV     #1000,TIMER1    ;SET UP TIMER 1 FOR 1000(OCTAL) TICKS
062760  022737  000004  017402          CMP     #DOW,MODTYP
062766  001034                         BNE     DVIN4           ;BRANCH IF NOT DLL
062770  022737  000001  023102          CMP     #1,DEVPAR       ;IS THIS TRIB
062776  001030                         BNE     DVIN4           ;BRANCH IF CONTROL OR PTP
063000  012777  060000  140044          MOV     #60000,@SEL0    ;SET MCLR AND ENTER P MOP
063006  005737  017456          DVIN4A: TST     TIMER1
063012  001375                         BNE     DVIN4A          ;IF TIMER RUNS OUT IT MEANS
063014  012737  037725  017354          MOV     #DVEM8,TEMP2    ;SWITHCES ARE NOT SET CORRECTLY
063022  017737  140024  017356          MOV     @SEL0,TEMP3
063030  017737  140022  017360          MOV     @SEL2,TEMP4
063036  004737  042104                 JSR     PC,LGDVE
063042  005237  017310                 INC     ERRCNT
063046                                  ERRSOFT 14,DVEM8,ERR13
063046  104457                                                                  TRAP    C$ERSOFT
063050  000016                                                                  .WORD   14
063052  037725                                                                  .WORD   DVEM8
063054  041460                                                                  .WORD   ERR13
063056  000735                         BR      DVINIT
063060  012777  040000  137764  DVIN4:  MOV     #MCLR,@SEL0     ;DO A MASTER CLEAR
063066  022737  000004  023100          CMP     #DMP6,OPTYP     ;IS THIS A 8206
063074  001005                         BNE     DVIN6           ;IF NOT GO TO 6
063076  112777  000200  137750          MOVB    #200,@BSEL1     ;SET RUN FOR 8206
063104  000240                         NOP
063106  000240                         NOP                     ;SLIGHT DELAY
063110  005777  137736          DVIN6:  TST     @SEL0           ;IS RUN BIT SET
063114  100426                         BMI     DVIN1           ;IF YES GO TO 1 ELSE...
063116                                  BREAK
063116  104422                                                                  TRAP    C$BRK
```

```
DEVICE INIT SUBROUTINE

    107 063120  005737  017456                  TST     TIMER1          ;SEE IF TIME HAS EXPIRED
    108 063124  001371                          BNE     DVIN6           ;IF NOT GO BACK AND CHECK
    109                                                                 ;AGAIN ELSE...PRINT ERROR
    110 063126  012737  037116  017354          MOV     #DVEM0,TEMP2
    111 063134  017737  137712  017356          MOV     @SEL0,TEMP3
    112 063142  017737  137710  017360          MOV     @SEL2,TEMP4     ;LOAD UP ERRM. AND REG OUTPUTS
    113 063150  004737  042104                  JSR     PC,LGDVE        ;LOG TIME OUT WAITING FOR RUN
    114 063154  005237  017310                  INC     ERRCNT
    115 063160                                  ERRSOFT 4,DVEM0,ERR13
        063160  104457                                                                 TRAP    C$ERSOFT
        063162  000004                                                                 .WORD   4
        063164  037116                                                                 .WORD   DVEM0
        063166  041460                                                                 .WORD   ERR13
    116
    117 063170  000670                          BR      DVINIT          ;GO BACK AND TRY MSTR CLR AGAIN IF ERROR
    118
    119 063172  022777  000305  137666  DVIN1:  CMP     #305,@SEL6      ;SEE IF MICRO DIAGS RAN OK
    120 063200  001422                          BEQ     DVIN13
    121 063202  012737  037177  017354          MOV     #DVEM1,TEMP2     MOV ADDR OF ERR MSG TO TEMP2
    122 063210  017737  137636  017356          MOV     @SEL0,TEMP3
    123 063216  017737  137644  017360          MOV     @SEL6,TEMP4     ;MOV SEL 6 TO TEMP4 IT CONTAINS
    124                                                                 ;THE ERROR CODE FROM MICRO DIAGS.
    125 063224  004737  042104                  JSR     PC,LGDVE        ;LOG DEVICE ERROR
    126 063230  005237  017310                  INC     ERRCNT
    127 063234                                  ERRSOFT 5,DVEM1,ERR13
        063234  104457                                                                 TRAP    C$ERSOFT
        063236  000005                                                                 .WORD   5
        063240  037177                                                                 .WORD   DVEM1
        063242  041460                                                                 .WORD   ERR13
    128 063244  000642                          BR      DVINIT          ;GO BACK AND TRY TO RE INIT.
    129
    130                                         ;GET HERE WHEN RUN IS SET AND MICRO DIAGS RAN OK.
    131 063246  022737  000001  023100  DVIN13: CMP     #1,OPTYP        ; DMV?
    132 063254  001027                          BNE     DVIN12          ; NO,BRANCH
    133 063256  022737  000001  017404          CMP     #1,MLTYP        ; INTERNAL LOOP ?
    134 063264  001020                          BNE     DVIN11          ; NO,BRANCH
    135                                 ;
    136                                 ; NOW SET THE DMV TO INTERNAL LOOP
    137                                 ;
    138 063266  012777  040400  137556          MOV     #40400,@SEL0    ;SET MASTER CLEAR AND MAINTENANCE REQUEST
    139 063274                          DIVN15: BREAK
        063274  104422                                                                 TRAP    C$BRK
    140 063276  000240                          NOP
    141 063300  000240                          NOP
    142 063302  132777  000200  137546          BITB    #BIT7,@SEL2     ; MAINTENANCE READY ?
    143 063310  001771                          BEQ     DIVN15          ; NO,GO CHECK AGAIN
    144 063312  042777  000400  137532          BIC     #BIT8,@SEL0     ; CLEAR MAINT REQUEST
    145 063320  012777  000006  137530          MOV     #6,@SEL2        ; SET INTERNAL LOOPBACK
    146                                 ;
    147                                 ; NOW SET DMV TO DIAGNOSTIC MODE SO WE CAN DEFINE THE STATION TYPE VIA SOFTWARE
    148                                 ;
    149 063326                          DVIN11:
    150 063326  152777  000210  137520          BISB    #BIT3!BIT7,@SEL1 ; SET DIAGNOSTIC MODE BIT & RUN BIT(DMV ONLY)
    151                                                                  ;;  REV C EC
    152
    153                                 ;
    154                                 ; USE COMMON CODE TO REQUEST INPUT
```

```
                                        ;
063334  042737  000003  017414  DVIN12: BIC     #3,FLAG         ;CLEAR INPUT AND OUTPUT INTERRUPT FLAGS
063342  112777  000221  137502          MOVB    #221,@BSEL0     ;SET RQI, IEO, AND IEI
063350  004737  065114                  JSR     PC,TOORIO       ;GO WAIT FOR INPUT INTERRUPT(OK TO WRITE)
                                        ;
                                        ; NOW SET UP NETWORK CONFIGURATION AND LINE CHARACTERISTIC
                                        ;
063354  113777  023104  137504          MOVB    STATYP,@BSEL6   ;SET UP STATION TYPE(PT-PT,MULTI-PT CNTL/TRIB)
063362  005737  017406                  TST     FHDPLX          ;HALF/DUPLEX ?
063366  001403                          BEQ     1$              ;YES,BRANCH
063370  052777  000001  137470          BIS     #BIT0,@BSEL6    ;SET FULL DUPLEX BIT
063376  112777  000002  137452  1$:     MOVB    #2,@BSEL2       ;DO MODE DEFINITION COMMAND
063404  142777  000010  137442          BICB    #BIT3,@BSEL1    ; CLEAR DIAGNOSTIC MODE (DMV ONLY)
                                        ;
                                        ; NOW CHECK TO SEE IF ITS A DMP AND INTERNAL LOOPBACK   REV C EC
                                        ;
063412  022737  000001  017404          CMP     #1,MLTYP        ; INTERNAL LOOP ?
063420  001007                          BNE     3$              ; NO, BRANCH
063422  005737  023100                  TST     OPTYP           ; DMP ?
063426  001012                          BNE     DVES1A          ; NO, BRANCH
                                        ;
                                        ; NOW SET THE DMP INTERNAL LOOP BIT
                                        ;
063430  152777  000010  137416          BISB    #BIT3,@BSEL1    ; SET LU LOOP
063436  000406                          BR      DVES1A          ; SKIP OVER WAIT
                                        ;
                                        ; NOW WAIT A SECOND FOR THINGS TO SETTLE
                                        ;
063440  012737  000001  017462  3$:     MOV     #1,TIMERS       ; SET TIMER FOR 1 SECOND
063446  005737  017462          4$:     TST     TIMERS          ; DONE ?
063452  001375                          BNE     4$              ; NO,BRANCH
                                        ;
                                        ;WRITE GLOABL PARMAS
                                        ;
063454                                  DVES1A:
063454  005037  015756                  CLR     TRIBN           ;MAKE TRIBN 0
063460  012737  017220  021022          MOV     #GLBPLS,TSSE    ;TSSE POINTS TO LIST
063466  004737  064624                  JSR     PC,WRIPPG       ;WRITE POLL PARAMS
063472  012737  000110  017350          MOV     #110,TEMP
063500  022737  000003  017404          CMP     #MODLOC,MLTYP   ;IS THIS MODEM LOCAL
063506  001407                          BEQ     1$              ;BRANCH IF MODEM LOCAL
063510  012737  000104  017350          MOV     #104,TEMP
063516  022737  000004  017404          CMP     #MODREM,MLTYP   ;IS THIS REM
063524  001002                          BNE     2$              ;BRANCH IF NOT
063526  004737  064732          1$:     JSR     PC,WRMCS        ;GO WRITE MODEM CONTROL
063532  012737  177777  015762  2$:     MOV     #-1,INDEX       ;MAKE INDEX =-1
063540  004737  046462          DVES1:  JSR     PC,GTVIND       ;GET VALID INDEX
063544  022737  000040  015762          CMP     #32.,INDEX      ;DONE
063552  001475                          BEQ     DVINEX          ;IF SO EXIT
                                        ;ESTABLISH TRIB
063554  152777  000200  137270  DVEST:  BISB    #RQI,@BSEL0     ,DO REQUEST IN
```

```
    212 063562  004737  065114                      JSR     PC,TOORIO       ;WAIT TIL PORT IS OURS
    213 063566  113777  015756  137264              MOVB    TRIBN,@BSEL3    ;SET UP TRIB NO
    214 063574  012777  000001  137264              MOV     #01,@SEL6       ;ESTABLISH TRIB
    215 063602  112777  000001  137246              MOVB    #01,@BSEL2      ;CLEAR RDI AND DO COMMAND.
    216
    217                                             ;WRITE POLL PARAMS IF NESC.
    218 06 ,10  022737  000003  023102              CMP     #3,DEVPAR       ;IS THIS A MULTIPOINT CONTROL
    219 063616  001022                              BNE     POLLEN          ;BRANCH IF NOT.
    220 063620  004737  047154                      JSR     PC,GETIND       ;GET VALID INDEX
    221 063624  013737  015762  017232              MOV     INDEX,MPLY      ;MOVE INDEX TO MULTIPIER
    222 063632  012737  000020  017350              MOV     #16.,TEMP
    223 063640  012737  016220  017354              MOV     #POLLIS,TEMP2
    224 063646  004737  046436                      JSR     PC,MTPLY        ;RETURN WITH ADDRESS
    225                                                                     ;OF FIRST WORD IN TEMP2
    226
    227 063652  013737  017354  021022              MOV     TEMP2,TSSE
    228 063660  004737  064634                      JSR     PC,WRIPP        ;WRITE POLL PARMAS
    229
    230                                             ; ISTRT TRIB
    231
    232 063664  152777  000200  137160  POLLEN:     BISB    #RQI,@BSEL0     ;REQUEST IN
    233 063672  004737  065114                      JSR     PC,TOORIO       ;WAIT TIL PORT IS OURS.
    234 063676  113777  015756  137154              MOVB    TRIBN,@BSEL3
    235 063704  012777  000004  137154              MOV     #04,@SEL6       ;MAKE IT MAINT MODE
    236 063712  022737  000004  017402              CMP     #DOW,MODTYP     ;IS THIS DOWN LINE LOAD
    237 063720  001406                              BEQ     POLLE2
    238 063722  012777  000003  137136              MOV     #03,@SEL6       ;TO ISTRT
    239 063730  052737  000400  017414              BIS     #RUNST,FLAG     ;SET THE RUN STATE FLAG
    240 063736  112777  000001  137112  POLLE2:     MOVB    #01,@BSEL2      ;DO COMMAND
    241 063744  000675                              BR      DVES1           ;GO BACK
    242 063746  052737  002000  017414  DVINEX:     BIS     #INOVR,FLAG     ;INDICATE INIT CODE IS DONE
    243 063754  000207                              RTS     PC              ;RETURN TO CALLER
    244
    245
    246
    247
    248
```

```
                                .SBTTL                  DEVICE GET MODEM STATUS SUBROUTINE
                                ;++
                                ; FUNCTIONAL DESCRIPTION:
                                ;         "DVMODS"   GET MODEM STATUS
                                ;
                                ; IMPLICIT INPUTS:
                                ;       THE BIT POSITION AND AVAILABLITY OF THE MODEM SIGNALS CTS,DSR,...RI,.
                                ;       IN THE DEPENDENT PORTION OF THE GLOBAL EQUATES SECTION.
                                ;
                                ; OUTPUTS:
                                ;       CURRENT MODEM SIGNAL VALUES IN "MODS"
                                ;
                                ; SUBORDINATE ROUTINES USED:
                                ;
                                ;
                                ; CALLING SEQUENCE:
                                ;       JSR     PC,DVMODS
                                ;

063756  152777  000200  137066  DVMODS: BISB    #RQI,@#SEL0     ;SET RQI
063764  004737  065114                  JSR     PC,TOORIO       ;GO TIME OUT CHECK
063770  012777  000020  137070          MOV     #20,@#SEL6      ;READ MODEM STATUS
063776  112777  000001  137052          MOVB    #01,@#SEL2      ;DO CONTROL IN
064004  000207                          RTS     PC              ;RETURN TO CALLER
```

```
                                        .SBTTL                  DEVICE QUEUE RECEIVE SPACE SUBROUTINE
                                        ;**
                                        ; FUNCTIONAL DESCRIPTION:
                                        ;       DVRXQ   THIS SUB ROUTINE QUES THE REC BUFFER SPACE TO THE
                                        ;               DEVICE, THEN CLEARS THE QRX BIT OF THE FLAG WORD.
                                        ;
                                        ; INPUTS:
                                        ;       DVRXA - ADDRESS OF RX BUFFER SPACE
                                        ;       DVRCC - BYTE CHAR COUNT OF RX BUFFER
                                        ;       QRX FLAG BIT - SET BY CALLING ROUTINE
                                        ;
                                        ; OUTPUTS:
                                        ;       QRX FLAG BIT - CLEARED BY ROUTINE
                                        ;
                                        ; SUBORDINATE ROUTINES USED:
                                        ;
                                        ; CALLING SEQUENCE:
                                        ;       JSR     PC,DVRXQ
                                        ; -
                                        DVRXQ:
064006  032737  000004  017414          BIT     #QRX,FLAG
064014  001424                          BEQ     DVREX           ;IF NOT RX THEN EXIT
                                                                ;ELSE QUE RX
064016  042737  000004  017414          BIC     #QRX,FLAG       ;CLEAR FLAG FOR RX

064024  152777  000200  137020          BISB    #RQI,@BSEL0     ;SET UP REQUEST
064032  004737  065114                  JSR     PC,TOORIO       ;GO CHECK FOR IN OR OUT

064036  013777  017270  137016          MOV     DVRXA,@SEL4
064044  013777  017272  137014          MOV     DVRCC,@SEL6     ;LOAD CC AND ADDR
064052  113777  015756  137000          MOVB    TRIBN,@BSEL3    ;SET UP TRIB NO.
064060  112777  000000  136770          MOVB    #0,@BSEL2       ;DO COMMAND.


064066  000207                  DVREX:  RTS     PC              ;RETURN TO CALLER
```

```
                                        .SBTTL                  DEVICE TRANSMIT AND RECEIVE SUBROUTINE
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:
                                        ;       DVTXRX-DEVICE TRANSMIT AND RECEIVE ROUTINE
                                        ;       THIS CODE QUES THE TRANSMIT BUFFER TO THE DEVICE
                                        ;       IF NEEDED. THE CODE THEN WAITS FOR A TX COMPLETE,
                                        ;       RX COMPLETE OR BOTH. THE CODE REPORTS A TIME OUT
                                        ;       ERROR IF NEITHER IS REPORTED BACK IN
                                        ;       60 SECONDS. AFTER REPORTING ERROR TIMER IS RE-STARTED
                                        ;       AND DEVICE WILL CONTINUE TO WAIT FOR INTERRUPT.
                                        ;
                                        ;INPUTS:
                                        ;       "DVTXA" - ADDRESS OF TRANSMIT MSG.
                                        ;       "DVTCC" - BYTE COUNT OF TRANSMIT MSG.
                                        ;    "QTX" BIT  - SET IF TRANSMIT REQUESTED
                                        ;    "ETX" BIT  - SET IF TRANSMIT EXPECTED
                                        ;    "ERX" BIT  - SET IF RECEIVE EXPECTED
                                        ;
                                        ;OUTPUTS:
                                        ;       "DVTXA" - ADDRESS OF TX MSG. COMPLETED
                                        ;       "DVTCC" - BYTE COUNT OF TX MSG. COMPLETED
                                        ;       "QTX"   - SET IF TX COMPLETED
                                        ;       "DVRXA" - ADDRESS OF RX MSG. COMPLETED
                                        ;       "DVRCC" - BYTE COUNT OF RX MSG. COMPLETED
                                        ;       "QRX"   - SET IF RX COMPLETED
                                        ;
                                        ;
                                        ; SUBORDINATE ROUTINES USED:
                                        ;
                                        ;
                                        ; CALLING SEQUENCE:
                                        ;       JSR     PC,DVTXRX
                                        ; -
                                        ;
064070  032737  000010  017414  DVTXRX: BIT     #QTX,FLAG       ;ANY TX TO QUE
064076  001424                          BEQ     DVTR3           ;IF NOT GO WAIT FOR OUTPUT
064100  042737  000010  017414          BIC     #QTX,FLAG       ;CLEAR FLAG
                                        ;
                                        ;
064106  152777  000200  136736          BISB    #RQI,@BSEL0     ;SET REQUEST
064114  004737  065114                  JSR     PC,TOORIO       ;GO CHECK FOR IN OR OUT
064120  013777  017250  136734          MOV     DVTXA,@SEL4
064126  013777  017252  136732          MOV     DVTCC,@SEL6
064134  113777  015756  136716          MOVB    TRIBN,@BSEL3    ;SET UP TRIB NO.
064142  112777  000004  136706          MOVB    #4,@BSEL2       ;DO COMMAND
                                        ;
064150                          DVTR3:
064150  012737  000074  017462          MOV     #60.,TIMERS     ;SET TIMER FOR 60 SECS
064156  005737  015766          TOINOT: TST     CRX
064162  001050                          BNE     DVTR4           ;BRANCH IF RX COMPLETED
064164  005737  015764                  TST     CTX
064170  001045                          BNE     DVTR4           ;BRANCH IF TX COMPLETED
                                        ;
                                        ;
064172  005737  017462                  TST     TIMERS          ;IS TIMER EXPIRED
```

DEVICE TRANSMIT AND RECEIVE SUBROUTINE

```
     90 064176  001025                          BNE     TOIN1
     91 064200  012737  037257  017354          MOV     #DVEM2,TEMP2
     92 064206  017737  136640  017356          MOV     @SEL0,TEMP3
     93 064214  017737  136636  017360          MOV     @SEL2,TEMP4
     94 064222  117737  136632  015756          MOVB    @@SEL3,TRIBN
     95 064230  004737  042104                  JSR     PC,LGDVE
     96 064234  005237  017310                  INC     ERRCNT
     97 064240                                  ERRSOFT 6,DVEM2,ERR13
        064240  104457                                                                  TRAP    C$ERSOFT
        064242  000006                                                                  .WORD   6
        064244  037257                                                                  .WORD   DVEM2
        064246  041460                                                                  .WORD   ERR13
     98 064250  000737                          BR      DVTR3           ;RETURN TO CHECK TIMER
     99
    100
    101 064252                          TOIN1:  BREAK
        064252  104422                                                                  TRAP    C$BRK
    102 064254  032737  000002  017414  TOIN2:  BIT     #OTINT,FLAG
    103 064262  001735                          BEQ     TOINOT          ;IF NOT OUTPUT GO BACK AND
    104                                                                 ;CHECK TIMER AGAIN
    105 064264  004737  065254                  JSR     PC,OUTHDL       ;ELSE HANDLE OUTPUT AND RETURN
    106 064270  005737  015766                  TST     CRX
    107 064274  001003                          BNE     DVTR4           ;IF TX GO TO 4
    108 064276  005737  015764                  TST     CTX
    109 064302  001725                          BEQ     TOINOT          ;BRANCH IF NOT RX OR TX COMPLETED
    110 064304  005737  015764          DVTR4:  TST     CTX             ;IS IT TX COMPLETED
    111 064310  001456                          BEQ     DVTR5           ;IF NOT TRY RX
    112 064312  032737  000200  017414          BIT     #ETX,FLAG       ;IF SO SHOULD IT BE
    113 064320  001023                          BNE     DVTR4A          ;IF IT SHOULD GO TO 4A
    114 064322  012737  037514  017354          MOV     #DVEM5,TEMP2    ;ELSE LOG ERROR
    115 064330  013737  066644  017356          MOV     TSEL4,TEMP3
    116 064336  013737  066642  017360          MOV     TSEL6,TEMP4
    117 064344  013737  066646  015756          MOV     TSEL3,TRIBN
    118 064352  004737  042104                  JSR     PC,LGDVE        ;
    119 064356                                  ERRSOFT 9,DVEM5,ERR13   ;REPORT ERROR
        064356  104457                                                                  TRAP    C$ERSOFT
        064360  000011                                                                  .WORD   9
        064362  037514                                                                  .WORD   DVEM5
        064364  041460                                                                  .WORD   ERR13
    120
    121 064366  000425                          BR      DVTR4B          ;THEN CLEAR COMPL.FLAG
    122 064370  013702  015774          DVTR4A: MOV     TSPTR,R2
    123 064374  014237  017350                  MOV     -(R2),TEMP      ;UNLOAD TRIBN
    124 064400  113737  017351  015756          MOVB    TEMP+1,TRIBN
    125 064406  105037  015757                  CLRB    TRIBN+1
    126 064412  013737  015756  017254          MOV     TRIBN,DVTTB     ;UNLOAD TRIB NUMBER
    127 064420  014237  017250                  MOV     (R2),DVTXA      ;UNLOAD CC
    128 064424  014237  017252                  MOV     (R2),DVTCC      ;UNLOAD ADDRESS
    129 064430  010237  015774                  MOV     R2,TSPTR
    130 064434  052737  000010  017414          BIS     #QTX,FLAG       ;AND SET TX COMPL FLAG
    131 064442  005337  015764          DVTR4B: DEC     CTX             ;AND COUNT DOWN FLAG
    132 064446  005737  015766          DVTR5:  TST     CRX
    133 064452  001463                          BEQ     DVTREX          ;IF NOT THEN EXIT.
    134 064454  032737  000100  017414          BIT     #ERX,FLAG       ;TEST IS THIS SUPPOSED TO BE RX
    135 064462  001023                          BNE     DVTR5A          ;IF YES PROCESS AS SUCH
    136 064464  012737  037571  017354          MOV     #DVEM6,TEMP2
    137 064472  013737  066650  017356          MOV     RSEL4,TEMP3
```

DEVICE TRANSMIT AND RECEIVE SUBROUTINE

```
    138 064500  013737  066654  015756          MOV     RSEL3,TRIBN
    139 064506  013737  066652  017360          MOV     RSEL6,TEMP4     ;ELSE
    140 064514  004737  042104                  JSR     PC,LGDVE        ;LOG ERROR
    141 064520                                  ERRSOFT 10,DVEM6,ERR13
        064520  104457                                                  TRAP    C$ERSOFT
        064522  000012                                                  .WORD   10
        064524  037571                                                  .WORD   DVEM6
        064526  041460                                                  .WORD   ERR13
    142
    143 064530  000432                          BR      DVTRX1          ;AND EXIT
    144
    145 064532  013702  015770          DVTR5A: MOV     RSPTRS,R2
    146 064536  012237  017272                  MOV     (R2)+,DVRCC
    147 064542  012237  017270                  MOV     (R2)+,DVRXA     ;UNLOAD ADDR
    148 064546  012237  017350                  MOV     (R2)+,TEMP
    149 064552  113737  017351  015756          MOVB    TEMP+1,TRIBN
    150 064560  105037  015757                  CLRB    TRIBN+1
    151 064564  013737  015756  017266          MOV     TRIBN,DVRTB     ;UNLOAD TRIBN
    152 064572  020227  016166                  CMP     R2,#RXSKEN      ;IS IT AT THE END
    153 064576  001002                          BNE     2$
    154 064600  012702  016012                  MOV     #RXSTAK,R2      ;START OVER
    155 064604  010237  015770          2$:     MOV     R2,RSPTRS       ;RELOAD POINTER
    156 064610  052737  000004  017414          BIS     #QRX,FLAG
    157 064616  005337  015766          DVTRX1: DEC     CRX             ;COUNT DOWN CRX
    158
    159 064622  000207                  DVTREX: RTS     PC              ;AND EXIT
    160
```

```
                                        .SBTTL          DEVICE DEPENDENT SUBROUTINES
                                        .SBTTL          WRITE POLL PAREMETERS
                                        ;**
                                        ; FUNCTIONAL DESCRIPTION:       WRIPP   WRITE POLL PARAMETERS
                                        ;       WRITE ALL POLLING PARAMETRS FROM LIST
                                        ;       POINTED TO BY TSSE FOR TRIB NUMBER IN TRIBN
                                        ;
                                        ; INPUTS:
                                        ;               TRIBN   TRIB NUMBER OF WRITE
                                        ;               TSSE - ADDRESS OF POLL LIST
                                        ;
                                        ;
                                        ; CALLING SEQUENCE:
                                        ;               JSR     PC,WRIPP        ;FOR TRIBS
                                        ;               JSR     PC,WRIPPG       ;FOR GLOBAL
                                        ; -
064624  012737  000233  021024  WRIPPG: MOV     #233,TSSA       ;LOAD TSSA WITH ADDR OF IS GLOBAL PP.
064632  000403                  WRIP1:  BR      WRIP1           ;THEN GO TO 1
064634  012737  000230  021024  WRIPP:  MOV     #230,TSSA       ;LOAD TSSA WITH ADRR OF 1ST POLPAR.
064642  152777  000200  136202  WRIP1:  BISB    #RQI,@#SEL0     ;DO REQUEST IN
064650  004737  065114          WRIP2:  JSR     PC,TOORIO       ;WAIT TIL PORT IS OURS
064654  113777  015756  136176          MOVB    TRIBN,@#SEL3    ;SET UP TRIBN
064662  017777  134134  136172          MOV     @TSSE,@#SEL4    ;MOVE DATA INTO SEL4
064670  113777  021024  136170          MOVB    TSSA,@#SEL6     ;SET UP POLL PARMATER
064676  112777  000001  136152          MOVB    #01,@#SEL2      ;DO CONTROL IN WRITE TSS/GSS
064704  022737  000237  021024          CMP     #237,TSSA
064712  001406                          BEQ     WRIPEX          ;EXIT IF DONE
064714  005237  021024                  INC     TSSA
064720  062737  000002  021022          ADD     #2,TSSE
064726  000745                          BR      WRIP1           ;GO BACK FOR MORE
064730  000207                  WRIPEX: RTS     PC
```

```
                                        .SBTTL          WRITE MODFM CONTROL
                                        ;**
                                        ; FUNCTIONAL DESCRIPTION:       WRMCS   WRITE MODEM CONTROL SIGNALS
                                        ;
                                        ;       WIRTE MODEM CONTROL SIGNALS FROM TEMP TO DMP
                                        ;       THIS ROUTINE IS IGNORED BY THE DMV
                                        ;
                                        ; INPUTS:
                                        ;               TEMP    CONTAINS CONTENTS FRO BSEL4
                                        ;
                                        ; CALLING SEQUENCE:
                                        ;               JSR     PC,WRMCS        ;WRITE MODEM CONTROL
                                        ;

064732  152777  000200  136112  WRMCS:  BISB    #RQI,@BSEL0     ;DO REQUEST IN
064740  004737  065114          WRMCS:  JSR     PC,TOORIO       ;WAIT TIL PORT IS OURS
064744  113777  015756  136106          MOVB    TRIBN,@BSEL3    ;SET UP TRIBN
064752  013777  017350  136102          MOV     TEMP,@SEL4
064760  012777  000021  136100          MOV     #21,@SEL6       ;DO WRITE MODEM
064766  112777  000001  136062          MOVB    #01,@BSEL2      ;CONTROL IN
064774  000207                          RTS     PC              ;THEN RETURN TO CALLER


                                        .SBTTL                  HALT TRIB SUBROUTINE
                                        ;**
                                        ; FUNCTIONAL DESCRIPTION:
                                        ;       HLTTRB - HALT TRIB SUBROUTINE HALTS ALL TRIBS THAT
                                        ;       ARE FOUND IN THE TRIBLSIT
                                        ;
                                        ; INPUTS:       TRIBLS  - CONTAINS VALID TRIBS
                                        ;
                                        ; SUBORDINATE ROUTINES USED:
                                        ;
                                        ;               TOORIO    TIME OUT OR INPUT OR OUTPUTN INTERRUPT
                                        ;
                                        ; CALLING SEQUENCE:
                                        ;       JSR     PC,HLTTRB
                                        ;

064776  022737  000001  023102  HLTTRB: CMP     #1,DEVPAR       ;IS THIS TRIB OR CONTROL
065004  001442                          BEQ     HLTREX          ;BRANCH IF TRIB
065006  032737  000002  017410          BIT     #DATCK8,PARAM
065014  001006                          BNE     HLTTR2          ;IF CHECK GO TO 2
065016  012737  000002  017462          MOV     #2,TIMERS       ;SET UP FOR 2 SEC TIMER
065024  005737  017462          HLTTR3: TST     TIMERS
065030  001375                          BNE     HLTTR3          ;WAIT FOR TIMER TO BE 0
065032                          HLTTR2:
065032  012737  177777  015762          MOV     # 1,INDEX       ;MAKE INDEX = 1
065040  004737  046462          HLTTR1: JSR     PC,GTVIND       ;GET VALID INDEX
065044  022737  000040  015762          CMP     #32.,INDEX      ;DONE
065052  001417                          BEQ     HLTREX          ;IF SO EXIT

                                        ;HALT TRIB

065054  152777  000200  135770          BISB    #RQI,@BSEL0     ;DO REQUEST IN
065062  004737  065114          WRMCS:  JSR     PC,TOORIO       ;WAIT TIL PORT IS OURS
065066  113777  015756  135764          MOVB    TRIBN,@BSEL3    ;SET UP TRIB NO.
```

HALT TRIB SUBROUTINE

```
     58 065074  012777  000005  135764          MOV     #05,@SEL6       ;HALT TRIB
     59 065102  112777  000001  135746          MOVB    #01,@BSEL2      ;CLEAR RDI AND DO COMMAND.
     60 065110  000753                          BR      HLTTR1          ;GO BACK AND GET ANOTHER
     61 065112  000207                  HLTREX: RTS     PC              ;RETURN TO CALLER
     62
```

```
                                        .SBTTL                  TIME OUT OR INPUT INT. OR OUTPUT INT.


                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:
                                        ;       TOORIO - TIME OUT OR INPUT INTERRUPT OR OUTPUT INTERRUPT
                                        ;       THIS ROUTINE SETS UP A TIMER FOR 100 (OCTAL) TICKS
                                        ;       THEN CHECKS FOR TIME OUT,OR INPUT INTERRUPT,OR OUTPUT
                                        ;       INTERRUPT. IF TIME OUT OCCURS IT REPORTS ERROR AND
                                        ;       RESTARTS TIMER. IF INPUT INTERRUPT OCCURS RETURN TO CALLER
                                        ;       IF OUTPUT INTERRPUT OCCURS LOG IT AND CONTINUE WAITING FOR
                                        ;       INPUT INTERRUPT.
                                        ;
                                        ; USE OF FLAGS:
                                        ;               "OTINT" - SET BY OUTPUT INT ROUTINE
                                        ;               "ININT" - SET BY INPUT INT. ROUTINE
                                        ;                         CLEARED BY THIS ROUTINTE.
                                        ;
                                        ; SUBORDINATE ROUTINES USED:
                                        ;
                                        ;               "OUTHDL" - OUTPUT INTERRUPT HANDLER
                                        ;
                                        ; CALLING SEQUENCE:
                                        ;       JSR     PC,TOORIO
                                        ;--

065114  011637  017374          TOORIO: MOV     (SP),PCADD      ;SAVE ADDR. OF CALLING ROUTINE
065120  012737  000100  017456          MOV     #100,TIMER1     ;SET UP TIMER
065126  032737  000003  023100          BIT     #3,OPTYP        ;IS THIS DMV
065134  001403                          BEQ     TOOR3           ;BRANCH IF NOT
065136  012737  000400  017456          MOV     #400,TIMER1     ;MAKE TIME OUT GREATER IF DMV
065144  005737  017456          TOOR3:  TST     TIMER1          ;IS TIME EXPIRED
065150  001022                          BNE     TOOR1           ;IF NOT CONTINUE
                                                                ;IF YES ERROR
```

```
CZCLMC0 DMP/V 11 DCLT   MACRO V05.00  Thursday 22 Mar 84 16:24  Page 106 1
TIME OUT OR INPUT INT. OR OUTPUT INT.

     35 065152  012737  037354  017354          MOV     #DVEM3,TEMP2
     36 065160  017737  135672  017360          MOV     @SEL2,TEMP4
     37 065166  017737  135660  017356          MOV     @SEL0,TEMP3
     38 065174  004737  042104                  JSR     PC,LGDVE
     39 065200  005237  017310                  INC     ERRCNT
     40 065204                                  ERRSOFT 7,DVEM3,ERR13
        065204  104457                                                          TRAP    C$ERSOFT
        065206  000007                                                          .WORD   7
        065210  037354                                                          .WORD   DVEM3
        065212  041460                                                          .WORD   ERR13
     41 065214  000737                          BR      TOORIO
     42
     43 065216                          TOOR1:  BREAK
        065216  104422                                                          TRAP    C$BRK
     44 065220  032737  000002  017414          BIT     #OTINT,FLAG     ;IS THERE AN OUTPUT
     45                                                                 ;PENDING
     46 065226  001402                          BEQ     TOOR2           ;IF NOT GO TO 2
     47                                                                 ;ELSE GO HANDL IT
     48 065230  004737  065254                  JSR     PC,OUTHDL       ;
     49 065234  032737  000001  017414  TOOR2:  BIT     #ININT,FLAG     ;IS THERE AN INPUT PENDING
     50 065242  001740                          BEQ     TOOR3           ;IF NOT GO BACK TO TIMER CK.
     51 065244  042737  000001  017414          BIC     #ININT,FLAG     ;ELSE CLEAR THE INPUT PEND FLAG
     52 065252  000207                          RTS     PC              ;AND RETURN TO CALLEP
     53
```

```
                                        .SBTTL                  OUTPUT INTERRUPT HANDLER
                                        ;**
                                        ; FUNCTIONAL DESCRIPTION:
                                        ;       OUTHDL - OUTPUT INTERRUPT HANDLER
                                        ;       THIS ROUTINE IS CALLED WHEN AN OUTPUT INTERRUPT HAS SET
                                        ;       THE "OTINT" BIT IN THE "FLAG" WORD. IT CHECKS FOR
                                        ;       AN RDO SIGNAL IF NO RDO THEN REPORT ILLEGAL INTERRUPT.
                                        ;       THEN IT CHECKS FOR BACC OUT IF NOT BACC OUT REPORT THE
                                        ;       TYPE OF OUTPUT ERROR. IF BACC OUT FIND IF RX OR TX
                                        ;       IF RX SET CRX BIT AND MOVE ADDR AND BYTE COUNT TO RSEL4
                                        ;       AND RSEL6. IF TX SET CTXV BIT AND MOVE ADDR AND BYTE COUNT
                                        ;       TO TSEL4 AND TSEL6. CLEAR OTINT FLAG AND RETURN TO CALLER.
                                        ;
                                        ; USE OF FLAGS:
                                        ;               "OTINT" - SET BY OUPUT ROUTINE
                                        ;                         CLEARED BY THIS ROUTINE
                                        ;               "DMRRUN" - SET BY DVINIT ROUTINE IF THIS IS DMR
                                        ;                          CHECKED AND CLEARED BY THIS ROUTINE.
                                        ;               "CTX"    - SET IF TRANSMIT COMLETED
                                        ;               "CRX"    - SET IF RECEIVE COMPLETED
                                        ;
                                        ;
                                        ; SUBORDINATE ROUTINES USED:
                                        ;
                                        ;               "LGDVE" -LOG DEVICE ERRORS TO EVENT LOG
                                        ;
                                        ; CALLING SEQUENCE
                                        ;               JSR     PC,OUTHDL
                                        ;
                                        ;-
065254  011637  017374          OUTHDL: MOV     (SP),PCADD      ;SAVE ADDR. OF CALLING ROUTINE
065260  042737  000002  017414          BIC     #OTINT,FLAG
065266  005737  017320                  TST     CLNSET
065272  001404                          BEQ     OUTH1
065274  142777  000200  135554          BICB    #RDO,@BSEL2     ;CLEAR RDO
065302  000207                          RTS     PC              ;RETURN TO CALLER
065304                          OUTH1:
065304  017703  135546                  MOV     @BSEL2,R3
065310  042703  177770                  BIC     #^C<7>,R3       ;STRIP TO COMMAND CODE
065314  022703  000001                  CMP     #1,R3           ;IS IT CONTROL OUT
065320  001405                          BEQ     CONOHD          ;IF SO GO TO CONTROL OUT HANDLER
065322  022703  000002                  CMP     #2,R3           ;IS IN INFO OUT
065326  001550                          BEQ     INFOHD          ;IF SO GO TO INFORMATION OUT HANDLER
065330  000137  066274                  JMP     BACCHD          ;IF NOT JUMP TO BA CC HANDLER

                                        ;CONTROL OUT HANDLER

065334                          CONOHD:
065334  005003                          CLR     R3
065336  157703  135524                  BISB    @BSEL6,R3       ; SAVE REASON FOR INTERRUPT

                                        ; REV C EC
                                        ;; IF MODEM DISCONNECT OR RING IS DETECTED, AND DCLT IS NOT RUNNING,
                                        ;;  WE INGNORE IT.
```

OUTPUT INTERRUPT HANDLER

```
 58 065342  005737  017416                    TST     RUNING          ; DCLT RUNNING?
 59 065346  001011                            BNE     CONO1E          ; YES,BRANCH
 60 065350  022703  000304                    CMP     #304,R3         ; MODEM DISCONNECT(DSR DROPPED)?
 61 065354  001404                            BEQ     CONO1F          ; YES, EXIT
 62 065356  022703  000032                    CMP     #32,R3          ; MODEM RING ?
 63 065362  001401                            BEQ     CONO1F          ; YES,BRANCH
 64 065364  000402                            BR      CONO1E          ; GO HANDLE INTERRUPT
 65 065366                          CONO1F:
 66 065366  000137  066452                    JMP     OUTHEX          ; EXIT
 67
 68 065372  032703  000100          CONO1E: BIT     #BIT6,R3        ;IS THIS ERROR IN THE 100 176 RANGE
 69                                                                  ;OR THE 300-376 RANGE
 70 065376  001052                            BNE     CONO1           ;BRANCH IF YES.
 71 065400  022703  000024                    CMP     #24,R3          ;IS THIS A RUN STATE
 72 065404  001011                            BNE     CONO1B          ;IF NOT GO TO 1B
 73 065406  032737  000400  017414            BIT     #RUNST,FLAG     ;TEST THE RUN STATE
 74 065414  001437                            BEQ     CONO1A          ;IF NOT SET GO TO 1A
 75 065416  012737  177777  017416            MOV     #-1,RUNING      ; SET "DCLT RUNNING" FLAG
 76 065424  000137  066452                    JMP     OUTHEX
 77 065430  022703  000002          CONO1B: CMP     #2,R3           ;IS IT RX THRESH
 78 065434  001004                            BNE     CONO1C          ;BRANCH IF NOT
 79 065436  005237  017302                    INC     OPVAR           ;BUMP OPVAR
 80 065442  000137  066452                    JMP     OUTHEX          ;AND EXIT
 81 065446  022703  000004          CONO1C: CMP     #4,R3           ;IS IT TX THRESH
 82 065452  001004                            BNE     CONO1D          ;BRANCH IF NOT
 83 065454  005237  017304                    INC     OPVAR1          ;IN TX COUNT
 84 065460  000137  066452                    JMP     OUTHEX          ;AND EXIT ROUTINE
 85 065464  022703  000006          CONO1D: CMP     #6,R3           ;IS IT SELECT
 86 065470  001411                            BEQ     CONO1A          ;BRANCH IF SO
 87 065472  022703  000032                    CMP     #32,R3          ;IS IT RING D
 88 065476  001406                            BEQ     CONO1A
 89 065500  022703  000022                    CMP     #22,R3          ;IS IT DEAD TRIB
 90 065504  001403                            BEQ     CONO1A          ;BRANCH IF SO
 91 065506  012737  177777  017324            MOV     #-1,FTLFLG      ;SET FATAL ERROR FLAG
 92 065514  016337  023106  017366  CONO1A: MOV     CONOLS(R3),CONOTM
 93 065522  000427                            BR      CONO4           ;THEN GO TO 4
 94
 95
 96 065524  012737  177777  017324  CONO1:  MOV     #-1,FTLFLG      ;SET FATAL ERROR FLAG
 97 065532  032703  000200                    BIT     #BIT7,R3        ;IS THIS 300 RANGE
 98 065536  001006                            BNE     CONO3           ;IF SO GO TO 3
 99 065540  042703  000100                    BIC     #BIT6,R3        ;CLEAR TOP BIT
100 065544  016337  023142  017366            MOV     CONO1S(R3),CONOTM
101 065552  000413                            BR      CONO4           ;LOAD UP MSG AND GO TO 4
102
103 065554  022703  000306          CONO3:  CMP     #306,R3         ;IS THIS QUE OVER FLOW
104 065560  001003                            BNE     CONO3A
105 065562  012737  177777  017330            MOV     #-1,OVRCNT
106 065570  042703  000300          CONO3A: BIC     #BIT7!BIT6,R3   ;CLEAR THE TOP BITS
107 065574  016337  023210  017366            MOV     CONO3S(R3),CONOTM
108
109 065602  017737  135260  017360  CONO4:  MOV     @SEL6,TEMP4
110 065610  017737  135242  017356          MOV     @SEL2,TEMP3
111 065616  012737  037430  017354          MOV     #DVEM4,TEMP2
112 065624  004737  042104                  JSR     PC,LGDVE                ;GO LOG ERROR
113 065630  005237  017310                  INC     ERRCNT
114 065634                                  ERRSOFT 7,DVEM4,ERR14
```

M16

SEQ

```
    065634  104457                                                                          TRAP     C$ERSOF
    065636  000007                                                                          .WORD    7
    065640  037430                                                                          .WORD    DVEM4
    065642  041512                                                                          .WORD    ERR14
    065644  000137  066452                   JMP     OUTHEX          ;EXIT OUTPUT HANDLER

                                             ;INFORMATION OUT HANDLER
                                             ;BA AND CC HANDLER



    065650                          INFOHD:
    065650  122777  000010  135210           CMPB    #10,@BSEL6      ;IS THIS A MODEM STATUS
    065656  001005                           BNE     INFOH1          ;GO TO INFO 1 IF NOT MODEM STATUS
    065660  017737  135176  020524           MOV     @SEL4,MODS      ;PUT IN NEW MOD STATUS
    065666  000137  066452          INFO1B:  JMP     OUTHEX
    065672  032777  000040  135166  INFOH1:  BIT     #BIT5,@BSEL6    ;
    065700  001011                           BNE     INFOHA          ;BRANCH IF RD/TSS
    065702  022777  000020  135156           CMP     #20,@BSEL6
    065710  001766                           BEQ     INFO1B          ;GET OUT IF BUFF RET CMP
    065712  012737  041212  017366           MOV     #INFOM,CONOTM   ;SET UP FOR INFO ERROR
    065720  000137  065602                   JMP     CONO4           ;AND PRINT IT
    065724  005037  017326          INFOHA:  CLR     TSSFLG          ;CLEAR FLAG
    065730  017704  135126                   MOV     @SEL4,R4
    065734  017703  135126                   MOV     @BSEL6,R3
    065740  042703  177740                   BIC     #177740,R3      ;CLEAR ALL BUT LAST 5 BITS
    065744  105777  135110                   TSTB    @BSEL3                  ;IS THIS GSS
    065750  001007                           BNE     INFOH8          ;BRANCH IF NOT


    065752  116302  021130                   MOVB    GSSIND(R3),R2
    065756  006303                           ASL     R3                      ;USE WORD INDEX
    065760  016337  021030  017366           MOV     GSSLST(R3),CONOTM       ;USE GSS LIST
    065766  000406                           BR      INFOH2

    065770  116302  020762          INFOH8:  MOVB    TSSIND(R3),R2
    065774  006303                           ASL     R3
    065776  016337  020662  017366           MOV     TSSLST(R3),CONOTM       ;IF TSS USE THAT LIST

    066004  000172  066010          INFOH2:  JMP     @INFOH4(R2)

    066010  066016                  INFOH4:  .WORD   INFOH5          ;WORD ROUTINE
    066012  066044                           .WORD   INFOH6          ;BYTE ROUTINE
    066014  066110                           .WORD   INFOH7          ;SPECIAL ROUTINE
    066016                          INFOH5:  PRINTS  CONOTM,R4
    066016  010446                                                                          MOV      R4,-(SP)
    066020  013746  017366                                                                  MOV      CONOTM,-(SP)
    066024  012746  000002                                                                  MOV      #2,-(SP)
    066030  010600                                                                          MOV      SP,R0
    066032  104416                                                                          TRAP     C$PNTS
    066034  062706  000006                                                                  ADD      #6,SP
    066040  000137  066452                   JMP     OUTHEX
    066044  010437  017350          INFOH6:  MOV     R4,TEMP
    066050                                   PRINTS  CONOTM,<B,TEMP>,<B,TEMP+1>
    066050  005046                                                                          CLR      -(SP)
    066052  153716  017351                                                                  BISB     TEMP+1,(SP)
    066056  005046                                                                          CLR      -(SP)
```

```
        066060  153716  017350                                                          BISB    TEMP,(SP)
        066064  013746  017366                                                          MOV     CONOTM,(SP)
        066070  012746  000003                                                          MOV     #3,(SP)
        066074  010600                                                                  MOV     SP,R0
        066076  104416                                                                  TRAP    C$PNTS
        066100  062706  000010                                                          ADD     #10,SP
    159 066104  000137  066452          JMP     OUTHEX
    160 066110  010437  017350  INFOH7: MOV     R4,TEMP
    161 066114  005037  017352          CLR     TEMP1
    162 066120  005037  017354          CLR     TEMP2
    163 066124  005037  017356          CLR     TEMP3
    164 066130  005037  017360          CLR     TEMP4
    165 066134  032737  000400  017350  BIT     #BIT8,TEMP
    166 066142  001402                  BEQ     1$
    167 066144  005237  017352          INC     TEMP1
    168 066150  032737  001000  017350  1$:     BIT     #BIT9,TEMP
    169 066156  001402                  BEQ     2$
    170 066160  005237  017354          INC     TEMP2
    171 066164  032737  002000  017350  2$:     BIT     #BIT10,TEMP
    172 066172  001402                  BEQ     4$
    173 066174  005237  017356          INC     TEMP3
    174 066200  032737  004000  017350  4$:     BIT     #BIT11,TEMP
    175 066206  001402                  BEQ     3$
    176 066210  005237  017360          INC     TEMP4
    177 066214                  3$:     PRINTS  CONOTM,<B,TEMP>,<B,TEMP1>,<B,TEMP2>,<B,TEMP3>,<B,TEMP4>
        066214  005046                                                                  CLR     -(SP)
        066216  153716  017360                                                          BISB    TEMP4,(SP)
        066222  005046                                                                  CLR     -(SP)
        066224  153716  017356                                                          BISB    TEMP3,(SP)
        066230  005046                                                                  CLR     -(SP)
        066232  153716  017354                                                          BISB    TEMP2,(SP)
        066236  005046                                                                  CLR      (SP)
        066240  153716  017352                                                          BISB    TEMP1,(SP)
        066244  005046                                                                  CLR     -(SP)
        066246  153716  017350                                                          BISB    TEMP,(SP)
        066252  013746  017366                                                          MOV     CONOTM  ,SP)
        066256  012746  000006                                                          MOV     #6,(S   )
        066262  010600                                                                  MOV     SP,R0
        066264  104416                                                                  TRAP    C$PNTS
        066266  062706  000016                                                          ADD     #16,SP
    178 066272  000467                  BR      OUTHEX
    179 066274                  BACCMD:
    180 066274  032703  000004          BIT     #BIT2,R3
    181 066300  001035                  BNE     BACCTX          ;IF BIT IS SET GO DO TX
    182 066302  022737  000022  015766  CMP     #18.,CRX        ;IS THIS GOING TO BREAK THE BANK?
    183 066310  001001                  BNE     1$
    184 066312                          DOCLN
        066312  104444                                                                  TRAP    C$DCLN
    185 066314  005237  015766  1$:     INC     CRX
    186
    187 066320  013702  015772          MOV     RSPTRE,R2       ;LOAD R2 WITH POINTER
    188 066324  017722  134506          MOV     @SEL6,(R2)+
    189 066330  017722  134526          MOV     @SEL4,(R2)+
    190 066334  017722  134516          MOV     @SEL2,(R2)+
    191 066340  022702  016166          CMP     #RXSKEN,R2
    192 066344  001002                  BNE     2$
    193 066346  012702  016012          MOV     #RXSTAK,R2
```

```
066352  010237  015772          2$:     MOV     R2,RSPTRE
066356  005737  017330          3$:     TST     OVRCNT
066362  001433                          BEQ     OUTHEX
066364                                  ERRSOFT 12,DVEM7,ERR15
066364  104457                                                                          TRAP    C$ERSOFT
066366  000014                                                                          .WORD   12
066370  037645                                                                          .WORD   DVEM7
066372  041550                                                                          .WORD   ERR15


066374  005237  015764          BACCTX: INC     CTX             ;INC TX COMPLETE ~    T
066400  013702  015774                  MOV     TSPTR,R2        ;LOAD R2 WITH POI.    R
066404  017722  134456                  MOV     @SEL6,(R2)+
066410  017722  134446                  MOV     @SEL4,(R2)+
066414  017722  134436                  MOV     @SEL2,(R2)+
066420  010237  015774                  MOV     R2,TSPTR
066424  022702  016012                  CMP     #RXSTAK,R2
066430  001001                          BNE     1$
066432                                  DOCLN                   ;BAD NEWS
066432  104444                                                                          TRAP    C$DCLN

066434  005737  017330          1$:     TST     OVRCNT          ;CHECK IF HERE FROM QUE OVER
066440  001404                          BEQ     OUTHEX
066442                                  ERRSOFT 13,DVEM7,ERR16
066442  104457                                                                          TRAP    C$ERSOFT
066444  000015                                                                          .WORD   13
066446  037645                                                                          .WORD   DVEM7
066450  041610                                                                          .WORD   ERR16

066452  142777  000200  134376  OUTHEX: BICB    #RDO,@BSEL2     ;CLEAR RDO
066460  005737  017330                  TST     OVRCNT          ;TEST THE OVER FLOW COUNT
066464  001427                          BEQ     OUTHE3          ;BRANCH IF ZERO
066466                          OUTHE4: BREAK
066466  104422                                                                          TRAP    C$BRK
066470  032737  000002  017414          BIT     #OTINT,FLAG     ;IS OUTPUT INTERRUPT SET
066476  001402                          BEQ     OUTHE5          ;BRANCH IF NOT
066500  000137  065254                  JMP     OUTHDL          ;WHEN SET GO BACK FOR NEXT ON QUE
066504  032737  000001  017414  OUTHE5: BIT     #ININT,FLAG     ;TEST FOR INPUT INT
066512  001414                          BEQ     OUTHE3          ;BRANCH IF NOT INPUT
066514  042737  000001  017414          BIC     #ININT,FLAG
066522  105077  134340                  CLRB    @BSEL6
066526  112777  000001  134322          MOVB    #01,@BSEL2      ;DO NO REQUEST
066534  012737  177777  017322          MOV     # 1,RQIFLG      ;SET RQI FLAG
066542  000751                          BR      OUTHE4
                                ;
                                ; SEE IF FATAL ERROR HAS OCCURRED
                                ;

066544  005737  017324          OUTHE3: TST     FTLFLG
066550  001416                          BEQ     OUTHE6          ;BRANCH IF NOT FATAL
066552  005037  017324                  CLR     FTLFLG          ;CLEAR FATAL FLAG
                                ;
                                ; IF A FATAL ERROR HAS OCCURRED, WE CLEAR ALL MODEM SIGNALS
                                ;

066556  105037  015756                  CLRB    TRIBN           ;PARAMETER FOR SUBROUTINE
066562  005037  017350                  CLR     TEMP            ;CLEAR ALL MODEM SIGNALS
```

OUTPUT INTERRUPT HANDLER

```
241 066566  004737  064732                  JSR     PC,WRMCS        ; GO CLEAR MODEM SIGNALS
242 066572  005037  017416                  CLR     RUNING          ; INIT "DCLT RUNNING' FLAG
243
244                                 ;
245                                 ; RESTORE ORIGINAL STACK POINTER AND GO TO "DC_T>" PROMPT.
246                                 ;
247
248 066576  013706  017364                  MOV     SAVSP,SP        ;RESET STACK
249 066602  000137  052402                  JMP     GTRA5           ;GO BACK TO DCLT>
250
251
252 066606  005737  017322          OUTHE6: TST     RQIFLG
253 066612  001405                          BEQ     OUTHE2
254 066614  005037  017322                  CLR     RQIFLG          ;CLEAR THE RQI FLAG.
255 066620  152777  000200  134224          BISB    #RQI,@BSEL0
256 066626  005737  017326          OUTHE2: TST     TSSFLG          ;TEST THE TSSFLG
257 066632  001315                          BNE     OUTHE4          ;IF NOT ZERO WAIT TIL IT IS.
258 066634  005037  017330                  CLR     OVRCNT          ;CLEAR THE OVERFLOW FLAG
259 066640  000207                          RTS     PC              ;RETURN TO CALLER
260
261 066642  000000                  TSEL6:  .WORD   0
262 066644  000000                  TSEL4:  .WORD   0
263 066646  000000                  TSEL3:  .WORD   0
264 066650  000000                  RSEL4:  .WORD   0               ;TEMP STORAGE LOCS.
265 066652  000000                  RSEL6:  .WORD   0
266 066654  000000                  RSEL3:  .WORD   0
267
```

```
 9
10                                      .SBTTL                  DEVICE INTERRUPT SERVICE ROUTINES
11
21
22 066656                                       BGNSRV  DVINS
   066656                                                                                       DVINS::
28 066656  052737  000001  017414               BIS     @ININT,FLAG
29 066664  042777  000200  134160               BIC     @#BIT7,@#BSELO    ;CLEAR RQI
30
31 066672                                       ENDSRV
   066672                                                                                       L10021:
   066672  000002                                                                                     RTI
```

DEVICE INTERRUPT SERVICE ROUTINES

```
     32
     42 066674                              BGNSRV  DVOUTS
        066674
                                                                DVOUTS::
     43
     49 066674  052737  000002  017414      BIS     #OTINT,FLAG
     50 066702                              ENDSRV
        066702
                                                                L10022:
        066702  000002                                                RTI
     51
     52
     53
```

```
      12
      13                                    .EVEN
      14
      15 066704                             ENDTST
         066704                                                 L10020:
         066704  104401                                               TRAP    C$ETST
      16
       1
       2
```

```
                                .SBTTL  HARDWARE PARAMETER CODING SECTION


                                ;++
                                ; THE HARDWARE PARAMETER CODING SECTION CONTAINS MACROS
                                ; THAT ARE USED BY THE SUPERVISOR TO BUILD P TABLES.  THE
                                ; MACROS ARE NOT EXECUTED AS MACHINE INSTRUCTIONS BUT ARE
                                ; INTERPRETED BY THE SUPERVISOR AS DATA STRUCTURES.  THE
                                ; MACROS ALLOW THE SUPERVISOR TO ESTABLISH COMMUNICATIONS
                                ; WITH THE OPERATOR.
                                ; -

066706                                  BGNHRD
066706  000034                                                          .WORD L10023 L$HARD/2
066710                                                          L$HARD::

                                .SBTTL          DEVICE INDEPENDENT SECTION

066710                                  GPRML   DPLX,0,1,YES
066710  000130                                                          .WORD   T$CODE
066712  067000                                                          .WORD   DPLX
066714  000001                                                          .WORD   1


                                .SBTTL          DEVICE DEPENDENT SECTION

066716                                  GPRMA   CSRADR,2,0,160000,177776,YES
066716  001031                                                          .WORD   T$CODE
066720  067031                                                          .WORD   CSRADR
066722  160000                                                          .WORD   T$LOLIM
066724  177776                                                          .WORD   T$HILIM
066726                                  GPRMA   VECTOR,4,0,300,776,YES
066726  002031                                                          .WORD   T$CODE
066730  067056                                                          .WORD   VECTOR
066732  000300                                                          .WORD   T$LOLIM
066734  000776                                                          .WORD   T$HILIM
066736                                  GPRMD   PRIOR,6,0,340,4,7,YES
066736  003032                                                          .WORD   T$CODE
066740  067111                                                          .WORD   PRIOR
066742  000340                                                          .WORD   340
066744  000004                                                          .WORD   T$LOLIM
066746  000007                                                          .WORD   T$HILIM
066750                                  GPRMD   OPTYPM,12,0,7,0,4,YES
066750  005032                                                          .WORD   T$CODE
066752  067226                                                          .WORD   OPTYPM
066754  000007                                                          .WORD   7
066756  000000                                                          .WORD   T$LOLIM
066760  000004                                                          .WORD   T$HILIM
066762                                  GPRML   PTPMLP,10,1,YES
066762  004130                                                          .WORD   T$CODE
066764  067137                                                          .WORD   PTPMLP
066766  000001                                                          .WORD   1
066770                                  XFERF   ENDHWL
066770  004044                                                          .WORD   T$CODE
```

DEVICE DEPENDENT SECTION

```
     54 066772                                GPRML   TRIBCO,10,2,YES
        066772  004130                                                    .WORD   T$CODE
        066774  067173                                                    .WORD   TRIBCO
        066776  000002                                                    .WORD   2
     55 067000                          ENDHWL:
     56 067000                                ENDHRD
                                                                          .EVEN
        067000                                                      L10023:
     57
     58                                 .NLIST  BEX
     59
     60                                 ;DEVICE INDEPENDENT QUESTIONS
     61
     62 067000     106     125     114  DPLX:   .ASCIZ  /FULL DUPLEX OPERATION : /
     63
     73
     74                                 ;DEVICE DEPENDENT QUESTION
     75
     76 067031     104     105     126  CSRADR: .ASCIZ  /DEVICE CSR ADDRESS: /
     77 067056     111     116     124  VECTOR: .ASCIZ  /INTERRUPT VECTOR ADDRESS: /
     78 067111     111     116     124  PRIOR:  .ASCIZ  /INTERRUPT PRIORITY : /
     79 067137     111     123     040  PTPMLP: .ASCIZ  /IS THIS MULTIPOINT NETWORK:/
     80 067173     111     123     040  TRIBCO: .ASCIZ  /IS THIS A CONTROL STATION:/
     81 067226     117     120     124  OPTYPM: .ASCII  /OPTION TYPE /<15><12>
     82 067244     040     060     075          .ASCII  / 0=DMP/<15><12>/ 1=DMV:/
     83                                 .LIST   BEX
     84                                         .EVEN
     85
     92
```

```
                                ;.SBTTL SOFTWARE PARAMETER CODING SECTION
                                ;+
                                ; THE SOFTWARE PARAMETER CODING SECTION CONTAINS MACROS
                                ; THAT ARE USED BY THE SUPERVISOR TO BUILD P-TABLES.  THE
                                ; MACROS ARE NOT EXECUTED AS MACHINE INSTRUCTIONS BUT ARE
                                ; INTERPRETED BY THE SUPERVISOR AS DATA STRUCTURES.  THE
                                ; MACROS ALLOW THE SUPERVISOR TO ESTABLISH COMMUNICATIONS
                                ; WITH THE OPERATOR.
                                ;

                                .       BGNSFT


                                ;       ENDSFT


                                ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
                                ; TEMPORARY PATCH AREA - FOR DEBUG PURPOSES
                                ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
067264                          $PATCH:
067264                                  .BLKW   30


067344                                  LASTAD
067344  000000                                                                  .EVEN
067346  000000                                                                  .WORD   0
067350                          L$LAST::                                        .WORD   0
067350                                  ENDMOD

        000001                  .END
```

Symbol table

```
ACT    = 000003
ACTATV  055026
ACTBCR  054632
ACTCHK  055242
ACTCKT  057010
ACTCLB  054154
ACTCLP  055354
ACTCLR  053644
ACTCOP  054452
ACTCRC  055256
ACTCSE  054000
ACTCST  054072
ACTDLL  055074
ACTDME  054400
ACTDMQ  054372
ACTDMS  054350
ACTDMX  054406
ACTECH  055152
ACTEKE  056622
ACTEKT  056404
ACTEQO  054574
ACTETB  055452
ACTEWS  055554
ACTEXT  053730
ACTEXX  057006
ACTE5A  056610
ACTE5B  056604
ACTHLP  053664
ACTKAL  055472
ACTKTB  055462
ACTLIS  055064
ACTLLP  055364
ACTLPX  055402
ACTLXX  055444
ACTMEX  055020
ACTME1  054754
ACTMOP  055334
ACTMOS  055264
ACTMS0  054654
ACTMS1  054662
ACTMS2  054672
ACTMS3  054702
ACTMS4  054712
ACTMS5  054722
ACTMS6  054740
ACTM2X  055122
ACTNO   055142
ACTNUF  053634
ACTNUL  053642
ACTNUM  054462
ACTOPM  054554
ACTPAS  055036
ACTPRO  055272
ACTPRT  053740
ACTQFG  055276
ACTREC  055056
ACTREX  044500
ACTRGS  044524
ACTRHL  044434
ACTRLG  044510
ACTRLP  055374
ACTRNF  044424
ACTRNL  044432
ACTRPS  055324
ACTRSE  044546
ACTRSF  044672
ACTRSO  044706
ACTRTN  044600
ACTRTS  044554
ACTRUN  053754
ACTSEX  054764
ACTSHO  053654
ACTSHW  054214
ACTSLS  056150
ACTSTE  054414
ACTSTS  055250
ACTSTT  054424
ACTSTX  054432
ACTSZE  054442
ACTTAL  055114
ACTTLP  055344
ACTTRA  055104
ACTWS1  055732
ACTWS2  055736
ACTWS3  056036
ACTWS5  055666
ACTWS7  056002
ACTWS9  055570
ACTW7A  056020
ACTW7B  056026
ADDCC   045350
ADDC1   045444
ADR    = 000020 G
ALCK    060150
ALCK1   060234
ALCK2   060310
ALCK2A  060550
ALCK3   060610
ALCK3A  060732
ALCK3B  060754
ALCK3C  060744
ALCK3D  060714
ALCK4   060776
ALCK4A  061010
ALCK5   060210
ALCK5B  060220
ALLTR   060210
ASSEMB= 000010
ATVMOD= 000027
BABTM   040275
BACCHD  066274
BACCTX  066374
BAD     017371
BADCHR= 000051
BASM1   030401
BASM2   030372
BASM3   030363
BDCLK   027232
BIT0   = 000001 G
BIT00  = 000001 G
BIT01  = 000002 G
BIT02  = 000004 G
BIT03  = 000010 G
BIT04  = 000020 G
BIT05  = 000040 G
BIT06  = 000100 G
BIT07  = 000200 G
BIT08  = 000400 G
BIT09  = 001000 G
BIT1   = 000002 G
BIT10  = 002000 G
BIT11  = 004000 G
BIT12  = 010000 G
BIT13  = 020000 G
BIT14  = 040000 G
BIT15  = 100000 G
BIT2   = 000004 G
BIT3   = 000010 G
BIT4   = 000020 G
BIT5   = 000040 G
BIT6   = 000100 G
BIT7   = 000200 G
BIT8   = 000400 G
BIT9   = 001000 G
BLDBEX  045556
BLDBUF  045446
BLDB1   045456
BLDB2   045520
BLDB3   045536
BOE    = 000400 G
BSEL0   023052
BSEL1   023054
BSEL2   023056
BSEL3   023060
BSEL4   023062
BSEL5   023064
BSEL6   023066
BSEL7   023070
BUFEX   027377
BUFLIM= 001000
BUFTSM  041111
BYTBIT  017316
CABLE  = 000002
CARLOS  041175
CBLLOP= 000045
CCURAD  017246
CHECK  = 000003
CLEAR  = 000001
CLIACT  053436
CLIALN= 000007
CLIALP= 000006
CLIBCR  023604
CLIBDL  023477
CLIBIF= 000003
CLIBR  = 000002
CLIBRX  023457
CLIDEC= 000011
CLIERM  023362
CLIERR= 000000
CLIEXI= 000001
CLINBG  023435
CLINPS  023541
CLINUF  023412
CLINUM= 000005
CLIOCT= 000010
CLIPPE  023702
CLIPW   023750
CLIRAC  044360
CLIRT   044774
CLISEO  023651
CLISPA= 000004
CLISTR= 000012
CLITRE  021170
CLI$PM  023354
CLI$RP  025334
CLKBR   017440
CLKCSR  017436
CLKEN   017446
CLKHZ   017444
CLKINT  041700 G
CLKSET  041654
CLKVEC  017442
CLNSET  017320
CLRPEX  046362
CLRPLS  046340
CLRPL1  046352
CMDBUF  003130
CMPBUF  004416
CMPNEW  061040
CMPPTR  017240
CMPSEX  061322
CMPSR   061022
CMPS1   061202
CMPS2   061206
CMPS3   061074
CMPS5   061304
CMPS5A  061310
CMPS6   061252
CMPS7   061170
CMPTOT  017242
CMSGO  = 000020
CMSG1  = 000021
CMSG2  = 000022
CMSG3  = 000023
CMSG4  = 000024
CMSG5  = 000025
CMSG6  = 000026
CONOHD  065334
CONOLS  023106
CONOTM  017366
CONO1   065524
CONO1A  065514
CONO1B  065430
CONO1C  065446
CONO1D  065464
CONO1E  065372
CONO1F  065366
CONO1S  023142
CONO3S  023210
CONO4   065602
CONO3   065554
CONO3A  065570
CPTR    017340
CPTRLS  015412
CPTRR   017336
CPTTLS  015512
CR      031566
CRC    = 000040
CRCB   = 000020
CRX     015766
CSHEXP= 000006
CSHTRN= 000007
CSRADR  067031
CTOTCC  017244
CTPP   = 000064
CTS    = 000004
CTX     015764
CURADD  017342
CURCC   017334
C$AU   = 000052
C$AUTO= 000061
C$BRK  = 000022
C$BSEG= 000004
C$BSUB= 000002
C$CEFG= 000045
C$CLCK= 000062
C$CLEA= 000012
C$CLOS= 000035
C$CLP1= 000006
C$CVEC= 000036
C$DCLN= 000044
C$DODU= 000051
C$DRPT= 000024
C$DU   = 000053
C$EDIT= 000003
C$ERDF= 000055
C$ERHE= 000056
C$ERRO= 000060
C$ERSF= 000054
C$ERSO= 000057
C$ESCA= 000010
C$ESEG= 000005
C$ESUB= 000003
C$ETST= 000001
C$EXIT= 000032
```

Symbol table

```
C$GETB= 000026          DLLE7   062004          DVEM5   037514          EFM2    027627          EVTF3F  030717
C$GETW= 000027          DLLE7A  062020          DVEM6   037571          EF.CON= 000036 G        EVTF4   031124
C$GMAN= 000043          DLLE8   062124          DVEM7   037645          EF.NEW= 000035 G        EVTF4A  031226
C$GPHR= 000042          DLLGA = 001000          DVEM8   037725          EF.PWR= 000034 G        EVTF4B  031016
C$GPLO= 000030          DLLIND  023222          DVEST   063554          EF.RES= 000037 G        EVTF44  031055
C$GPRI= 000040          DLLMOD= 000033          DVES1   063540          EF.STA= 000040 G        EVTF5A  031324
C$INIT= 000011          DLLM1   002647          DVES1A  063454          EKTB  = 000063          EVTF6   030756
C$INLP= 000020          DLLM1C  002172          DVI   = 000012          EMSG0   002221          EVTLOG  017466
C$MANI= 000050          DLLM1E  002654          DVINEX  063746          EMSG1   002222          EVTLST  020562
C$MEM = 000031          DLLM2   002654          DVINIT  062752          EMSG2   002223          EVTMIN  020612
C$MSG = 000023          DLLM2C  002174          DVINS   066656 G        EMSG3   002224          EVTPTR  017464
C$OPEN= 000034          DLLM2E  003130          DVIN1   063172          EMSG4   002324          EVTSLC  020610
C$PNTB= 000014          DLLPRI  061602          DVIN11  063326          EMSG5   002416          EVTTCK  020614
C$PNTF= 000017          DLLQ1   025210          DVIN12  063334          EMSG6   002517          EVTTMP  020622
C$PNTS= 000016          DLM     032014          DVIN13  063246          EMSG8   002647          EXIT  = 000066
C$PNTX= 000015          DLTXRX  061642          DVIN4   063060          ENADD   017314          E$END = 002100
C$QIO = 000377          DLVM    032040          DVIN4A  063006          ENDALL  042776          E$LOAD= 000035
C$RDBU= 000007          DMCM    032031          DVIN6   063110          ENDEVT  044204          FACSIM  045572
C$REFG= 000047          DMP   = 000000          DVM     032054          ENDHWL  067000          FHDPLX  017406
C$RESE= 000033          DMPE  = 000053          DVMODS  063756          ENDIT   051652          FLAG    017414
C$REVI= 000003          DMPM    032044          DVOUTS  066674 G        ENDQO = 000017          FTLFLG  017324
C$RFLA= 000021          DMPQ  = 000054          DVRCC   017272          EOP   = 000024          F$AU  = 000015
C$RPT = 000025          DMPS  = 000052          DVRCLS  015612          EQUQ    025055          F$AUTO= 000020
C$SEFG= 000046          DMP6  = 000004          DVRCT   017274          EQUQ1   025111          F$BGN = 000040
C$SPRI= 000041          DMSGAD  002176          DVREX   064066          EQUQ2   025151          F$CLEA= 000007
C$SVEC= 000037          DMSGCT  002150          DVRTB   017266          ERRCNT  017310          F$DU  = 000016
C$TPRI= 000013          DMV   = 000001          DVRXA   017270          ERR1    041340 G        F$END = 000041
DAM     032022          DMVDF1  016202          DVRXQ   064006          ERR10   041430 G        F$HARD= 000004
DATCKB= 000002          DMVDF2  016204          DVTCC   017252          ERR13   041460 G        F$HW  = 000013
DCD   = 000001          DMVDF3  016210          DVTCLS  015652          ERR14   041512 G        F$INIT= 000006
DCK   = 000014          DMVDF4  016212          DVTCT   017256          ERR15   041550 G        F$JMP = 000050
DCLFLG  017376          DMVDF5  016214          DVTREX  064622          ERR16   041610 G        F$MOD = 000000
DDF   = 000022          DMVM    032105          DVTRX1  064616          ERR2    041402 G        F$MSG = 000011
DEADTM  040245          DNM     032035          DVTR3   064150          ERX   = 000100          F$PROT= 000021
DER   = 000010          DOGL08  045776          DVTR4   064304          ETRB  = 000060          F$PWR = 000017
DEVPAR  023102          DOGL1   046036          DVTR4A  064370          ETWS  = 000065          F$RPT = 000012
DEV1    020652          DOGL2   046146          DVTR4B  064442          ETX   = 000200          F$SEG = 000003
DEV2    020654          DOGL4   046154          DVTR5   064446          EVL   = 000004 G        F$SOFT= 000005
DEV3    020656          DOW   = 000004          DVTR5A  064532          EVMCTS  031530          F$SRV = 000010
DEV4    020660          DPLX    067000          DVTTB   017254          EVMDCD  031540          F$SUB = 000002
DFPTBL  002130 G        DPM     032006          DVTXA   017250          EVMDSR  031534          F$SW  = 000014
DIAGMC= 000000          DQM     032017          DVTXRX  064070          EVMOCG  031410          F$TEST= 000001
DISCON  041150          DSR   = 000010          DZM     032057          EVMOMD  031433          GARPEX  047006
DIVN15  063274          DTEM    032050          ECHO  = 000037          EVMOSI  031513          GARPFL  046744
DLE   = 000020          DUM     032011          ECHOB = 000004          EVMRI   031550          GARP1   046760
DLL     061420          DUMEX   045346          EDDCK   030144          EVMRTS  031544          GATCEX  047072
DLLAB   040022          DUMPSR  045212          EDDDE   030257          EVMSQD  031554          GATCFL  047016
DLLCM   027160          DUM1    045304          EDDER   030127          EVMTM   031560          GATC1   047036
DLLEA   061626          DUM2    045326          EDDLE   030222          EVTADD  020616          GETCL   052472
DLLE1   062104          DUM3    045242          EDDVI   030174          EVTBCT  020620          GETIND  047154
DLLE2   061752          DUM4    045216          EDEOP   030312          EVTEND  020522          GETI1   047160
DLLE3   062164          DUPM    032025          EDMOS   030326          EVTF0   030447          GETI2   047200
DLLE4   062154          DVEM0   037116          EDRXC   030101          EVTF1   030545          GETPRM  051316
DLLE5   062274          DVEM1   037177          EDRXQ   030054          EVTF2   030574          GETRCL  042602
DLLE5A  062212          DVEM2   037257          EDTXC   030025          EVTF3   030646          GLBDEF  016206
DLLE5B  062246          DVEM3   037354          EDTXQ   030001          EVTF3C  030660          GLBEND  016220
DLLE6   062036          DVEM4   037430          EFM11   027724          EVTF3D  030675          GLBPLS  017220
```

Symbol table

```
GNTXPR  047102        G$HILI= 000002        INIT1   050766        LOGEOP  042250        L$LUN   002074 G
GNTX1   047120        G$LOLI= 000001        INOVR = 002000        LOGEX   042552        L$MREV  002050 G
GNTX2   047112        G$NO  = 000000        INTPRI  023076        LOGMSC  042266        L$NAME  002000 G
GOOD    017370        G$OFFS= 000400        INVEC   023072        LOGRXC  042074        L$PRIO  002042 G
GRPTCP  046546        G$OFSI= 000376        ISR   = 000100 G      LOGRXQ  042056        L$PROT  050744 G
GSSIND  021130        G$PRMA= 000001        IXE   = 004000 G      LOGS1   042304        L$PRT   002112 G
GSSLST  021030        G$PRMD= 000002        I$AU  = 000041        LOGS2   042544        L$REPP  002062 G
GSSOA   035004        G$PRML= 000000        I$AUTO= 000041        LOGS3   042344        L$REV   002010 G
GSS1A   035045        G$RADA= 000140        I$CLN = 000041        LOGS3A  042240        L$RPT   050736 G
GSS10A  035425        G$RADB= 000000        I$DU  = 000041        LOGS4   042420        L$SPC   002056 G
GSS11A  035477        G$RADD= 000040        I$HRD = 000041        LOGS5   042444        L$SPCP  002020 G
GSS12A  035517        G$RADL= 000120        I$INIT= 000041        LOGTXC  042040        L$SPTP  002024 G
GSS13A  035555        G$RADO= 000020        I$MOD = 000041        LOGTXQ  042022        L$STA   002030 G
GSS14A  035616        G$XFER= 000004        I$MSG = 000041        LOGUNT  017372        L$TEST  002114 G
GSS15A  035637        G$YES = 000010        I$PROT= 000040        LOOPS   003362        L$TIML  002014 G
GSS16A  035747        HELP  = 000000        I$PTAB= 000041        LOT   = 000010 G      L$UNIT  002012 G
GSS17A  036057        HELPDC= 000000        I$PWR = 000041        LP0     026765        L10000  002150
GSS2A   035103        HLP   = 000005        I$RPT = 000041        LP00    026766        L10001  041400
GSS20A  036141        HLPEND  003304        I$SEG = 000041        LP1     026775        L10002  041426
GSS21A  036206        HLPF    024116        I$SETU= 000041        LP2     027006        L10003  041456
GSS22A  036253        HLPTAB  003260        I$SRV = 000041        LP3     027014        L10004  041510
GSS23A  036320        HLP0    024040        I$SUB = 000041        LP4     027027        L10005  041546
GSS24A  036365        HLP1    024123        I$TST = 000041        L$ACP   002110 G      L10006  041606
GSS25A  036432        HLP2    024136        J$JMP = 000167        L$APT   002036 G      L10007  041646
GSS26A  036477        HLP2B   024254        KALL  = 000062        L$AU    052056 G      L10010  042020
GSS27A  036521        HLP2C   024344        KDPM    032072        L$AUT   002070 G      L10011  050742
GSS3A   035142        HLP3    024417        KDZM    032076        L$AUTO  051770 G      L10013  051766
GSS30A  036543        HLP3A   024504        KEYWD1  003252        L$CCP   002106 G      L10014  051770
GSS31A  036576        HLP4    024531        KLM     032102        L$CLEA  051772 G      L10015  052046
GSS32A  036653        HLP4A   024610        KTRB  = 000061        L$CO    002032 G      L10016  052054
GSS33A  036736        HLP5    024666        LCLKEN= 000100        L$DEPO  002011 G      L10017  052062
GSS34A  036761        HLP6    024756        LCPREX  046264        L$DESC  023304 G      L10020  066704
GSS35A  037026        HLTREX  065112        LCPRLS  046234        L$DESP  002076 G      L10021  066672
GSS36A  037050        HLTTRB  064776        LCPRL1  046266        L$DEVP  002060 G      L10022  066702
GSS37A  037071        HLTTR1  065040        LCPR1   046242        L$DISP  002124 G      L10023  067000
GSS4A   035177        HLTTR2  065032        LCPR2   046314        L$DLY   002116 G      L5060   027121
GSS5A   035234        HLTTR3  065024        LCPTEX  046434        L$DTP   002040 G      MARHM   040161
GSS6A   035271        HOE   = 100000 G      LCPTLS  046364        L$DTYP  002034 G      MARM    040140
GSS7A   035347        IBE   = 010000 G      LCPT1   046406        L$DU    052050 G      MCLR  = 040000
GTRA2   052072        IDU   = 000040 G      LDRCLS  046604        L$DUT   002072 G      MLTYP   017404
GTRA3   052134        IEI   = 000001        LDRPLS  046506        L$DVTY  023266 G      MOBITE  020544
GTRA4   052142        IER   = 020000 G      LDTCLS  046704        L$EF    002052 G      MOBITS  020526
GTRA5   052402        IEO   = 000020        LDTPLS  046644        L$ENVI  002044 G      MOCHK = 000010
GTREX   057576        INDEX   015762        LGDVE   042104        L$ETP   002102 G      MODE    017420
GTRX2   057674        INDW    015760        LIS   = 000006        L$EXP1  002046 G      MODES   003344
GTRX2A  057742        INFOHA  065724        LISCK   062530        L$EXP4  002064 G      MODLOC= 000003
GTRX2B  060024        INFOHD  065650        LISCKA  062570        L$EXP5  002066 G      MODREM= 000004
GTRX2C  057702        INFOH1  065672        LISMOD= 000032        L$HARD  066710 G      MODS    020524
GTRX22  057730        INFOH2  066004        LISP    027103        L$HIME  002120 G      MODTYP  017402
GTR9    057056        INFOH4  066010        LMDLOP= 000046        L$HPCP  002016 G      MOMSGS  020544
GTVIND  046462        INFOH5  066016        LNCNT   017300        L$HPTP  002022 G      MOP   = 000043
GTVI1   046466        INFOH6  066044        LOE   = 040000 G      L$HW    002130 G      MOSC  = 000056
GTXRXB  052072        INFOH7  066110        LOGAQR  047302        L$ICP   002104 G      M00     026674
G$CNTO= 000200        INFOH8  065770        LOGCMD  042224        L$INIT  050752 G      M01     026704
G$DELM= 000372        INFOM   041212        LOGCML  042206        L$LADP  002026 G      M02     026715
G$DISP= 000003        INFO1B  065666        LOGCMP  042170        L$LAST  067350 G      M03     026725
G$EXCP= 000400        ININT = 000001        LOGDVI  042122        L$LOAD  002100 G      M04     026734
```

Symbol table

M05	026751	NOD125	022352	NOD207	045004	NOD6	021234	N162$	023022
M06	026756	NOD126	022356	NOD21	021352	NOD60	021746	N163$	023040
MPLY	017232	NOD127	022372	NOD210	045006	NOD61	021752	N20$	021352
MSC	= 000016	NOD13	021272	NOD211	045022	NOD62	021774	N25$	021374
MSG	002736	NOD130	022376	NOD212	045024	NOD63	022000	N30$	021412
MSGLIM	= 000017	NOD131	022412	NOD213	045040	NOD64	022004	N40$	021312
MSGTRN	027415	NOD132	022416	NOD214	045042	NOD65	022010	N42$	021202
MSGTRU	027446	NOD133	022436	NOD215	045054	NOD66	022014	N43$	021220
MSGTYP	017332	NOD134	022442	NOD216	045060	NOD67	022020	N44$	021236
MSG0	002220	NOD135	022446	NOD217	045072	NOD7	021236	N45$	021254
MSG0C	002150	NOD136	022452	NOD22	021356	NOD70	022024	N46$	021272
MSG1	002221	NOD137	022456	NOD220	045074	NOD71	022030	N47$	021332
MSG1C	002152	NOD14	021306	NOD221	045106	NOD72	022034	N50$	022000
MSG2	002222	NOD140	022462	NOD222	045112	NOD73	022040	N51$	022004
MSG2C	002154	NOD141	022466	NOD223	045116	NOD74	022044	N52$	022010
MSG3	002223	NOD142	022472	NOD224	045122	NOD75	022050	N60$	022234
MSG3C	002156	NOD143	022474	NOD225	045136	NOD76	022062	N61$	022254
MSG4	002224	NOD144	022500	NOD226	045140	NOD77	022066	N62$	022276
MSG4C	002160	NOD145	022504	NOD227	045154	NOEXM	041132	N63$	022316
MSG5	002324	NOD146	022520	NOD23	021370	NONE	= 000000	N64$	022336
MSG5C	002162	NOD147	022524	NOD230	045156	NOTNUF	= 000050	N65$	022356
MSG6	002416	NOD15	021312	NOD231	045174	NULEVT	030407	N66$	022376
MSG6C	002164	NOD150	022540	NOD232	045200	NULL	= 000000	N67$	022416
MSG8	002646	NOD151	022544	NOD233	045204	NUM	= 000014	N68$	022442
MSG8C	002170	NOD152	022550	NOD234	045206	N10$	021174	N70$	022446
MTP	= 000001	NOD153	022554	NOD235	045210	N100$	021644	N71$	022456
MTPLEX	046460	NOD154	022560	NOD24	021374	N102$	021650	N72$	022462
MTPLY	046436	NOD155	022564	NOD25	021406	N104$	021674	N73$	022472
NEW	051310	NOD156	022606	NOD26	021412	N105$	022722	N80$	021414
NO	= 000036	NOD157	022612	NOD27	021414	N106$	022726	N81$	021420
NOCLK	027256	NOD16	021326	NOD3	021202	N107$	022744	N82$	021462
NOD0	021170	NOD160	022626	NOD30	021420	N108$	022770	N83$	021504
NOD1	021174	NOD161	022632	NOD31	021434	N110$	021722	N84$	021526
NOD10	021252	NOD162	022654	NOD32	021440	N111$	021726	N85$	021550
NOD100	022102	NOD163	022660	NOD33	021456	N112$	021752	N86$	021600
NOD101	022106	NOD164	022702	NOD34	021462	N114$	022044	N87$	021626
NOD102	022124	NOD165	022706	NOD35	021500	N115$	022040	OFSET	017346
NOD103	022130	NOD166	022712	NOD36	021504	N116$	022062	OPBFPT	002520
NOD104	022144	NOD167	022716	NOD37	021522	N117$	022106	OPBUF	002524
NOD105	022150	NOD17	021332	NOD4	021216	N118$	022130	OPCNT	002166
NOD106	022164	NOD170	022722	NOD40	021526	N120$	022230	OPEND	002646
NOD107	022170	NOD171	022726	NOD41	021544	N121$	022474	OPRMM	027114
NOD11	021254	NOD172	022742	NOD42	021550	N122$	022524	OPRMSG	= 000015
NOD110	022204	NOD173	022744	NOD43	021574	N123$	022500	OPTYP	023100
NOD111	022210	NOD174	022764	NOD44	021600	N125$	023050	OPTYPM	067226
NOD112	022224	NOD175	022770	NOD45	021604	N126$	022544	OPVAR	017302
NOD113	022230	NOD176	023004	NOD46	021622	N130$	022150	OPVAR1	017304
NOD114	022234	NOD177	023010	NOD47	021626	N131$	022210	OTINT	= 000002
NOD115	022250	NOD2	021200	NOD5	021220	N132$	022170	OUTHDL	065254
NOD116	022254	NOD20	021346	NOD50	021640	N140$	022560	OUTHEX	066452
NOD117	022272	NOD200	023022	NOD51	021644	N141$	022564	OUTHE2	066626
NOD12	021266	NOD201	023026	NOD52	021650	N142$	022612	OUTHE3	066544
NOD120	022276	NOD202	023040	NOD53	021672	N143$	022632	OUTHE4	066466
NOD121	022312	NOD203	023044	NOD54	021674	N144$	022660	OUTHE5	066504
NOD122	022316	NOD204	023050	NOD55	021720	N150$	022706	OUTHE6	066606
NOD123	022332	NOD205	044774	NOD56	021722	N160$	023004	OUTH1	065304
NOD124	022336	NOD206	045000	NOD57	021726	N161$	023010	OUTVEC	023074

Symbol table

```
OVRCNT  017330          PRI    = 002000 G       RMDLOP= 000047          R11$    045006          SMSC    031712
O$APTS= 000000          PRIOR    067111         RNOTNF= 000012          R12$    045024          SQD    = 040000
O$AU   = 000001          PRIO0  = 000000 G       RPASS   017412          R125$   045210          SRXQ    031613
O$BGNR= 000001          PRIO1  = 000040 G       RPEXT  = 000002          R13$    045042          STADD   017312
O$BGNS= 000000          PRIO2  = 000100 G       RPGSS  = 000004          R14$    045060          START   051046
O$DU   = 000001          PRIO3  = 000140 G       RPHLP  = 000001          R15$    045074          STATB  = 000001
O$ERRT= 000000          PRIO4  = 000200 G       RPLOG  = 000003          R20$    045116          STATUS= 000016
O$GNSW= 000000          PRIO5  = 000240 G       RPSWE  = 000007          R21$    045140          STATYP  023104
O$POIN= 000001          PRIO6  = 000300 G       RPSWF  = 000010          R22$    045156          STRCM   040117
O$SETU= 000000          PRIO7  = 000340 G       RPSWO  = 000011          R30$    045206          STREAM  040312
PARAM   017410          PRNT   = 000055         RPT     043272          SAVSP   017364          STRMM   040203
PAS    = 000002          PROTO  = 000041         RPTAA   043342          SCM     031635          STXC    031602
PASC   = 000042          PROTOB= 000040          RPTDCK  044056          SCMD    031670          STXQ    031571
PASMOD= 000030          PSCNT   017306          RPTDDE  043776          SCML    031657          SVCGBL= 000000
PASS1   002650          PST     027045          RPTDER  043522          SDVE    031624          SVCINS= 000001
PASS2   002651          PTPMLP  067137          RPTDLE  044056          SDVI    031646          SVCSUB= 000001
PASS3   002652          PTREND  015406          RPTDSP  020624          SECRM   031724          SVCTAG= 000001
PASS4   002653          PTRTAB  011416          RPTDVI  043622          SELO    023052          SVCTST= 000001
PCADD   017374          PTR13   011512          RPTEOP  043672          SEL2    023056          S$LSYM= 010000
PCK     027056          PTR23   011606          RPTIV   025544          SEL4    023062          S1      051034
PCLKCT= 001600          P$ACT   003400          RPTMSB  044214          SEL6    023066          S2      051112
PCLKEN= 000111          P$BUFA  003374          RPTMSC  044136          SEOP    031701          S3      051162
PCPM    027672          P$CNT   003402          RPTSN  = 000006          SETET  = 000067          S4      051230
PEC     027066          P$EXIT  047764          RPTSS  = 000005          SETEXP= 00 010          TABEX   027337
PE100M  040331          P$GDBD  003411          RPTTSS  043006          SETTRN= 00 011          TAL    = 000005
PE102M  040345          P$INNUF 003410          RPTTXQ  043444          SHFO    027531          TALCK   062276
PE104M  040367          P$NUM   003404          RPTO    043336          SHF1    027567          TALMOD= 000035
PE106M  040413          P$RADX  003406          RPT1    043324          SMMSG   025613          TCURAD  017264
PE110M  040444          P$TREE  003376          RQI    = 000200          SMOW   = 000002          TEMP    017350
PE112M  040466          P$TRV   047646          RQIFLG  017322          SMTAB   003334          TEMP1   017352
PE114M  040517          P$TR5   047656          RSEL3   066654          SMTAP   026017          TEMP2   017354
PE116M  040542          QCOPY  = 000013          RSEL4   066650          SMTBR   026605          TEMP3   017356
PE120M  040576          QRX    = 000004          RSEL6   066652          SMTEND  003343          TEMP4   017360
PE122M  040622          QTX    = 000010          RSPTRE  015772          SMTFL   026027          TEMP5   017362
PE124M  040652          QUALFG  003254          RSPTRS  015770          SMTIV   026543          TIMERS  017462
PE126M  040701          QUALVL  003256          RTS    = 000040          SMTLP   026231          TIMER1  017456
PE130M  040730          QUEOM   041162          RUN    = 000004          SMTLPA  026316          TIMER2  017460
PE132M  040756          R8FLIM= 004000          RUNING  017416          SMTLPB  026371          TIMMIN  017450
PE134M  041002          RDI    = 000020          RUNST  = 000400          SMTLPC  026433          TIMSEC  017452
PE136M  041034          RDO    = 000200          RUSM    040257          SMTLPD  026504          TIMTCK  017454
PE140M  041056          RDTSS   043112          RXBUF   005416          SMTNF   026165          TM     = 002000
PE142M  041075          RDTS2   043030          RXC    = 000006          SMTRE   025727          TOINOT  064156
PE144M  041103          REC    = 000000          RXMTOT  017276          SMTRH   025766          TOIN1   064252
PLCK    060122          RECMOD= 000031          RXM1    041272          SMTUN   026115          TOIN2   064254
PMS     027075          REPLOG  043224          RXM2    041315          SMTYP0  025647          TOORIO  065114
PNCK    027054          REPORT  042554          RXNC    041252          SMTYP1  025656          TOOR1   065216
PNEC    027064          RESFLG  017400          RXONLY  060036          SMTYP2  025663          TOOR2   065234
PNMS    027073          RESTRT  051250          RXON3   060054          SMTYP3  025670          TOOR3   065.44
PNST    027043          RHLPEN  003314          RXPTR   017234          SMTYP4  025675          TOTCC   017344
PNT    = 001000 G       RHLPTB  003304          RXQ    = 000004          SMTYP5  025703          TRA    = 000001
PNTTRB  044326          RHLP0   02  341         RXQUAL  046164          SMTYP6  025710          TRAMOD= 000034
POLDEF  016166          RHLP1   025377          RXQUEX  046232          SMTYP7  025716          TRBB   = 000002
POLLEN  063664          RHLP2   025421          RXQU1   046172          SMTYTB  003314          TRBTOT  015754
POLLE2  063736          RHLP3   025436          RXSKEN  016166          SMWOP   047344          TRIBCO  067173
POLLIS  016220          RHLP4   025470          RXSTAK  016012          SIZE   = 000012          TRIBLS  015712
POLPM   025234          RI     = 000200          RXTHEM  041075          SLST   = 000057          TRIBN   015756
POLPM3  025301          RIM     040226          R10$    045000          SLTHEM  040076          TRVACT  047766
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Symbol table

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TRVALN  050560          TSS12A  032675          TSS7A   032545          T$NSO = 000000          ULRCLS  046624
TRVALP  050514          TSS13A  032772          TS30AA  034242          T$NS1 = 000004          ULRPLS  046526
TRVBIF  050072          TSS14A  033066          TTL   = 000001          T$NS2 = 000010          ULTCLS  046724
TRVBR   050062          TSS15A  033151          TTLLOP= 000044          T$PTNU= 000000          ULTPLS  046664
TRVBRC  050006          TSS16A  033235          TTOTCC  017262          T$SAVL= 177777          UNKM    032062
TRVDEC  050166          TSS17A  033320          TXBUF   003416          T$SEGL= 177777          UPTABL  060352
TRVERR  050024          TSS2A   032216          TXC   = 000002          T$SUBN= 000000          UPTA1   060436
TRVEXI  050044          TSS20A  033404          TXMTOT  017260          T$TAGL= 177777          UPTA4   060402
TRVNMA  050206          TSS21A  033476          TXNC    041232          T$TAGN= 010024          UPTEX   060516
TRVNOB  050016          TSS22A  033565          TXONLY  060064          T$TEMP= 000000          VALTRB  003414
TRVNUM  050200          TSS23A  033653          TXON2   060072          T$TEST= 000001          VECTOR  067056
TRVOCT  050200          TSS24A  033740          TXPTR   017236          T$TSTM= 177777          WRDEFP  047214
TRVSPA  050114          TSS25A  034027          TXQ   = 000000          T$TSTS= 000001          WRDE5A  047236
TRVSTR  050646          TSS26A  034114          TXSTAK  015776          T$$AU = 010017          WRDE5B  047232
TSEL3   066646          TSS27A  034145          TXTHEM  041075          T$$AUT= 010014          WRDE5D  047262
TSEL4   066644          TSS3A   032252          T$ARGC= 000006          T$$CLE= 010015          WRFLG   003412
TSEL6   066642          TSS30A  034230          T$CODE= 004130          T$$DU = 010016          WRIPEX  064730
TSPTR   015774          TSS31A  034302          T$ERRN= 000015          T$$HAR= 010023          WRIPP   064634
TSSA    021024          TSS32A  034361          T$EXCP= 000000          T$$HW = 010000          WRIPPG  064624
TSSE    021022          TSS33A  034444          T$FLAG= 000040          T$$INI= 010013          WRIP1   064642
TSSFLG  017326          TSS34A  034527          T$GMAN= 000000          T$$MSG= 010007          WRMCS   064732
TSSIND  020762          TSS35A  034606          T$HILI= 000004          T$$PRO= 010012          X$      = 000236
TSSKEY  021026          TSS36A  034665          T$LAST= 000001          T$$RPT= 010011          X$ALWA= 000000
TSSLST  020662          TSS37A  034737          T$LOLI= 000000          T$$SRV= 010022          X$FALS= 000040
TSSOA   032112          TSS4A   032325          T$LSYM= 010000          T$$TES= 010020          X$OFFS= 000400
TSS1A   032146          TSS5A   032373          T$LTNO= 000001          T1      052064 G        X$TRUE= 000020
TSS10A  032603          TSS6A   032455          T$NEST= 177777          UAM   = 000200 G        $PATCH  067264
TSS11A  032637

. ABS.  067350    000   (RW,I,GBL,ABS,OVR)
        000000    001   (RW,I,LCL,REL,CON)
Errors detected:  0

*** Assembler statistics


Work  file  reads: 359
Work  file writes: 351
Size of work file: 30056 Words  ( 118 Pages)
Size of core pool: 17408 Words  ( 68 Pages)
Operating  system: RT 11 (Under RSTS/E)

Elapsed time: 00:04:26.28
.CZCLMC/C=SVC34R,CZCLMC
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Cross reference table (CREF V05.00)

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$PATCH 113-380
ACT     26 180   82 73    86 1     87 49
ACTATV  83 36    86-10
ACTBCR  83-54    85 450
ACTCHK  83-16    87 150
ACTCKT  83-65    88-1700
ACTCLB  84-42    84-560
ACTCLP  83-50    87 430
ACTCLR  83-14    84-50
ACTCOP  83 24    85 130
ACTCRC  83 45    87-210
ACTCSE  83 19    84-280
ACTCST  83-20    84-440
ACTDLL  83 40    86-150
ACTDME  83 56    84-90    84-930
ACTDMQ  83-57    84-920
ACTDMS  83 55    84-870
ACTDMX  84 940
ACTESA  88-1330  88-135
ACTESB  88 1320
ACTECH  83-44    87-40
ACTEKE  88-115   88-1380
ACTEKT  83-64    88-1010
ACTEQO  83-28    85-340
ACTETB  83-61    88-10
ACTEWS  83 66    88-230
ACTEXT  83 67    84-170
ACTEXX  88 106   88 113   88-123   88-136   88-146   88-164   88-1670
ACTHLP  83-18    84-110
ACTKAL  82-79    83-63    88-70
ACTKTB  83-62    88-40
ACTLIS  83 39    86-120
ACTLLP  83 51    87-450
ACTLPX  87-40    87-42    87-44    87-46    87-490
ACTLXX  87-13    87-34    87-37    87-50    87-540
ACTM2X  86-2     86-10    86-13    86-16    86-19    86-230
ACTME1  85-49    85-51    85 53    85-55    85-57    85 640
ACTMEX  85-27    85-43    85-60    85-65    85-72    85-75    85-790
ACTMOP  83 48    87-390
ACTMOS  83-59    87-240
ACTMSO  83-29    85-480
ACTMS1  83-30    85-500
ACTMS2  83-31    85-520
ACTMS3  83-32    85-540
ACTMS4  83-33    85-560
ACTMS5  83-34    85-580
ACTMS6  83-35    85-610
ACTNO   83-43    87-10
ACTNUF  83 53    84-20
ACTNUL  83-13    84-30
ACTNUM  83-25    85-160
ACTOPM  83-26    85-290
ACTPAS  83 37    86-40
ACTPRO  83-46    87-270
ACTPRT  83 58    84-190
ACTQFG  87-16    87 19    87-22    87-25    87 290
```

Cross reference table (CREF V05.00)

```
ACTREC  83-38    86-90
ACTREX  48 11    49-100
ACTRGS  48 13    49-150
ACTRML  48-10    49-40
ACTRLG  48-12    49-120
ACTRLP  83-52    87-470
ACTRNF  48-19    49 20
ACTRNL  48-9     49-30
ACTRPS  83-47    87-360
ACTRSE  48-16    49-190
ACTRSF  48-17    49-370
ACTRSO  48-18    49-400
ACTRTN  48 15    49-250
ACTRTS  48-14    49-210
ACTRUN  83-17    84-230
ACTSEX  83-68    85-690
ACTSHO  83-15    84-80
ACTSHW  84-34    84-48    84-670   84-79
ACTSLS  83-60    88-730
ACTSTE  83-21    85-30
ACTSTS  83-27    87-180
ACTSTT  83-22    85-60
ACTSTX  85-4     85-70
ACTSZE  83-23    85-100
ACTTAL  83-42    86-210
ACTTLP  83-49    87-410
ACTTRA  83-41    86-180
ACTW7A  88-570
ACTW7B  88-27    88-55    88-590
ACTWS1  88-48    88-490
ACTWS2  88-49    88-510
ACTWS3  88-50    88-660
ACTWS5  88-37    88-390   88-58
ACTWS7  88-530   88-71
ACTWS9  88-280
ADDC1   52-26    52-360
ADDCC   52-240   82-160   82-191
ADR     25-00
ALCK    32-30    93-200
ALCK1   94-47    94-510   94-102
ALCK2   94-52    94-630   94-146
ALCK2A  94-98    94-1040
ALCK3   94-66    94-108   94-1120
ALCK3A  94-122   94-1320
ALCK3B  94-134   94-1370
ALCK3C  94-130   94-1350  94-143
ALCK3D  94 125   94-1280
ALCK4   94-113   94-1410
ALCK4A  94 140   94-1440
ALCK5   94-460   94-136
ALCK5B  94-480
ALLTR   90-21    91-22    92-23    94 450
ASSEMB  21 12    21-12
ATVMOD  26-1450  37-48
BABTM   38 53    41-1290
BACCMD 107-46   107-1790
```

Cross reference table (CREF V05.00)

```
BACCTX 107-181  107-200#
BAD     31-55#   43-29    95-73*
BADCHR  26-163#  37-161
BASM1   40-150#  51-30
BASM2   40-149#  51-36
BASM3   40-148#  51-34
BDCLK   40-109#  77-80
BIT0    24-77#   26-41    26-66    26-85    26-209   26-232  100-165
BIT00   24-77    24-77#
BIT01   24-77    24-77#
BIT02   24-77    24-77#
BIT03   24-77    24-77#
BIT04   24-77    24-77#
BIT05   24-77    24-77#
BIT06   24-77    24-77#
BIT07   24-77    24-77#
BIT08   24-77    24-77#
BIT09   24-77    24-77#
BIT1    24-77#   26-42    26-67    26-86    77-151
BIT10   24-77#   26-105   26-213   107-171
BIT11   24-77#   107-174
BIT12   24-77#
BIT13   24-77#
BIT14   24-77#   26-212   26-230
BIT15   24-77#
BIT2    24-77#   26-43    26-87    26-207   77-148   107-180
BIT3    24-77#   26-44    26-88    26-208   100-150  100-167  100-179
BIT4    24-77#   26-45    26-231   26-233
BIT5    24-77#   26-46    26-210   49-47    107-127
BIT6    24-77#   26-89    107-68   107-99   107-106
BIT7    24-77#   26-90    26-211   26-228   26-229   100-142  100-150  107-97   107-106  108-29
BIT8    24 77#   26-103   100-144  107-165
BIT9    24 77#   26-104   107-168
BLDB1   53 30#
BLDB2   53-38#   53-45
BLDB3   53-41#   53-46
BLDBEX  53-43    53-47#
BLDBUF  53 25#   82-64    82-71    82-161   82-192   84-63    89-107
BOE     25-0#
BSEL0   38-20#   47-59*   47-67*   100-157* 100-211* 100-232* 101-40*  102-45*  103-69*  104-20*  105-15*  105-55*  107-255* 108-29*
BSEL1   38-21#   77-117*  77-118*  100 101* 100-150* 100-167* 100-179*
BSEL2   38-23#   47-64*   47-71*   100-142  100-166* 100-215* 100-240* 101-43*  102-51*  103-74*  104-25*  105-20*  105-59*  107-37*
        107-40   107-214* 107-225*
BSEL3   38-24#   47-62*   47-69*   77-121*  77-122*  100-213* 100-234* 102-50*  103-73*  103-94   104-22*  105-17*  105-57*  107-137
BSEL4   38-26#
BSEL5   38-27#   77-125*  77-126*
BSEL6   38-29#   47-70*   100-119  100-162* 100-165* 107-52   107-123  107-127  107-129  107-135  107-224*
BSEL7   38-30#   77-129*  77-130*
BUFEX   40 112#  82-144   82-173
BUFLIM  26-3#    29-3     29-4     52-25    52-32    54-63    82-142   82-171   84 56    89-87
BUFTSM  38-78    41-153#
BYTBIT  31-28#   51-31    84-88*   84-92*
C$AU    21-12#   81-36
C$AUTO  21-12#   78-19
C$BRK   21-12#   100-106  100 139  103-101  106-43   107-217
C$BSEG  21-12#
```

```
C$BSUB  21-120#
C$CEFG  21-120#
C$CLCK  21-120#  77-56    77-62
C$CLEA  21-120#  79 43
C$CLOS  21-120#
C$CLP1  21-120#
C$CVEC  21-120#
C$DCLN  21-120#  77-37   107 184  107 208
C$DODU  21-120#
C$DRPT  21-120#
C$DU    21-120#  80 35
C$EDIT  21-120#  21-98
C$ERDF  21-120#
C$ERHR  21-120#
C$ERRO  21-120#
C$ERSF  21-120#
C$ERSO  21-120#  95-61    95-75    95-84    97-67    100-96   100-115  100-127  103-97   103-119  103-141  106-40   107-114  107-197
        107-212
C$ESCA  21-120#
C$ESEG  21-120#
C$ESUB  21-120#
C$ETST  21-120#  109-15
C$EXIT  21-120#  77-169   79-27    82-95    82-130
C$GETB  21-120#
C$GETW  21-120#
C$GMAN  21-120#  47-16    55-26    77-76    82-103   88-52    88-67    88-69    97-41    98-27
C$GPHR  21-120#  77 96
C$GPLO  21-120#
C$GPRI  21-120#
C$INIT  21-120#  77-185
C$INLP  21-120#
C$MANI  21-120#  82-91
C$MEM   21-120#
C$MSG   21-120#  43-30    43-34    43-38    43-56    43-65    43 70    43-74
C$OPEN  21 120#
C$PNTB  21-120#  43-29    43-33    43-37    43-55    43-64    43-69    43-73
C$PNTF  21-120#  46-115   46-118   47-10    47-24    47-28    49-5     49-32    49-43    51-30    51-34    51-36    52-30    55-17
        55-25    74-138   74-176   77-80    82-42    82-83    82-111   82-115   82-144   82-153   82-173   82-184   84 12    84-76
        85-20    85-45    87 9     87-53    88-29    88 51    88-66    88-122   88 145   88 165   88-174   89-10    89 18    89-23
        89-29    89-37    89-38    89-55    97-63    97-138   99-24    99-42
C$PNTS  21-120#  47-85    47-103   47-108   47-115   47-123   47-124   47-145   47-146   47-154   47-162   47-171   47-188   47 203
        47-209   73-33    73-71    88-81    88-85    88-89    88-93    88-98    88 112   107-155  107-158  107-177
C$PNTX  21-120#
C$QIO   21-120#
C$RDBU  21-120#  77-71
C$REFG  21-120#  77-40    77-42    77-44    77-47
C$RESE  21-120#  21-120#  77-52
C$REVI  21 120#  21-98
C$RFLA  21 120#
C$RPT   21-120#  75-41
C$SEFG  21 120#
C$SPRI  21 120#  77-168   79-26
C$SVEC  21-120#  77-153   77 165   77-166
C$TPRI  21-120#
CABLE   26-270#
CARLOS  38-82    41-157#
```

```
CBLLOP  26 159#  37-190
CCURAD  31-7#    54-75*  54 83    54 87*   82-60*   82 68    82-190   82-195*  84-41*
CHECK   26 125#  37-96
CLEAR   26-123#  37-32   84-5
CLI$PM  40-4#    82-103
CLI$RP  40-36#   47-16
CLIACT  82-106   83-5#
CLIALN  26-116#  37 159
CLIALP  26-115#  37-82   37-92    37-164
CLIBCR  40-11#   85-45
CLIBDL  40-9#    87-53
CLIBIF  26-112#
CLIBR   26-111#  37-29   37-31    37-33    37-35    37-38    37-40    37-49    37-51    37-53    37-55    37-57    37-60    37-62
        37-77    37-79   37-89    37-97    37-108   37-110   37-125   37-128   37-131   37-138   37-140   37-142   37-144   37-146
        37-148   37-150  37-152   37-157   37-160   37-167   37-169   37-174   37-189   37-191   37-193   37-195   37-200   37-206
        37-213   50-11
CLIBRX  40-8#    74-138
CLIDEC  26-118#  37-173  37-199   37-210   50-16
CLIERM  40-5#    47-24   82-111
CLIERR  26-109#  37-41   37-161   50-26
CLIEXI  26-110#  37-21   37-23    37-25    37-27    37-68    37-70    37 204   37-216   50-5     50-7     50-9     50-13    50-19
        50-21    50-25   50-27
CLINBG  40-7#    74-176
CLINPS  40-10#   87-9
CLINUF  40-6#    47-28   82-115
CLINUM  26-114#
CLIOCT  26-117#  37-84   37-86    50 24
CLIPPE  40-13#   88-174
CLIPW   40-14#   89-10
CLIRAC  47-19    48-2#
CLIRT   47-18    50-3#
CLISEO  40-12#   85-20
CLISPA  26-113#  37-19   37-45    37-66    37-75    37-83    37-158   37-202   50-3     50-15
CLISTR  26-119#  37-22   37-24    37-26    37-28    37-30    37-32    37-34    37-37    37-39    37-46    37-48    37-50    37-52
        37-54    37-56   37-59    37-61    37-67    37-69    37-76    37-78    37-94    37-96    37-107   37-109   37-124   37-127
        37-130   37-137  37-139   37-141   37-143   37-145   37-147   37-149   37-151   37 166   37-168   37-188   37-190   37-192
        37-194   37-203  37-205   37-207   37-209   37-211   50-6     50-8     50-10    50-12    50-14    50-18    50-20    50-22
CLITRE  37-16#   82-105
CLKBR   32-38#   77-74*
CLKCSR  32-37#   45-35*  45-56*   77-55    77-65*   77-66*   77-67*   77-75*   79-25*   82-33*
CLKEN   32-41#   45-56   77-59*   77-68*   77-75    82-33
CLKHZ   32-40#   45-38   45-53    46-122   77-76    77-83
CLKINT  45-33#   77-153
CLKSET  44-112#  77-58   77-64
CLKVEC  32-39#   77-53*  77-73*   77-153
CLNSET  31-29#   79-19*  79-21*   89-65*   107-35
CLRPEX  59-18#
CLRPL1  59-15#   59-17
CLRPLS  59 13#   91-20
CMDBUF  28-3#    47-16   47-17    82-103   82-104
CMPBUF  29-4#    54-61*  54-75    82-60    84-40
CMPNEW  95-36#   95-89
CMPPTR  31 4#    54-69*  54 70*   54-83*   54-84*   54-85*   54-89*   82-55*   82-67    82-179*  82-188*  82-189   82-193*  84-28*
        84-29    84-38*  84-39    89-58*   95-41
CMPS1   95 66#   95-80
CMPS2   95 69#
```

Cross reference table (CREF V05.00)

```
CMPS3   95-44#   95-88
CMPS5   95-85#
CMPS5A  95 82    95-86#
CMPS6   95-67    95-71    95-78#
CMPS7   95-59    95-64#
CMPSEX  95-34    95 38    96-18#
CMPSR   94 131   94-145   95-33#
CMPTOT  31-5#    54-78*   54-81    54 90*   82-72*   82-177*  82-180   82-194*  84-31    84-35*   89-8     89-61
CMSG0   26-138#  37-139
CMSG1   26-139#  37-137
CMSG2   26-140#  37-141
CMSG3   26-141#  37-143
CMSG4   26-142#  37-147
CMSG5   26-143#  37-145
CMSG6   26 144#  37-149
CON03   107-98   107-103#
CON03A  107-104  107-106#
CON01   107-70   107-96#
CON01A  107-74   107-86   107-88   107-90   107-92#
CON01B  107-72   107-77#
CON01C  107-78   107-81#
CON01D  107-82   107-85#
CON01E  107-59   107-64   107-68#
CON01F  107-61   107-63   107-65#
CON01S  38-58#   107-100
CON03S  38-78#   107-107
CON04   107-93   107-101  107-109# 107-132
CONOHD  107-43   107-50#
CONOLS  38-42#   107-92
CONOTM  31-53#   43-64    55-24*   55-25    88-47*   88-51    88-66    97-94*   97-111*  97-119*  97-124*  107-92*  107-100* 107-107*
        107-131* 107-143* 107-148* 107-155  107-158  107-177
CPTR    31-42#   53-28    53-32*   60-30*   64-22*   66-17    66-36*   82-63*   82-67*   82-158*  82-162   82-189*  82-193   84-39*
        84 52*   90-20*   94-54    94-59*   94-74    94-137*  94-144   95-45    95-49*   99-30*
CPTRLS  29-15#   58-31*   59-14    63-16*   63-35
CPTRR   31-41#   63-16    63-35*   68-23    72-13    72-18*   94-81*   94-86    94-94*   94-110*  94-142   95-41*   95-51    95-54*
        98-41*
CPTTLS  29-16#   66-17*   66-36
CR      40-197#  46-115   88-93    88-98
CRC     26-154#
CRCB    26-45#   87-21
CRX     29-26#   89-67*   103-83   103-106  103-132  103-157* 107-182  107-185*
CSHEXP  26-128#  37-67
CSHTRN  26-129#  37-69
CSRADR  112-48   112-76#
CTOTCC  31-6#    54-77*   54-85    54-87    54-88*   54-93*   82-51*   82-170   82-175   82-196*  84-36*   89-42
CTPP    26-174#  37-34
CTS     26-207#  34-3
CTX     29-25#   89-66*   103-85   103-108  103-110  103-131* 107-200*
CURADD  31 43#   53-30    53-35    53-37    53-47*   82-62*   82-68*   82-159*  82-164   82-190*  82-195   84-57*   89-98*   97-50*
        97-56*   97-82    97-83
CURCC   31-40#   52-24    52-31    52-34*   52-35    53-31    53-36    53-47    82 58*   82-70*   84-59*   85-23*   85-30*   85 59*
        85-62*   85-64*   89-42*   89-43    89-45*   89-49    89-82    89-87*   97-51*   97-57*   97-84    97 85
DAM     38-92    40-217#
DATCKB  26-42#   73-41    87 15    89 4     89-46    89-62    89-85    91-17    93-21    94-77    94-139   95-33    97-49    98-22
        99-23    105-42
DCD     26-209#  34-5
```

Cross reference table (CREF V05.00)

```
DCK      26-77#   46-72
DCLFLG   32-5#    77-34    77-36^   82-129^
DDE      26-80#   46-80
DEADTM   38-51    41-127#
DER      26-75#   46-58
DEV1     34-61#   47-120^  47-124   47-127^  47-129^  73-22    82-85^   84-80^
DEV2     34-62#   47-121^  47-124   47-128^  47-130^  73-25    82-86^   84-81^
DEV3     34-63#   47-131^  73-32    82-87^   84-82^
DEV4     34-64#   47-132^  73-37    73-41    73-45    73-67    82-88^   84-83^
DEVPAR   38-37#   55-29    77-136^  77-146   77-149   88-36    88-54    88-172   89-12    89-27    89-83    97-39    100-86   100 218
         105-40
DFPTBL   23-10#
DIAGMC   21-12    21-12
DISCON   38-80    41-155#
DIVN15   100-139# 100-143
DLE      26-79#   46-76
DLL      32-31    97-36#
DLLAB    41-117#  97-67    97-97
DLLCM    40-107#  97-63
DLLE1    97-90    97-109#
DLLE2    97-88#   97-108
DLLE3    97-118   97-122#
DLLE4    97-119#
DLLE5    97-107   97-141#
DLLE5A   97-123   97-130#
DLLE5B   97-133   97-135   97-138#
DLLE6    97-92    97-101#
DLLE7    97-95#   97-112   97-120
DLLE7A   97-97#   97-126
DLLE8    97-110   97-113#
DLLEA    97-66#   97-99
DLLGA    26 104#  97-58    97-89    97-105
DLLIND   38 88#   97-136
DLLM1    27-21    27-78#   97-50
DLLM1C   27-21#   97-51
DLLM1E   27-21    27-83#
DLLM2    27-22    27-84#   97-56
DLLM2C   27-22#   97-57    97-106
DLLM2E   27-22    27-124#
DLLMOD   26-149#  37-56
DLLPRI   97-62#
DLLQ1    40-33#   97-41
DLM      38-90    40-215#
DLTXRX   97-52    97-59    97 73#
DLVM     38-96    40-221#
DMCM     38-94    40-219#
DMP      26-62#
DMP6     26-64#   100-99
DMPE     26-165#  37-86
DMPM     38-97    40-222#
DMPQ     26-166#  37-88
DMPS     26-164#  37-84    82-123   84 89
DMSGAD   27-27#   53-39
DMSGCT   27-11#   53-38
DMV      26-63#
DMVDF1   30-15#   77-140^
```

Cross reference table (CREF V05.00)

```
DMVDF2   30-16#    77-141^
DMVDF3   30-21#    77-142^
DMVDF4   30-22#    77 143^
DMVDF5   30-23#    77-144^
DMVM     38-105    40-230#
DNM      38-95     40-220#
DOGL1    55-20#    55-33
DOGL2    55-32#
DOGL4    55-30     55-35#
DOGL0B   55-13#    82-138
DOW      26-19#    86-15    100-84    100 236
DPLX    112-27    112-62#
DPM      38-88     40-213#
DQM      38-91     40-216#
DSR      26-208#   34-4
DTEM     38-98     40-223#
DUM      38-89     40-214#
DUM1     51-32     51-36#
DUM2     51-35     51-37#
DUM3     51-31#    51-42
DUM4     51-29#    51-41
DUMEX    51-38     51-44#
DUMPSR   51-28#    82-125
DUPM     38-93     40-213#
DVEM0    41-90#    100-110   100-115
DVEM1    41 93#    100-121   100-127
DVEM2    41-96#    103-91    103-97
DVEM3    41-99#    106-35    106-40
DVEM4    41-102#   107-111   107-114
DVEM5    41-105#   103-114   103-119
DVEM6    41-108#   103-136   103-141
DVEM7    41-111#   107-197   107-212
DVEM8    41-114#   100-91    100-96
DVES1    100-205#  100-241
DVES1A   100-174   100-180   100-192#
DVEST    100-211#
DVI       26-76#    46-63
DVIN1    100-105   100-119#
DVIN11   100-134   100-149#
DVIN12   100-132   100-156#
DVIN13   100-120   100-131#
DVIN4    100-85    100-87    100-98#
DVIN4A   100-89#   100-90
DVIN6    100-100   100-104#  100-108
DVINEX   100-207   100-242#
DVINIT    89-78    100-75#   100-97    100-117   100-128
DVINS     77-165   108-22#
DVM       38-99     4C-224#
DVMODS    46 96    101-40#
DVOUTS    77-166   108-42#
DVRCC     31-17#    72-17^    94-68     97-77^    97-114    99-27^    99-38     99-40^    99-41^    102-49    103-146^
DVRCLS    29-17#    58-29^    65-17^    65-37
DVRCT     31-18#    65-17     65-37^    94-105^   94-107    95-42^    95-87^
DVREX    102-36    102-54#
DVRTB     31-15#    94-69     103 151^
DVRXA     31-16#    72-15^    94-67     97-75^    97-113    99-25^    99 37     99-40     102-48    103-147^
```

Cross reference table (CREF V05.00)

```
DVRXQ    72-19    97-79    99-32   102-34#
DVTCC    31 9#    94-58*   94-115   97-84*   97-102   97-106   98-38*   98-46   103-72   103-128*
DVTCLS   29-18#   67-19*   67-37    69-22
DVTCT    31-11#   60 29*   67-19    67-37*   69-17*   69 24*   70-19    94-119*  94-124   94-129   94-133
DVTR3   103-60   103-76#  103-98
DVTR4   103 84   103-86   103-107  103-110#
DVTR4A  103-113  103-122#
DVTR4B  103-121  103-131#
D..R5   103-111  103-132#
DVTR5A  103 135  103-145#
DVTREX  103-133  103-159#
DVTRX1  103-143  103-157#
DVTTB    31-10#   94-116  103-126*
DVTXA    31-8#    94-56*   94-114   97-82*   97-101   98-35*   98-45    103-71   103-127*
DVTXRX   94-63    97-88    98-43    99-35   103-59#
DZM      38-100   40-225#
E$END    21-12#
E$LOAD   21-12#   21-98
ECHO     26-153#  37-109
ECHO6    26-43#   73-45    86-23    87-6     87-11    94-71
EDDCK    34-31    40-136#
EDDDE    34-34    40-139#  95 /5    95-84
EDDER    34-29    40-135#
EDDLE    34-33    40-138#  95  1
EDDVI    34-30    40-137#
EDEOP    34-35    40-140#
EDMOS    40-141#
EDRXC    34-28    40-134#
EDRXQ    34-27    40-133#
EDTXC    34-26    40-132#
EDTXQ    34-25    40-131#
EF.CON   24-77#   77-44
EF.NEW   24-77#   77-47
EF.PWR   24-77#
EF.RES   24-77#   77-42
EF.STA   24-77#   77-40
EFM11    40-126#  43-37
EFM2     40-124#  43-33
EKTB     26-173#  37-210
EMSG0    27-12    27-39#
EMSG1    27-13    27-41#
EMSG2    27-14    27-43#
EMSG3    27-15    27-45#
EMSG4    27-16    27-51#
EMSG5    27-17    27-56#
EMSG6    27-18    27-60#
EMSG8    27 20    27-74#
ENADD    31-27#   51-37    84-93*
ENDALL   47-37#
ENDEVT   47-86    47-96    47-100   47-178#
ENDHWL  112-53   112-55#
ENDIT    77-46    77-150   77-152#
ENDQO    26 137#  37-156
EOP      26-81#   46-86
EQUQ     40-30#   55-26    88-52
EQUQ1    40 31#   88-67
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EQUQ2    40-32#   88-69
ERR1     43 28#   95-75
ERR10    43-36#   95-61
ERR13    43-54#   100 96   100-115  100-127  103-97   103-119  103-141  106-40
ERR14    43-63#    97-67   107-114
ERR15    43-68#   107-197
ERR16    43-72#   107-212
ERR2     43-32#    95-84
ERRCNT   31-25#    46-94    46-98    89-75*   95-60*   95-74*   95-83*   96 23    100-95*  100-114* 100-126* 103-96*  106-39*  107-113*
ERX      26-89#    90-17    92-21    93 26    94-127   97-48    99-29    103-134
ETRB     26-170#   37-205   88-1     88-114
ETWS     26-175#   37-211
ETX      26-90#    91-19    93 26    94 101   97-87    97 104   98-40    98-52    103-112
EVL      25-0#
EVMCTS   34-14     40-186#
EVMDCD   34-16     40-188#
EVMDSR   34-15     40-187#
EVMOCG   40-179#   47-171
EVMOHD   40-184#   47-188
EVMOST   40-185#   47-203
EVMRI    34-18     40-190#
EVMRTS   34-17     40-189#
EVMSQD   34-19     40-191#
EVMTM    34-20     40-192#
EVTADD   34-42#    47-111*  47-115   47-138*  47-145   47-150*  47-154   47-158*  47-162
EVTBCT   34-43#    47-112*  47-115   47-139*  47-145   47-151*  47-154   47-159*  47-162
EVTEND   33-4#     46-131   47-93    77-87
EVTF0    40-153#   47-103
EVTF1    40-154#   47-108
EVTF2    40-155#   47-115
EVTF3    40-156#   47-123
EVTF3C   40-157#   43-55    47-124
EVTF3D   40-158#   43-64
EVTF3F   40-159#   43-69    43-73
EVTF4    40-174#   47-154
EVTF44   40-173#   47-146
EVTF4A   40-175#   47-162
EVTF4B   40-172#   47-145
EVTF5A   40-177#   43-29
EVTF6    40-160#   47-209
EVTLOG   33-2      33-3#    46-135   47-83    47-91    77-84
EVTLST   34-25#    47-108
EVTMIN   34-40#    47-107*  47-108
EVTPTR   33-2#     46-120   46-136*  47-82    47-98    77-85*
EVTSEC   34-39#    47-106*  47-108
EVTTCK   34-41#    47-105*  47-108
EVTTMP   34-44#    47-119*  47-123   47-140*  47-146   47 152*  47-154   47-160*  47-162
EXIT     26-176#   37-26    82-127   84-17
F$AU     21 12#    81-9     81-36
F$AUTO   21-12#    78-10    78-19
F$BGN    21-12#    21-33    43-28    43 32    43-36    43-54    43-63    43-68    43-72    45-33    75-9     76-8     77-8     77 169
         78-10     79-8     79-27    80 8     81 9     82-23    82-95    82-130   108-22   108-42   109-15   112-13   113-49
F$CLEA   21-12#    79-8     79-43
F$DU     21-12#    80-8     80-35
F$END    21-12     21-12    21-12    21-12    21-12    21-12    21-12    21-12    21-12    21-12    21-12    21-12    21-12    21 12
         21-12     21-12    21-12#   21-33    43 30    43-34    43-38    43-56    43 65    43-70    43-74    43-76    45-57    75-41
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        77-169  77-185  78-19   79-27   79-43   80-19   80-35   81-20   81-36   82-23   82-23   82-23   82-95   82-130
       108-31  108-50  109-15  109-15  112-56  113 49
F$HARD  21-12#  112-13  112-53  112-56
F$HW    21-12#  23-10   23-59
F$INIT  21-12#  77-8    77-185
F$JMP   21-12#  43-76   43-76   77-169  79-27   80 19   80-19   81-20   81 20   82-95   82-130
F$MOD   21-12#  21-33   113-49
F$MSG   21-12#  43-28   43-30   43-32   43-34   43-36   43 38   43 54   43-56   43-63   43-65   43 68   43-70   43-72
        43-74
F$PROT  21-12#  76-8    76-14
F$PWR   21-12#
F$RPT   21-12#  75-9    75-41
F$SEG   21-12#
F$SOFT  21-12#
F$SRV   21-12#  45-33   45-57   108-22  108-31  108-42  108-50
F$SUB   21-12#
F$SW    21-12#
F$TEST  21-12#  82-23   109-15
FACSIM  54-58#  85-73
FHDPLX  32-13#  77-99*  100-163
FLAG    32-23#  56-31*  89-71*  90-17*  91-19*  92-21*  93-26*  94 46   94-51   94-65   94-100*  94 101*  94-109*  94-112
        94-123* 94-127* 94-138* 97-48*  97-58*  97-74*  97-87*  97-89   97-91   97-104*  97-105*  97-109   98-40*   98-52*
        99-29*  100-156* 100-239* 100-242* 102-35  102-38*  103-59  103-61*  103-102  103-112  103-130*  103-134  103-156*  106-44
       106-49  106-51*  107-34*  107-73  107-218  107-221  107-223*  108-28*  108-49*
FTLFLG  31-33#  107-91*  107-96*  107-232  107-234*
G$CNTO  21-12#
G$DELM  21-12#
G$DISP  21-12#
G$EXCP  21-12#
G$HILI  21 12#
G$LOLI  21-12#
G$NO    21-12#  47-16   82-103  97-41   98-27
G$OFFS  21-12#  47-16   55-26   77-76   82-103  88-52   88-67   88-69   97-41   98-27   112-27   112-48   112-49   112-50
       112-51  112-52  112-54
G$OFSI  21-12#  47-16   55-26   77-76   82-103  88-52   88-67   88-69   97-41   98 27   112-27   112-48   112-49   112-50
       112-51  112-52  112-54
G$PRMA  21-12#  112-48  112-49
G$PRMD  21-12#  47-16   55-26   77-76   82-103  88-52   88-67   88-69   97-41   98-27   112-50   112-51
G$PRML  21-12#  112-27  112-52  112-54
G$RADA  21-12#  47-16   82-103  98-27
G$RADB  21-12#
G$RADD  21-12#  77-76
G$RADL  21-12#  112-27  112-52  112 54
G$RADO  21-12#  55-26   88-52   88-67   88 69   97 41   112-48  112-49  112 50  112-51
G$XFER  21-12#  112-53
G$YES   21-12#  55-26   77-76   88-52   88 67   88-69   112-27  112-48  112-49  112-50  112-51  112-52  112-54
GARP1   68-19#  68-24
GARPEX  68-21   68-25#
GARPFL  68 17#  94-141
GATC1   69-18#  69-23
GATCEX  69-20   69-25#
GATCFL  69-15#  94-128  94-132
GETCL   82 92   82-101#  82-112  82 116  82 119  82 126  82 139  82 145  82 154  82 168  82-174  82-185  82 199  89 11
       89-56
GETI1   70-37#  70-41
GETI2   70-42#
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GETIND  63 14    63-33    65-15    65-35    66-15    66 34    67-17    67-35    70-36#   70-39    94-79    94 135   100-220
GETPRM  77-49    77 92#   77 97
GETRCL  47 11#   47-25    47-29    47-34    47 36
GLBDEF  30-20#   71-23    71-31    88 134
GLBEND  30-25#   71 33
GLBPLS  30-39#   55-23    55-27*   71-30    100-194
GNTX1   70-13    70 15#
GNTX2   70-14#   70-17
GNTXPR  70-12#   70-20    94 53
GOOD    31-54#   43-29    95-72*
GRPTCP  64-18#   89-102   95-40
GSS0A   36-4     41-36#
GSS10A  36-12    41-44#
GSS11A  36 13    41-45#
GSS12A  36-14    41-46#
GSS13A  36-15    41-47#
GSS14A  36-16    41-48#
GSS15A  36-17    41-49#
GSS16A  36-18    41-50#
GSS17A  36-19    41-52#
GSS1A   36-5     41-37#
GSS20A  36-20    41-53#
GSS21A  36-21    41-54#
GSS22A  36-22    41-55#
GSS23A  36-23    41-56#
GSS24A  36-24    41-57#
GSS25A  36-25    41-58#
GSS26A  36-26    41 59#
GSS27A  36 27    41-60#
GSS2A   36-6     41-38#
GSS30A  36-28    41-61#
GSS31A  36-29    41-62#
GSS32A  36 30    41-63#
GSS33A  36-31    41-64#
GSS34A  36-32    41-65#
GSS35A  36-33    41-66#
GSS36A  36 34    41-67#
GSS37A  36-35    41-68#
GSS3A   36-7     41-39#
GSS4A   36-8     41-40#
GSS5A   36-9     41-41#
GSS6A   36-10    41-42#
GSS7A   36-11    41-43#
GSSIND  36-42#   107 141
GSSLST  36-4#    55-24    107-143
GTR9    82 97    82-122   89-4#
GTRA2   82-36#
GTRA3   82-39    82-44#
GTRA4   82-49#
GTRA5   82-45    82-84#   96-33    97-64    97 69    107 249
GTREX   89-63    89-65#
GTRX2   89-81#   96-30    98-54    99 48
GTRX22  89 84    89-87#
GTRX2A  89-86    89 89#
GTRX2B  89 91    89 109#
GTRX2C  89-82#   89 108
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GTVI1   62-19#   62-21
GTVIND  56-27    57-28    60-32    62 18#   68-19    69-18    70-15    89-34    89-89    95-36    97-37    98-21    99-22    100-205
        105 49
GTXRXB  82-35#
HELP     2-3#    21-3     21-29    21 72    21-100   22-10    23-12    24-32    24-46    24-62    38 108   39-27    39-40    42-16
        42 28    43-12    44-8     75-11    75-26    75-34    76-16    77-10    77-171   78 12    79-10    79-29    80-10    80-21
        81-11    81-22    82-10    82-17    82-25    109-1    109-17   112-15   112-86   113-14   113-27   113-41
HELPDC   2-8#     2-17    21-90    23-30    24-3     26-50    26-92    26-191   26-215   38-1     38-121   39-14    40-162   41 70
        42-2     43-40    77 101   77-157   97-28    100-3    100-39   100 77   101-3    101-34   102 2    102-40   103-3    103-63
        103-77   108-1    108-12   108-23   108-33   108-44   112-30   112-64
HLP     26-127#  37-20    37-22    84-15
HLP0    40-15#   82-83
HLP1    28-8     40-17#
HLP2    28-9     40-18#
HLP2B   28-10    40-21#
HLP2C   28-11    40-22#
HLP3    28-12    40-23#
HLP3A   28-13    40-24#
HLP4    28-14    40-25#
HLP4A   28-15    40-26#
HLP5    28-16    40-27#
HLP6    28-17    40-28#
HLPEND  28-18#   84-13
HLPF    40-16#   49-5     84-12
HLPTAB  28-8#    84-11
HLTREX 105-41   105-51   105-61#
HLTTR1 105-49#  105-60
HLTTR2 105-43   105-47#
HLTTR3 105-45#  105-46
HLTTRB  79-20    96-32    105-40#
HOE     25-0#
I$AU    21-12#   81-9#    81-36#
I$AUTO  21-12#   78-10#   78-19#
I$CLN   21-12#   79-8#    79-27    79-43#
I$DU    21-12#   80-8#    80-35#
I$HRD  112-13#  112-56#
I$INIT  21-12#   77-8#    77-169   77-185#
I$MOD   21-12#   21-33    21-33#   113 49   113-49#
I$MSG   21-12#   43-28#   43-30#   43-32#   43-34#   43-36#   43-38#   43-54#   43 56#   43 63#   43-65#   43 68#   43 70#   43 72#
        43-74#
I$PROT  21-12#   76-8#
I$PTAB  21-12#
I$PWR   21-12#
I$RPT   21-12#   75-9#    75-41#
I$SEG   21-12#   82 23
I$SETU  21-12#
I$SRV   21-12#   45-33#   45-57#   108-22#  108-31#  108 42#  108-50#
I$SUB   21 12#   82-23
I$TST   21 12#   82-23    82-23#   82-95    82-130   109 15   109-15#  109 15#
IBE     25-0#
IDU     25-0#
IEO     26-233#
IEI     26-232#
IER     25-0#
INDEX   29-24#   56-26#   56-28    57-27#   57-29    58-25    58-28    60-31#   60 33    62 18    62 22#   64 18    65 16    65 36
        67-18    67-36    68 18#   68-20    69-16#   69-19    69-21    70-12    70 14#   70 16    70 42#   88 32    88 162#  89 33#
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	89-81*	89-90	89-95	91-21*	94-99*	95-35*	95 37	97-36*	98-20*	99-21*	100-204*	100 206	100-221	105-48*
	105-50													
INDW	29-23#	63-15	63-34	66 16	66 35	70 44*	88-29	88 163*						
INFO1B	107-126#	107-130												
INFOH1	107-124	107-127#												
INFOH2	107-144	107-150#												
INFOH4	107-150	107-152#												
INFOH5	107-152	107-155#												
INFOH6	107-153	107-157#												
INFOH7	107-154	107-160#												
INFOH8	107-138	107-146#												
INFOHA	107-128	107-133#												
INFOHD	107-45	107-122#												
INFOM	41-158#	107-131												
ININT	26-85#	106-49	106-51	107-221	107-223	108-28								
INIT1	77-35	77-38#												
INOVR	26-105#	100-242												
INTPRI	38-35#	77-135*	77-165	77-166										
INVEC	38-33#	77-132*	77-165											
ISR	25-0#													
IXE	25-0#													
J$JMP	21-12#	43-76	80-19	81-20										
KALL	26-172#	37-209												
KDPM	38-102	40-227#												
KDZM	38-103	40-228#												
KEYWD1	28-4#	47-31	47-35	49-8*	49-10*	49-13*	49-17*	49-22*	82-78*	82-118	82-120	82 123	82-127	82-131
	82-134	84-5*	84-8*	84-15*	84-17*	84-19*	84-23*	84-33	84-47	84-89*	85-3*	85-6*	85-69	85-74*
	88-1*	88-4*	88-8	88-74*	88-114									
KLM	38-104	40-229#												
KTRB	26-171#	37-207	82-78	88-4	88-8									
L$ACP	21-98#													
L$APT	21-98#													
L$AU	21-98	81-9#												
L$AUT	21-98#													
L$AUTO	21-98	78-10#												
L$CCP	21-98#													
L$CLEA	21-98	79-8#												
L$CO	21-98#													
L$DEPO	21-98#													
L$DESC	21-98	39-36#												
L$DESP	21-98#													
L$DEVP	21-98#													
L$DISP	21-98	22-8#												
L$DLY	21-98#													
L$DTP	21-98#													
L$DTYP	21-98#													
L$DU	21-98	80-8#												
L$DUT	21-98#													
L$DVTY	21 98	39-2 #												
L$EF	21-98#													
L$ENVI	21-98#													
L$ETP	21-98#													
L$EXP1	21-98#													
L$EXP4	21-98#													
L$EXP5	21 98#													
L$HARD	21-98	112-13	112-13#											

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L$HIME  21 98#
L$HPCP  21-98#
L$HPTP  21-98#
L$HW    21-98    23 10    23-10#
L$ICP   21-98#
L$INIT  21-98    77-8#
L$LADP  21-98#
L$LAST  21-98   113 48#
L$LOAD  21-98#
L$LUN   21-98#
L$MREV  21-98#
L$NAME  21-98#
L$PRIO  21-98#
L$PROT  21 98    76-8#
L$PRT   21-98#
L$REPP  21-98#
L$REV   21-98#
L$RPT   21-98    75-9#
L$SPC   21-98#
L$SPCP  21-98#
L$SPTP  21-98#
L$STA   21-98#
L$TEST  21-98#
L$TIML  21-98#
L$UNIT  21-98#   77-93
L10000  23-10    23-59#
L10001  43-30#
L10002  43-34#
L10003  43-38#
L10004  43-56#
L10005  43-65#
L10006  43-70#
L10007  43-74#   43-76
L10010  45-57#
L10011  75-41#
L10013  77-169   77-185#
L10014  78-19#
L10015  79-27    79-43#
L10016  80-19    80-35#
L10017  81-20    81-36#
L10020  82-95    82-130  109-15#
L10021 108-31#
L10022 108-50#
L10023 112-13   112-56#
L5060   40-99#   77-76
LCLKEN  26-35#   77-59
LCPR1   57-28#   57-32
LCPR2   58-28#
LCPREX  57-30    57-33#
LCPRL1  57-31    58-24#   94-80
LCPRLS  57-27#   90-18    92-20    93-25
LCPT1   60-32#   60-37
LCPTEX  60-34    60-38#
LCPTLS  60-29#   91-18    92 19    93-24
LDRCLS  65-15#   94-106
LDRPLS  56-33    63-14#   94 50    94-82    94-95    94-111
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LDTCLS  60-36    67-17#   94-120
LDTPLS  60-35    66-15#   94-60
LGDVE   46-56#   97-98    100-94   100-113  100-125  103-95   103-118  103-140  106-38   107-112
LIS     26-21#   86-12    98-53
LISCK   32-33    99-21#
LISCKA  99-25#   99-44    99-46
LISMOD  26-148#  37-54
LISP    40-97#   99-24
LMDLOP  26-160#  37-192
LNCNT   31-21#   46-111   46-113*  46-117*  88-78*   88-90*   88-91    88-94*   89-76*
LOE     25-0#
LOGAQR  56-32    72-13#   94-49
LOGCMD  46-78#   95-85
LOGCML  46-74#   95-62
LOGCMP  46-70#   95-56
LOGDVI  46-61#   89-77
LOGEOP  46-84#   96-24
LOGEX   46-100   46-138#
LOGMSC  46-89#
LOGRXC  46-53#   94-70    97-115   99-39
LOGRXQ  46-48#   72-20    97-80    99-33
LOGS1   46-41    46-46    46-51    46-55    46-94#
LOGS2   46-132   46-136#
LOGS3   46-59    46-68    46-82    46-87    46-92    46-104#
LOGS3A  46-73    46-77    46-81#
LOGS4   46-112   46-116#
LOGS5   46-106   46-108   46-119#
LOGTXC  46-43#   94-117   97-103   98-47
LOGTXQ  46-38#   94-61    97-86    98-39
LOGUNT  32-3#    77-90*   77-92*   77-93    77-96
LOOPS   28-44#   73-31
LOT     25-0#
LP0     28-44    34-32    40-72#   73-30
LP00    40-73#   73-27
LP1     28-45    40-74#
LP2     28-46    40-75#
LP3     28-47    40-76#
LP4     28-48    40-77#
MARHM   38-48    41-124#
MARM    38-47    41-123#
MCLR    26-230#  100-98
MLTYP   32-10#   46-65    82-74*   82-86    82-96*   84-81    86-6*    86-25*   87-39*   87-41*   87-43*   87-45*   87-47*   87-52*
        89-6     89-21    89-25    100-133  100-171  100-197  100-200
M00     28-36    40-65#
M01     28-37    40-66#
M02     28-38    40-67#
M03     28-39    40-68#
M04     28-40    40-69#
M05     28-41    40-70#
M06     28-42    40-71#
MOBITE  34-10#   47-201
MOBITS  34-3#    47-189
MOCHK   26-44#   73-67    87-24
MODE    32-27#   89-111
MODES   28-36#   73-24
MODLOC  26-28#   100-197
```

Cross reference table (CREF V05.00)

```
MODREM  26-29#  100-200
MODS    33-8#   46-102  107-125*
MODTYP  32-7#   46 64   82-73*  82-85   84-80   86-1*   86-4*   86 9*   86-12*  86-15*  86-18*  86-21*  87-7    87-49
        89-109  94-97   94-121  98 53*  99-47*  100-84  100-236
MOMSGS  34-14#  47-190
MOP     26-30#  26-157#
MOSC    26-168# 37-127
MPLY    31-1#   58-25*  61-19   61 22*  64-18*  88-32*  88-127* 89-48*  89-96*  100-221*
MSC     26-78#  46 91
MSG     27-98   27-106#
MSGO    27-12   27 28   27-38#
MSGOC   27-12#
MSG1    27-13   27-29   27-40#
MSG1C   27-13#
MSG2    27-14   27-30   27-42#
MSG2C   27-14#
MSG3    27-15   27-31   27-44#
MSG3C   27-15#
MSG4    27-16   27-32   27-46#
MSG4C   27-16#
MSG5    27-17   27-33   27-52#
MSG5C   27-17#  82-58   82-70   84-59   85-59
MSG6    27-18   27-34   27-57#
MSG6C   27-18#  85-62
MSG8    27-20   27-36   27-73#
MSG8C   27-20#
MSGLIM  26-5#   29-7    29-8    29-9    29-10   54-66   82-151  82-182
MSGTRN  40-113# 82-144  82-153  82-173  82-184
MSGTRU  40-114# 52-30
MSGTYP  31-38#  53-33   82-57*  82-69*  84-58*  85-29*  85-48*  85-50*  85-52*  85-54*  85-56*  85-58*  85-61*  89-106*
MTP     26-66#  77-146  88-172  89-12   89-83   97-39
MTPLEY  61-20   61-24#
MTPLY   58-27   61-19#  61-23   64-21   88-33   88-130  89-51   89-97   100-224
N10$    37-19   37-20#
N100$   37-33   37-38   37-66#
N102$   37-67#
N104$   37-67   37-69#
N105$   37-35   37-202#
N106$   37-202  37-203#
N107$   37-203  37-205#
N108$   37-205  37-207#
N110$   37-40   37-75#
N111$   37-76#
N112$   37-76   37-78#
N114$   37-92   37-93#
N115$   37-49   37-51   37-53   37-55   37-57   37-60   37-62   37-92#  37-97   37-108  37 110  37-128  37-189  37-191
        37-193  37-195  37-200
N116$   37-94   37-95#
N117$   37 95   37-96   37-107#
N118$   37-107  37-109#
N120$   37-77   37-79   37-134#
N121$   37-138  37-140  37-142  37 144  37-146  37-148  37-150  37-157  37-164# 37-174
N122$   37-166  37-168#
N123$   37-164  37-165#
N125$   37-85   37-87   37-89   37-93   37-152  37-165  37-212  37-216#
N126$   37-167  37-169  37-172#
```

```
N130$   37 109   37-124#
N131$   37-127   37-130#
N132$   37-124   37-127#
N140$   37-131   37-177#
N141$   37-188#
N142$   37-188   37-190#
N143$   37-190   37-192#
N144$   37-192   37-194#
N150$   37-125   37-198#
N160$   37-206   37-208#
N161$   37-209#  37-213
N162$   37-209   37-210#
N163$   37-211   37-212#
N20$    37-34    37-36#
N25$    37-37    37-39#
N30$    37-36    37-39    37-41#  37-45   37-46   37-47   37-58   37-61   37-66   37-69   37-75   37-78   37-84   37-86
        37-88    37-130   37-134  37-155  37-168  37-172  37-173  37 177  37-194  37 198  37-199  37-207  37-208  37-210
N40$    37-30    37-32#
N42$    37-20    37-22#
N43$    37-22    37-24#
N44$    37-24    37-26#
N45$    37-26    37-28#
N46$    37-28    37-30#
N47$    37-32    37-34#
N50$    37-31    37-82#
N51$    37-82    37-83#
N52$    37-83    37-84#
N60$    37-137#
N61$    37-137   37-139#
N62$    37-139   37-141#
N63$    37-141   37-143#
N64$    37-143   37-145#
N65$    37-145   37-147#
N66$    37-147   37-149#
N67$    37-149   37-151#
N68$    37-151   37-155#
N70$    37-156#  37-160
N71$    37-156   37-158#
N72$    37-158   37-159#
N73$    37-159   37-161#
N80$    37-29    37-45#
N81$    37-46#
N82$    37-48    37-50#
N83$    37-50    37-52#
N84$    37-52    37-54#
N85$    37-54    37-56#
N86$    37-56    37-58#
N87$    37-59    37-61#
NEW     77 48    77-90#   77-94
NO      26-152#  37-94    87-1    87-4    87-30
NOCLK   40-110#  82-42
NOD0    37-19    37-19#
NOD1    37-20    37-20#
NOD10   37-27#
NOD100  37-97    37-97#
NOD101  37 107   37-107   37-107#
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Cross reference table (CREF V05.00)

N0D102	37-108	37-108#	
N0D103	37-109	37-109	37-109#
N0D104	37-110	37-110#	
N0D105	37-124	37 124	37-124#
N0D106	37-125	37 125#	
N0D107	37-127	37-127	37-127#
N0D11	37-28	37-28	37-28#
N0D110	37-128	37-128#	
N0D111	37-130	37-130	37-130#
N0D112	37-131	37-131#	
N0D113	37-134	37-134#	
N0D114	37-137	37-137	37-137#
N0D115	37 138	37-138#	
N0D116	37-139	37-139	37 139#
N0D117	37-140	37-140#	
N0D12	37-29	37-29#	
N0D120	37-141	37-141	37-141#
N0D121	37-142	37-142#	
N0D122	37-143	37-143	37-143#
N0D123	37-144	37-144#	
N0D124	37-145	37-145	37-145#
N0D125	37-146	37-146#	
N0D126	37-147	37-147	37-147#
N0D127	37-148	37-148#	
N0D13	37-30	37-30	37-30#
N0D130	37-149	37-149	37-149#
N0D131	37-150	37-150#	
N0D132	37-151	37-151	37-151#
N0D133	37 152	37-152#	
N0D134	37-155	37-155#	
N0D135	37-156	37-156#	
N0D136	37-157	37-157#	
N0D137	37-158	37-158#	
N0D14	37-31	37-31#	
N0D140	37-159	37-159#	
N0D141	37-160	37-160#	
N0D142	37-161#		
N0D143	37-164	37-164#	
N0D144	37-165	37-165#	
N0D145	37-166	37-166	37-166#
N0D146	37-167	37-167#	
N0D147	37-168	37-168	37-168#
N0D15	37-32	37-32	37-32#
N0D150	37-169	37-169#	
N0D151	37-172	37-172#	
N0D152	37-173	37-173#	
N0D153	37-174	37-174#	
N0D154	37-177	37-177#	
N0D155	37-188	37-188	37-188#
N0D156	37-189	37-189#	
N0D157	37-190	37-190	37-190#
N0D16	37-33	37-33#	
N0D160	37 191	37-191#	
N0D161	37-192	37 192	37-192#
N0D162	37-193	37-193#	
N0D163	37 194	37-194	37-194#

N00164	37-195	37-195#	
N00165	37-198	37-198#	
N00166	37-199	37-199#	
N00167	37-200	37-200#	
N0017	37-34	37-34	37-34#
N00170	37-202	37-202#	
N00171	37-203	37-203	37-203#
N00172	37-204#		
N00173	37-205	37-205	37-205#
N00174	37-206	37-206#	
N00175	37-207	37-207	37-207#
N00176	37-208	37-208#	
N00177	37-209	37-209	37-209#
N002	37-21#		
N0020	37-35	37-35#	
N00200	37-210	37-210#	
N00201	37-211	37-211	37-211#
N00202	37-212	37-212#	
N00203	37-213	37-213#	
N00204	37 216#		
N00205	50-3	50-3#	
N00206	50-4	50-4#	
N00207	50-5#		
N0021	37-36	37-36#	
N00210	50-6	50-6	50-6#
N00211	50-7#		
N00212	50-8	50-8	50-8#
N00213	50-9#		
N00214	50-10	50-10	50-10#
N00215	50-11	50-11#	
N00216	50-12	50-12	50-12#
N00217	50-13#		
N0022	37-37	37-37	37-37#
N00220	50-14	50-14	50-14#
N00221	50-15	50-15#	
N00222	50-16	50-16#	
N00223	50-17	50-17#	
N00224	50-18	50 18	50-18#
N00225	50-19#		
N00226	50-20	50-20	50-20#
N00227	50-21#		
N0023	37-38	37-38#	
N00230	50 22	50-22	50 22#
N00231	50-23	50 23#	
N00232	50-24	50-24#	
N00233	50-25#		
N00234	50-26#		
N00235	50 27#		
N0024	37 39	37-39	37-39#
N0025	37-40	37-40#	
N0026	37-41#		
N0027	37-45	37-45#	
N003	37 22	37-22	37-22#
N0030	37-46	37-46	37-46#
N0031	37 47	37-47#	
N0032	37-48	37 48	37-48#

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N0D33   37 49    37-49#
N0D34   37 50    37-50    37-50#
N0D35   37-51    37-51#
N0D36   37-52    37-52    37-52#
N0D37   37-53    37-53#
N0D4    37-23#
N0D40   37-54    37 54    37-54#
N0D41   37-55    37-55#
N0D42   37-56    37-56    37-56#
N0D43   37-57    37-57#
N0D44   37 58    37-58#
N0D45   37 59    37-59    37-59#
N0D46   37-60    37-60#
N0D47   37 61    37-61    37-61#
N0D5    37 24    37-24    37-24#
N0D50   37-62    37-62#
N0D51   37-66    37-66#
N0D52   37 67    37-67    37-67#
N0D53   37-68#
N0D54   37-69    37-69    37-69#
N0D55   37-70#
N0D56   37-75    37-75#
N0D57   37-76    37-76    37-76#
N0D6    37-25#
N0D60   37-77    37-77#
N0D61   37-78    37-78    37-78#
N0D62   37-79    37-79#
N0D63   37-82    37-82#
N0D64   37-83    37-83#
N0D65   37-84    37-84#
N0D66   37-85    37-85#
N0D67   37 86    37-86#
N0D7    37 26    37-26    37-26#
N0D70   37-87    37-87#
N0D71   37-88    37-88#
N0D72   37-89    37-89#
N0D73   37-92    37-92#
N0D74   37-93    37-93#
N0D75   37 94    37-94    37-94#
N0D76   37-95    37-95#
N0D77   37-96    37-96    37-96#
NOEXM   38-79    41-154#
NONE    26-25#
NOTNUF  26-162#  37-30    37-33    37-35    37-36    37-46    37-85    37-87    37 93    37-165   37 202   37-212
NULEVT  40-152#  47-85
NULL    26 122#
NUM     26-134#  37-173
O$APTS  21-12#   21-98
O$AU    21-12#   21-70#   21-98
O$BGNR  21-12#   21-70#   21-98
O$BGNS  21-12#   21-98
O$DU    21-12#   21-70#   21-98
O$ERRT  21-12#   21-98
O$GNSW  21-12#   21-98
O$POIN  21-12#   21-70    21-70#   21-70#   21-70#   21-98
O$SETU  21-12#   21-98    113-48
```

Cross reference table (CREF V05.00)

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OFSET   31-45#   43-29    95-65*   95-78*
OPRFPT  27-66#   99-42
OPBUF   27 35    27-67#   85-39    98-23    98 27    98-29    98-35    98-36    98-48    98-50    99 25    99 26    99 43    99-45
OPCNT   27-19#   85-37*   98-33*   98 37    98-38
OPEND   27-68#   98-25
OPRMM   40-98#   98-27
OPRMSG  26-135#  37-155
OPTYP   38-36#   77 137*  77-138   88-140   100-99   100-131  100-173  106 29
OPTYPM 112-51   112-81#
OPVAR   31-22#   89-72*   96-21    107-79*
OPVAR1  31-23#   89-73*   96-20    107-83*
OTINT   26-86#   103-102  106-44   107-34   107-218  108-49
OUTH1  107-36    107-39#
OUTHDL 103-105   106-48   107-33#  107-220
OUTHE2 107-253   107-256#
OUTHE3 107-216   107-222  107-232#
OUTHE4 107-217#  107-227  107-257
OUTHE5 107-219   107-221#
OUTHE6 107-233   107-252#
OUTHEX 107-66    107-76   107-80   107-84   107-115  107-126  107-156  107-159  107-178  107-196  107-211  107-214#
OUTVEC  38-34#   77-133*  77-134*  77-166
OVRCNT  31-35#   107-105* 107-195  107-210  107-215  107-258*
P$ACT   28-54#   47-19*   74-65    82-106*
P$BUFA  28-52#   47-17*   74-20    82-104*
P$CNT   28-55#   74-157*  74-164   74-221*  74-228*  74-233
P$EXIT  74-23    74-58#   74-82    74-87
P$GDBD  28-59#   47-11*   47-22    49-33*   49-44*   74-80*   74-85*   74-93    74-139*  74-177*  82-101*  82-109   85 21*   85-71*
        87-10*   87-51*   88-10*   88-11    88-75    88-104   88-175*  89-20*   89-24*   89-30*   89-39*   89-40
P$NNUF  28-58#   47-12*   47-26    49-2*    49-19*   49-23*   49-25*   49-37*   49-40*   82-102*  82-113   84-2*    84 24*   84-32*
        84-46*   84-94*   85-79*   86-5*    86-24*   87-54*   88-7*    88-73*   88-103*  88-171*
P$NUM   28-56#   49-28    49-32    49-35    49-41    49-43    49-46    74-152*  74-155*  74-157   74-158*  74-160*  74-164*  74-166*
        74-172*  84-87    84-93    85-18    85-23    85-25    87-36    88-107
P$RADX  28-57#   74-117*  74-120*  74-127*  74-134   74-162   74-170
P$TRS   74-22#   74-31    74-51    74-56
P$TREE  28-53#   47-18*   74-21    82-105*
P$TRV   47-21    74-19#   82-108
PARAM   32-14#   46-67    46-107   82-76*   82-88    84-83    86-23*   87-6*    87-11*   87-29*   87-32*   89-4     89-46    89-62
        89-85    91-17*   93-21    94-71    94-77    94-139   95-33    97-49*   98-22*   99-23*   105-42
PAS     26-17#   86-4     87-7     94-97    94-121
PASC    26-156#  37-199
PASMOD  26-146#  37-50
PASS1   27-79#   97-44*
PASS2   27-80#   97-45*
PASS3   27-81#   97-46*
PASS4   27-82#   97-47*
PCADD   32-4#    106-27*  107-33*
PCK     40-61#   73-40
PCLKCT  26-37#   77-66
PCLKEN  26 36#   77-68
PCPM    40-125#
PE100M  38-58    41-131#
PE102M  38-59    41-132#
PE104M  38-60    41-133#
PE106M  38-61    41-134#
PE110M  38-62    41-135#
PE112M  38-63    41-136#
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Cross reference table (CREF V05.00)

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PE114M  38-64    41-137#
PE116M  38-65    41-138#
PE120M  38-66    41-139#
PE122M  38-67    41-140#
PE124M  38-68    41-141#
PE126M  38-69    41-142#
PE130M  38-70    41-143#
PE132M  38-71    41-144#
PE134M  38-72    41-145#
PE136M  38-73    41-146#
PE140M  38-74    41-147#
PE142M  38-50    38-75    41-150#
PE144M  38-76    41-151#
PEC     40 83#   73-44
PLCK    32-29    92-19#
PMS     40-85#   73-66
PNCK    40-80#   73-43
PNEC    40-82#   73-47
PNMS    40-84#   73-69
PNST    40-78#   73-39
PNT     25-0#
PNTTRB  47-114   47-153   47-161   47-208#
POLDEF  30-3#    71-21    88-132
POLLE2 100 237  100-240#
POLLEN 100-219  100-232#
POLLIS  30 36#   71-20    88-46    88-53*   88-129   100-223
POLPM   40-34#   88-29
POLPM3  40-35#   55-17
PRI     25-0#
PRI00   25-0#    77-168
PRI01   25-0#
PRI02   25-0#
PRI03   25-0#
PRI04   25-0#
PRI05   25-0#
PRI06   25-0#
PRI07   21-98    25-0#    79-26
PRIOR  112-50   112-78#
PRNT    26-167#  37-24    84-19
PROTO   26-155#
PROTOB  26-46#   87-27
PSCNT   31-24#   89-74*   96-18*   96-22
PST     40-79#   73-36
PTPMLP 112-52   112-79#
PTR13   29-8#    82-55    82-179   84 28    84-38    89-56
PTR23   29-3#    58-24    89-59
PTREND  29 12#
PTRTAB  29-7#    54-69    54-74    60 30    82 52    82-149   84 44    84-51    89 57
QCOPY   26-133#  37-168   85-13
QRX     26-87#   56-31    90-17    92-21    93-26    94 46    94-65    94-100   94-109   94-127   97-74    97-109   99-29    102-35
        102-38   103-156
QTX     26-88#   91-19    93-26    94 51    94-101   94-112   94-123   94 138   97-87    97-91    97-104   98-40    98-52    103-59
        103-61   103-130
QUALFG  28-6#    47-20*   82-107*  85-10*   85 13*   85-16    87-1*    87-4     87-12*   87-30    87-33*
QUALVL  28-7#    82-166*  82-197*  85-7*    85-25*   85-26*
QUEOM   38-81    41-156#
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R10$     50-3      50-4#
R11$     50-4      50-6#
R12$     50 6      50-8#
R125$    50 17     50 27#
R13$     50-8      50-10#
R14$     50-10     50-12#
R15$     50-12     50 14#
R20$     50-11     50-17#
R21$     50-18     50-20#
R22$     50-20     50-22#
R30$     50-14     50-15     50-16     50 22     50-23     50-24     50-26#
RBFLIM   26-11#    29-5      89-53
RDI      26-231#
RDO      26-229#   107-37    107-214
RDTS2    47-45     47-47#
RDTSS    47-49     47-53     47-58#    47-66
REC      26-15#
RECMOD   26-147#   37-52
REPLOG   47-78#    49-12
REPORT   47-4#     75-23     84-20
RESFLG   32-6#     77-39*    77-51*    82-44
RESTRT   77-43     77-60     77-69     77-77     77-81#
RHLP0    40-37#    47-10
RHLP1    28-19     40-38#
RHLP2    28-20     40-39#
RHLP3    28-21     40-40#
RHLP4    28-22     40-41#
RHLPEN   28 23#    49-6
RHLPTB   28-19#    49-4
RI       26-211#   34-7
RIM      38-55     41-126#
RMDLOP   26-161#   37-194
RNOTNF   26-188#   50-15     50-17     50-22
RPASS    32-22#    46-66     82-75*    82-87     82-93     84-25*    84-82     87-36*    96-26     96-28*
RPEXT    26-180#   47-35     49-10     50-8
RPGSS    26-182#   50-10
RPHLP    26-179#   49-8      50-4      50-6
RPLOG    26-181#   49-13     50-12
RPSWE    26-185#   50-18
RPSWF    26-186#   50-20
RPSWO    26-187#   50-24
RPT      47-88#    47-117    47-125    47-137    47-147    47-155    47-164    47-176
RPT0     47-84     47-95     47-99     47-102#
RPT1     47-92     47-98#
RPTAA    47-103#
RPTDCK   34-54     47 158#
RPTDDE   34-57     47-150#
RPTDER   34 52     47-119#
RPTDLE   34 56     47-157#
RPTDSP   34-48#    47-109
RPTDVI   34-53     47 127#
RPTEOP   34-58     47-138#
RPTIV    40-42#    49-43
RPTMSB   47-116    47 170    47-173    47-188#
RPTMSC   34-55     47-167#
RPTSN    26 184#   50-16
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RPTTXQ   34-48    34-49    34-50    34-51    47 111#
RQI      26-228#  47 59    47-67    100-211  100-232  101-40   102-45   103-69   104-20   105-15   105-55   107-255
RQIFLG   31 32#   107-226# 107-252  107-254#
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RSEL4    43-69    103 137  107-264#
RSEL6    43-69    103 139  107-265#
RSPTRE   29-28#   89-69#   107-187  107-194#
RSPTRS   29-27#   89-68#   103-145  103-155#
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RUN      26-126#  37-28    82-120   84-23
RUNING   32-24#   77-38#   79 18#   96-31#   107-58   107-75#  107-242#
RUNST    26-103#  100-239  107-73
RUSM     38 52    41-128#
RXBUF    29-5#    89-95    97-75    97-76    97-95    97-116   97-122   97-125   97 131
RXC      26 74#   46-54    46-105
RXM1     41-161#  97-119
RXM2     41-162#  97-124
RXMTOT   31-19#   58-29    89-61#   89-64#   93-23#   95-42
RXNC     41-160#  97-111
RXON3    90-20#
RXONLY   32-27    90-17#
RXPTR    31-2#    64-20    82-54#   89-59#
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RXQU1    56-27#   56-34
RXQUAL   56-26#   90-19    92-22    93-27
RXQUEX   56-29    56-35#
RXSKEN   29-32#   103-152  107-191
RXSTAK   29-31#   89-68    89-69    103-154  107-193  107-206
RXTHEM   38-43    41-149#
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         55-26    55-26    55-26    55-26#   75-41#   77-76    77-76    77 76    77 76#   77 185#  78 19#   79 43#   80-35#   81-36#
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S2       77-57    77-62#
S3       77-63    77-71#
S4       77-72    77-80#
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SCM      40-202#  46-71
SCMD     40-205#  46-79
SCML     40-204#  46-75
SDVE     40-201#  46-57
SDVI     40-203#  46-62
SECRM    40 212#  97-138
SEL0     38 19#   77-116#  100-88#   100-92   100 98#  100-104  100-111  100-122  100-138#  100-144#  103-92   106 37
SEL2     38-22#   77-119#  77-120#   100-93   100-112  100-145#  103-93   106-36   107-110   107 190   107 204
SEL4     38 25#   77-123#  77-124#   102-48#  103-71#  104 23#   105-18#  107-125  107-134   107-189   107 203
SEL6     38-28#   47-63#   77-127#   77-128#  100-123  100-214#  100 235#  100 238#  101 42#   102-49#   103-72#  104 24#   105 19#   105 58#
         107-109  107-188  107-202
SEOP     40-206#  46-85
SETET    26 177#  37-151   82-118   85-74
SETEXP   26-130#  37-76    82-131   85-3     85-69
SETTRN   26-131#  37-78    82 134   85 6
SHFO     40 115#  73-33
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Cross refe.ence table (CREF V05.00)

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SMOw     26 1240  37-37    84-8     84 33    84 47    88 74
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SMTAP    40-540   88-89
SMTBR    40 640   89-55
SMTEND   28-330   84-70
SMTFL    40-550   88-145
SMTIV    40-630   88-112
SMTLP    40-580   89-23
SMTLPA   40-590   89-18
SMTLPB   40-600   89-29
SMTLPC   40-610   89-37
SMTLPD   40-620   89-38
SMTNF    40-570   49-32    88-122
SMTRE    40-520   88-81
SMTRH    40-530   88-85
SMTUN    40-560   88-165
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SMTYP3   28-27    40 470
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SMTYP5   28-27    40-490
SMTYP6   28-27    40-500
SMTYP7   28-27    40 510
SMTYTB   28-270   84-76
SMWOP    47-134   73-220   82-89    84-84
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SLTHEM   38-45    41-1210
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Cross reference table (CREF V05.00)

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82-144	82-144	82-144	82-144	82-144	82-153	82-153	82-153	82-153	82-153	82-153	82-153	82-153	82-153
82-153	82-153	82-153	82-153	82-153	82-153	82-153	82-153	82-153	82-173	82-173	82-173	82-173	82-173
82-173	82-173	82-173	82-173	82-173	82-173	82-173	82-173	82-173	82-173	82-173	82-173	82-173	82-184
82-184	82-184	82-184	82-184	82-184	82-184	82-184	82-184	82-184	82-184	82-184	82-184	82-184	82-184
82-184	82-184	82-184	84-12	84-12	84-12	84-12	84-12	84-12	84-12	84-12	84-12	84 12	84-12
84-12	84-12	84-12	84-12	84-12	84-12	84-12	84-76	84-76	84-76	84-76	84-76	84 76	84-76
84-76	84-76	84-76	84-76	84-76	84-76	84-76	84-76	84-76	84-76	84-76	84-76	84-76	84-76
85-20	85-20	85-20	85-20	85-20	85-20	85-20	85-20	85-20	85 20	85-20	85-20	85-20	85-20
85-20	85-45	85-45	85-45	85-45	85-45	85-45	85-45	85-45	85-45	85-45	85-45	85-45	85-45
85-45	85-45	87-9	87-9	87-9	87-9	87-9	87-9	87-9	87-9	87-9	87-9	87-9	87-9
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88-51	83-51	88-51	88-51	88-51	88-51	88-51	88-51	88-51	88 51	88-51	88-51	88-52	88 52
88 52	88-52	88-52	88-52	88-52	88-52	88-52	88-52	88-52	88-52	88-52	88-52	88-52	88-52
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88-85	88-85	88 85	88 85	88 85	88 85	88-85	88-85	88 85	88 85	88 85	88-85	88-85	88-85

Cross reference table (CREF V05.00)

	88-85	88-89	88-89	88-89	88 89	88-89	88-89	88-89	88-89	88-89	88-89	88 89	88-89	88 89
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	88-98	88-98	88-98	88-98	88-98	88-98	88-98	88-98	88-98	88-98	88-112	88-112	88 112	88 112
	88-112	88-112	88-112	88-112	88-112	88-112	88-112	88-112	88-112	88-112	88-112	88-112	88-112	88-112
	88-122	88-122	88-122	88-122	88-122	88-122	88-122	88-122	88 122	88-122	88-122	88-122	88-122	88-122
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	88-145	88-145	88-145	88-145	88-145	88-145	88-145	88-145	88-165	88-165	88-165	88-165	88-165	88-165
	88-165	88-165	88-165	88-165	88-165	88-165	88-165	88-165	88-165	88-165	88-165	88-165	88-174	88 174
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	89-23	89-23	89-29	89-29	89-29	89-29	89-29	89-29	89-29	89-29	89-29	89-29	89-29	89-29
	89-29	89-29	89-29	89-37	89-37	89-37	89-37	89-37	89-37	89-37	89-37	89-37	89-37	89 37
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	97-41	97-41	97-41	97-41	97-41	97-41	97-41	97-41	97-41	97-41	97-41	97-41	97-41	97-41
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	97-63	97-63	97-63	97-63	97-63	97-63	97-63	97-63	97-63	97-63	97-67	97-67	97-67	97-67
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	103-97	103-97	103-97	103-97	103-97	103-97	103-97	103-97	103-97	103-97	103-97	103-97	103-101	103-101
	103-101	103-119	103-119	103-119	103-119	103-119	103-119	103-119	103-119	103-119	103-119	103-119	103-119	103-141
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	107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177
	107-177	107-177	107-184	107-184	107-184	107-197	107-197	107-197	107-197	107-197	107-197	107-197	107-197	107-197
	107-197	107-197	107-197	107-208	107-208	107-208	107-212	107-212	107-212	107-212	107-212	107-212	107-212	107-212
	107-212	107-212	107-212	107-212	107-217	107-217	107-217	108-31	108-31	108-31	108-50	108-50	108-50	109-15
	109-15	109-15	112-13	112-13	112-13	112-27	112-27	112-27	112-27	112-27	112-27	112-27	112-27	112-27
	112-48	112-48	112-48	112-48	112-48	112-48	112-48	112-48	112-48	112-48	112-48	112-48	112-49	112-49
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	113-48	113-48	113-48											
SVCSUB	21-120	21-200												
SVCTAG	21-120	21-220	23-59	43-30	43 34	43 38	43-56	43-65	43-70	43-74	45 57	47-16	55-26	75-41

Cross reference table (CREF V05.00)

	77-76	77-185	78-19	79-43	80 35	81-36	82-103	88-52	88-67	88-69	97-41	98 27	108-31	108-50
	109-15	112-56												
SVCTST	21 12#	21-19#	82-23											
T$$AU	81-9#	81-20	81-36											
T$$AUT	78-10#	78-19												
T$$CLE	79-8#	79-27	79-43											
T$$DU	80-8#	80-19	80-35											
T$$HAR	112-13	112-13#	112-56											
T$$HW	23-10	23-10#	23-59											
T$$INI	77-8#	77-169	77-185											
T$$MSG	43-28#	43-30	43-32#	43-34	43-36#	43-38	43-54#	43-56	43-63#	43-65	43-68#	43-70	43-72#	43-74
	43-76													
T$$PHO	76-8#													
T$$RPT	75-9#	75-41												
T$$SRV	45-33#	45-57	108-22#	108-31	108-42#	108-50								
T$$TES	82-23#	82-95	82-130	109-15										
T$ARGC	21-98	21-98	21-98	21-98	21-98	21-98	21-98	21-98	21-98	21-98	21-98	21-98#	21-98#	21-98#
	21-98#	21-98#	21-98#	43-29	43-29	43-29	43-29	43-29	43-29#	43-29#	43-29#	43-29#	43-33	43-33
	43-33	43-33#	43-33#	43-37	43-37	43-37	43-37	43-37#	43-37#	43-37#	43-55	43-55	43-55	43-55
	43-55#	43-55#	43-55#	43-64	43-64	43-64	43-64	43-64	43-64#	43-64#	43-64#	43-64#	43-69	43-69
	43-69	43-69	43-69	43-69#	43-69#	43-69#	43-69#	43-73	43-73	43-73	43-73	43-73	43-73#	43-73#
	43-73#	43-73#	46-115	46-115	46-115#	46-118	46-118	46-118#	47-10	47-10	47 10#	47-24	47-24	47-24#
	47-28	47-28	47-28#	47-85	47-85	47-85#	47-103	47-103	47-103#	47-108	47-108	47-108	47-108	47-108
	47-108	47-108#	47-108#	47-108#	47-108#	47-108#	47-115	47-115	47-115	47-115	47-115#	47-115#	47-115#	47-123
	47-123	47-123	47-123#	47-123#	47-124	47-124	47-124	47-124	47-124#	47-124#	47-124#	47-145	47-145	47-145
	47-145	47-145#	47-145#	47-145#	47-146	47-146	47-146	47-146	47-146#	47-146#	47-146#	47-154	47-154	47-154
	47-154	47-154	47-154#	47-154#	47-154#	47-154#	47-162	47-162	47-162	47-162	47-162#	47-162#	47-162#	47-162#
	47-162#	47-171	47-171	47-171#	47-188	47-188	47-188#	47-203	47-203	47-203#	47-209	47-209	47-209	47-209#
	47-209#	49-5	49-5	49-5	49-5#	49-5#	49-32	49-32	49-32	49-32#	49-32#	49-43	49-43	49-43
	49-43#	49-43#	51-30	51-30	51-30	51-30#	51-30#	51-34	51-34	51-34	51-34#	51-34#	51-36	51-36
	51-36	51-36#	51-36#	52-30	52-30	52-30#	55-17	55-17	55-17#	55-25	55-25	55-25	55-25#	55-25#
	73-33	73-33	73-33	73-33	73-33	73-33	73-33#	73-33#	73-33#	73-33#	73-33#	73-71	73-71	73-71
	73 71	73-71	73-71	73-71#	73-71#	73-71#	73-71#	73-71#	74-138	74-138	74-138#	74-176	74-176	74-176#
	77-80	77-80	77-80#	82-42	82-42	82-42#	82-83	82-83	82-83#	82-111	82-111	82-111#	82-115	82-115
	82-115#	82-144	82-144	82-144	82-144#	82-144#	82-153	82-153	82-153	82-153#	82-153#	82-173	82-173	82-173
	82-173#	82-173#	82-184	82-184	82-184	82-184#	82-184#	84-12	84-12	84-12	84-12#	84-12#	84-76	84-76
	84-76	84-76	84-76#	84-76#	84-76#	85-20	85-20	85-20#	85-45	85-45	85-45#	87-9	87-9	87-9#
	87-53	87-53	87-53#	88-29	88-29	88-29	88-29#	88-29#	88-51	88-51	88-51	88-51#	88-51#	88-66
	88-66	88-66	88 66	88-66#	88-66#	88-66#	88-81	88-81	88-81#	88-85	88-85	88-85#	88-89	88-89
	88-89	88-89#	88-89#	88-93	88-93	88-93#	88-98	88-98	88-98#	88-112	88-112	88-112	88-112#	88-112#
	88-122	88-122	88-122	88-122#	88-122#	88-145	88-145	88-145	88-145#	88-145#	88-165	88-165	88-165	88-165#
	88-165#	88-174	88-174	88-174#	89-10	89-10	89-10#	89-18	89-18	89-18#	89-23	89-23	89-23#	89-29
	89-29	89-29#	89-37	89-37	89-37#	89-38	89-38	89-38#	89-55	89-55	89-55#	97-63	97-63	97-63#
	97-138	97-138	97-138	97-138	97-138#	97-138#	97-138#	99-24	99-24	99-24#	99-42	99-42	99-42#	107-155
	107-155	107-155	107-155#	107-155#	107-158	107-158	107-158	107-158	107-158#	107-158#	107-158#	107-177	107-177	107-177
	107-177	107-177	107-177	107-177	107-177#	107-177#	107-177#	107-177#	107-177#	107-177#				
T$CODE	47-16	47-16	47-16	47-16#	47-16#	47-16#	55-26	55-26	55-26	55-26#	55-26#	55-26#	77-76	77-76
	77-76	77-76#	77-76#	77-76#	82-103	82-103	82-103	82-103#	82-103#	82-103#	88-52	88-52	88-52	88 52#
	88-52#	88-52#	88-67	88-67	88-67	88-67#	88-67#	88-67#	88-69	88-69	88-69	88-69#	88-69#	88-69#
	97-41	97-41	97-41	97-41#	97-41#	97-41#	98-27	98-27	98-27	98-27#	98-27#	98-27#	112-27	112-27
	112-27	112-27#	112-27#	112-27#	112-48	112-48	112-48	112-48#	112-48#	112-48#	112-49	112-49	112-49	112 49#
	112-49#	112-49#	112-50	112-50	112-50	112-50#	112-50#	112-50#	112-51	112-51	112-51	112-51#	112-51#	112-51#
	112-52	112 52	112-52	112-52#	112-52#	112-52#	112-53	112-53	112-53	112-53	112-53	112-53#	112 53#	112-53#
	112-53#	112-54	112-54	112-54	112-54#	112-54#	112-54#							
T$ERRM	21-12#	95-61	95-61#	95-75	95-75#	95-84	95-84#	97-67	97-67#	100-96	100-96#	100-115	100-115#	100 127
	100-127#	103-97	103-97#	103-119	103-119#	103-141	103-141#	106-40	106-40#	107 114	107-114#	107-197	107-197#	107-212

Cross reference table (CREF V05.00)

	107-212#													
T$EXCP	47-16	47-16#	55-26	55-26#	77-76	77-76#	82-103	82-103#	88-52	88-52#	88-67	88-67#	88-69	88-69#
	97-41	97-41#	98-27	98-27#	112-48	112-48#	112-49	112-49#	112-50	112-50#	112-51	112-51#		
T$FLAG	43-76	43-76#	43-76#	77-169	77-169	77-169#	77-169#	79-27	79-27	79-27#	79-27#	80-19	80-19#	80-19#
	81-20	81-20#	81-20#	82-95	82-95	82-95#	82-95#	82-130	82-130	82-130#	82-130#			
T$GMAN	21-12#	47-16	47-16#	47-16#	55-26#	55-26#	77-76#	77-76#	82-103	82-103#	82-103#	88-52#	88-52#	88-67#
	88-67#	88-69#	88-69#	97-41#	97-41#	98-27	98-27#	98-27#						
T$HILI	47-16	47 16#	55-26	55-26#	77-76	77-76#	82-103	82 103#	88-52	88-52#	88-67	88-67#	88-69	88 69#
	97-41	97-41#	98-27	98-27#	112-48	112-48#	112-49	112-49#	112-50	112-50#	112-51	112-51#		
T$LAST	21-12#	113-48#												
T$LOLI	47-16	47-16#	55-26	55-26#	77-76	77-76#	82-103	82-103#	88-52	88-52#	88-67	88-67#	88 69	88-69#
	97-41	97-41#	98-27	98-27#	112-48	112-48#	112-49	112-49#	112-50	112-50#	112-51	112-51#		
T$LSYM	21-12	21-12#	23-59	43-30	43-34	43-38	43 56	43-65	43-70	43-74	45-57	75-41	77-185	78-19
	79-43	80-35	81-36	108-31	108-50	109-15	112-56							
T$LTNO	113-48#													
T$NEST	21-12#	21-33	21-33	21-33#	23-10	23-10	23-10#	23-59	23-59	23-59	23-59#	43-28	43-28	43 28#
	43-30	43-30	43-30	43-30#	43-32	43-32	43-32#	43-34	43-34	43-34	43-34#	43-36	43-36	43-36#
	43-38	43-38	43-38	43-38#	43-54	43-54	43-54#	43-56	43-56	43-56	43-56#	43-63	43-63	43-63#
	43-65	43-65	43-65	43-65#	43-68	43-68	43-68#	43-70	43-70	43-70	43-70#	43-72	43-72	43-72#
	43-74	43-74	43-74	43-74#	45-33	45-33	45-33#	45-57	45-57	45-57	45-57#	75-9	75 9	75-9#
	75-41	75-41	75-41	75-41#	76-8	76-8	76-8#	76-14	76-14	76-14	76-14#	77-8	77-8	77-8#
	77-185	77-185	77-185	77-185#	78-10	78-10	78-10#	78-19	78-19	78-19	78-19#	79-8	79-8	79-8#
	79-43	79-43	79-43	79-43#	80-8	80-8	80-8#	80-35	80-35	80-35	80-35#	81-9	81-9	81-9#
	81-36	81-36	81-36	81-36#	82-23	82-23	82-23#	108-22	108-22	108-22#	108-31	108-31	108-31	108-31#
	108-42	108-42	108-42#	108-50	108-50	108-50	108-50#	109-15	109-15	109-15	109-15#	112-13	112-13	112-13#
	112-53	112-56	112-56	112-56	112-56#	113-49	113-49	113-49	113-49#					
T$NSO	21-33#	113-49												
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	43-72#	43-74	45-33#	45-57	75-9#	75-41	76-8#	76-14	77-8#	77 185	78-10#	78-19	79-8#	79-43
	80-8#	80-35	81-9#	81-36	82-23#	109-15	112-13#	112-53	112-56					
T$NS2	108-22#	108-31	108-42#	108-50										
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T$SAVL	21-12#													
T$SEGL	21-12#													
T$SUBN	21-12#	82-23#												
T$TAGL	21-12#													
T$TAGN	21-12#	23-10	23-10	23-10#	43-28	43-28	43-28#	43-32	43-32	43-32#	43-36	43-36	43-36#	43-54
	43-54	43-54#	43-63	43-63	43-63#	43-68	43-68	43-68#	43-72	43-72	43-72#	45-33	45-33	45-33#
	75-9	75-9	75-9#	76-8	76-8	76-8#	77 8	77-8	77-8#	78-10	78-10	78-10#	79-8	79-8
	79-8#	80-8	80-8	80-8#	81-9	81-9	81-9#	82-23	82-23	82 23#	103-22	108-22	108-22#	108-42
	108-42	108-42#	112-13	112-13	112-13#									
T$TEMP	22-8	22-8	22-8#	22-8#	23-59	23-59#	43-30	43-30#	43-34	43-34#	43-38	43-38#	43-56	43-56#
	43-65	43-65#	43-70	43-70#	43-74	43-74#	43-76	43-76#	45-57	45-57#	47-16	47-16	47-16	47-16#
	47-16#	47-16#	55-26	55-26	55-26	55-26#	55-26#	55-26#	75-41	75-41#	76-14	76-14#	77-76	77-76
	77-76	77-76#	77-76#	77-76#	77-169	77-169#	77-185	77-185#	78-19	78-19#	79-27	79-27#	79-43	79-43#
	80-19	80-19#	80-35	80-35#	81-20	81-20#	81-36	81-36#	82-95	82-95#	82-103	82-103	82-103	82-103#
	82-103#	82-103#	82-130	82-130#	88-52	88-52	88-52	88-52#	88-52#	88-52#	88-67	88-67	88-67	88-67#
	88-67#	88-67#	88-69	88-69	88-69#	88-69#	88-69#	97-41	97-41	97-41	97-41#	97-41#	97-41#	97-41#
	98 27	98-27	98-27	98-27#	98-27#	98-27#	108-31	108-31#	108-50	108-50#	109-15	109-15#	112-27	112-27
	112-27	112-27#	112-27#	112-27#	112-48	112-48	112-48	112-48#	112-48#	112-48#	112-49	112-49	112-49	112-49#
	112-49#	112-49#	112-50	112-50	112-50	112-50#	112-50#	112-50#	112-51	112-51	112-51	112-51#	112-51#	112-51#
	112-52	112-52	112-52	112-52#	112-52#	112-52#	112-54	112-54	112 54	112-54#	112-54#	112-54#	112-56	112-56#
	113 49	113-49#												
T$TEST	21-12#	82-23	82-23	82-23#	113-48									
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                77-56   77-62   77-71   77-76   77-80   77-96   77-153  77-165  77-166  77-168  77-169  77-185  78 19   79 26
                79-27   79-43   80-35   81-36   82-42   82-83   82-91   82-95   82-103  82-111  82-115  82-130  82 144  82-153
                82-173  82-184  84-12   84-76   85-20   85-45   87-9    87-53   88-29   88-51   88-52   88-66   88-67   88-69
                88-81   88-85   88-89   88-93   88-98   88-112  88-122  88-145  88-165  88-174  89-10   89-18   89-23   89 29
                89-37   89-38   89-55   95-61   95-75   95-84   97-41   97-63   97-67   97-138  98-27   99-24   99-42   100-96
               100-106 100-115 100-127 100 139 103-97  103-101 103-119 103-141 106-40  106-43  107-114 107-155 107-158 107-177
               107-184 107-197 107-208 107-212 107-217 109-15
T1TST5         21-12#  82-23#
T1             22-8    82-23#
TABEX          40-111# 82-153  82-184
TAL            26-20#  86-21   99-47
TALCK          32-32   98-20#  98-49   98-51
TALMOD         26-151# 37-61
TCURAD         31-14#  82-59*  82-62   82-159  82-164* 84-54*
TEMP           31-46#  46-40*  46-45*  46-50*  46-54*  46-58*  46-63*  46-72*  46-76*  46-80*  46-86*  46-91*  46-105  46-121
               46-122* 46-123* 46-124  51-33*  51-34   52-32*  52-33*  52-34   53-35*  53-36*  55-42   55-23*  55-25   55-26
               55-27   58-26*  59-13*  59-16*  61-21   64-19*  73-24*  73-33   73-36*  73-39*  73-71   79-23*  84-75*  84-76
               85-30*  85-31*  85-35   85-38   88-31*  88-46*  88-51   88-52   88-53   88-66   88-66   88-67   88-68   88-70*
               88-88*  88-89   88-128* 88-138* 88-142* 88-143  88-148  89-49*  89-82*  89-88*  94-87*  94-88*  94-92   97-130*
               97-136* 97-138  100-196* 100-199* 100-222* 103-123* 103-124 103-148* 103-149 105-18  107-157* 107-158 107-158 107-160*
               107-165 107-168 107-171 107-174 107-177 107-240*
TEMP1          31-47#  46-39*  46-44*  46-49*  46-57*  46-62*  46-71*  46-75*  46-79*  46-85*  46-90*  46-118  73-31*  73-33
               73-40*  73-43*  73-71   107-161* 107-167* 107-177
TEMP2          31-48#  46 64*  46-65*  46-127  53-38*  53-40*  53-44   58-24*  58-31   61-21*  64-20*  64-22   72-14*  73-32*
               73-33   73-44*  73-47*  73-71   88-30*  88-45   88-129* 88-131  89-50*  89-53   89-95*  89-98   94-55*  94-67*
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               99-26*  99-37*  100-91*  100-110* 100-121* 100-223* 100-227 103-91*  103-114* 103-136* 106-35* 107-111* 107-162* 107-170*
               107-177
TEMP3          31-49#  43-37   43-55   43-64   46-66*  46-128  72-16*  73-27*  73-30*  73-33   88-68*  88-69   88-70   94-57*
               94-68*  94-76   94-88   94-89   94-90   94-115* 95-48*  95-58   96-23*  97-38*  97-41   97-44   97-45   97-46
               97-47   97-78*  97-85*  97-95*  97-102* 97-114* 97-125* 98-37*  98-46*  99-28*  99 38*  100 92*  100-111* 100-122*
               103-92* 103-115* 103-137* 106-37* 107-110* 107-163* 107-173* 107-177
TEMP4          31-50#  43-33   43-55   43-64   46-67*  46-102* 46-129  95-55*  95-64*  95-69*  95-70   95 81   96-21*  97-96*
               100-93* 100-112* 100-123* 103-93* 103-116* 103-139* 106-36* 107-109* 107-164* 107 176* 107-177
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               69-25   73-66*  73-69*  73-71   96-20*
TIMER1         32-47#  45-45   45-47*  82-37*  82-38   100-83* 100-89  100-107 106-28* 106 31* 106-32
TIMER2         32-48#  45-48   45-50*
TIMERS         32-49#  45-51   45-55*  100-185* 100-186 103-82* 103-89  105-44* 105-45
TIMMIN         32-43#  45-42*  46-126  77-81*
TIMSEC         32-44#  45-39*  45-40   45-43*  46-125  77-82*
TIMTCK         32-45#  45-36*  45-38*  45-53   46-123  77-83*
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TOIN2          103-102#
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TOOR2          106-46  106-49#
TOOR3          106-30  106-32#  106-50
TOORIO         47-60   47-68   100-158 100-212 100-233 101 41  102-46  103 70  104-21  105-16  105-56  106 27# 106-41
TOTCC          31-44#  52-24*  52-25   52-31*  52 33   52-35*  82 49*  82-141* 82-142  82 163  82-170* 82-171  82 196
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TRAMOD         26-150# 37-59
TRBB           26-67#  55-29   77 149  88-36   88-54   89-27
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TRIBCO 112-54   112-80#
TRIBLS  29-19#   49-27    62-20    70-40    88 15    88-83    88-117   88-126   88-147   88-154   88-159   89-14*
TRIBN   29-22#   46-81    46-95    47-44    47-62    47-69    49-15*   49-35*   62-20*   68-17    68-25*   69-15    69-25*   70-40
        79-22*   89 35    94-69*   94-116*  97-38    100-193* 100-213  100-234  102-50   103-73   103-94*  103-117* 103-124* 103-125*
       103-126  103-138* 103-149* 103-150* 103-151  104-22   105-17   105-57   107-239*
TRVACT  74-52    74-63#   74 79    74-84    74-89    74-92    74-112   74-173   74-191   74-212   74-236
TRVALN  74-41    74-195#
TRVALP  74-40    74-181#
TRVBIF  74 37    74-92#
TRVBR   74-36    74-89#
TRVBRC  74-50    74-70#   74-90    74-95    74-114   74-178   74-193   74-214   74-240
TRVDEC  74-43    74-117#
TRVERR  74-34    74-79#
TRVEXI  74 35    74-84#
TRVNMA  74-118   74-121#
TRVNOB  74-75#   74-96    74-113   74-174   74-192   74-213
TRVNUM  74-39    74-120#
TRVOCT  74-42    74-119#
TRVSF*  74-38    74-98#
TRVSTR  74-44    74-218#
TS30AA  41-28#
TSEL3   43-73   103-117  107-263#
TSEL4   43-73   103-115  107-262#
TSEL6   43 73   103-116  107-261#
TSPTR   29-29#   89-70*  103-122  103-129* 107-201  107-205*
TSS0A   35 2     41-3#
TSS10A  35-10    41-11#
TSS11A  35 11    41-12#
TSS12A  35-12    41-13#
TSS13A  35-13    41-14#
TSS14A  35-14    41-15#
TSS15A  35-15    41-16#
TSS16A  35-16    41-17#
TSS17A  35-17    41-18#
TSS1A   35 3     41-4#
TSS20A  35-18    41-19#
TSS21A  35-19    41-20#
TSS22A  35-20    41-21#
TSS23A  35-21    41-22#
TSS24A  35-22    41-23#
TSS25A  35-23    41-24#
TSS26A  35-24    41-25#
TSS27A  35 25    41-26#
TSS2A   35-4     41-5#
TSS30A  35-26    41-27#
TSS31A  35-27    41-29#
TSS32A  35-28    41-30#
TSS33A  35 29    41-31#
TSS34A  35-30    41-32#
TSS35A  35 31    41-33#
TSS36A  35-32    41-34#
TSS37A  35-33    41-35#
TSS3A   35-5     41-6#
TSS4A   35-6     41-7#
TSS5A   35-7     41-8#
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	37-93	37-93#	37-94	37 94	37-94#	37-95	37-95	37-95#	37 96	37-96	37-96#	37-97	37-97	37-97#
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	37-124#	37-125	37-125	37-125#	37-127	37-127	37-127#	37-128	37-128	37-128#	37-130	37-130	37 130#	37-131
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	37-140	37-140	37-140#	37-141	37-141	37-141#	37-142	37-142	37-142#	37-143	37-143	37-143#	37-144	37 144
	37-144#	37-145	37-145	37-145#	37-146	37 146	37-146#	37-147	37-147	37-147#	37 148	37-148	37 148#	37-149
	37-149	37-149#	37-150	37-150	37-150#	37-151	37-151	37-151#	37-152	37 152	37-152#	37-155	37-155	37-155#
	37-156	37-156	37-156#	37-157	37-157	37-157#	37-158	37-158	37-158#	37-159	37-159	37-159#	37-160	37-160
	37-160#	37-161	37-161	37-161#	37-164	37-164	37-164#	37-165	37-165	37-165#	37-166	37-166	37-166#	37-167
	37-167	37-167#	37-168	37-168	37-168#	37-169	37-169	37-169#	37-172	37-172	37-172#	37-173	37-173	37 173#
	37-174	37-174	37-174#	37-177	37-177	37-177#	37-188	37-188	37-188#	37-189	37-189	37 189#	37-190	37-190
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	37 195	37-195#	37-198	37-198	37-198#	37-199	37-199	37-199#	37-200	37-200	37-200#	37-202	37-202	37-202#
	37-203	37-203	37-203#	37-204	37-204	37-204#	37-205	37-205	37-205#	37-206	37-206	37 206#	37-207	37 207
	37-207#	37-208	37-208	37-208#	37-209	37-209	37-209#	37-210	37-210	37-210#	37-211	37-211	37-211#	37-212
	37-212	37-212#	37-213	37-213	37-213#	37-216	37-216	37-216#	50-3	50-3	50-3#	50-4	50-4	50-4#
	50-5	50-5	50-5#	50-6	50-6	50-6#	50-7	50-7	50-7#	50-8	50-8	50-8#	50-9	50-9
	50-9#	50-10	50-10	50-10#	50-11	50-11	50-11#	50-12	50-12	50-12#	50 13	50-13	50-13#	50 14
	50-14	50-14#	50-15	50-15	50-15#	50-16	50-16	50-16#	50-17	50-17	50-17#	50-18	50 18	50 18#
	50-19	50-19	50-19#	50-20	50-20	50-20#	50-21	50-21	50-21#	50-22	50-22	50-22#	50-23	50 23
	50-23#	50-24	50-24	50-24#	50-25	50-25	50-25#	50-26	50 26	50-26#	50 27	50-27	50-27#	
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X$FALS	21-12#	112-53												
X$OFFS	21-12#	112-53												
X$TRUE	21-12#													

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BGNAUT   1-31#    21-12#   78-10
BGNCLN   1 39#    21 12#   79-8
BGNDU    1-47#    21-12#   80-8
BGNHRD   1-55#    21-12#   112-13
BGNHW    1 66#    21 12#   23-10
BGNINI   1-77#    21-12#   77-8
BGNMOD   1-85#    21-12#   21-33
BGNMSG   1-98#    21-12#   43-28    43-32    43-36    43 54    43-63    43-68    43-72
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BGNPTA   1-114#   21-12#
BGNRPT   1-144#   21-12#   75-9
BGNSEG   1-152#   21-12#
BGNSET   1-161#   21-12#
BGNSFT   1-182#   21-12#
BGNSRV   1-193#   21-12#   45-33    108-22   108-42
BGNSUB   1-201#   21-12#
BGNSW    1-225#   21-12#
BGNTST   1-236#   21-12#   82-23
BNCOMP   1-266#   21-12#   77-45    77-57    77-63    77-72    77-97
BNERRO   1-270#   21-12#
BREAK    1-274#   21-12#   100-106  100-139  103-101  106-43   107-217
BRESET   1-278#   21-12#   77-52
CKLOOP   1-282#   21-12#
CLI      21-40#   37-19    37-20    37-21    37-22    37-23    37-24    37-25    37 26    37-27    37-28    37-29    37-30    37-31
         37-32    37-33    37-34    37-35    37-36    37-37    37-38    37-39    37-40    37-41    37-45    37-46    37-47    37-48
         37-49    37-50    37-51    37-52    37-53    37-54    37-55    37-56    37-57    37 58    37-59    37-60    37-61    37-62
         37-66    37-67    37-68    37-69    37-70    37-75    37-76    37-77    37-78    37-79    37-82    37-83    37-84    37-85
         37-86    37-87    37-88    37-89    37-92    37-93    37-94    37-95    37-96    37-97    37-107   37-108   37-109   37-110
         37-124   37-125   37-127   37-128   37-130   37-131   37-134   37-137   37-138   37-139   37-140   37-141   37-142   37-143
         37-144   37-145   37-146   37-147   37-148   37-149   37-150   37-151   37 152   37-155   37 156   37-157   37-158   37-159
         37-160   37-161   37-164   37-165   37-166   37-167   37-168   37-169   37-172   37-173   37 174   37-177   37-188   37-189
         37-190   37-191   37-192   37-193   37-194   37-195   37-198   37-199   37-200   37-202   37-203   37-204   37-205   37-206
         37-207   37-208   37-209   37-210   37-211   37 212   37-213   37-216   50-3     50-4     50-5     50-6     50-7     50-8
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CLOCK    1-286#   21-12#   77-56    77-62
CLOSE    1-292#   21-12#
CLRVEC   1-296#   21-12#
COMMEN   1-301#   21-12#
DELAY    1-322#   21 12#
DESCRI   1-317#   21-12#   39-36
DEVTYP   1-341#   21-12#   39-25
DISPAT   1-346#   21-12#   22-8
DISPLA   1-360#   21-12#
DOCLN    1-376#   21-12#   77 37    107 184  107-208
DODU     1 380#   21-12#
DORPT    1-385#   21-12#
ENDAU    1-389#   21-12#   81-36
ENDAUT   1-401#   21-12#   78-19
ENDCLN   1-413#   21-12#   79 43
ENDCOM   1-425#   21-12#
ENDDU    1 441#   21-12#   80 35
ENDHRD   1-453#   21-12#   112-56
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Cross reference table (CREF V05.00)

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ENDPRO    1-512#  21-12#  76-14
ENDPTA    1-520#  21-12#
ENDRPT    1-529#  21-12#  75-41
ENDSEG    1-541#  21-12#
ENDSET    1-555#  21-12#
ENDSFT    1-568#  21-12#
ENDSRV    1-580#  21-12#  45-57   108-31  108-50
ENDSUB    1-596#  21-12#
ENDSW     1-614#  21-12#
ENDTST    1-624#  21-12#  109-15
EQUALS    1-642#  21-12#  24-77
ERRDF     1-714#  21-12#
ERRHRD    1-718#  21-12#
ERROR     1-722#  21-12#
ERRSF     1-726#  21-12#
ERRSOF    1-730#  21-12#  95-61   95-75   95-84   97-67   100-96  100-115 100-127 103-97  103 119 103-141 106 40  107-114
        107-197  107-212
ERRTBL    1 734#  21-12#
ESCAPE    1-744#  21-12#
EXIT      1-771#  21-12#  43-76   77-169  79-27   80-19   81 20   82-95   82 130
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GETPRI    1-834#  21-12#
GETWOR    1-829#  21-12#
GMANIA    1-839#  21-12#
GMANID    1-848#  21-12#  47-16   55-26   77-76   82-103  88-52   88 67   88-69   97-41   98-27
GMANIL    1-859#  21-12#
GPHARD    1 868#  21-12#  77 96
GPRMA     1-874#  21-12#  112-48  112-49
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IOSETU    1-966#  21-12#
IOSTAR    1-974#  21-12#
KT11      1 982#  21-12#
LASTAD    1-;47#  21-12#  113-48
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Cross reference table (CREF V05.00)

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               113 49    113-49#
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               113-48    113-48#
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Cross reference table (CREF V05.00)

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MSGNLS	1 C13#	21-12#	47-16	47-16#	55-26	55-26#	77-76	77 76#	82 103	82-103#	88-52	88-52#	88-67	88-67#
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        82-173   82-173   82-173#  82-184   82-184   82-184   82-184#  84-12    84-12    84-12    84-12#   84-76    84-76    84-76
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	112-51	112-51#	112-52	112-52#	112-54	112-54#								
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	43-63	43-63#	43-68	43-68#	43-72	43-72#	45-33	45 33#	75-9	75-9#	76-8	76-8#	77-8	77-8#
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	112-13	112-13#												
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	43-55	43-55#	43-56	43-56#	43-64	43-64#	43-65	43-65#	43-69	43-69#	43-70	43-70#	43-73	43-73#
	43-74	43-74#	43-76#	46-115	46-115#	46-118	46-118#	47-10	47-10#	47-16	47-16#	47-24	47-24#	47-28
	47-28#	47-85	47-85#	47-103	47-103#	47-108	47-108#	47-115	47-115#	47-123	47-123#	47-124	47-124#	47-145
	47-145#	47-146	47-146#	47-154	47-154#	47-162	47-162#	47-171	47-171#	47-188	47-188#	47-203	47-203#	47-209
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	74-176#	75-41	75-41#	77-37	77-37#	77-40	77-40#	77-42	77-42#	77-44	77-44#	77-47	77-47#	77-52
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	77-153#	77-165	77-165#	77-166	77-166#	77-168	77-168#	77-169	77-169#	77-185	77-185#	78-19	78-19#	79-26
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	88-112#	88-122	88-122#	88-145	88-145#	88-165	88-165#	88-174	88-174#	89-10	89-10#	89-18	89-18#	89-23
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	107-155#	107-158	107-158#	107-177	107-177#	107-184	107-184#	107-197	107-208	107-208#	107-212	107-217	107-217#	109-15
	109-15#													
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	47-145#	47-146#	47-154#	47-162#	47-171#	47-188#	47-203#	47-209#	49-5#	49-32#	49-43#	51-30#	51-34#	51-36#
	52-30#	55-17#	55-25#	55-26#	73-33#	73-71#	74-138#	74-176#	75-41#	77-42#	77-44#	77-47#	77-52#	77-56#
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	79-26#	79-27#	79-43#	80-35#	81-36#	82-42#	82-83#	82-91#	82-95#	82-103#	82-111#	82-115#	82-130#	82-144#
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	107-177#	107-184#	107-197#	107-208#	107-212#	107-217#	109-15#							
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	43-55	43-55#	43-56	43-56#	43-64	43-64#	43-65	43-65#	43-69	43-69#	43-70	43-70#	43-73	43-73#
	43-74	43-74#	46-115	46-115#	46-118	46-118#	47-10	47-10#	47-16	47-16#	47-24	47-24#	47-28	47-28#
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	77 56	77-56#	77-62	77-62#	77-71	77-71#	77-76	77-76#	77-80	77-80#	77-96	77-96#	77-153	77 153#
	77-165	77-165#	77-166	77 166#	77-168	77-168#	77-169	77-169#	77-185	77-185#	78-19	78-19#	79-26	79-26#
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