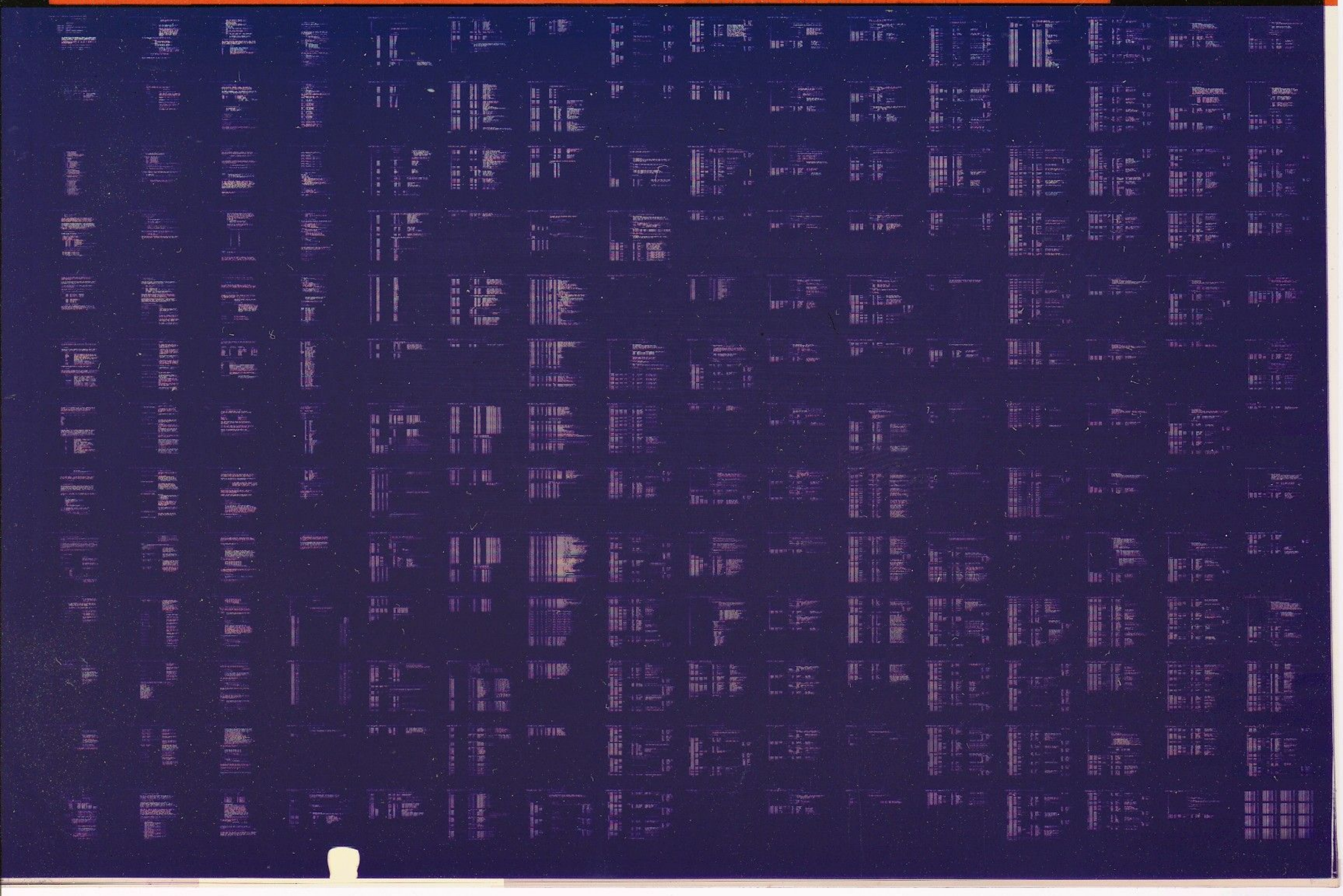
DMV11
DMP11

DMP/DMV11 DCLT
CZCLMCO

AH-F599C-MC
FICHE 01 OF 02

JUL 1984
digital
Made In USA



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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 LUHRS - 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 "-EEEEEE" 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
"RUBOUT"	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/T8. 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 NODE 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 RXQ 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 0'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 0'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
             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 37' 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 THE
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-O
        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 UNRSP
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>

                        E
```

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
                                        BGNMOD
                                ;++
                                ; THE PROGRAM HEADER IS THE INTERFACE BETWEEN
                                ; THE DIAGNOSTIC PROGRAM AND THE SUPERVISOR.
                                ;--
                                        POINTER BGNRPT,BGNAU,BGNDU
                                        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::
```

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

```
                                .SBTTL  DISPATCH TABLE

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

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

```

```
                                .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
```

```
      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                          MOCHK=  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                                  CSHEXP=6
000007                                  CSHTRN=7
000010                                  SETEXP=10
000011                                  SETTRN=11
000012                                  SIZE=12
000013                                  QCOPY=13
000014                                  NUM=14
000015                                  OPRMSG=15
```

```
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
```

```
                                ; 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

```

GLOBAL DATA SECTION

```
                                .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  025703
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
```

MESSAGE BUFFERS AND POINTER TABLES

```
                                .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
```

```
                                        ;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.
017400  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                  FHDPLX: .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 LINE 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

                                MOBITS: .WORD   CTS             ;CLEAR TO SEND (CIRCUIT CB)
                                        .WORD   DSR             ;DATA SET READY (CIRCUIT CC)
                                        .WORD   DCD             ;DATA CARRIER DETECT (CIRCUIT CF)
                                        .WORD   RTS             ;REQUEST TO SEND (CIRCUIT CA)
                                        .WORD   RI              ;RING INDICATOR (CIRCUIT CE)
                                        .WORD   SQD             ;SIGNAL QUALITY DETECT (CIRCUIT CG)
                                        .WORD   TM              ;MODEM IN TEST MODE (RS 449 ONLY CIRCUIT TM)
                                MOBITE:

                                ;TABLE OF ADDRESSES OF MODEM SIGNAL MESSAGE POSITIONS

                                MOMSGS: .WORD   EVMCTS          ;CLEAR TO SEND (CIRCUIT CB)
                                        .WORD   EVMDSR          ;DATA SET READY (CIRCUIT CC)
                                        .WORD   EVMDCD          ;DATA CARRIER DETECT (CIRCUIT CF)
                                        .WORD   EVMRTS          ;REQUEST TO SEND (CIRCUIT CA)
                                        .WORD   EVMRI           ;RING INDICATOR (CIRCUIT CE)
                                        .WORD   EVMSQD          ;SIGNAL QUALITY DETECT (CIRCUIT CG)
                                        .WORD   EVMTM           ;MODEM IN TEST MODE (RS 449 ONLY CIRCUIT TM)

                                ;TABLE OF ADDRESSES OF EVENT DESCRIPTION MESSAGES
                                ;       ORDER CORRESPONDS TO MESSAGE TYPE VALUES

                                EVTLST: .WORD   EDTXQ   ;TRANSMIT MESSAGE QUEUED
                                        .WORD   EDTXC   ;TRANSMIT OF MESSAGE COMPLETE
                                        .WORD   EDRXQ   ;RECEIVE MESSAGE SPACE QUEUED
                                        .WORD   EDRXC   ;MESSAGE RECEIVED - RECEIVE COMPLETE
                                        .WORD   EDDER   ;DEVICE INFORMATION
                                        .WORD   EDDVI   ;DEVICE INITIALIZE STARTED
                                        .WORD   EDDCK   ;DATA COMPARISON DONE
                                        .WORD   LPO     ;NULL STRING
                                        .WORD   EDDLE   ;DATA COMPARE LENGTH ERROR
                                        .WORD   EDDDE   ;DATA COMPARE DATA ERROR
                                        .WORD   EDEOP   ;END OF PASS

                                ;LOCATIONS USED DURING EVENT REPORTING

                                EVTSEC: .WORD   0       ;TEMPORARY LOCS TO KEEP EVENT TIME WHILE REPORTING
                                EVTMIN: .WORD   0
                                EVTTCK: .WORD   0
                                EVTADD: .WORD   0       ;TEMP. LOC. TO HOLD ADDRESS DURING EVENT REPORTING
                                EVTBCT: .WORD   0       ;       "       "  BYTE COUNT   "       "       "
                                EVTTMP: .WORD   0       ;       "       "  OTHER DATA   "       "       "

                                ;REPORT CODING DISPATCH TABLE

                                RPTDSP: .WORD   RPTTXQ  ;TRANSMIT QUEUED ENTRY DECODING
                                        .WORD   RPTTXQ  ;TRANSMIT COMPLETE ENTRY DECODING
                                        .WORD   RPTTXQ  ;RECEIVER QUEUED ENTRY DECODING
                                        .WORD   RPTTXQ  ;RECEIVER COMPLETE ENTRY DECODING
                                        .WORD   RPTDER  ;DEVICE ERROR ENTRY DECODING
                                        .WORD   RPTDVI  ;DEVICE INIT ENTRY DECODING
                                        .WORD   RPTDCK  ;DATA COMPARISON ENTRY DECODING
                                        .WORD   RPTMSC  ;PLACE HOLDER
                                        .WORD   RPTDLE  ;DATA COMPARISON LENGTH ERROR
                                        .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
```

TABLE FOR TSS ASCII AND ROUTINES

```
     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

                        GSSLST: .WORD   GSS0A           ;POINTER FOR OFFSET 0 ASCII
                                .WORD   GSS1A           ;POINTER FOR OFFSET 1 ASCII
                                .WORD   GSS2A           ;POINTER FOR OFFSET 2 ASCII
                                .WORD   GSS3A           ;POINTER FOR OFFSET 3 ASCII
                                .WORD   GSS4A           ;POINTER FOR OFFSET 4 ASCII
                                .WORD   GSS5A           ;POINTER FOR OFFSET 5 ASCII
                                .WORD   GSS6A           ;POINTER FOR OFFSET 6 ASCII
                                .WORD   GSS7A           ;POINTER FOR OFFSET 7 ASCII
                                .WORD   GSS10A          ;POINTER FOR OFFSET 10 ASCII
                                .WORD   GSS11A          ;POINTER FOR OFFSET 11 ASCII
                                .WORD   GSS12A          ;POINTER FOR OFFSET 12 ASCII
                                .WORD   GSS13A          ;POINTER FOR OFFSET 13 ASCII
                                .WORD   GSS14A          ;POINTER FOR OFFSET 14 ASCII
                                .WORD   GSS15A          ;POINTER FOR OFFSET 15 ASCII
                                .WORD   GSS16A          ;POINTER FOR OFFSET 16 ASCII
                                .WORD   GSS17A          ;POINTER FOR OFFSET 17 ASCII
                                .WORD   GSS20A          ;POINTER FOR OFFSET 20 ASCII
                                .WORD   GSS21A          ;POINTER FOR OFFSET 21 ASCII
                                .WORD   GSS22A          ;POINTER FOR OFFSET 22 ASCII
                                .WORD   GSS23A          ;POINTER FOR OFFSET 23 ASCII
                                .WORD   GSS24A          ;POINTER FOR OFFSET 24 ASCII
                                .WORD   GSS25A          ;POINTER FOR OFFSET 25 ASCII
                                .WORD   GSS26A          ;POINTER FOR OFFSET 26 ASCII
                                .WORD   GSS27A          ;POINTER FOR OFFSET 27 ASCII
                                .WORD   GSS30A          ;POINTER FOR OFFSET 30 ASCII
                                .WORD   GSS31A          ;POINTER FOR OFFSET 31 ASCII
                                .WORD   GSS32A          ;POINTER FOR OFFSET 32 ASCII
                                .WORD   GSS33A          ;POINTER FOR OFFSET 33 ASCII
                                .WORD   GSS34A          ;POINTER FOR OFFSET 34 ASCII
                                .WORD   GSS35A          ;POINTER FOR OFFSET 35 ASCII
                                .WORD   GSS36A          ;POINTER FOR OFFSET 36 ASCII
                                .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

                        GSSIND: .BYTE   2       ;INDEX FOR  GSS 0
                                .BYTE   2       ;INDEX FOR  GSS 1
                                .BYTE   2       ;INDEX FOR  GSS 2
                                .BYTE   2       ;INDEX FOR  GSS 3
                                .BYTE   2       ;INDEX FOR  GSS 4
                                .BYTE   2       ;INDEX FOR  GSS 5
                                .BYTE   2       ;INDEX FOR  GSS 6
                                .BYTE   2       ;INDEX FOR  GSS 7
                                .BYTE   2       ;INDEX FOR  GSS 10
                                .BYTE   0       ;INDEX FOR  GSS 11
                                .BYTE   2       ;INDEX FOR  GSS 12
                                .BYTE   2       ;INDEX FOR  GSS 13
                                .BYTE   0       ;INDEX FOR  GSS 14
                                .BYTE   4       ;INDEX FOR  GSS 15
                                .BYTE   4       ;INDEX FOR  GSS 16
                                .BYTE   2       ;INDEX FOR  GSS 17
```

```
      58 021150      002                              .BYTE   2       ;INDEX FOR  GSS 20
      59 021151      002                              .BYTE   2       ;INDEX FOR  GSS 21
      60 021152      002                              .BYTE   2       ;INDEX FOR  GSS 22
      61 021153      002                              .BYTE   2       ;INDEX FOR  GSS 23
      62 021154      002                              .BYTE   2       ;INDEX FOR  GSS 24
      63 021155      002                              .BYTE   2       ;INDEX FOR  GSS 25
      64 021156      000                              .BYTE   0       ;INDEX FOR  GSS 26
      65 021157      000                              .BYTE   0       ;INDEX FOR  GSS 27
      66 021160      000                              .BYTE   0       ;INDEX FOR  GSS 30
      67 021161      002                              .BYTE   2       ;INDEX FOR  GSS 31
      68 021162      002                              .BYTE   2       ;INDEX FOR  GSS 32
      69 021163      000                              .BYTE   0       ;INDEX FOR  GSS 33
      70 021164      000                              .BYTE   0       ;INDEX FOR  GSS 34
      71 021165      000                              .BYTE   0       ;INDEX FOR  GSS 35
      72 021166      000                              .BYTE   0       ;INDEX FOR  GSS 36
      73 021167      000                              .BYTE   0       ;INDEX FOR  GSS 37
      74
```

```
                                .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$
```

```
     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$:  CLI     CLISTR,CSHTRN,N30$,<'1RANSMITBUFF'>     ;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
```

COMMAND LINE ACTION TREE

```
    134 022230                          N120$:  CLI     <'=>,0,N30$
    135
    136                                 ;   LOOK FOR DEFAULT MESSAGE NAME
    137 022234                          N60$:   CLI     CLISTR,CMSG1,N61$,<'ONES'>
    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$:   CLI     <'">,ENDQO,N71$
    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$:  CLI     <'=>,0,N30$
```

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                  BSEL0:  .WORD   0               ;ADDRESSES OF REGISTERS SEL0 THRU BSEL7
023054  000000                  BSEL1:  .WORD   0
023056                          SEL2:
023056  000000                  BSEL2:  .WORD   0
023060  000000                  BSEL3:  .WORD   0
023062                          SEL4:
023062  000000                  BSEL4:  .WORD   0
023064  000000                  BSEL5:  .WORD   0
023066                          SEL6:
023066  000000                  BSEL6:  .WORD   0
023070  000000                  BSEL7:  .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 THESHOLD MESSAGE
023116  040117                          .WORD   STRCM           ;DDCMP START REC MESSAGE ADDR.
023120  040140                          .WORD   MARM            ;DDCMP MAINT REC IN RUN
023122  040161                          .WORD   MARMM           ;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   CARLOS          ;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
                                ;


                                        DEVTYP  <DMP OR DMV 11>

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

                                                                        .EVEN


                                .SBTTL          PROGRAM IDENTIFICATION
                                ; TEST DESCRIPTION
                                ;
                                        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,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=%O2%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?\
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```
026231   045   116   045  SHTLP:   .ASCIZ  \%N%A?CABLE,LOC,REM LOOP NOT VALID IN "MULTIPT MODE"?\
026316   045   116   045  SHTLPA:  .ASCIZ  /%N%A?TRIBS MUST BE ESTABLISHED TO EXECUTE?/
026371   045   116   045  SHTLPB:  .ASCIZ  /%N%A?TRIB STATION CANNOT DO LOOP?/
026433   045   116   045  SHTLPC:  .ASCIZ  /%N%A?ONLY ONE TRIB (TRIB ADDR 1) ALLOWED/
026504   045   116   045  SHTLPD:  .ASCIZ  /%N%S5%AFOR LOOP IN MULTIPOINT?/
026543   045   116   045  SHTIV:   .ASCIZ  \%N%A?TRIB ADDRESS= %Z3%A INVALID?\
026605   045   116   045  SHTBR:   .ASCIZ  /%N%ARX BUFFER NOT BIG ENOUGH%N%ATOO MANY TRIBS OR MSGS/
026674   122   105   103  M00:     .ASCIZ  /RECEIVE/
026704   124   122   101  M01:     .ASCIZ  /TRANSMIT/
026715   120   101   123  M02:     .ASCIZ  /PASSIVE/
026725   101   103   124  M03:     .ASCIZ  /ACTIVE/
026734   104   117   127  M04:     .ASCIZ  /DOWNLINELOAD/
026751   124   101   114  M05:     .ASCIZ  /TALK/
026756   114   111   123  M06:     .ASCIZ  /LISTEN/
026765   000                LP0:     .ASCIZ  //
026766   057   114   117  LP00:    .ASCIZ  ?/LOOP=?
026775   111   116   124  LP1:     .ASCIZ  ?INTERNAL?
027006   103   101   102  LP2:     .ASCIZ  ?CABLE?
027014   114   117   103  LP3:     .ASCIZ  ?LOCALMODEM?
027027   122   105   115  LP4:     .ASCIZ  ?REMOTEMODEM?
027043   116   117        PNST:    .ASCII  /NO/
027045   123   124   101  PST:     .ASCIZ  /STATUS/
027054   116   117        PNCK:    .ASCII  /NO/
027056   103   110   105  PCK:     .ASCIZ  /CHECK/
027064   116   117        PNEC:    .ASCII  /NO/
027066   105   103   110  PEC:     .ASCIZ  /ECHO/
027073   116   117        PNMS:    .ASCII  /NO/
027075   115   117   104  PMS:     .ASCIZ  /MODEM/

027103   045   116   045  LISP:    .ASCIZ  /%N%ALIS>/
027114   124   114   113  OPRMM:   .ASCIZ  /TLK>/
027121   124   110   111  L5060:   .ASCIZ  /THIS A 50. OR 60. HZ. LSI-11:/
                                   .EVEN

                          ;
                          ; FORMAT STATEMENTS USED IN PRINT CALLS
                          ;
027160   045   116   045  DLLCM:   .ASCIZ  /%N%ADOWN LINE LOAD COMPLETED SUCCESSFULLY/

027232   045   116   045  BDCLK:   .ASCIZ  /%N%ACLOCK NOT FOUND/
027256   045   116   045  NOCLK:   .ASCIZ  /%N%ABAD CLOCK - PROGRAM WILL HANG ON "TIMEOUT"!!/
027337   115   101   130  TABEX:   .ASCIZ  /MAX. CHAR. MSG COUNT EXCEEDED -/
027377   102   125   106  BUFEX:   .ASCIZ  /BUFFER FULL -/
027415   045   116   045  MSGTRN:  .ASCIZ  /%N%T%A MSG. NOT BUILT !!/
027446   045   116   045  MSGTRU:  .ASCIZ  /%N%ACHAR. COUNT EXCEEDS BUFF LIMIT - MSG TRUNCATED/
027531   045   116   045  SHF0:    .ASCIZ  ?%N%S5%AMODE=%T%T%T%A/PASS=%Z5?

027567   045   116   045  SHF1:    .ASCIZ  ?%N%S5%S5%S5%A/%T%A/%T%A/%T%A/%T?
027627   045   123   065  EFM2:    .ASCIZ  /%S5%ATOTAL MISMATCHES IN MSG = %D5/
027672   045   116   045  PCPM:    .ASCIZ  /%N%S3%ACALLED FROM PC=%06/
027724   045   123   065  EFM11:   .ASCIZ  /%S5%ACOMPARE COUNT=%D5%S3%ARECEIVE COUNT=%D5/

                          ;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%O3/
    030372    045    123    063   BASM2:  .ASCIZ  /%S3%O6/
    030401    045    116    045   BASM1:  .ASCIZ  /%N%O6/

    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=%O6%S3%ABYTE COUNT=%D5/
    030646    045    116    045   EVTF3:  .ASCIZ  /%N%S3%T%N/
    030660    045    123    063   EVTF3C: .ASCIZ  /%S3%O6%S3%O6/
    030675    045    123    063   EVTF3D: .ASCIZ  /%S3%O6%S3%O6%S3%T/
    030717    045    123    063   EVTF3F: .ASCIZ  /%S3%O6%S3%O6%S3%ATRIB ADDR=%Z3/
    030756    045    116    045   EVTF6:  .ASCIZ  /%N%S3%ATO-FROM TRIB ADDRESS-%Z3/

    031016    045    116    045   EVTF48: .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=%O6%S3%ABYTE COUNT=%D5%S3%ANO. OF CMP ERRS=%D5/
    031226    045    116    045   EVTF4A: .ASCIZ  /%N%S3%AADDR OF MSG=%O6%S3%ARX BYTES=%D5%S3%ACOMPARE BYTES=%D5/

    031324    045    123    065   EVTF5A: .ASCIZ  /%S5%ABYTE # IN MSG.=%D5%S3%AEXPTD=%O3%S3%ARECVD=%O3/

    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
```

```
                                        .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≤AMODE≤N≤03≤S5≤AMODE/
 035555      045      116      045  GSS13A:  .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 036576      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                                  ;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::
041340                                  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
```

```
50
51                                      ;
52                                      ;PRINT THE 2 OCTAL 0'S IN TEMP3/4
53                                      ;
54 041460                               BGNMSG  ERR13
   041460                                                       ERR13::
55 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$PNTB
   041504  062706  000010                                               ADD     #10,SP
56 041510                               ENDMSG
   041510                                                       L10004:
   041510  104423                                                       TRAP    C$MSG
57
58
59                                      ;
60                                      ;PRINT THE 2 OCTAL 0'S IN TEMP3/4
61                                      ; AND THE MESG. WHOSE ADDR. IS IN CONOTM
62                                      ;
63 041512                               BGNMSG  ERR14
   041512                                                       ERR14::
64 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$PNTB
   041542  062706  000012                                               ADD     #12,SP
65 041546                               ENDMSG
   041546                                                       L10005:
   041546  104423                                                       TRAP    C$MSG
66
67
68 041550                               BGNMSG  ERR15
   041550                                                       ERR15::
69 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$PNTB
   041602  062706  000012                                               ADD     #12,SP
70 041606                               ENDMSG
   041606                                                       L10006:
   041606  104423                                                       TRAP    C$MSG
71
72 041610                               BGNMSG  ERR16
   041610                                                       ERR16::
```

GLOBAL ERROR REPORT SECTION

```
 73 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$PNTB
    041642  062706  000012                                              ADD     #12,SP
 74 041646                              ENDMSG
    041646                                                      L10007:
    041646  104423                                                     TRAP    C$MSG
 75
 76 041650                              EXIT    MSG
    041650  000167                                                     .WORD   J$JMP
    041652  177772                                                     .WORD   L10007-2-.
 77
```

```
                                .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
                                ;--

                                CLKSET:
041654                                  MOV     (R1)+,(R2)+             ;LOAD CLOCK'S CSR ADDR. INTO "CLKCSR"
041654  012122                          MOV     (R1)+,(R2)              ;LOAD CLOCK'S INT. LEVEL INTO "CLKBR"
041656  012112                          ASL     (R2)                    ;ADJUST THE INT. LEVEL FOR LOADING INTO
041660  006312                          ASL     (R2)                    ;    THE PSW WITH A "SETVEC" CALL
041662  006312                          ASL     (R2)
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
```

```
;7 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
```

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

DUMP EVENT LOG AND BASE TABLE

```
                                .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
```

```
     042764  000706                                  BR      GETRCL          ;IF EQUAL JUMP BACK
     042766  023727  003252  000002  20$:    CMP     KEYWD1,#RPEXT           ;SEE IF EXIT REPORT SECTION
     042774  001302                          BNE     GETRCL
     042776  012604                  ENDALL: MOV     (SP)+,R4        ;RESTORE R4,R3,R2
     043000  012603                          MOV     (SP)+,R3
     043002  012602                          MOV     (SP)+,R2
     043004  000207                          RTS     PC              ;RETURN TO CALLING ROUTINE

     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  #EVTF0          ;PRINT EVENT ENTRY HEADER
        043342  012746  030447                                                      MOV     #EVTF0,-(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
```

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    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
```

```
    152 044006  012237  020622                  MOV     (R2)+,EVTTMP    ;STORE TOTAL # OF CMP ERRORS
    153 044012  004737  044326                  JSR     PC,PNTTRB       ;PRINT TRIB NO.
    154 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$PNTS
        044046  062706  000012                                                          ADD     #12,SP
    155 044052  000137  043272                  JMP     RPT             ;THEN GO GET NEXT EVENT ENTRY
    156
    157 044056                          RPTDLE:
    158 044056  012237  020616          RPTDCK: MOV     (R2)+,EVTADD    ;STORE MSG ADDR FOR PRINT
    159 044062  012237  020620                  MOV     (R2)+,EVTBCT    ;STORE BYTE COUNT
    160 044066  012237  020622                  MOV     (R2)+,EVTTMP    ;STORE BYTE COUNT COMP
    161 044072  004737  044326                  JSR     PC,PNTTRB       ;PRINT TRIB NO.
    162 044076                                  PRINTS  #EVTF4A,EVTADD,EVTBCT,EVTTMP    ;PRINT ADDR,RXBYTES,CMPBYTES.
        044076  013746  020622                                                          MOV     EVTTMP,-(SP)
        044102  013746  020620                                                          MOV     EVTBCT,-(SP)
        044106  013746  020616                                                          MOV     EVTADD,-(SP)
        044112  012746  031226                                                          MOV     #EVTF4A,-(SP)
        044116  012746  000004                                                          MOV     #4,-(SP)
        044122  010600                                                                  MOV     SP,R0
        044124  104416                                                                  TRAP    C$PNTS
        044126  062706  000012                                                          ADD     #12,SP
    163
    164 044132  000137  043272                  JMP     RPT             ;THEN GO GET NEXT EVENT ENTRY
    165
    166
    167 044136                          RPTMSC:
    168
    169 044136  012203                          MOV     (R2)+,R3        ;PUT OLD MODEM STATUS IN R3 FOR PRINTING
    170 044140  004737  044214                  JSR     PC,RPTMSB       ;GO PRINT OLD MODEM STATUS
    171 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
    172 044164  012203                          MOV     (R2)+,R3        ;PUT NEW MODEM STATUS IN R3 FOR PRINTING
    173 044166  004737  044214                  JSR     PC,RPTMSB       ;GO PRINT NEW MODEM STATUS
    174 044172  012203                          MOV     (R2)+,R3        ;POP NULL WORD FROM ENTRY OUT OF LOG
    175 044174  012237  017362                  MOV     (R2)+,TEMP5     ;DUMMY MOVE
    176 044200  000137  043272                  JMP     RPT             ;THEN GO GET NEXT EVENT
    177
    178 044204                          ENDEVT:                         ;RETURN TO CALLER AFTER REG RESTORE
    179 044204  012604                          MOV     (SP)+,R4        ;RESTORE R4,R3,R2
    180 044206  012603                          MOV     (SP)+,R3
    181 044210  012602                          MOV     (SP)+,R2
    182 044212  000207                          RTS     PC              ;RETURN TO CALLING ROUTINE
    183
    184
    185                                 ;REPORT MODEM STATUS SUBROUTINE
    186                                 ;       PART OF STATISTICAL REPORTING (DUMPING EVENT LOG)
    187
```

```
                                RPTMSB: 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$PNTS
044230  062706  000004                                                               ADD     #4,SP
                                        MOV     #MOBITS,R4      ;MAKE R4 A POINTER TO MODEM SIG. BIT DEF. TABLE
                                        MOV     #MOMSGS,R5      ;MAKE R5 A POINTER TO MODEM MSG. POSITION TABLE
                                6$:     TST     (R4)            ;SEE IF BIT AVAILABLE FROM DEVICE
                                        BNE     7$              ;BR IF THAT MODEM SIG. AVAILABLE
                                        MOVB    #'X,@(R5)+      ;ELSE PUT "X" IN REPORT IF SIGNAL NOT AVAILABLE
                                        TST     (R4)+           ;BUMP R4 TO POINT TO NEXT BIT DEFINITION
                                        BR      9$              ;GO SEE IF CHECKED ALL MODEM SIGNALS
                                7$:     BIT     (R4)+,R3        ;IF THERE, SEE IF THAT BIT IN DEVICE'S ENTRY=1
                                        BEQ     8$              ;BR IF BIT (SIGNAL) VALUE =0
                                        MOVB    #'1,@(R5)+      ;IF=1, PUT "1" IN REPORT MESSAGE
                                        BR      9$              ;GO SEE IF ALL MODEM SIGNALS CHECKED
                                8$:     MOVB    #'0,@(R5)+      ;IF BIT(SIGNAL)=0, PUT "0" IN REPORT MESSAGE
                                9$:     CMP     R4,#MOBITE      ;SEE IF ALL BITS(SIGNALS) CHECKED
                                        BLT     6$              ;LOOP UNTIL ALL SIGNALS(BITS) CHECKED
                                        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
                                        RTS     PC              ;RETURN TO EVENT DECODING

                                        ;PRINT TRIBNO

                                PNTTRB: MOV     (R2)+,TEMP5
                                        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
                                        RTS     PC              ;RETURN TO EVENT
```

```
                                        .SBTTL          CLI FOR REPORT 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
```

REPORT COMMAND ACTION ROUTINES

```
                                        .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
                                                                        MOV     (R2)+,-(SP)
044440  012246                                                          MOV     #HLPF,-(SP)
044442  012746  024116                                                  MOV     #2,-(SP)
044446  012746  000002                                                  MOV     SP,R0
044452  010600                                                          TRAP    C$PNTF
044454  104417                                                          ADD     #6,SP
044456  062706  000006
044462  020227  003314                  CMP     R2,#RHLPEN      ;SEE IF ALL INFO PRINTED YET
044466  001364                  BNE     1$              ;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$NUM
                                                                        MOV     P$NUM,-(SP)
044626  013746  003404                                                  MOV     #SHTNF,-(SP)
044632  012746  026165                                                  MOV     #2,-(SP)
044636  012746  000002                                                  MOV     SP,R0
044642  010600                                                          TRAP    C$PNTF
044644  104417                                                          ADD     #6,SP
044646  062706  000006
044652  112737  177777  003411          MOVB    #-1,P$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$NUM
                                                                        MOV     P$NUM,-(SP)
044722  013746  003404                                                  MOV     #RPTIV,-(SP)
044726  012746  025544
```

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
```

```
                                .SBTTL          REPORT CODE COMMAND LINE PARSING TREE
                                
044774                          CLIRT:  CLI     CLISPA,0,R10$    ;SKIP ANY SPACES
045000                          R10$:   CLI     <'?>,RPHLP,R11$ ;IS FIRST NON-SP CHAR A "?"?
045004                                  CLI     CLIEXI,0        ;EXIT
045006                          R11$:   CLI     CLISTR,RPHLP,R12$,<'HELP'>
045022                                  CLI     CLIEXI,0
045024                          R12$:   CLI     CLISTR,RPEXT,R13$,<'EXIT'>
045040                                  CLI     CLIEXI,0
045042                          R13$:   CLI     CLISTR,RPGSS,R14$,<'GSS'>
045054                                  CLI     CLIBR,0,R20$
045060                          R14$:   CLI     CLISTR,RPLOG,R15$,<'LOG'>
045072                                  CLI     CLIEXI,0
045074                          R15$:   CLI     CLISTR,RPTSS,R30$,<'TSS'>
045106                                  CLI     CLISPA,RNOTNF,R30$
045112                                  CLI     CLIDEC,RPTSN,R30$
045116                          R20$:   CLI     <'/>,RNOTNF,R125$
045122                                  CLI     CLISTR,RPSWE,R21$,<'ERROR'>
045136                                  CLI     CLIEXI,0
045140                          R21$:   CLI     CLISTR,RPSWF,R22$,<'FULL'>
045154                                  CLI     CLIEXI,0
045156                          R22$:   CLI     CLISTR,RNOTNF,R30$,<'OFFSET'>
045174                                  CLI     <'=>,0,R30$
045200                                  CLI     CLIOCT,RPSWO,R30$
045204                                  CLI     CLIEXI,0
045206                          R30$:   CLI     CLIERR,0
045210                          R125$:  CLI     CLIEXI,0
```

```
                                .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$PNTF
045236  062706  000006                                          ADD     #6,SP
045242  005737  017316  DUM3:   TST     BYTBIT          ;IS THIS BYTE OR WORD
045246  001416                  BEQ     DUM1            ;BR IF WORD
045250  112237  017350          MOVB    (R2)+,TEMP      ;MOV BYTE TO TEMP
045254                          PRINTF  @BASM3,<B,TEMP> ;PRINT BYTE
045254  005046                                                  CLR     -(SP)
045256  153716  017350                                          BISB    TEMP,(SP)
045262  012746  030363                                          MOV     @BASM3,-(SP)
045266  012746  000002                                          MOV     #2,-(SP)
045272  010600                                                  MOV     SP,R0
045274  104417                                                  TRAP    C$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
```

UPDATE TOTAL CHAR. COUNT SUBROUTINE

```
                                .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
                        ;                    MSGLIN = 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
```

DO ALL GLOBAL PARMAS

```
                                .SBTTL          DO ALL GLOBAL 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
                                ;--

045776  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
```

```
     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

```

LOAD CPTRLS LIST INITIALLY

```
                                .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.,TEMP       ;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 RECEIVE 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 CALLER
```

```
                                        .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
```

LOAD REC POINTER LIST

```
                                        .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
```

LOAD DVRCT LIST

```
                                .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
```

GET ALL RX POINTERS FROM LIST TO CPTRR

```
                                .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$:    MOV     LOOPS(R2),TEMP1 ;GET ADDRESS OF LOOP-IN-ASCII
047414  013737  020656  017354          MOV     DEV3,TEMP2      ;GET NUMBER OF PASSES
047422                                  PRINTS  #SHF0,TEMP,TEMP3,TEMP1,TEMP2
047422  013746  017354                                                  MOV     TEMP2,-(SP)
047426  013746  017352                                                  MOV     TEMP1,-(SP)
047432  013746  017356                                                  MOV     TEMP3,-(SP)
047436  013746  017350                                                  MOV     TEMP,-(SP)
047442  012746  027531                                                  MOV     #SHF0,-(SP)
047446  012746  000005                                                  MOV     #5,-(SP)
047452  010600                                                          MOV     SP,R0
047454  104416                                                          TRAP    C$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$TR5                   ; THEN GO BACK PT'G TO MISS NODE
047750  004737  047766          22$:    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
```

```
                                P$EXIT: RTS     PC                      ;RETURN FROM PARSER
                                ;-------------------------------------------------------------------------------
                                ;GOTO USER ACTION ROUTINE
                                TRVACT: MOVB    1(R3),R2                ;GET ACTION CODE FROM CLI NODE
                                        BIC     #177400,R2              ;CLEAR ANY SIGN EXTENSION
                                        MOV     P$ACT,R5                ;GET ADDRESS OF CLI ACTION ROUTINE
                                        JSR     PC,(R5)                 ;GO DO ACTION DEFINED BY CODE
                                        RTS     PC                      ;RETURN TO CALLING CODE

                                ;TAKE BRANCH IN TREE
                                TRVBRC: MOV     2(R3),R5                ;GET BRANCH DISPLACEMENT FROM TREE
                                        ADD     R5,R3                   ; AND POINT R3 TO THE "MISS" NODE
                                        RTS     PC                      ; RETURN TO P$TRV

                                ;NO BRANCH TAKEN
                                TRVNOB: ADD     #4,R3                   ;THINGS OK, UPDATE R3 TO POINT TO NEXT
                                        RTS     PC                      ; NODE AND RETURN TO P$TRV

                                ;-------------------------------------------------------------------------------
                                TRVERR: JSR     PC,TRVACT               ;TAKE ERROR ACTION
                                        MOVB    #-1,P$GDBD              ;SET ERROR RETURN FLAG
                                        TST     (SP)+                   ;GET RID OF "JSR PUSH TO TRVERR"
                                        JMP     P$EXIT                  ;RETURN DIRECT TO EXIT OF P$TRV ROUTINE

                                TRVEXI: JSR     PC,TRVACT               ;TAKE EXIT ACTION
                                        CLRB    P$GDBD                  ;SET GOOD/BAD FLAG TO "SUCCESS (0)"
                                        TST     (SP)+                   ;GET RID OF "JSR PUSH TO TRVEXI"
                                        JMP     P$EXIT                  ;RETURN DIRECT TO EXIT OF P$TRV ROUTINE

                                TRVBR:  JSR     PC,TRVACT               ;GO TAKE BRANCH ACTION
                                        JMP     TRVBRC

                                TRVBIF: JSR     PC,TRVACT
                                        TSTB    P$GDBD                  ;SEE IF P$GDBD SET OR CLEARED BY ACTION
                                        BEQ     1$                      ;IF CLEAR FALL THRU TO NEXT NODE
                                        JMP     TRVBRC                  ;ELSE TAKE THE "MISS" BRANCH
                                1$:     JMP     TRVNOB                  ;JUST UPDATE TO NEXT NODE IF THINGS OK

                                TRVSPA: CLR     R5                      ;CLEAR "SPACE OR TAB FOUND" FLAG
                                1$:     CMPB    (R4),#11                ;SEE IF CHAR. IN CMD LINE= TAB
                                        BNE     2$                      ;BR IF NO, NOT A TAB
                                        INC     R4                      ;INC INPUT STRING POINTER
                                        INC     R5                      ;INDICATE A TAB FOUND
                                        BR      1$                      ;GO CHECK NEXT CHAR

                                2$:     CMPB    (R4),#40                ;SEE IF CHAR. IN CMD LINE= SPACE
                                        BNE     10$                     ;BR IF NO, NON-SPACE OR NON-TAB CHAR.
                                        INC     R4                      ;INC INPUT STRING POINTER
                                        INC     R5                      ;INDICATE A SPACE FOUND
                                        BR      1$                      ;GO CHECK NEXT CHAR
                                10$:    TST     R5                      ;SEE IF ANY SPACES OR TABS FOUND
                                        BEQ     15$                     ;BR IF NO, TAKE NO ACTION
                                        JSR     PC,TRVACT               ;GO TAKE ACTION IF ANY FOUND
                                        JMP     TRVNOB                  ;JUST GO UPDATE R3 TO NEXT NODE IF OK
                                15$:    JMP     TRVBRC                  ;TAKE BRANCH (MISS) IF NONE FOUND
```

```
                                115
                                116
050166  012737  000012  003406  117 TRVDEC: MOV     #10.,P$RADX             ;USE DECIMAL AS RADIX AND ASSUME +
050174  000137  050206          118         JMP     TRVNMA
050200                          119 TRVOCT: ;(SAME AS TRVNUM SINCE DEFAULT RADIX IS OCTAL)
050200  012737  000010  003406  120 TRVNUM: MOV     #8.,P$RADX              ;USE OCTAL AS RADIX AND ASSUME +
050206  005005                  121 TRVNMA: CLR     R5                      ;CLEAR DIGIT COUNTER
050210  121427  000053          122         CMPB    (R4),#'+                ;SEE IF THERE'S A + SIGN THERE
050214  001001                  123         BNE     10$                     ; BR IF NO
050216  000406                  124         BR      11$                     ; ELSE P$RADX ALREADY SAYS +, JUST BR
050220  121427  000055          125 10$:    CMPB    (R4),#'-                ;SEE IF THERE'S A - SIGN THERE
050224  001004                  126         BNE     1$                      ; BR IF NO
050226  112737  177777  003407  127         MOVB    #-1,P$RADX+1            ;SET "MINUS FLAG" (HI BYTE OF P$RADX)
050234  005204                  128 11$:    INC     R4                      ;BUMP R4 TO POINT TO FIRST CHAR
                                129
050236  121427  000060          130 1$:     CMPB    (R4),#60                ;SEE IF CHAR. LESS THAN A "0"
050242  002434                  131         BLT     2$                      ;BR IF YES (NOT NUMERIC)
050244  121427  000067          132         CMPB    (R4),#67                ;SEE IF CHAR. GREATER THAN A "7"
050250  003426                  133         BLE     13$                     ; BR IF YES
050252  123727  003406  000012  134         CMPB    P$RADX,#10.             ;SEE IF IN DECIMAL MODE
050260  001417                  135         BEQ     12$                     ; BR IF YES (CAN USE HIGHER LIMIT)
050262  121427  000071          136         CMPB    (R4),#71                ;SEE IF DIGIT WAS A 8 OR 9
050266  003022                  137         BGT     2$                      ;BR IF NON-NUMERIC
050270                          138         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$PNTF
050304  062706  000004                                                              ADD     #4,SP
050310  112737  177777  003411          139         MOVB    #-1,P$GDBD              ;SET ERROR RETURN FLAG
050316  000474                  140         BR      5$                      ; PRINT ERROR AND TAKE MISS
                                141
050320  121427  000071          142 12$:    CMPB    (R4),#71                ;SEE IF CHAR. GREATER THAN A "9"
050324  003003                  143         BGT     2$                      ;BR IF YES (NOT NUMERIC)
050326  005204                  144 13$:    INC     R4                      ;UPDATE CMD LINE PTR TO NEXT CHAR.
050330  005205                  145         INC     R5                      ;INDICATE A NUMERIC FOUND
050332  000741                  146         BR      1$                      ;GO LOOK AT NEXT CHAR.
                                147
050334  005705                  148 2$:     TST     R5                      ;SEE IF FOUND ANY NUMERICS
050336  001464                  149         BEQ     5$                      ;BR IF NO, TAKE "MISS" BRANCH
050340  010401                  150         MOV     R4,R1                   ;GET POINTER TO START OF NUMERIC STRING
050342  160501                  151         SUB     R5,R1
050344  005037  003404          152         CLR     P$NUM                   ;CLEAR LOC. WHERE VALUE WILL BE STORED
050350  112102                  153 3$:     MOVB    (R1)+,R2                ;GET ASCII CHAR AND CONVERT IT TO A #
050352  162702  000060          154         SUB     #60,R2
050356  006337  003404          155         ASL     P$NUM                   ;SHIFT CURRENT VALUE TO MAKE ROOM
050362  103437                  156         BCS     7$                      ;ERROR IF NUMBER TOO BIG
050364  013737  003404  003402  157         MOV     P$NUM,P$CNT             ;SAVE FOR LATER IN CASE DECIMAL RADIX
050372  006337  003404          158         ASL     P$NUM
050376  103431                  159         BCS     7$                      ;ERROR IF NUMBER TOO BIG
050400  006337  003404          160         ASL     P$NUM
050404  103426                  161         BCS     7$                      ;ERROR IF NUMBER TOO BIG
050406  123727  003406  000012  162         CMPB    P$RADX,#10.             ;SEE IF DECIMAL RADIX
050414  001004                  163         BNE     4$                      ;BR IF NOT EQUAL
050416  063737  003402  003404  164         ADD     P$CNT,P$NUM
050424  103416                  165         BCS     7$                      ;ERROR IF NUMBER TOO BIG
050426  060237  003404          166 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$:     PRINTF  #CLINBG                 ;PRINT NUMBER TOO BIG ERROR
050462  012746  023435                                                                  MOV     #CLINBG,-(SP)
050466  012746  000001                                                                  MOV     #1,-(SP)
050472  010600                                                                          MOV     SP,R0
050474  104417                                                                          TRAP    C$PNTF
050476  062706  000004                                                                  ADD     #4,SP
                        003411          MOVB    #-1,P$GDBD              ;SET ERROR RETURN FLAG
                                        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
```

```
                                        MOV     R3,R5
                                        ADD     #6,R5           ;POUNT R5 TO MATCH STRING FROM CLI NODE
                                        CLR     P$CNT           ;CLEAR CHAR MATCH COUNT
                                2$:     TSTB    (R5)            ;SEE IF END OF MATCH STRING YET
                                        BEQ     10$             ;BR IF YES
                                        TSTB    (R1)            ;SEE IF END OF CMD LINE YET
                                        BEQ     10$             ;BR IF YES
                                        CMPB    (R1),(R5)       ;SEE IF CHARACTERS MATCH
                                        BNE     10$             ;BR IF NO
                                        INC     P$CNT           ;MATCH -INCREMENT MATCH COUNT
                                        INC     R1              ;UPDATE STRING POINTERS
                                        INC     R5
                                        BR      2$              ;BR TO CONTINUE CHECKING CHARS.

                                10$:    TST     P$CNT           ;WHEN DONE SEE IF ANY MATCHES FOUND
                                        BEQ     15$             ;BR IF NO, GO TAKE THE MISS BRANCH
                                        MOV     R1,R4           ;POINT CMD POINTER TO END OF STRING &
                                        JSR     PC,TRVACT       ;IF A MATCH FOUND, GO DO MATCH ACTION
                                        ADD     4(R3),R3        ;UPDATE R3 TO NEXT NODE (NO BRANCH)
                                        RTS     PC              ; (NO RETURN THRU TRVNOB SINCE DIFFERENT
                                                                ;  DISPLACEMENT DUE TO MATCH STRING)
                                15$:    JMP     TRVBRC          ; GO TAKE BRANCH

                                                                ; (PARSED OK), -1 IF ILL CMD.....
                                ;-----------------------------------------------------------------------------
```

```
      1                                 .SBTTL  REPORT CODING SECTION
      2
      3
      4                                 ;++
      5                                 ; THE REPORT CODING SECTION CONTAINS THE
      6                                 ; "PRINTS" CALLS THAT GENERATE STATISTICAL REPORTS.
      7                                 ;--
      8
      9 050736                                  BGNRPT
        050736                                                                  L$RPT::
     10
     22
     23 050736  004737  042554                  JSR     PC,REPORT               ;CALL SUBROUTINE TO DUMP EVENT LOG
     24                                                                         ; AND BASE TABLE
     25
     32
     33
     40
     41 050742                                  ENDRPT
        050742                                                                  L10011:
        050742  104425                                                                  TRAP    C$RPT
```

```
                                .SBTTL  PROTECTION TABLE

                                ;++
                                ; THIS TABLE IS USED BY THE RUNTIME SERVICES
                                ; TO PROTECT THE LOAD MEDIA.
                                ;--

050744                                  BGNPROT
050744                                                                  L$PROT::

050744  177777                          -1              ;OFFSET INTO P-TABLE FOR CSR ADDRESS
050746  177777                          -1              ;OFFSET INTO P-TABLE FOR MASSBUS ADDRESS
050750  177777                          -1              ;OFFSET INTO P-TABLE FOR DRIVE NUMBER

050752                                  ENDPROT
```

INITIALIZE SECTION

```
                                .SBTTL  INITIALIZE SECTION

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

050752                                  BGNINIT
050752                                                                  L$INIT::

050752  005737  017376                  TST     DCLFLG                  ;IS DOCLEAN SET
050756  001403                          BEQ     INIT1                   ;BRANCH IF NOT
050760  005037  017376                  CLR     DCLFLG                  ;IF SET CLEAR IT
050764                                  DOCLN
050764  104444                                                                  TRAP    C$DCLN
050766  005037  017416          INIT1:  CLR     RUNING                  ; INIT "DCLT RUNNING" FLAG
050772  012737  177777  017400        MOV     #-1,RESFLG              ;SET RESTART FLAG
051000                                  READEF  #EF.START               ;IF HERE CAUSE OF START,DO SOME INIT
051000  012700  000040                                                          MOV     #EF.START,R0
051004  104447                                                                  TRAP    C$REFG
051006                                  BCOMPLETE       START
051006  103417                                                                  BCS     START
051010                                  READEF  #EF.RESTART             ;IF HERE CAUSE OF RESTART, DO SOME INIT
051010  012700  000037                                                          MOV     #EF.RESTART,R0
051014  104447                                                                  TRAP    C$REFG
051016                                  BCOMPLETE       RESTRT
051016  103514                                                                  BCS     RESTRT
051020                                  READEF  #EF.CONTINUE            ;SEE IF WE'RE HERE CAUSE OF A CONTINUE
051020  012700  000036                                                          MOV     #EF.CONTINUE,R0
051024  104447                                                                  TRAP    C$REFG
051026                                  BNCOMPLETE      S1              ;BR IF NOT HERE CAUSE OF CONTINUE
051026  103002                                                                  BCC     S1
051030  000137  051652                  JMP     ENDIT                   ;JMP IF HERE CAUSE OF A CONTINUE
051034                          S1:     READEF  #EF.NEW                 ;SEE IF THIS IS A "NEW PASS"
051034  012700  000035                                                          MOV     #EF.NEW,R0
051040  104447                                                                  TRAP    C$REFG
051042                                  BCOMPLETE       NEW             ;IF YES, BR AROUND LOGUNIT # SETUP
051042  103522                                                                  BCS     NEW
051044  000524                          BR      GETPRM
051046
051046  005037  017400          START:  CLR     RESFLG                  ;CLEAR RESTART FLAG SINCE HERE ON START
051052                                  BRESET                          ;INIT ENTIRE BUS
051052  104433                                                                  TRAP    C$RESET
051054  005037  017442                  CLR     CLKVEC                  ;CLEAR CLK VECTOR PTR. AS A FLAG IN
                                                                        ; NO CLOCK IS FOUND.
051060  012702  017436                  MOV     #CLKCSR,R2              ;SETUP R2 AS A PTR. TO CLOCK INFO BLOCK
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
051074                                  BNCOMPLETE      S2              ; IF NONE THERE GO LOOK FOR A P-CLOCK
051074  103006                                                                  BCC     S2
051076  004737  041654                  JSR     PC,CLKSET               ; GO SET UP CLOCK INFO TABLE & CLK VEC.
051102  012737  000100  017446          MOV     #LCLKEN,CLKEN           ;SETUP THE ENABLE LINE CLOCK DATA
051110  000457                          BR      RESTRT
```

INITIALIZE SECTION

```
                                        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
                                                BNCOMPLETE      S3              ; IF NONE THERE GO SEE IF THIS IS LSI
051122  103017                                                                        BCC     S3
051124  004737  041654                          JSR     PC,CLKSET               ; ELSE GO SET UP CLOCK INFO & VECTOR
051130  062737  000002  017436                  ADD     #2,CLKCSR               ;POINT CLKCSR TO P-CLK COUNT SET REG.
051136  012777  001600  146272                  MOV     #PCLKCT,@CLKCSR         ;LOAD CLK SET REG. WITH COUNT VALUE
051144  162737  000002  017436                  SUB     #2,CLKCSR               ;POINT CLKCSR BAC TO P-CLK CSR
051152  012737  000111  017446                  MOV     #PCLKEN,CLKEN           ;SETUP THE ENABLE THE P-CLK DATA
051160  000433                                  BR      RESTRT

                                        S3:     READBUS                         ;READ BUS TYPE TO SEE IF ON AN LSI
051162  104407                                                                        TRAP    C$RDBU
                                                BNCOMPLETE      S4              ;BR IF NOT, NO CHANCE OF A CLOCK
051164  103021                                                                        BCC     S4
051166  012737  000100  017442                  MOV     #100,CLKVEC             ;LOAD 100 AS CLK VECTOR
051174  005037  017440                          CLR     CLKBR                   ;LOAD 0 AS CLK INT. LEVEL
051200  012737  017446  017436                  MOV     #CLKEN,CLKCSR           ;KLUDGE UP THE CSR & ENABLE DATA LOCS
                                                GMANID  L5060,CLKHZ,D,377,50.,60.,YES
051206  104443                                                                        TRAP    C$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$HILIM
051226                                                                          10000$:
051226  000410                                  BR      RESTRT

                                        S4:     PRINTF  #BDCLK
051230  012746  027232                                                                MOV     #BDCLK,-(SP)
051234  012746  000001                                                                MOV     #1,-(SP)
051240  010600                                                                        MOV     SP,R0
051242  104417                                                                        TRAP    C$PNTF
051244  062706  000004                                                                ADD     #4,SP
051250  005037  017450          RESTRT: CLR     TIMMIN                  ;CLEAR TIME SINCE START LOCATIONS
051254  005037  017452                  CLR     TIMSEC
051260  013737  017444  017454          MOV     CLKHZ,TIMTCK            ;LOAD TICKS/SEC
051266  012702  017466                  MOV     #EVTLOG,R2              ;INIT EVENT TABLE TO ALL 1'S AFTER EACH
051272  010237  017464                  MOV     R2,EVTPTR               ; START OR RES AND INIT TABLE POINTER
051276  012722  177777          1$:     MOV     #-1,(R2)+
051302  020227  020522                  CMP     R2,#EVTEND              ;SEE IF REACHED END OF TABLE
051306  001373                          BNE     1$                      ;LOOP UNTIL DONE

051310  012737  177777  017372  NEW:    MOV     #-1,LOGUNT              ;INITIALIZE LOGICAL UNIT #

051316  005237  017372          GETPRM: INC     LOGUNT                  ;POINT TO NEXT LOGICAL UNIT
051322  023737  017372  002012          CMP     LOGUNT,L$UNIT           ;SEE IF PAST MAX. LOG. UNIT #
051330  002367                          BGE     NEW                     ;BR IF YES, AND START OVER

051332                                  GPHARD  LOGUNT,R1               ;GET THE P-TABLE FOR THIS LOG. UNIT
051332  013700  017372                                                                MOV     LOGUNT,R0
051336  104442                                                                        TRAP    C$GPHRD
```

INITIALIZE SECTION

```
                051340  010001                                                          MOV     R0,R1
     97         051342                          BNCOMPLETE      GETPRM          ;IF NO P-TABLE AVAIL., GO GET NEXT ONE
                051342  103365                                                          BCC     GETPRM
     98
     99         051344  011137  017406                  MOV     (R1),FHDPLX             ;PUT FULL OR HALF DUPLEX ANSWER IN LOC.
    100
    113
    114                                                 ;DEVICE DEPENDENT PART OF GETTING INFO FROM P-TABLE
    115
    116         051350  016137  000002  023052          MOV     2(R1),SEL0              ;STORE AWAY CSR ADDRESSES
    117         051356  016137  000002  023054          MOV     2(R1),BSEL1
    118         051364  005237  023054                  INC     BSEL1
    119         051370  016137  000002  023056          MOV     2(R1),SEL2
    120         051376  062737  000002  023056          ADD     #2,SEL2
    121         051404  016137  000002  023060          MOV     2(R1),BSEL3
    122         051412  062737  000003  023060          ADD     #3,BSEL3
    123         051420  016137  000002  023062          MOV     2(R1),SEL4
    124         051426  062737  000004  023062          ADD     #4,SEL4
    125         051434  016137  000002  023064          MOV     2(R1),BSEL5
    126         051442  062737  000005  023064          ADD     #5,BSEL5
    127         051450  016137  000002  023066          MOV     2(R1),SEL6
    128         051456  062737  000006  023066          ADD     #6,SEL6
    129         051464  016137  000002  023070          MOV     2(R1),BSEL7
    130         051472  062737  000007  023070          ADD     #7,BSEL7
    131
    132         051500  016137  000004  023072          MOV     4(R1),INVEC             ;STORE AWAY INPUT INTERRUPT VECTOR
    133         051506  016137  000004  023074          MOV     4(R1),OUTVEC
    134         051514  062737  000004  023074          ADD     #4,OUTVEC               ;BUILD OUTPUT INTERRUPT VECTOR
    135         051522  016137  000006  023076          MOV     6(R1),INTPRI            ;STORE AWAY INTERRUPT PRIORITY
    136         051530  016137  000010  023102          MOV     10(R1),DEVPAR           ;SORE AWAY PARAMS
    137         051536  016137  000012  023100          MOV     12(R1),OPTYP            ;STORE AWAY DEVICE OPTION TYPE
    138         051544  032737  000003  023100          BIT     #3,OPTYP                ;IS THIS A DMV
    139         051552  001417                          BEQ     11$
    140         051554  012737  000454  016202          MOV     #300.,DMVDF1
    141         051562  012737  001130  016204          MOV     #600.,DMVDF2
    142         051570  012737  001130  016210          MOV     #600.,DMVDF3
    143         051576  012737  000024  016212          MOV     #24.,DMVDF4
    144         051604  012737  001750  016214          MOV     #1000.,DMVDF5           ;SET UP DMV DEFAULTS
    145         051612  005037  023104          11$:    CLR     STATYP                  ;CLEAR STATION TYPE
    146         051616  032737  000001  023102          BIT     #MTP,DEVPAR             ;IS THIS MULTIPOINT
    147         051624  001407                          BEQ     1$                      ;BRANCH IF PT TO PT
    148         051626  052737  000004  023104          BIS     #BIT2,STATYP            ;IF MULTIPOINT SET BIT
    149         051634  032737  000002  023102          BIT     #TRBB,DEVPAR            ;IS THIS A TRIB
    150         051642  001003                          BNE     ENDIT                   ;BRANCH IF  CONTROL
    151         051644  052737  000002  023104  1$:     BIS     #BIT1,STATYP            ;SET STATION TYPE
    152         051652                          ENDIT:
    153         051652                                  SETVEC  CLKVEC,#CLKINT,#340     ;SETUP CLOCK VECTOR
                051652  012746  000340                                                          MOV     #340,-(SP)
                051656  012746  041700                                                          MOV     #CLKINT,-(SP)
                051662  013746  017442                                                          MOV     CLKVEC,-(SP)
                051666  012746  000003                                                          MOV     #3,-(SP)
                051672  104437                                                                  TRAP    C$SVEC
                051674  062706  000010                                                          ADD     #10,SP
    154
    155                                                 ;DEVICE DEPENDENT VECTOR SETUP
    156
    165         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  @PRIOO                  ;SET THE "RUN" PRIORITY TO 0
        051754  012700  000000                                                  MOV     @PRIOO,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
```

```
                                .SBTTL  AUTODROP SECTION

                                ;++
                                ; THIS CODE IS EXECUTED IMMEDIATELY AFTER THE INITIALIZE CODE IF
                                ; THE "ADR" FLAG WAS SET.  THE UNIT(S) UNDER TEST ARE CHECKED TO
                                ; SEE IF THEY WILL RESPOND.  THOSE THAT DON'T ARE IMMEDIATELY
                                ; DROPPED FROM TESTING.
                                ;--

                                        BGNAUTO
                                                                        L$AUTO::

                                        ENDAUTO
                                                                        L10014:
                                                                                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  #PRI07          ;SET PROCESSOR PRIORITY BACK TO 7
 052034  012700  000340                                                 MOV     #PRI07,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
```

DROP UNIT SECTION

```
                                .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::

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

                                .EVEN

052054                                  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::

052056                                  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
```

```
     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$GDBD          ;CLEAR CMD LINE PARSING ERROR FLAGS
    102 052476  105037  003410                  CLRB    P$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
```

```
                                        CLR     QUALFG                  ;CLEAR QUALIFIER FLAG LOCATION
                                        JSR     PC,P$TRV                ;GO PARSE COMMAND LINE
                                        TSTB    P$GDBD                  ;SEE IF PARSED OK OR AN ERROR
                                        BEQ     1$
                                        PRINTF  @CLIERM
052562  012746  023362                                                            MOV     @CLIERM,-(SP)
052566  012746  000001                                                            MOV     #1,-(SP)
052572  010600                                                                    MOV     SP,R0
052574  104417                                                                    TRAP    C$PNTF
052576  062706  000004                                                            ADD     #4,SP
                                        JMP     GETCL
                                1$:     TSTB    P$NNUF                  ;SEE IF INCOMPLETE COMMAND TYPED
                                        BEQ     10$
                                        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
                                        JMP     GETCL

                                10$:    CMP     KEYWD1,@SETET           ;WAS "SET E=T" ENTERED ?
                                        BEQ     GETCL                   ;YES,BRANCH
                                        CMP     KEYWD1,@RUN             ;SEE IF RUN WAS TYPED
                                        BNE     11$                     ; BR IF NO
                                        JMP     GTR9                    ; START EXEC. IF YES
                                11$:    CMP     KEYWD1,@DMPS            ;IS IT DUMP
                                        BNE     14$
                                        JSR     PC,DUMPSR               ;GO TO DUMPSR
                                        JMP     GETCL                   ;AND GO BACK
                                14$:    CMP     KEYWD1,@EXIT            ;IS IT EXIT
                                        BNE     40$                     ;BRANCH IF NOT
                                        MOV     @-1,DCLFLG              ;SET DO CLEAN FLAG
                                        EXIT    TST
052722  104432                                                                    TRAP    C$EXIT
052724  013760                                                                    .WORD   L10020-.
                                40$:    CMP     KEYWD1,@SETEXP          ;SEE IF SET EXPECTED
                                        BNE     4$                      ; BR IF YES (A SETEXP WAS TYPED
                                        BR      2$
                                4$:     CMP     KEYWD1,@SETTRN          ;SEE IF SET TX
                                        BEQ     5$                      ; BR IF YES
                                        TSTB    WRFLG
                                        BEQ     77$
                                        JSR     PC,DOGLOB               ;DO GLOBAL
                                77$:    JMP     GETCL

                                5$:     MOV     TTOTCC,TOTCC
                                        CMP     TOTCC,@BUFLIM           ;SEE IF BUFFER ALREADY FULL
                                        BLT     15$                     ; BR IF NOT FULL (BUFLIM # OF CHARS.)
                                        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
                                        JMP     GETCL                   ; THEN GO GET A NEW COMMAND
```

```
146 053034  005737  017262          15$:    TST     TTOTCC                  ;IF FIRST "SET" THEN GET RID OF DEFAULT
147 053040  001002                          BNE     6$
148 053042  005037  017260                  CLR     TXMTOT
149 053046  012737  011416  017236  6$:     MOV     #PTRTAB,TXPTR           ;GET POSITION OF END OF TX LIST
150 053054  013701  017260                  MOV     TXMTOT,R1
151 053060  020127  000017                  CMP     R1,#MSGLIM              ;SEE IF MSG COUNT EXCEEDED.
152 053064  002414                          BLT     17$                     ; BR IF NO
153 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$PNTF
    053106  062706  000006                                                          ADD     #6,SP
154 053112  000137  052472                  JMP     GETCL                   ; THEN GO GET A NEW COMMAND.
155 053116  006301              17$:        ASL     R1                      ;# OF MSGS *4 = NEXT FREE PTR BLOCK
156 053120  006301                          ASL     R1
157 053122  060137  017236                  ADD     R1,TXPTR
158 053126  013737  017236  017340        MOV     TXPTR,CPTR              ;SETUP CHAR. COUNT, CURRENT ADDR, & PTR
159 053134  013737  017264  017342        MOV     TCURAD,CURADD
160 053142  004737  045350                  JSR     PC,ADDCC                ;ADD IN CHAR. COUNT AND CHECK TOTAL
161 053146  004737  045446                  JSR     PC,BLDBUF               ;GO BUILD MESSAGE IN BUFFER AND PTRS.
162 053152  013737  017340  017236        MOV     CPTR,TXPTR
163 053160  013737  017344  017262        MOV     TOTCC,TTOTCC            ;UPDATE CHAR. COUNT, CURR ADDR, & PTR
164 053166  013737  017342  017264        MOV     CURADD,TCURAD
165 053174  005237  017260                  INC     TXMTOT
166 053200  005337  003256                  DEC     QUALVL                  ;DEC THE COPY COUNT
167 053204  001270                          BNE     5$
168 053206  000137  052472                  JMP     GETCL
169
170 053212  013737  017244  017344  2$:     MOV     CTOTCC,TOTCC            ;SETUP CHAR. COUNT, CURR. ADDR. & PTR
171 053220  023727  017344  001000          CMP     TOTCC,#BUFLIM           ;SEE IF BUFFER ALREADY FULL
172 053226  002414                          BLT     16$                     ; BR IF NOT FULL (BUFLIM # OF CHARS.)
173 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$PNTF
    053250  062706  000006                                                          ADD     #6,SP
174 053254  000137  052472                  JMP     GETCL                   ; THEN GO GET A NEW COMMAND
175 053260  005737  017244          16$:    TST     CTOTCC                  ;IF FIRST "SET" THEN GET RID OF DEFAULT
176 053264  001002                          BNE     7$
177 053266  005037  017242                  CLR     CMPTOT
178 053272                          7$:
179 053272  012737  011512  017240        MOV     #PTR13,CMPPTR           ;INIT COMPARE MESSAGE POINTER
180 053300  013701  017242                  MOV     CMPTOT,R1
181
182 053304  020127  000017                  CMP     R1,#MSGLIM              ;SEE IF MSG COUNT EXCEEDED.
183 053310  002414                          BLT     18$                     ; BR IF NO
184 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                 18$:    JMP     GETCL                   ; THEN GO GET A NEW COMMAND.
    186 053342  006301                                 ASL     R1                      ;# OF MSGS *4 = NEXT FREE PTR BLOCK
    187 053344  006301                                 ASL     R1
    188 053346  060137  017240                         ADD     R1,CMPPTR
    189 053352  013737  017240  017340               MOV     CMPPTR,CPTR
    190 053360  013737  017246  017342               MOV     CCURAD,CURADD
    191 053366  004737  045350                       JSR     PC,ADDCC                ;ADD IN XHAR. COUNT AND CHECK TOTAL
    192 053372  004737  045446                       JSR     PC,BLDBUF
    193 053376  013737  017340  017240               MOV     CPTR,CMPPTR
    194 053404  005237  017242                       INC     CMPTOT
    195 053410  013737  017342  017246               MOV     CURADD,CCURAD           ;UPDATE CHAR. COUNT, CURR ADDR. & PTR
    196 053416  013737  017344  017244               MOV     TOTCC,CTOTCC
    197 053424  005337  003256                       DEC     QUALVL                  ;IF COPY WAS GIVEN, PUT MSG IN BUFF
    198 053430  001270                               BNE     2$                      ; 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$GDBD IF USE "CLIBIF" IN CONNECTION WITH ACTION
                                        ;       R2 WILL HOLD ACTION CODE FROM PARSING (CLI) NODE
053436                                  CLIACT:
006302                                          ASL     R2              ;MULTIPLY ACTION CODE BY 2
016202  053454                                  MOV     10$(R2),R2      ;OFFSET VALUE
062702  053454                                  ADD     #10$,R2         ;ADD BASE VALUE
004712                                          JSR     PC,(R2)         ;GO DO ACTION
000207                                          RTS     PC              ;RETURN TO TRVACT:

                                                                        ;BRIEF DESCRIPTION OF ACTIONS TAKEN
000166                                  10$:    .WORD   ACTNUL-10$      ;NULL
000170                                          .WORD   ACTCLR-10$      ;CLEAR
000200                                          .WORD   ACTSHO-10$      ;SHOW
001566                                          .WORD   ACTCHK-10$      ;CHECK
000300                                          .WORD   ACTRUN-10$      ;RUN
000210                                          .WORD   ACTHLP-10$      ;HELP
000324                                          .WORD   ACTCSE-10$      ;CLEAR OR SHOW EXPECTED
000416                                          .WORD   ACTCST-10$      ;CLEAR OR SHOW TRANSMIT
000740                                          .WORD   ACTSTE-10$      ;SET EXPECTED
000750                                          .WORD   ACTSTT-10$      ;SET TRANSMIT
000766                                          .WORD   ACTSZE-10$      ;SIZE
000776                                          .WORD   ACTCOP-10$      ;COPY
001006                                          .WORD   ACTNUM-10$      ;NUMERIC VALUE FOR SIZE OR COPY
001100                                          .WORD   ACTOPM-10$      ;QUOTED MESSAGE FROM USER
001574                                          .WORD   ACTSTS-10$      ;STATUS
001120                                          .WORD   ACTEQO-10$      ;END OF QUOTED MESSAGE FROM USER
001200                                          .WORD   ACTMS0-10$      ;ONES DATA
001206                                          .WORD   ACTMS1-10$      ;ZEROS DATA
001216                                          .WORD   ACTMS2-10$      ;1ALT
001226                                          .WORD   ACTMS3-10$      ;0ACT
001236                                          .WORD   ACTMS4-10$      ;ITEP
001246                                          .WORD   ACTMS5-10$      ;CCITT
001264                                          .WORD   ACTMS6-10$      ;ALPHA
001352                                          .WORD   ACTATV-10$      ;ACTIVE MODE
001362                                          .WORD   ACTPAS-10$      ;PASSIVE MODE
001402                                          .WORD   ACTREC-10$      ;RECEIVE MODE
001410                                          .WORD   ACTLIS-10$      ;LISTEN MODE
001420                                          .WORD   ACTDLL-10$      ;DOWNLINE LOAD
001430                                          .WORD   ACTTRA-10$      ;TRANSMIT MODE
001440                                          .WORD   ACTTAL-10$      ;TALK MODE
001466                                          .WORD   ACTNO-10$       ;/NO
001476                                          .WORD   ACTECH-10$      ;ECHO
001602                                          .WORD   ACTCRC-10$      ;SET CRC BIT
001616                                          .WORD   ACTPRO-10$      ;SET PROTOCOL BIT
001650                                          .WORD   ACTRPS-10$      ;STATUS
001660                                          .WORD   ACTMOP-10$      ;REMOTE STATION IN MAINTENACE LOOP MODE
001670                                          .WORD   ACTTLP-10$      ;INTERNAL TTL
001700                                          .WORD   ACTCLP-10$      ;CABLE LOOP
001710                                          .WORD   ACTLLP-10$      ;LOCAL MODEM LOOP
001720                                          .WORD   ACTRLP-10$      ;REMOTE MODEM LOOP
000160                                          .WORD   ACTNUF-10$      ;MORE COMMAND LINE NEEDED
001156                                          .WORD   ACTBCR-10$      ;BAD CHARACTER IN OPERATOR MESSAGE
000674                                          .WORD   ACTDMS-10$      ;DUMP MEMORY START ADDRESS
000724                                          .WORD   ACTDME-10$      ;DUMP MEMORY END ADDRESS
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     MSG5C,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
                                              
```

```
054414  012737  000010  003252  ACTSTE: MOV     #SETEXP,KEYWD1
054422  000403                          BR      ACTSTX

054424  012737  000011  003252  ACTSTT: MOV     #SETTRN,KEYWD1
054432  012737  000001  003256  ACTSTX: MOV     #1,QUALVL       ;SET UP DEFAULT COPY TO 1 (/COPY=0)
054440  000207                          RTS     PC

054442  012737  000012  003254  ACTSZE: MOV     #SIZE,QUALFG
054450  000207                          RTS     PC

054452  012737  000013  003254  ACTCOP: MOV     #QCOPY,QUALFG
054460  000207                          RTS     PC

054462  023727  003254  000012  ACTNUM: CMP     QUALFG,#SIZE    ;SEE IF A SIZE OR COPY TYPED
054470  001023                          BNE     1$              ;BR IF IT WAS A COPY
054472  005737  003404                  TST     P$NUM           ;CHECK TO BE SURE DIDN'T TRY SIZE=0
054476  001014                          BNE     3$              ; BR IF NO
054500                                  PRINTF  #CLISEO
054500  012746  023651                                                                  MOV     #CLISEO,-(SP)
054504  012746  000001                                                                  MOV     #1,-(SP)
054510  010600                                                                          MOV     SP,RO
054512  104417                                                                          TRAP    C$PNTF
054514  062706  000004                                                                  ADD     #4,SP
054520  112737  177777  003411          MOVB    #-1,P$GDBD      ;SET ERROR-IN-CMD FLAG
054526  000411                          BR      2$
054530  013737  003404  017334  3$:     MOV     P$NUM,CURCC     ;IF A SIZE LOAD CURCC WITH BYTE COUNT
054536  000405                          BR      2$
054540  013737  003404  003256  1$:     MOV     P$NUM,QUALVL    ;IF A COPY, LOAD COPY COUNT
054546  005237  003256                  INC     QUALVL          ;INCREMENT SO FIRST DEC MAKES IT REAL #
054552  000522                  2$:     BR      ACTMEX

054554  012737  000007  017332  ACTOPM: MOV     #7,MSGTYP
054562  010437  017350                  MOV     R4,TEMP         ;KEEP TRACK OF START OF QUOTED TEXT
054566  005237  017350                  INC     TEMP            ; SO CAN CALC OPCNT AT END OF QUOTES
054572  000207                          RTS     PC

054574  010402                  ACTEQO: MOV     R4,R2
054576  163702  017350                  SUB     TEMP,R2
054602  010237  017334                  MOV     R2,CURCC        ;CALC BYTE COUNT FOR QUOTED TEXT
054606  010237  002166                  MOV     R2,OPCNT
054612  013701  017350                  MOV     TEMP,R1
054616  012705  002524                  MOV     #OPBUF,R5
054622  112125                  1$:     MOVB    (R1)+,(R5)+     ;COPY QUOTED TEXT TO OPBUF
054624  005302                          DEC     R2
054626  001375                          BNE     1$
054630  000473                          BR      ACTMEX

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,RO
054644  104417                                                                          TRAP    C$PNTF
054646  062706  000004                                                                  ADD     #4,SP
054652  000207                          RTS     PC

```

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 MSG0-4
     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                  ACTNO:  RTS     PC
      3
      4 055152  022737  000036  003254  ACTECH: CMP     #NO,QUALFG
      5 055160  001422                  ACTECH: 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
```

ACTION TABLE AND ROUTINES

```
 1 055452  012737  000060  003252  ACTETB: MOV     #ETRB,KEYWD1    ; RECORD THAT ESTABLISH TYPED
 2 055460  000207                          RTS     PC              ;RETURN TO CALL
 3
 4 055462  012737  000061  003252  ACTKTB: MOV     #KTRB,KEYWD1    ; RECORD THAT KILLTRIB TYPED
 5 055470  000207                          RTS     PC              ;RETURN TO CALL
 6
 7 055472  105037  003410          ACTKAL: CLRB    P$NNUF          ; CLEAR INCOMPLETE INFO FLAG
 8 055476  022737  000061  003252          CMP     #KTRB,KEYWD1    ; BE SURE "ALL" IS AFTER A "KILL"
 9 055504  001403                          BEQ     11$             ; BR IF YES
10 055506  112737  177777  003411          MOVB    #-1,P$GDBD      ;  ELSE ERROR IN CMD
11 055514  105737  003411          11$:    TSTB    P$GDBD          ; SEE IF WAS AN ERROR FROM ..KTB
12 055520  001401                          BEQ     10$             ; BR IF NO
13 055522  000413                          BR      2$              ;   ELSE EXIT
14 055524  005037  015754          10$:    CLR     TRBTOT          ; ZERO TOTAL # OF TRIB ADDRESSES
15 055530  012702  015712                  MOV     #TRIBLS,R2      ; PT R2 TO TRIB ADDRESS TABLE
16 055534  012705  000020                  MOV     #16.,R5         ; SETUP R5 AS COUNTER
17 055540  005022                  1$:     CLR     (R2)+           ; CLEAR 32 BYTES OF TABLE
18 055542  005305                          DEC     R5
19 055544  001375                          BNE     1$
20 055546  004737  047214                  JSR     PC,WRDEFP       ;WRITE DEFAULTS TO POLL PARMS
21 055552  000207                  2$:     RTS     PC      ;RETURN TO CALL
22
23 055554  010246          ACTEWS: MOV     R2,-(SP)        ;SAVE R2,R3,R4 ON THE STACK
24 055556  010346                  MOV     R3,-(SP)
25 055560  010446                  MOV     R4,-(SP)
26 055562  005737  003414                  TST     VALTRB                  ;VALID TRIB?  REV B EC
27 055566  001517                          BEQ     ACTW7B                  ;NO,BRANCH REV B EC
28 055570  112737  177777  003412  ACTWS9: MOVB    #-1,WRFLG               ;SET WRITE GLOBAL FLAG
29 055576                          PRINTF  #POLPM,INDW             ;PRINT POLL PARAMS FOR TRIB #
   055576  013746  015760                  MOV     INDW,-(SP)
   055602  012746  025234                  MOV     #POLPM,-(SP)
   055606  012746  000002                  MOV     #2,-(SP)
   055612  010600                          MOV     SP,R0
   055614  104417                          TRAP    C$PNTF
   055616  062706  000006                  ADD     #6,SP
30 055622  005037  017354                  CLR     TEMP2
31 055626  012737  000020  017350          MOV     #16.,TEMP               ;USE 16 BYTES AS MULTIPLIER
32 055634  013737  015762  017232          MOV     INDEX,MPLY              ;USE TRIB INDEX (BYTE)
33 055642  004737  046436                  JSR     PC,MTPLY                ;ON RETURN TEMP2=START ADDR OF
34                                                                         ;THIS TRIBS POLL PRAMS
35 055646  012702  000027                  MOV     #27,R2                  ;INIT INDEX OF POLL PARAMS
36 055652  032737  000002  023102          BIT     #TRBB,DEVPAR            ;IS THIS TRIB
37 055660  001002                          BNE     ACTWS5                  ;BRANCH IF NOT A TRIB
38 055662  012702  000034                  MOV     #34,R2                  ;ONLY 35 IS GOOD FOR TRIBS
39 055666  005202          ACTWS5: INC     R2
40 055670  116205  020762                  MOVB    TSSIND(R2),R5           ;R5 = 0 FOR WORD 2 FOR BYTE
41 055674  010204                          MOV     R2,R4
42 055676  006304                          ASL     R4                      ;MAKE R4 WORD INDEX
43 055700  010403                          MOV     R4,R3
44 055702  042703  177760                  BIC     #^C<17>,R3              ;MAKE R3 POLPARM INDEX
45 055706  063703  017354                  ADD     TEMP2,R3
46 055712  016337  016220  017350          MOV     POLLIS(R3),TEMP         ;GETS DEFAULT
47 055720  016437  020662  017366          MOV     TSSLST(R4),CONOTM
48 055726  000175  055732                  JMP     @ACTWS1(R5)             ;GO TO CORRECT ACTION
49 055732  055736          ACTWS1: .WORD   ACTWS2
50 055734  056036                  .WORD   ACTWS3
51 055736                  ACTWS2: PRINTF  CONOTM,TEMP
```

ACTION TABLE AND ROUTINES

```
        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
```

ACTION TABLE AND ROUTINES

```
        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$:     MOV     #TRIBLS,R2      ; POINT R2 TO THE TRIB ADDR LIST
    84  056232  012705  000040                  MOV     #32.,R5         ; SETUP R5 AS A COUNTER
    85  056236                                  PRINTS  #SHTRH          ; PRINT TRIB LIST HEADER
        056236  012746  025766                                                  MOV     #SHTRH,-(SP)
        056242  012746  000001                                                  MOV     #1,-(SP)
        056246  010600                                                          MOV     SP,R0
        056250  104416                                                          TRAP    C$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
```

```
                056640  012737  000014  017350          MOV     #12.,TEMP
                056646  023737  015754  017350  1$:     CMP     TRBTOT,TEMP     ; SEE IF LIST ALREADY FULL
                056654  002412                          BLT     2$              ; BR IF NOT FULL YET
                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$PNTF
                056674  062706  000006                                                          ADD     #6,SP
                056700  000442                          BR      ACTEXX
                056702  012702  015712          2$:     MOV     #TRIBLS,R2      ; NOW CHECK TO SEE ADDR IS UNIQUE
                056706  013705  017350                  MOV     TEMP,R5
                056712  122201                  3$:     CMPB    (R2)+,R1        ; CHECK EACH ADDR AGAINST NEW ONE
                056714  001423                          BEQ     5$              ; BR IF EQUAL
                056716  005305                          DEC     R5
                056720  001374                          BNE     3$              ; LOOP TIL ENTIRE TABLE CHECKED

                056722  012702  015712                  MOV     #TRIBLS,R2      ; ONCE CHECKED LIST
                056726  105722                  4$:     TSTB    (R2)+           ;  LOOK FOR EMPTY SLOT TO LOAD
                056730  001376                          BNE     4$
                056732  110142                          MOVB    R1,-(R2)        ; LOAD TRIB ADDR IN EMPTY SLOT
                056734  005237  015754                  INC     TRBTOT                  ; INC TOTAL # OF TRIB ADDRESSES
                056740  162702  015712                  SUB     #TRIBLS,R2      ;SUBTRACT START OF LIST FROM POINT TO
                                                                                ;GET INDEX
                056744  012737  177777  003414          MOV     #-1,VALTRB      ;SET VALID TRIB FLAG   REV B EC
                056752  010237  015762                  MOV     R2,INDEX        ;MOVE R2 TO INDEX
                056756  010137  015760                  MOV     R1,INDW         ;MOVE TRIB NUMBER TO INDW
                056762  000411                          BR      ACTEXX

                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

                057006                          ACTEXX:
                057006  000207                          RTS     PC      ;RETURN TO CALL

                057010                          ACTCKT:
                057010  112737  177777  003410          MOVB    #-1,P$NNUF      ; SET INCOMPLETE INFO FLAG
                057016  032737  000001  023102          BIT     #MTP,DEVPAR     ; SEE IF IN PT-PT OR MULTIPT MODE
                057024  001013                          BNE     1$              ; BR IF IN MULTIPT MODE
                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$PNTF
                057042  062706  000004                                                          ADD     #4,SP
                057046  112737  177777  003411          MOVB    #-1,P$GDBD      ; SET THE ERROR IN CMD FLAG
                057054  000207                  1$:     RTS     PC              ;RETURN TO CALL
```

```
                                        ; 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
```

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

```
                                        .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.
```

PASSIVE MODE SECTION

```
                                        .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.
```

ACTIVE MODE SECTION

```
                                        .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  004?    046506          JSR     PC,LDRPLS       ;RESTORE RX PTR TO LIST
060234  03273?  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
```

```
    115 060626  013737  017252  017356          MOV     DVTCC,TEMP3     ;LOG TX COMPLETED
    116 060634  013737  017254  015756          MOV     DVTTB,TRIBN
    117 060642  004737  042040                  JSR     PC,LOGTXC
    118 060646  004737  046724                  JSR     PC,ULTCLS       ;GET COUNT TO DVTCT
    119 060652  005337  017256                  DEC     DVTCT           ;DEC TX COUNT
    120 060656  004737  046704                  JSR     PC,LDTCLS       ;AND RELOAD LIST
    121 060662  022737  000002  017402          CMP     #PAS,MODTYP
    122 060670  001020                          BNE     ALCK3A          ;IF NOT PASSIVE MODE GO TO 3A
    123 060672  042737  000010  017414          BIC     #QTX,FLAG       ;CLEAR THE TX FLAGS
    124 060700  005737  017256                  TST     DVTCT
    125 060704  001403                          BEQ     ALCK3D          ;IF NO MORE MESG TO RX FOR THIS TRIB
    126                                                                 ;EXIT WITHOUT RESETING QRX
    127 060706  052737  000104  017414          BIS     #QRX+ERX,FLAG   ;AND SET THE RX FLAGS
    128 060714  004737  047016          ALCK3D: JSR     PC,GATCFL
    129 060720  005737  017256                  TST     DVTCT
    130 060724  001007                          BNE     ALCK3C          ;IF MORE TX'S TO IT
    131 060726  000137  061022                  JMP     CMPSR           ; ELSE COMPARE
    132 060732  004737  047016          ALCK3A: JSR     PC,GATCFL       ;GET ALL TX COUNTS FROM LIST
    133 060736  005737  017256                  TST     DVTCT           ;IS IT ALL DONE
    134 060742  001404                          BEQ     ALCK3B          ;IF NOT GO BACK TO 5
    135 060744  004737  047154          ALCK3C: JSR     PC,GETIND
    136 060750  000137  060210                  JMP     ALCK5
    137 060754  005037  017340          ALCK3B: CLR     CPTR            ;CLEAR POINTER
    138 060760  042737  000010  017414          BIC     #QTX,FLAG       ;CLEAR TX FLAG
    139 060766  032737  000002  017410          BIT     #DATCKB,PARAM   ;IS IT DAT CHECK
    140 060774  001405                          BEQ     ALCK4A          ;IF NOT THEN END WO CKING RX.
    141 060776  004737  046744          ALCK4:  JSR     PC,GARPFL
    142 061002  005737  017336                  TST     CPTRR
    143 061006  001356                          BNE     ALCK3C          ;IF SOME RX"S LEFT GO BACK
    144 061010  005737  017340          ALCK4A: TST     CPTR
    145 061014  001402                          BEQ     CMPSR           ;BRANCH IF ANY TX'S LEFT
    146 061016  000137  060310                  JMP     ALCK2
    147
    148
    149
    150
```

```
                                .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                  CMPSEX          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

```
     58 061142  020437  017356              CMP     R4,TEMP3        ;IS COMPARE COUNT = TO RX COUNT
     59 061146  001410                      BEQ     CMPS7           ;IF SO GO TO 7
     60 061150  005237  017310              INC     ERRCNT
     61 061154                              ERRSOFT 1,EDDLE,ERR10   ;PRINT ERROR
        061154  104457                                                      TRAP    C$ERSOFT
        061156  000001                                                      .WORD   1
        061160  030222                                                      .WORD   EDDLE
        061162  041430                                                      .WORD   ERR10
     62 061164  004737  042206              JSR     PC,LOGCML       ;LOG LENGTH ERROR
     63
     64 061170  005037  017360      CMPS7:  CLR     TEMP4           ;CLEAR BAD BYTE COUNTER
     65 061174  012737  000001  017346      MOV     #1,OFSET        ;SET OFSET BYTE COUNT TO 1
     66 061202  122123              CMPS1:  CMPB    (R1)+,(R3)+     ;COMPARE RX WITH EXPETED
     67 061204  001422                      BEQ     CMPS6           ;IF EQUAL THEN GO TO 6
     68
     69 061206  005237  017360      CMPS2:  INC     TEMP4           ;INC BAD COUNT
     70 061212  023727  017360  000005      CMP     TEMP4,#5        ;IS IT MORE THEN 5
     71 061220  101014                      BHI     CMPS6           ;IF SO GO  FOR MORE
     72 061222  114337  017370              MOVB    -(R3),GOOD      ;STORE GOOD BYTE FOR ERROR
     73 061226  114137  017371              MOVB    -(R1),BAD       ;STORE BAD BYTE FOR ERROR
     74 061232  005237  017310              INC     ERRCNT
     75 061236                              ERRSOFT 2,EDDDE,ERR1    ;REPORT COMPARISON FAILURE TO OPR.
        061236  104457                                                      TRAP    C$ERSOFT
        061240  000002                                                      .WORD   2
        061242  030257                                                      .WORD   EDDDE
        061244  041340                                                      .WORD   ERR1
     76 061246  005201                      INC     R1
     77 061250  005203                      INC     R3
     78 061252  005237  017346      CMPS6:  INC     OFSET           ;INC OFFSET
     79 061256  005304                      DEC     R4              ;ELSE DEC CHAR COUNT AND SEE IF 0
     80 061260  001350                      BNE     CMPS1           ;IF NOT GO BACK
     81 061262  005737  017360              TST     TEMP4           ;SEE IF ANY CMP ERRS FOR THIS MSG
     82 061266  001410                      BEQ     CMPS5A          ;BR IF NONE
     83 061270  005237  017310              INC     ERRCNT
     84 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
     85 061304  004737  042224      CMPS5:  JSR     PC,LOGCMD       ;LOG DATA ERROR IN COMPARE
     86 061310                      CMPS5A:
     87 061310  005337  017274              DEC     DVRCT
     88 061314  001267                      BNE     CMPS3           ;IF NOT ALL DONE GO BACK
     89 061316  000137  061040              JMP     CMPNEW          ;GO BACK FOR  NEXT TRIB
     90
```

INTERNAL END OF PASS CODE

```
                                        .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
```

```
062056  042737  000210  017414           BIC     #QTX!ETX,FLAG      ;CLEAR QUE AND EXPECTED
062064  052737  001000  017414           BIS     #DLLGA,FLAG        ;SET THE GO AHEAD BIT
062072  023737  002174  017252           CMP     DLLM2C,DVTCC
062100  001475                           BEQ     DLLE5              ;EXIT IF SECOND MSG.
062102  000723                           BR      DLLE2              ;AND GO BACK TO 2
062104  032737  000004  017414  DLLE1:   BIT     #QRX,FLAG          ;IS THE A RX COMPLETED
062112  001004                           BNE     DLLE8              ;IF SO GO TO 8
062114  012737  041252  017366           MOV     #RXNC,CONOTM       ;ELSE SET UP ERROR AND ABORT.
062122  000730                           BR      DLLE7
062124  013737  017270  017354  DLLE8:   MOV     DVRXA,TEMP2
062132  013737  017272  017356           MOV     DVRCC,TEMP3
062140  004737  042074                   JSR     PC,LOGRXC          ;LOG RECEIVE COMPLETE
062144  122737  000010  005416           CMPB    #10,RXBUF          ;CHECK FOR FIRST WORD OF RX
                                                                    ;SEC BOOT MSG.
062152  001404                           BEQ     DLLE3
062154  012737  041272  017366  DLLE4:   MOV     #RXM1,CONOTM       ;SET UP MESG AND ABORT
062162  000710                           BR      DLLE7              ;ABORT TEST

062164  122737  000001  005420  DLLE3:   CMPB    #1,RXBUF+2         ;IS SECOND WORD 1 ?
062172  001407                           BEQ     DLLE5A             ;YES,BRANCH
062174  012737  041315  017366           MOV     #RXM2,CONOTM
062202  013737  005420  017356           MOV     RXBUF+2,TEMP3
062210  000703                           BR      DLLE7A             ;SET UP MESSAGE AND ABORT



                                ;;PRINT ID OF DEVICE REQUESTING LOAD    REV B BY EC
062212  012737  032062  017350  DLLE5A:  MOV     #UNKM,TEMP         ;SET UP FOR UNKNOWN DEVICE
062220  113703  005417                   MOVB    RXBUF+1,R3         ;GET DEVTYPE FROM MESSAGE
062224  120327  000042                   CMPB    R3,#34.            ;OUT OF LEGAL RANGE ?
062230  101006                           BHI     DLLE5B             ;YES,BRANCH
062232  132703  000001                   BITB    #1,R3              ;ODD ?
062236  001003                           BNE     DLLE5B             ;YES,BRANCH
062240  016337  023222  017350           MOV     DLLIND(R3),TEMP    ;GET ASCIZ MESSAGE FROM TABLE

062246                          DLLE5B:  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


062274  000207                  DLLE5:   RTS     PC                 ;RETURN TO CALLER
```

```
                                .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 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.
                                ;
                                ; 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     #DATCKB,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     #DDW,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

```
063120  005737  017456          TST     TIMER1          ;SEE IF TIME HAS EXPIRED
063124  001371                  BNE     DVIN6           ;IF NOT GO BACK AND CHECK
                                                        ;AGAIN ELSE...PRINT ERROR
063126  012737  037116  017354  MOV     #DVEM0,TEMP2
063134  017737  137712  017356  MOV     @SEL0,TEMP3
063142  017737  137710  017360  MOV     @SEL2,TEMP4     ;LOAD UP ERRM. AND REG OUTPUTS
063150  004737  042104          JSR     PC,LGDVE        ;LOG TIME OUT WAITING FOR RUN
063154  005237  017310          INC     ERRCNT
063160                          ERRSOFT 4,DVEM0,ERR13
063160  104457                                                  TRAP    C$ERSOFT
063162  000004                                                  .WORD   4
063164  037116                                                  .WORD   DVEM0
063166  041460                                                  .WORD   ERR13

063170  000670                  BR      DVINIT          ;GO BACK AND TRY MSTR CLR AGAIN IF ERROR

063172  022777  000305  137666  DVIN1:  CMP     #305,@BSEL6     ;SEE IF MICRO DIAGS RAN OK
063200  001422                  BEQ     DVIN13
063202  012737  037177  017354  MOV     #DVEM1,TEMP2    ;MOV ADDR OF ERR MSG TO TEMP2
063210  017737  137636  017356  MOV     @SEL0,TEMP3
063216  017737  137644  017360  MOV     @SEL6,TEMP4     ;MOV SEL 6 TO TEMP4 IT CONTAINS
                                                        ;THE ERROR CODE FROM MICRO DIAGS.
063224  004737  042104          JSR     PC,LGDVE        ;LOG DEVICE ERROR
063230  005237  017310          INC     ERRCNT
063234                          ERRSOFT 5,DVEM1,ERR13
063234  104457                                                  TRAP    C$ERSOFT
063236  000005                                                  .WORD   5
063240  037177                                                  .WORD   DVEM1
063242  041460                                                  .WORD   ERR13
063244  000642                  BR      DVINIT          ;GO BACK AND TRY TO RE INIT.

                                ;GET HERE WHEN RUN IS SET AND MICRO DIAGS RAN OK.
063246  022737  000001  023100  DVIN13: CMP     #1,OPTYP        ; DMV?
063254  001027                  BNE     DVIN12          ; NO,BRANCH
063256  022737  000001  017404          CMP     #1,MLTYP        ; INTERNAL LOOP ?
063264  001020                  BNE     DVIN11          ; NO,BRANCH
                                ;
                                ; NOW SET THE DMV TO INTERNAL LOOP
                                ;
063266  012777  040400  137556          MOV     #40400,@SEL0    ;SET MASTER CLEAR AND MAINTENANCE REQUEST
063274                          DIVN15: BREAK
063274  104422                                                  TRAP    C$BRK
063276  000240                  NOP
063300  000240                  NOP
063302  132777  000200  137546          BITB    #BIT7,@BSEL2    ; MAINTENANCE READY ?
063310  001771                  BEQ     DIVN15          ; NO,GO CHECK AGAIN
063312  042777  000400  137532          BIC     #BIT8,@SEL0     ; CLEAR MAINT REQUEST
063320  012777  000006  137530          MOV     #6,@SEL2        ; SET INTERNAL LOOPBACK
                                ;
                                ; NOW SET DMV TO DIAGNOSTIC MODE SO WE CAN DEFINE THE STATION TYPE VIA SOFTWARE
                                ;
063326                          DVIN11:
063326  152777  000210  137520          BISB    #BIT3!BIT7,@BSEL1 ; SET DIAGNOSTIC MODE BIT & RUN BIT(DMV ONLY)
                                                                  ;;  REV C EC

                                ;
                                ; 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
```

```
                                        JSR     PC,TOORIO       ;WAIT TIL PORT IS OURS
                                        MOVB    TRIBN,@BSEL3    ;SET UP TRIB NO.
                                        MOV     #01,@SEL6       ;ESTABLISH TRIB
                                        MOVB    #01,@BSEL2      ;CLEAR RDI AND DO COMMAND.

                                        ;WRITE POLL PARAMS IF NESC.
                                        CMP     #3,DEVPAR       ;IS THIS A MULTIPOINT CONTROL
                                        BNE     POLLEN          ;BRANCH IF NOT.
                                        JSR     PC,GETIND       ;GET VALID INDEX
                                        MOV     INDEX,MPLY      ;MOVE INDEX TO MULTIPIER
                                        MOV     #16.,TEMP
                                        MOV     #POLLIS,TEMP2
                                        JSR     PC,MTPLY        ;RETURN WITH ADDRESS
                                                                ;OF FIRST WORD IN TEMP2

                                        MOV     TEMP2,TSSE
                                        JSR     PC,WRIPP        ;WRITE POLL PARMAS

                                        ; ISTRT TRIB

POLLEN: BISB    #RQI,@BSEL0     ;REQUEST IN
                                        JSR     PC,TOORIO       ;WAIT TIL PORT IS OURS.
                                        MOVB    TRIBN,@BSEL3
                                        MOV     #04,@SEL6       ;MAKE IT MAINT MODE
                                        CMP     #DOW,MODTYP     ;IS THIS DOWN LINE LOAD
                                        BEQ     POLLE2
                                        MOV     #03,@SEL6       ;TO ISTRT
                                        BIS     #RUNST,FLAG     ;SET THE RUN STATE FLAG
POLLE2: MOVB    #01,@BSEL2      ;DO COMMAND
                                        BR      DVES1           ;GO BACK
DVINEX: BIS     #INOVR,FLAG     ;INDICATE INIT CODE IS DONE
                                        RTS     PC              ;RETURN TO CALLER
```

```
                                .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,@BSEL0     ;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,@BSEL2      ;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
                                ;--


064006                          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,@#SEL0     ;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,@#SEL3    ;SET UP TRIB NO.
064060  112777  000000  136770          MOVB    #0,@#SEL2       ;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 -TARTED
                                ;       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 MODEM 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                  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     #DATCKB,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                  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
```

```
     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 CALLER
     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.
```

```
     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
```

OUTPUT INTERRUPT HANDLER

```
                                                                                                    TRAP    C$ERSOFT
        065634  104457                                                                              .WORD   7
        065636  000007                                                                              .WORD   DVEM4
        065640  037430                                                                              .WORD   ERR14
        065642  041512
   115  065644  000137  066452                JMP     OUTHEX          ;EXIT OUTPUT HANDLER
   116
   117                                      ;INFORMATION OUT HANDLER
   118                                      ;BA AND CC HANDLER
   119
   120
   121
   122  065650                      INFOHD:
   123  065650  122777  000010  135210        CMPB    #10,@BSEL6      ;IS THIS A MODEM STATUS
   124  065656  001005                        BNE     INFOH1          ;GO TO INFO 1 IF NOT MODEM STATUS
   125  065660  017737  135176  020524        MOV     @SEL4,MODS      ;PUT IN NEW MOD STATUS
   126  065666  000137  066452        INFO1B: JMP     OUTHEX
   127  065672  032777  000040  135166  INFOH1: BIT     #BIT5,@BSEL6    ;
   128  065700  001011                        BNE     INFOHA          ;BRANCH IF RD/TSS
   129  065702  022777  000020  135156        CMP     #20,@BSEL6
   130  065710  001766                        BEQ     INFO1B          ;GET OUT IF BUFF RET CMP
   131  065712  012737  041212  017366        MOV     #INFOM,CONOTM   ;SET UP FOR INFO ERROR
   132  065720  000137  065602                JMP     CON04           ;AND PRINT IT
   133  065724  005037  017326  INFOHA: CLR     TSSFLG          ;CLEAR FLAG
   134  065730  017704  135126                MOV     @SEL4,R4
   135  065734  017703  135126                MOV     @BSEL6,R3
   136  065740  042703  177740                BIC     #177740,R3      ;CLEAR ALL BUT LAST 5 BITS
   137  065744  105777  135110                TSTB    @BSEL3                  ;IS THIS GSS
   138  065750  001007                        BNE     INFOH8          ;BRANCH IF NOT
   139
   140
   141  065752  116302  021130                MOVB    GSSIND(R3),R2
   142  065756  006303                        ASL     R3                      ;USE WORD INDEX
   143  065760  016337  021030  017366        MOV     GSSLST(R3),CONOTM       ;USE GSS LIST
   144  065766  000406                        BR      INFOH2
   145
   146  065770  116302  020762  INFOH8: MOVB    TSSIND(R3),R2
   147  065774  006303                        ASL     R3
   148  065776  016337  020662  017366        MOV     TSSLST(R3),CONOTM       ;IF TSS USE THAT LIST
   149
   150  066004  000172  066010  INFOH2: JMP     @INFOH4(R2)
   151
   152  066010  066016          INFOH4: .WORD   INFOH5          ;WORD ROUTINE
   153  066012  066044                  .WORD   INFOH6          ;BYTE ROUTINE
   154  066014  066110                  .WORD   INFOH7          ;SPECIAL ROUTINE
   155  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
   156  066040  000137  066452                JMP     OUTHEX
   157  066044  010437  017350  INFOH6: MOV     R4,TEMP
   158  066050                          PRINTS  CONOTM,<B,TEMP>,<B,TEMP+1>
        066050  005046                                                                              CLR     -(SP)
        066052  153716  017351                                                                      BISB    TEMP+1,(SP)
        066056  005046                                                                              CLR     -(SP)
```

```
                                                                                                                    BISB    TEMP,(SP)
                                                                                                                    MOV     CONOTM,-(SP)
                                                                                                                    MOV     #3,-(SP)
                                                                                                                    MOV     SP,R0
                                                                                                                    TRAP    C$PNTS
                                                                                                                    ADD     #10,SP
066060  153716  017350
066064  013746  017366
066070  012746  000003
066074  010600
066076  104416
066100  062706  000010
159 066104  000137  066452                  JMP     OUTHEX
160 066110  010437  017350          INFOH7: MOV     R4,TEMP
161 066114  005037  017352                  CLR     TEMP1
162 066120  005037  017354                  CLR     TEMP2
163 066124  005037  017356                  CLR     TEMP3
164 066130  005037  017360                  CLR     TEMP4
165 066134  032737  000400  017350          BIT     #BIT8,TEMP
166 066142  001402                          BEQ     1$
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$:     PRINTS  CONOTM,<B,TEMP>,<B,TEMP1>,<B,TEMP2>,<B,TEMP3>,<B,TEMP4>
                                                                                                                    CLR     -(SP)
                                                                                                                    BISB    TEMP4,(SP)
                                                                                                                    CLR     -(SP)
                                                                                                                    BISB    TEMP3,(SP)
                                                                                                                    CLR     -(SP)
                                                                                                                    BISB    TEMP2,(SP)
                                                                                                                    CLR     -(SP)
                                                                                                                    BISB    TEMP1,(SP)
                                                                                                                    CLR     -(SP)
                                                                                                                    BISB    TEMP,(SP)
                                                                                                                    MOV     CONOTM,-(SP)
                                                                                                                    MOV     #6,-(SP)
                                                                                                                    MOV     SP,R0
                                                                                                                    TRAP    C$PNTS
                                                                                                                    ADD     #16,SP
066214  005046
066216  153716  017360
066222  005046
066224  153716  017356
066230  005046
066232  153716  017354
066236  005046
066240  153716  017352
066244  005046
066246  153716  017350
066252  013746  017366
066256  012746  000006
066262  010600
066264  104416
066266  062706  000016
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
                                                                                                                    TRAP    C$DCLN
066312  104444
185 066314  005237  015766          1$:     INC     CRX
186
187 066320  013702  015772                  MOV     RSPTRE,R2       ;LOAD R2 WITH POINTER
188 066324  017722  134536                  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
```

```
                                2$:     MOV     R2,RSPTRE
                                3$:     TST     OVRCNT
                                        BEQ     OUTHEX
                                        ERRSOFT 12,DVEM7,ERR15
                                                                        TRAP    C$ERSOFT
                                                                        .WORD   12
                                                                        .WORD   DVEM7
                                                                        .WORD   ERR15

                                BACCTX: INC     CTX             ;INC TX COMPLETE COUNT
                                        MOV     TSPTR,R2        ;LOAD R2 WITH POINTER
                                        MOV     @SEL6,(R2)+
                                        MOV     @SEL4,(R2)+
                                        MOV     @SEL2,(R2)+
                                        MOV     R2,TSPTR
                                        CMP     @RXSTAK,R2
                                        BNE     1$
                                        DOCLN                   ;BAD NEWS
                                                                        TRAP    C$DCLN

                                1$:     TST     OVRCNT          ;CHECK IF HERE FROM QUE OVER
                                        BEQ     OUTHEX
                                        ERRSOFT 13,DVEM7,ERR16
                                                                        TRAP    C$ERSOFT
                                                                        .WORD   13
                                                                        .WORD   DVEM7
                                                                        .WORD   ERR16

                                OUTHEX: BICB    #RDO,@BSEL2     ;CLEAR RDO
                                        TST     OVRCNT          ;TEST THE OVER FLOW COUNT
                                        BEQ     OUTHE3          ;BRANCH IF ZERO
                                OUTHE4: BREAK
                                                                        TRAP    C$BRK
                                        BIT     #OTINT,FLAG     ;IS OUTPUT INTERRUPT SET
                                        BEQ     OUTHE5          ;BRANCH IF NOT
                                        JMP     OUTHDL          ;WHEN SET GO BACK FOR NEXT ON QUE
                                OUTHE5: BIT     #ININT,FLAG     ;TEST FOR INPUT INT
                                        BEQ     OUTHE3          ;BRANCH IF NOT INPUT
                                        BIC     #ININT,FLAG
                                        CLRB    @BSEL6
                                        MOVB    #01,@BSEL2      ;DO NO REQUEST
                                        MOV     #-1,RQIFLG      ;SET RQI FLAG
                                        BR      OUTHE4
                                ;
                                ; SEE IF FATAL ERROR HAS OCCURRED
                                ;
                                OUTHE3: TST     FTLFLG
                                        BEQ     OUTHE6          ;BRANCH IF NOT FATAL
                                        CLR     FTLFLG          ;CLEAR FATAL FLAG
                                ;
                                ; IF A FATAL ERROR HAS OCCURRED, WE CLEAR ALL MODEM SIGNALS
                                ;

                                        CLRB    TRIBN           ;PARAMETER FOR SUBROUTINE
                                        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 "DCLT>" 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
```

```
                                .SBTTL                  DEVICE INTERRUPT SERVICE ROUTINES


066656                                  BGNSRV  DVINS                                   DVINS::
066656
066656  052737  000001  017414          BIS     #ININT,FLAG
066664  042777  000200  134160          BIC     #BIT7,@#SELO    ;CLEAR RQI

066672                                  ENDSRV                                  L10021:
066672                                                                                  RTI
066672  000002
```

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

```
                                        .EVEN
                                        ENDTST
066704                                                  L10020:
066704                                                          TRAP    C$ETST
066704  104401
```

```
                                .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.
                                ;--

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

                                .SBTTL          DEVICE INDEPENDENT SECTION

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


                                .SBTTL          DEVICE DEPENDENT SECTION

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

DEVICE DEPENDENT SECTION

```
                                        GPRML   TRIBCO,10,2,YES
066772                                                                  .WORD   T$CODE
066772  004130                                                          .WORD   TRIBCO
066774  067173                                                          .WORD   2
066776  000002
                                ENDHWL:
067000                                  ENDHRD
067000                                                                  .EVEN
                                                                L10023:
067000
                                .NLIST  BEX
                                ;DEVICE INDEPENDENT QUESTIONS
067000      106     125     114 DPLX:   .ASCIZ  /FULL DUPLEX OPERATION : /
                                ;DEVICE DEPENDENT QUESTION
067031      104     105     126 CSRADR: .ASCIZ  /DEVICE CSR ADDRESS: /
067056      111     116     124 VECTOR: .ASCIZ  /INTERRUPT VECTOR ADDRESS: /
067111      111     116     124 PRIOR:  .ASCIZ  /INTERRUPT PRIORITY : /
067137      111     123     040 PTPMLP: .ASCIZ  /IS THIS MULTIPOINT NETWORK:/
067173      111     123     040 TRIBCO: .ASCIZ  /IS THIS A CONTROL STATION:/
067226      117     120     124 OPTYPM: .ASCII  /OPTION TYPE /<15><12>
067244      040     060     075         .ASCII  / 0=DMP/<15><12>/ 1=DMV:/
                                .LIST   BEX
                                        .EVEN
```

```
                                ;.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
                                ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;

                                $PATCH:
067264                                  .BLKW   30
067264

                                        LASTAD                          .EVEN
067344  000000                                                          .WORD   0
067346  000000                                                          .WORD   0
067350                          L$LAST::
067350                                  ENDMOD
                                .END
000001
```

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
ACTMSO  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
CMSG0  = 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$ERDF= 000055
C$ERHR= 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$GETB= 000026
C$GETW= 000027
C$GMAN= 000043
C$GPHR= 000042
C$GPLO= 000030
C$GPRI= 000040
C$INIT= 000011
C$INLP= 000020
C$MANI= 000050
C$MEM = 000031
C$MSG = 000023
C$OPEN= 000034
C$PNTB= 000014
C$PNTF= 000017
C$PNTS= 000016
C$PNTX= 000015
C$QIO = 000377
C$RDBU= 000007
C$REFG= 000047
C$RESE= 000033
C$REVI= 000003
C$RFLA= 000021
C$RPT = 000025
C$SEFG= 000046
C$SPRI= 000041
C$SVEC= 000037
C$TPRI= 000013
DAM     032022
DATCKB= 000002
DCD   = 000001
DCK   = 000014
DCLFLG  017376
DDF   = 000022
DEADTM  040245
DER   = 000010
DEVPAR  023102
DEV1    020652
DEV2    020654
DEV3    020656
DEV4    020660
DFPTBL  002130 G
DIAGMC= 000000
DISCON  041150
DIVN15  063274
DLE   = 000020
DLL     061420
DLLAB   040022
DLLCM   027160
DLLEA   061626
DLLE1   062104
DLLE2   061752
DLLE3   062164
DLLE4   062154
DLLE5   062274
DLLE5A  062212
DLLE5B  062246
DLLE6   062036
DLLE7   062004
DLLE7A  062020
DLLE8   062124
DLLGA = 001000
DLLIND  023222
DLLMOD= 000033
DLLM1   002647
DLLM1C  002172
DLLM1E  002654
DLLM2   002654
DLLM2C  002174
DLLM2E  003130
DLLPRI  061602
DLLQ1   025210
DLM     032014
DLTXRX  061642
DLVM    032040
DMCM    032031
DMP   = 000000
DMPE  = 000053
DMPM    032044
DMPQ  = 000054
DMPS  = 000052
DMP6  = 000004
DMSGAD  002176
DMSGCT  002150
DMV   = 000001
DMVDF1  016202
DMVDF2  016204
DMVDF3  016210
DMVDF4  016212
DMVDF5  016214
DMVM    032105
DNM     032035
DOGLOB  045776
DOGL1   046036
DOGL2   046146
DOGL4   046154
DOW   = 000004
DPLX    067000
DPM     032006
DQM     032017
DSR   = 000010
DTEM    032050
DUM     032011
DUMEX   045346
DUMPSR  045212
DUM1    045304
DUM2    045326
DUM3    045242
DUM4    045216
DUPM    032025
DVEM0   037116
DVEM1   037177
DVEM2   037257
DVEM3   037354
DVEM4   037430
DVEM5   037514
DVEM6   037571
DVEM7   037645
DVEM8   037725
DVEST   063554
DVES1   063540
DVES1A  063454
DVI   = 000012
DVINEX  063746
DVINIT  062752
DVINS   066656 G
DVIN1   063172
DVIN11  063326
DVIN12  063334
DVIN13  063246
DVIN4   063060
DVIN4A  063006
DVIN6   063110
DVM     032054
DVMODS  063756
DVOUTS  066674 G
DVRCC   017272
DVRCLS  015612
DVRCT   017274
DVREX   064066
DVRTB   017266
DVRXA   017270
DVRXQ   064006
DVTCC   017252
DVTCLS  015652
DVTCT   017256
DVTREX  064622
DVTRX1  064616
DVTR3   064150
DVTR4   064304
DVTR4A  064370
DVTR4B  064442
DVTR5   064446
DVTR5A  064532
DVTTB   017254
DVTXA   017250
DVTXRX  064070
DZM     032057
ECHO  = 000037
ECHOB = 000004
EDDCK   030144
EDDDE   030257
EDDER   030127
EDDLE   030222
EDDVI   030174
EDEOP   030312
EDMOS   030326
EDRXC   030101
EDRXQ   030054
EDTXC   030025
EDTXQ   030001
EFM11   027724
EFM2    027627
EF.CON= 000036 G
EF.NEW= 000035 G
EF.PWR= 000034 G
EF.RES= 000037 G
EF.STA= 000040 G
EKTB  = 000063
EMSG0   002221
EMSG1   002222
EMSG2   002223
EMSG3   002224
EMSG4   002324
EMSG5   002416
EMSG6   002517
EMSG8   002647
ENADD   017314
ENDALL  042776
ENDEVT  044204
ENDHWL  067000
ENDIT   051652
ENDQO = 000017
EOP   = 000024
EQUQ    025055
EQUQ1   025111
EQUQ2   025151
ERRCNT  017310
ERR1    041340 G
ERR10   041430 G
ERR13   041460 G
ERR14   041512 G
ERR15   041550 G
ERR16   041610 G
ERR2    041402 G
ERX   = 000100
ETRB  = 000060
ETWS  = 000065
ETX   = 000200
EVL   = 000004 G
EVMCTS  031530
EVMDCD  031540
EVMDSR  031534
EVMOCG  031410
EVMOMD  031433
EVMOST  031513
EVMRI   031550
EVMRTS  031544
EVMSQD  031554
EVMTM   031560
EVTADD  020616
EVTBCT  020620
EVTEND  020522
EVTF0   030447
EVTF1   030545
EVTF2   030574
EVTF3   030646
EVTF3C  030660
EVTF3D  030675
EVTF3F  030717
EVTF4   031124
EVTF4A  031226
EVTF4B  031016
EVTF44  031055
EVTF5A  031324
EVTF6   030756
EVTLOG  017466
EVTLST  020562
EVTMIN  020612
EVTPTR  017464
EVTSEC  020610
EVTTCK  020614
EVTTMP  020622
EXIT  = 000066
E$END = 002100
E$LOAD= 000035
FACSIM  045572
FHDPLX  017406
FLAG    017414
FTLFLG  017324
F$AU  = 000015
F$AUTO= 000020
F$BGN = 000040
F$CLEA= 000007
F$DU  = 000016
F$END = 000041
F$HARD= 000004
F$HW  = 000013
F$INIT= 000006
F$JMP = 000050
F$MOD = 000000
F$MSG = 000011
F$PROT= 000021
F$PWR = 000017
F$RPT = 000012
F$SEG = 000003
F$SOFT= 000005
F$SRV = 000010
F$SUB = 000002
F$SW  = 000014
F$TEST= 000001
GARPEX  047006
GARPFL  046744
GARP1   046760
GATCEX  047072
GATCFL  047016
GATC1   047036
GETCL   052472
GETIND  047154
GETI1   047160
GETI2   047200
GETPRM  051316
GETRCL  042602
GLBDEF  016206
GLBEND  016220
GLBPLS  017220
```

Symbol table

```
GNTXPR  047102
GNTX1   047120
GNTX2   047112
GOOD    017370
GRPTCP  046546
GSSIND  021130
GSSLST  021030
GSS0A   035004
GSS1A   035045
GSS10A  035425
GSS11A  035477
GSS12A  035517
GSS13A  035555
GSS14A  035616
GSS15A  035637
GSS16A  035747
GSS17A  036057
GSS2A   035103
GSS20A  036141
GSS21A  036206
GSS22A  036253
GSS23A  036320
GSS24A  036365
GSS25A  036432
GSS26A  036477
GSS27A  036521
GSS3A   035142
GSS30A  036543
GSS31A  036576
GSS32A  036653
GSS33A  036736
GSS34A  036761
GSS35A  037026
GSS36A  037050
GSS37A  037071
GSS4A   035177
GSS5A   035234
GSS6A   035271
GSS7A   035347
GTRA2   052072
GTRA3   052134
GTRA4   052142
GTRA5   052402
GTREX   057576
GTRX2   057674
GTRX2A  057742
GTRX2B  060024
GTRX2C  057702
GTRX22  057730
GTR9    057056
GTVIND  046462
GTVI1   046466
GTXRXB  052072
G$CNTO= 000200
G$DELM= 000372
G$DISP= 000003
G$EXCP= 000400
G$HILI= 000002
G$LOLI= 000001
G$NO  = 000000
G$OFFS= 000400
G$OFSI= 000376
G$PRMA= 000001
G$PRMD= 000002
G$PRML= 000000
G$RADA= 000140
G$RADB= 000000
G$RADD= 000040
G$RADL= 000120
G$RADO= 000020
G$XFER= 000004
G$YES = 000010
HELP  = 000000
HELPDC= 000000
HLP   = 000005
HLPEND  003304
HLPF    024116
HLPTAB  003260
HLP0    024040
HLP1    024123
HLP2    024136
HLP2B   024254
HLP2C   024344
HLP3    024417
HLP3A   024504
HLP4    024531
HLP4A   024610
HLP5    024666
HLP6    024756
HLTREX  065112
HLTTRB  064776
HLTTR1  065040
HLTTR2  065032
HLTTR3  065024
HOE   = 100000 G
IBE   = 010000 G
IDU   = 000040 G
IEI   = 000001
IER   = 020000 G
IEO   = 000020
INDEX   015762
INDW    015760
INFOHA  065724
INFOHD  065650
INFOH1  065672
INFOH2  066004
INFOH4  066010
INFOH5  066016
INFOH6  066044
INFOH7  066110
INFOH8  065770
INFOM   041212
INFO1B  065666
ININT = 000001
INIT1   050766
INOVR = 002000
INTPRI  023076
INVEC   023072
ISR   = 000100 G
IXE   = 004000 G
I$AU  = 000041
I$AUTO= 000041
I$CLN = 000041
I$DU  = 000041
I$HRD = 000041
I$INIT= 000041
I$MOD = 000041
I$MSG = 000041
I$PROT= 000040
I$PTAB= 000041
I$PWR = 000041
I$RPT = 000041
I$SEG = 000041
I$SETU= 000041
I$SRV = 000041
I$SUB = 000041
I$TST = 000041
J$JMP = 000167
KALL  = 000062
KDPM    032072
KDZM    032076
KEYWD1  003252
KLM     032102
KTRB  = 000061
LCLKEN= 000100
LCPREX  046264
LCPRLS  046234
LCPRL1  046266
LCPR1   046242
LCPR2   046314
LCPTEX  046434
LCPTLS  046364
LCPT1   046406
LDRCLS  046604
LDRPLS  046506
LDTCLS  046704
LDTPLS  046644
LGDVE   042104
LIS   = 000006
LISCK   062530
LISCKA  062570
LISMOD= 000032
LISP    027103
LMDLOP= 000046
LNCNT   017300
LOE   = 040000 G
LOGAQR  047302
LOGCMD  042224
LOGCML  042206
LOGCMP  042170
LOGDVI  042122
LOGEOP  042250
LOGEX   042552
LOGMSC  042266
LOGRXC  042074
LOGRXQ  042056
LOGS1   042304
LOGS2   042544
LOGS3   042344
LOGS3A  042240
LOGS4   042420
LOGS5   042444
LOGTXC  042040
LOGTXQ  042022
LOGUNT  017372
LOOPS   003362
LOT   = 000010 G
LP0     026765
LP00    026766
LP1     026775
LP2     027006
LP3     027014
LP4     027027
L$ACP   002110 G
L$APT   002036 G
L$AU    052056 G
L$AUT   002070 G
L$AUTO  051770 G
L$CCP   002106 G
L$CLEA  051772 G
L$CO    002032 G
L$DEPO  002011 G
L$DESC  023304 G
L$DESP  002076 G
L$DEVP  002060 G
L$DISP  002124 G
L$DLY   002116 G
L$DTP   002040 G
L$DTYP  002034 G
L$DU    052050 G
L$DUT   002072 G
L$DVTY  023266 G
L$EF    002052 G
L$ENVI  002044 G
L$ETP   002102 G
L$EXP1  002046 G
L$EXP4  002064 G
L$EXP5  002066 G
L$HARD  066710 G
L$HIME  002120 G
L$HPCP  002016 G
L$HPTP  002022 G
L$HW    002130 G
L$ICP   002104 G
L$INIT  050752 G
L$LADP  002026 G
L$LAST  067350 G
L$LOAD  002100 G
L$LUN   002074 G
L$MREV  002050 G
L$NAME  002000 G
L$PRIO  002042 G
L$PROT  050744 G
L$PRT   002112 G
L$REPP  002062 G
L$REV   002010 G
L$RPT   050736 G
L$SPC   002056 G
L$SPCP  002020 G
L$SPTP  002024 G
L$STA   002030 G
L$TEST  002114 G
L$TIML  002014 G
L$UNIT  002012 G
L10000  002150
L10001  041400
L10002  041426
L10003  041456
L10004  041510
L10005  041546
L10006  041606
L10007  041646
L10010  042020
L10011  050742
L10013  051766
L10014  051770
L10015  052046
L10016  052054
L10017  052062
L10020  066704
L10021  066672
L10022  066702
L10023  067000
L5060   027121
MARHM   040161
MARM    040140
MCLR  = 040000
MLTYP   017404
MOBITE  020544
MOBITS  020526
MOCHK = 000010
MODE    017420
MODES   003344
MODLOC= 000003
MODREM= 000004
MODS    020524
MODTYP  017402
MOMSGS  020544
MOP   = 000043
MOSC  = 000056
MO0     026674
MO1     026704
MO2     026715
MO3     026725
MO4     026734
```

Symbol table

```
MO5      026751
MO6      026756
MPLY     017232
MSC    = 000016
MSG      002736
MSGLIM= 000017
MSGTRN   027415
MSGTRU   027446
MSGTYP   017332
MSG0     002220
MSG0C    002150
MSG1     002221
MSG1C    002152
MSG2     002222
MSG2C    002154
MSG3     002223
MSG3C    002156
MSG4     002224
MSG4C    002160
MSG5     002324
MSG5C    002162
MSG6     002416
MSG6C    002164
MSG8     002646
MSG8C    002170
MTP    = 000001
MTPLEX   046460
MTPLY    046436
NEW      051310
NO     = 000036
NOCLK    027256
NOD0     021170
NOD1     021174
NOD10    021252
NOD100   022102
NOD101   022106
NOD102   022124
NOD103   022130
NOD104   022144
NOD105   022150
NOD106   022164
NOD107   022170
NOD11    021254
NOD110   022204
NOD111   022210
NOD112   022224
NOD113   022230
NOD114   022234
NOD115   022250
NOD116   022254
NOD117   022272
NOD12    021266
NOD120   022276
NOD121   022312
NOD122   022316
NOD123   022332
NOD124   022336
NOD125   022352
NOD126   022356
NOD127   022372
NOD13    021272
NOD130   022376
NOD131   022412
NOD132   022416
NOD133   022436
NOD134   022442
NOD135   022446
NOD136   022452
NOD137   022456
NOD14    021306
NOD140   022462
NOD141   022466
NOD142   022472
NOD143   022474
NOD144   022500
NOD145   022504
NOD146   022520
NOD147   022524
NOD15    021312
NOD150   022540
NOD151   022544
NOD152   022550
NOD153   022554
NOD154   022560
NOD155   022564
NOD156   022606
NOD157   022612
NOD16    021326
NOD160   022626
NOD161   022632
NOD162   022654
NOD163   022660
NOD164   022702
NOD165   022706
NOD166   022712
NOD167   022716
NOD17    021332
NOD170   022722
NOD171   022726
NOD172   022742
NOD173   022744
NOD174   022764
NOD175   022770
NOD176   023004
NOD177   023010
NOD2     021200
NOD20    021346
NOD200   023022
NOD201   023026
NOD202   023040
NOD203   023044
NOD204   023050
NOD205   044774
NOD206   045000
NOD207   045004
NOD21    021352
NOD210   045006
NOD211   045022
NOD212   045024
NOD213   045040
NOD214   045042
NOD215   045054
NOD216   045060
NOD217   045072
NOD22    021356
NOD220   045074
NOD221   045106
NOD222   045112
NOD223   045116
NOD224   045122
NOD225   045136
NOD226   045140
NOD227   045154
NOD23    021370
NOD230   045156
NOD231   045174
NOD232   045200
NOD233   045204
NOD234   045206
NOD235   045210
NOD24    021374
NOD25    021406
NOD26    021412
NOD27    021414
NOD3     021202
NOD30    021420
NOD31    021434
NOD32    021440
NOD33    021456
NOD34    021462
NOD35    021500
NOD36    021504
NOD37    021522
NOD4     021216
NOD40    021526
NOD41    021544
NOD42    021550
NOD43    021574
NOD44    021600
NOD45    021604
NOD46    021622
NOD47    021626
NOD5     021220
NOD50    021640
NOD51    021644
NOD52    021650
NOD53    021672
NOD54    021674
NOD55    021720
NOD56    021722
NOD57    021726
NOD6     021234
NOD60    021746
NOD61    021752
NOD62    021774
NOD63    022000
NOD64    022004
NOD65    022010
NOD66    022014
NOD67    022020
NOD7     021236
NOD70    022024
NOD71    022030
NOD72    022034
NOD73    022040
NOD74    022044
NOD75    022050
NOD76    022062
NOD77    022066
NOEXM    041132
NONE   = 000000
NOTNUF= 000050
NULEVT   030407
NULL   = 000000
NUM    = 000014
N10$     021174
N100$    021644
N102$    021650
N104$    021674
N105$    022722
N106$    022726
N107$    022744
N108$    022770
N110$    021722
N111$    021726
N112$    021752
N114$    022044
N115$    022040
N116$    022062
N117$    022106
N118$    022130
N120$    022230
N121$    022474
N122$    022524
N123$    022500
N125$    023050
N126$    022544
N130$    022150
N131$    022210
N132$    022170
N140$    022560
N141$    022564
N142$    022612
N143$    022632
N144$    022660
N150$    022706
N160$    023004
N161$    023010
N162$    023022
N163$    023040
N20$     021352
N25$     021374
N30$     021412
N40$     021312
N42$     021202
N43$     021220
N44$     021236
N45$     021254
N46$     021272
N47$     021332
N50$     022000
N51$     022004
N52$     022010
N60$     022234
N61$     022254
N62$     022276
N63$     022316
N64$     022336
N65$     022356
N66$     022376
N67$     022416
N68$     022442
N70$     022446
N71$     022456
N72$     022462
N73$     022472
N80$     021414
N81$     021420
N82$     021462
N83$     021504
N84$     021526
N85$     021550
N86$     021600
N87$     021626
OFSET    017346
OPBFPT   002520
OPBUF    002524
OPCNT    002166
OPEND    002646
OPRMM    027114
OPRMSG= 000015
OPTYP    023100
OPTYPM   067226
OPVAR    017302
OPVAR1   017304
OTINT  = 000002
OUTHDL   065254
OUTHEX   066452
OUTHE2   066626
OUTHE3   066544
OUTHE4   066466
OUTHE5   066504
OUTHE6   066606
OUTH1    065304
OUTVEC   023074
```

Symbol table

```
OVRCNT  017330
O$APTS= 000000
O$AU    = 000001
O$BGNR= 000001
O$BGNS= 000000
O$DU    = 000001
O$ERRT= 000000
O$GNSW= 000000
O$POIN= 000001
O$SETU= 000000
PARAM   017410
PAS     = 000002
PASC    = 000042
PASMOD= 000030
PASS1   002650
PASS2   002651
PASS3   002652
PASS4   002653
PCADD   017374
PCK     027056
PCLKCT= 001600
PCLKEN= 000111
PCPM    027672
PEC     027066
PE100M  040331
PE102M  040345
PE104M  040367
PE106M  040413
PE110M  040444
PE112M  040466
PE114M  040517
PE116M  040542
PE120M  040576
PE122M  040622
PE124M  040652
PE126M  040701
PE130M  040730
PE132M  040756
PE134M  041002
PE136M  041034
PE140M  041056
PE142M  041075
PE144M  041103
PLCK    060122
PMS     027075
PNCK    027054
PNEC    027064
PNMS    027073
PNST    027043
PNT     = 001000 G
PNTTRB  044326
POLDEF  016166
POLLEN  063664
POLLE2  063736
POLLIS  016220
POLPM   025234
POLPM3  025301
PRI     = 002000 G
PRIOR   067111
PRIO0   = 000000 G
PRIO1   = 000040 G
PRIO2   = 000100 G
PRIO3   = 000140 G
PRIO4   = 000200 G
PRIO5   = 000240 G
PRIO6   = 000300 G
PRIO7   = 000340 G
PRNT    = 000055
PROTO   = 000041
PROTOB= 000040
PSCNT   017306
PST     027045
PTPMLP  067137
PTREND  015406
PTRTAB  011416
PTR13   011512
PTR23   011606
P$ACT   003400
P$BUFA  003374
P$CNT   003402
P$EXIT  047764
P$GDBD  003411
P$NNUF  003410
P$NUM   003404
P$RADX  003406
P$TREE  003376
P$TRV   047646
P$TR5   047656
QCOPY   = 000013
QRX     = 000004
QTX     = 000010
QUALFG  003254
QUALVL  003256
QUEOM   041162
RBFLIM= 004000
RDI     = 000020
RDO     = 000200
RDTSS   043112
RDTS2   043030
REC     = 000000
RECMOD= 000031
REPLOG  043224
REPORT  042554
RESFLG  017400
RESTRT  051250
RHLPEN  003314
RHLPTB  003304
RHLP0   025341
RHLP1   025377
RHLP2   025421
RHLP3   025436
RHLP4   025470
RI      = 000200
RIM     040226
RMDLOP= 000047
RNOTNF= 000012
RPASS   017412
RPEXT   = 000002
RPGSS   = 000004
RPHLP   = 000001
RPLOG   = 000003
RPSWE   = 000007
RPSWF   = 000010
RPSWO   = 000011
RPT     043272
RPTAA   043342
RPTDCK  044056
RPTDDE  043776
RPTDER  043522
RPTDLE  044056
RPTDSP  020624
RPTDVI  043622
RPTEOP  043672
RPTIV   025544
RPTMSB  044214
RPTMSC  044136
RPTSN   = 000006
RPTSS   = 000005
RPTTSS  043006
RPTTXQ  043444
RPTO    043336
RPT1    043324
RQI     = 000200
RQIFLG  017322
RSEL3   066654
RSEL4   066650
RSEL6   066652
RSPTRE  015772
RSPTRS  015770
RTS     = 000040
RUN     = 000004
RUNING  017416
RUNST   = 000400
RUSM    040257
RXBUF   005416
RXC     = 000006
RXMTOT  017276
RXM1    041272
RXM2    041315
RXNC    041252
RXONLY  060036
RXON3   060054
RXPTR   017234
RXQ     = 000004
RXQUAL  046164
RXQUEX  046232
RXQU1   046172
RXSKEN  016166
RXSTAK  016012
RXTHEM  041075
R10$    045000
R11$    045006
R12$    045024
R125$   045210
R13$    045042
R14$    045060
R15$    045074
R20$    045116
R21$    045140
R22$    045156
R30$    045206
SAVSP   017364
SCM     031635
SCMD    031670
SCML    031657
SDVE    031624
SDVI    031646
SECRM   031724
SEL0    023052
SEL2    023056
SEL4    023062
SEL6    023066
SEOP    031701
SETET   = 000067
SETEXP= 000010
SETTRN= 000011
SHF0    027531
SHF1    027567
SHMSG   025613
SHOW    = 000002
SMTAB   003334
SMTAP   026017
SMTBR   026605
SMTEND  003343
SMTFL   026027
SMTIV   026543
SMTLP   026231
SMTLPA  026316
SMTLPB  026371
SMTLPC  026433
SMTLPD  026504
SMTNF   026165
SMTRE   025727
SMTRH   025766
SMTUN   026115
SMTYP0  025647
SMTYP1  025656
SMTYP2  025663
SMTYP3  025670
SMTYP4  025675
SMTYP5  025703
SMTYP6  025710
SMTYP7  025716
SMTYTB  003314
SMWOP   047344
SIZE    = 000012
SLST    = 000057
SLTHEM  040076
SMSC    031712
SQD     = 040000
SRXQ    031613
STADD   017312
START   051046
STATB   = 000001
STATUS= 000016
STATYP  023104
STRCM   040117
STREAM  040312
STRMM   040203
STXC    031602
STXQ    031571
SVCGBL= 000000
SVCINS= 000001
SVCSUB= 000001
SVCTAG= 000001
SVCTST= 000001
S$LSYM= 010000
S1      051034
S2      051112
S3      051162
S4      051230
TABEX   027337
TAL     = 000005
TALCK   062276
TALMOD= 000035
TCURAD  017264
TEMP    017350
TEMP1   017352
TEMP2   017354
TEMP3   017356
TEMP4   017360
TEMP5   017362
TIMERS  017462
TIMER1  017456
TIMER2  017460
TIMMIN  017450
TIMSEC  017452
TIMTCK  017454
TM      = 002000
TOINOT  064156
TOIN1   064252
TOIN2   064254
TOORIO  065114
TOOR1   065216
TOOR2   065234
TOOR3   065144
TOTCC   017344
TRA     = 000001
TRAMOD= 000034
TRBB    = 000002
TRBTOT  015754
TRIBCO  067173
TRIBLS  015712
TRIBN   015756
TRVACT  047766
```

Symbol table

```
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
```

Cross reference table (CREF V05.00)

```
$PATCH 113-38#
ACT     26-18#    82-73     86-1      87-49
ACTATV  83-36     86-1#
ACTBCR  83-54     85-45#
ACTCHK  83-16     87-15#
ACTCKT  83-65     88-170#
ACTCLB  84-42     84-56#
ACTCLP  83-50     87-43#
ACTCLR  83-14     84-5#
ACTCOP  83-24     85-13#
ACTCRC  83-45     87-21#
ACTCSE  83-19     84-28#
ACTCST  83-20     84-44#
ACTDLL  83-40     86-15#
ACTDME  83-56     84-90     84-93#
ACTDMQ  83-57     84-92#
ACTDMS  83-55     84-87#
ACTDMX  84-94#
ACTE5A  88-133#   88-135
ACTE5B  88-132#
ACTECH  83-44     87-4#
ACTEKE  88-115    88-138#
ACTEKT  83-64     88-101#
ACTEQO  83-28     85-34#
ACTETB  83-61     88-1#
ACTEWS  83-66     88-23#
ACTEXT  83-67     84-17#
ACTEXX  88-106    88-113    88-123    88-136    88-146    88-164    88-167#
ACTMLP  83-18     84-11#
ACTKAL  82-79     83-63     88-7#
ACTKTB  83-62     88-4#
ACTLIS  83-39     86-12#
ACTLLP  83-51     87-45#
ACTLPX  87-40     87-42     87-44     87-46     87-49#
ACTLXX  87-13     87-34     87-37     87-50     87-54#
ACTM2X  86-2      86-10     86-13     86-16     86-19     86-23#
ACTME1  85-49     85-51     85-53     85-55     85-57     85-64#
ACTMEX  85-27     85-43     85-60     85-65     85-72     85-75     85-79#
ACTMOP  83-48     87-39#
ACTMOS  83-59     87-24#
ACTMSO  83-29     85-48#
ACTMS1  83-30     85-50#
ACTMS2  83-31     85-52#
ACTMS3  83-32     85-54#
ACTMS4  83-33     85-56#
ACTMS5  83-34     85-58#
ACTMS6  83-35     85-61#
ACTNO   83-43     87-1#
ACTNUF  83-53     84-2#
ACTNUL  83-13     84-3#
ACTNUM  83-25     85-16#
ACTOPM  83-26     85-29#
ACTPAS  83-37     86-4#
ACTPRO  83-46     87-27#
ACTPRT  83-58     84-19#
ACTQFG  87-16     87-19     87-22     87-25     87-29#
```

Cross reference table (CREF V05.00)

```
ACTREC  83-38    86-9#
ACTREX  48-11    49-10#
ACTRGS  48-13    49-15#
ACTRHL  48-10    49-4#
ACTRLG  48-12    49-12#
ACTRLP  83-52    87-47#
ACTRNF  48-19    49-2#
ACTRNL  48-9     49-3#
ACTRPS  83-47    87-36#
ACTRSE  48-16    49-19#
ACTRSF  48-17    49-37#
ACTRSO  48-18    49-40#
ACTRTN  48-15    49-25#
ACTRTS  48-14    49-21#
ACTRUN  83-17    84-23#
ACTSEX  83-68    85-69#
ACTSHO  83-15    84-8#
ACTSHW  84-34    84-48    84-67#   84-79
ACTSLS  83-60    88-73#
ACTSTE  83-21    85-3#
ACTSTS  83-27    87-18#
ACTSTT  83-22    85-6#
ACTSTX  85-4     85-7#
ACTSZE  83-23    85-10#
ACTTAL  83-42    86-21#
ACTTLP  83-49    87-41#
ACTTRA  83-41    86-18#
ACTW7A  88-57#
ACTW7B  88-27    88-55    88-59#
ACTWS1  88-48    88-49#
ACTWS2  88-49    88-51#
ACTWS3  88-50    88-66#
ACTWS5  88-37    88-39#   88-58
ACTWS7  88-53#   88-71
ACTWS9  88-28#
ADDC1   52-26    52-36#
ADDCC   52-24#   82-160   82-191
ADR     25-0#
ALCK    32-30    93-20#
ALCK1   94-47    94-51#   94-102
ALCK2   94-52    94-63#   94-146
ALCK2A  94-98    94-104#
ALCK3   94-66    94-108   94-112#
ALCK3A  94-122   94-132#
ALCK3B  94-134   94-137#
ALCK3C  94-130   94-135#  94-143
ALCK3D  94-125   94-128#
ALCK4   94-113   94-141#
ALCK4A  94-140   94-144#
ALCK5   94-46#   94-136
ALCK5B  94-48#
ALLTR   90-21    91-22    92-23    94-45#
ASSEMB  21-12    21-12
ATVMOD  26-145#  37-48
BABTM   38-53    41-129#
BACCMD 107-46   107-179#
```

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

Cross reference table (CREF V05.00)

```
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#
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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
```

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```
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#
DOGLOB   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     40-218#
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     40-224#
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*
```

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```
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#
DVTR5   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#  95-75    95-84
EDDER    34-29    40-135#
EDDLE    34-33    40-138#  95-81
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#
ENDQ0    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
EVTFO    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$TEST  21-12#  82-23   109-15
FACSIM  54-58#  85-73
FHDPLX  32-13#  77-99*  100-163
FLAG    32-23#  56-31*  80-71*  90-17*  91-19*  92-21*  93-26*  94-46   94-51   94-65   94-100*  94-101*  94-109*  94-112
        94-123* 94-127* 94-138* 97-48*  97-58*  97-74*  97-87*  97-89   97-91   97-104*  97-105*  97-109   98-40*   98-52*
        99-29*  100-156* 100-239* 100-242* 102-35  102-38*  103-59  103-61*  103-102  103-112  103-130*  103-134  103-156*  106-44
       106-49  106-51*  107-34*  107-73   107-218  107-221  107-223*  108-28*  108-49*
FTLFLG  31-33#  107-91*  107-96*  107-232  107-234*
G$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
HLPO     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$MRD   112-13#  112-56#
I$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$TST    21-12#  82-23   82-23#  82-95   82-130  109-15  109-15#  109-15#
IBE       25-0#
IDU       25-0#
IEO      26-233#
IEI      26-232#
IER       25-0#
INDEX    29-24#  56-26*  56-28   57-27*  57-29   58-25   58-28   60-31*  60-33   62-18   62-22*  64-18   65-16   65-36
         67-18   67-36   68-18*  68-20   69-16*  69-19   69-21   70-12   70-14*  70-16   70-42*  88-32   88-162* 89-33*
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        89-81*  89-90   89-96   91-21*  94-99*  95-35*  95-37   97-36*  98-20*  99-21*  100-204* 100-206 100-221 105-48*
        105-50
INDW    29-23#  63-15   63-34   66-16   66-35   70-44*  88-29   88-163*
INF01B  107-126# 107-130
INFOM1  107-124 107-127#
INFOM2  107-144 107-150#
INFOM4  107-150 107-152#
INFOM5  107-152 107-155#
INFOM6  107-153 107-157#
INFOM7  107-154 107-160#
INFOM8  107-138 107-146#
INFOMA  107-128 107-133#
INFOMD  107-45  107-122#
INFOM   41-158# 107-131
ININT   26-85#  106-49  106-51  107-221 107-223 108-28
INIT1   77-35   77-38#
INOVR   26-105# 100-242
INTPRI  38-35#  77-135* 77-165  77-166
INVEC   38-33#  77-132* 77-165
ISR     25-0#
IXE     25-0#
J$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#
LPO     28-44    34-32    40-72#   73-30
LPOO    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
MOO     28-36    40-65#
MO1     28-37    40-66#
MO2     28-38    40-67#
MO3     28-39    40-68#
MO4     28-40    40-69#
MO5     28-41    40-70#
MO6     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
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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
MTPLEX  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#
```

Cross reference table (CREF V05.00)

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#										

Cross reference table (CREF V05.00)

NOD102	37-108	37-108#	
NOD103	37-109	37-109	37-109#
NOD104	37-110	37-110#	
NOD105	37-124	37-124	37-124#
NOD106	37-125	37-125#	
NOD107	37-127	37-127	37-127#
NOD11	37-28	37-28	37-28#
NOD110	37-128	37-128#	
NOD111	37-130	37-130	37-130#
NOD112	37-131	37-131#	
NOD113	37-134	37-134#	
NOD114	37-137	37-137	37-137#
NOD115	37-138	37-138#	
NOD116	37-139	37-139	37-139#
NOD117	37-140	37-140#	
NOD12	37-29	37-29#	
NOD120	37-141	37-141	37-141#
NOD121	37-142	37-142#	
NOD122	37-143	37-143	37-143#
NOD123	37-144	37-144#	
NOD124	37-145	37-145	37-145#
NOD125	37-146	37-146#	
NOD126	37-147	37-147	37-147#
NOD127	37-148	37-148#	
NOD13	37-30	37-30	37-30#
NOD130	37-149	37-149	37-149#
NOD131	37-150	37-150#	
NOD132	37-151	37-151	37-151#
NOD133	37-152	37-152#	
NOD134	37-155	37-155#	
NOD135	37-156	37-156#	
NOD136	37-157	37-157#	
NOD137	37-158	37-158#	
NOD14	37-31	37-31#	
NOD140	37-159	37-159#	
NOD141	37-160	37-160#	
NOD142	37-161#		
NOD143	37-164	37-164#	
NOD144	37-165	37-165#	
NOD145	37-166	37-166	37-166#
NOD146	37-167	37-167#	
NOD147	37-168	37-168	37-168#
NOD15	37-32	37-32	37-32#
NOD150	37-169	37-169#	
NOD151	37-172	37-172#	
NOD152	37-173	37-173#	
NOD153	37-174	37-174#	
NOD154	37-177	37-177#	
NOD155	37-188	37-188	37-188#
NOD156	37-189	37-189#	
NOD157	37-190	37-190	37-190#
NOD16	37-33	37-33#	
NOD160	37-191	37-191#	
NOD161	37-192	37-192	37-192#
NOD162	37-193	37-193#	
NOD163	37-194	37-194	37-194#

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NOD164  37-195   37-195#
NOD165  37-198   37-198#
NOD166  37-199   37-199#
NOD167  37-200   37-200#
NOD17   37-34    37-34    37-34#
NOD170  37-202   37-202#
NOD171  37-203   37-203   37-203#
NOD172  37-204#
NOD173  37-205   37-205   37-205#
NOD174  37-206   37-206#
NOD175  37-207   37-207   37-207#
NOD176  37-208   37-208#
NOD177  37-209   37-209   37-209#
NOD2    37-21#
NOD20   37-35    37-35#
NOD200  37-210   37-210#
NOD201  37-211   37-211   37-211#
NOD202  37-212   37-212#
NOD203  37-213   37-213#
NOD204  37-216#
NOD205  50-3     50-3#
NOD206  50-4     50-4#
NOD207  50-5#
NOD21   37-36    37-36#
NOD210  50-6     50-6     50-6#
NOD211  50-7#
NOD212  50-8     50-8     50-8#
NOD213  50-9#
NOD214  50-10    50-10    50-10#
NOD215  50-11    50-11#
NOD216  50-12    50-12    50-12#
NOD217  50-13#
NOD22   37-37    37-37    37-37#
NOD220  50-14    50-14    50-14#
NOD221  50-15    50-15#
NOD222  50-16    50-16#
NOD223  50-17    50-17#
NOD224  50-18    50-18    50-18#
NOD225  50-19#
NOD226  50-20    50-20    50-20#
NOD227  50-21#
NOD23   37-38    37-38#
NOD230  50-22    50-22    50-22#
NOD231  50-23    50-23#
NOD232  50-24    50-24#
NOD233  50-25#
NOD234  50-26#
NOD235  50-27#
NOD24   37-39    37-39    37-39#
NOD25   37-40    37-40#
NOD26   37-41#
NOD27   37-45    37-45#
NOD3    37-22    37-22    37-22#
NOD30   37-46    37-46    37-46#
NOD31   37-47    37-47#
NOD32   37-48    37-48    37-48#
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Cross reference table (CREF V05.00)

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NOD33   37-49    37-49#
NOD34   37-50    37-50    37-50#
NOD35   37-51    37-51#
NOD36   37-52    37-52    37-52#
NOD37   37-53    37-53#
NOD4    37-23#
NOD40   37-54    37-54    37-54#
NOD41   37-55    37-55#
NOD42   37-56    37-56    37-56#
NOD43   37-57    37-57#
NOD44   37-58    37-58#
NOD45   37-59    37-59    37-59#
NOD46   37-60    37-60#
NOD47   37-61    37-61    37-61#
NOD5    37-24    37-24    37-24#
NOD50   37-62    37-62#
NOD51   37-66    37-66#
NOD52   37-67    37-67    37-67#
NOD53   37-68#
NOD54   37-69    37-69    37-69#
NOD55   37-70#
NOD56   37-75    37-75#
NOD57   37-76    37-76    37-76#
NOD6    37-25#
NOD60   37-77    37-77#
NOD61   37-78    37-78    37-78#
NOD62   37-79    37-79#
NOD63   37-82    37-82#
NOD64   37-83    37-83#
NOD65   37-84    37-84#
NOD66   37-85    37-85#
NOD67   37-86    37-86#
NOD7    37-26    37-26    37-26#
NOD70   37-87    37-87#
NOD71   37-88    37-88#
NOD72   37-89    37-89#
NOD73   37-92    37-92#
NOD74   37-93    37-93#
NOD75   37-94    37-94    37-94#
NOD76   37-95    37-95#
NOD77   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$SETU  21-12#   21-98    113-48
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OFSET   31-45#  43-29   95-65*  95-78*
OPRFPT  27-66#  99-42
OPBUF   27-35   27-67#  85-39   98-23   98-27   98-29   98-35   98-36   98-48   98-50   99-25   99-26   99-43   99-45
OPCNT   27-19#  85-37*  98-33*  98-37   98-38
OPEND   27-68#  98-25
OPRMM   40-98#  98-27
OPRMSG  26-135# 37-155
OPTYP   38-36#  77-137* 77-138  88-140  100-99  100-131 100-173 106-29
OPTYPM 112-51   112-81#
OPVAR   31-22#  89-72*  96-21   107-79*
OPVAR1  31-23#  89-73*  96-20   107-83*
OTINT   26-86#  103-102  106-44  107-34  107-218  108-49
OUTH1  107-36   107-39#
OUTHDL 103-105  106-48   107-33#  107-220
OUTHE2 107-253  107-256#
OUTHE3 107-216  107-222  107-232#
OUTHE4 107-217# 107-227  107-257
OUTHE5 107-219  107-221#
OUTHE6 107-233  107-252#
OUTHEX 107-66   107-76   107-80   107-84   107-115  107-126  107-156  107-159  107-178  107-196  107-211  107-214#
OUTVEC  38-34#  77-133*  77-134*  77-166
OVRCNT  31-35#  107-105* 107-195  107-210  107-215  107-258*
P$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$RADX  28-57#  74-117*  74-120*  74-127*  74-134   74-162   74-170
P$TR5   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     40-81#  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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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    89-58
PTR23    29-9#    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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Cross reference table (CREF V05.00)

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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
RPTO     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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Cross reference table (CREF V05.00)

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RPTSS    26-183#  47-31    49-17    49-22    50-14
RPTTSS   47-33    47-43#
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*
RSEL3    43-69    103-138  107-266#
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*
RTS      26-210#  34-6
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*
RXQ      26-73#   46-50
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#
S$LSYM   21-12#   23-59#   43-30#   43-34#   43-38#   43-56#   43-65#   43-70#   43-74#   45-57#   47-16    47-16    47-16    47-16#
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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 reference table (CREF V05.00)

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SMTBR   40-64#   89-55
SMTEND  28-33#   84-70
SMTFL   40-55#   88-145
SMTIV   40-63#   88-112
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SMTLPB  40-60#   89-29
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SMTRH   40-53#   88-85
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SMTYP7  28-27    40-51#
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SMWOP   47-134   73-22#  82-89   84-84
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SLST    26-169#  37-203
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SQD     26-212#  34-8
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STATUS  26-136#  37-107
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STXQ    40-198#  46-39
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Cross reference table (CREF V05.00)

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	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
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	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#
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	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#
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	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#
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	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
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	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#
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	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#
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	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#
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        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#   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#   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#
        112-52   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$TEST  21-12#   82-23    82-23    82-23#   113-48
T$TSTM  21-12#   43-29    43-30    43-33    43-34    43-37    43-38    43-55    43-56    43-64    43-65    43-69    43-70    43-73
        43-74    46-115   46-118   47-10    47-16    47-24    47-28    47-85    47-103   47-108   47-115   47-123   47-124   47-145
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                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   77-37   77-40   77-42   77-44   77-47   77-52
                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
T$TSTS          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*  53-42   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*
                94-75   94-81   94-90*  94-91   94-114* 95-46*  96-22*  97-76*  97-83*  97-97*  97-101* 97-113* 98-36*  98-45*
                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
TEMP5           31-51#  46-81*  46-95*  46-130  47-122* 47-136* 47-141* 47-146  47-175* 47-208* 47-209  68-17*  68-25   69-15*
                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*
TM              26-213# 34-9
TOIN1           103-90  103-101#
TOIN2           103-102#
TOINOT          103-83# 103-103 103-109
TOOR1           106-33  106-43#
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
TRA             26-16#  86-18
TRAMOD          26-150# 37-59
TRBB            26-67#  55-29   77-149  88-36   88-54   89-27
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TRBTOT   29-21#   88-14*   88-79    88-125*  88-143   88-158*  89-16    89-31    89-48
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#
TRVSPA   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*
TSSOA    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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TSS6A    35-8      41-9#
TSS7A    35-9      41-10#
TSSA     35-74#    47-43*    47-46*    47-50*    47-54*    47-55*    47-58*    47-63     47-65     104-17*   104-19*   104-24    104-26    104-28*
TSSE     35-73#    47-47*    47-51*    47-56*    47-65     100-194*  100-227*  104-23    104-29*
TSSFLG   31-34#    47-61*    107-133*  107-256
TSSIND   35-40#    88-40     107-146
TSSKEY   35-75#    47-48     47-52     47-54     47-56     49-16*    49-21*    49-38*    49-46*    49-47*
TSSLST   35-2#     88-47     107-148
TTL      26-26#    82-96     89-21     89-25
TTLLOP   26-158#   37-188
TTOTCC   31-13#    54-93     82-50*    82-141    82-146    82-163*   84-50*
TXBUF    29-3#     54-61     82-59     84-53     97-96
TXC      26-72#    46-45
TXMTOT   31-12#    54-81     60-29     82-65*    82-148*   82-150    82-165*   84-45     84-49*    89-8      93-23
TXNC     41-159#   97-94
TXON2    91-18#
TXONLY   32-28     91-17#
TXPTR    31-3#     54-74*    54-76*    54-77     54-86*    54-88     82-52*    82-63     82-149*   82-157*   82-158    82-162*   84-51*    84-52
         89-57*
TXQ      26-71#    46-40
TXSTAK   29-30#    89-70
TXTHEM   38-44     41-148#
UAM      25-0#
ULRCLS   65-35#    94-104
ULRPLS   56-30     63-33#    68-22     94-48     94-85
ULTCLS   67-35#    70-18     94-118
ULTPLS   66-34#    70-21     94-73
UNKM     38-101    40-226#   97-130
UPTA1    94-78     94-85#
UPTA4    94-72     94-77#
UPTABL   94-71#
UPTEX    94-83     94-96#
VALTRB   28-62#    88-26     88-102*   88-161*
VECTOR   112-49    112-77#
WRDE5A   71-22#    71-24
WRDE5B   71-21#    71-26
WRDE5D   71-32#    71-34
WRDEFP   71-15#    82-81     88-20
WRFLG    28-60#    55-16*    82-136    88-28*
WRIP1    104-18    104-20#   104-30
WRIPEX   104-27    104-31#
WRIPP    100-228   104-19#
WRIPPG   100-195   104-17#
WRMCS    79-24     100-202   105-15#   107-241
X$       21-36#    37-19     37-19     37-19#    37-20     37-20     37-20#    37-21     37-21     37-21#    37-22     37-22     37-22#    37-23
         37-23     37-23#    37-24     37-24     37-24#    37-25     37-25     37-25#    37-26     37-26     37-26#    37-27     37-27     37-27#
         37-28     37-28     37-28#    37-29     37-29     37-29#    37-30     37-30     37-30#    37-31     37-31     37-31#    37-32     37-32
         37-32#    37-33     37-33     37-33#    37-34     37-34     37-34#    37-35     37-35     37-35#    37-36     37-36     37-36#    37-37
         37-37     37-37#    37-38     37-38     37-38#    37-39     37-39     37-39#    37-40     37-40     37-40#    37-41     37-41     37-41#
         37-45     37-45     37-45#    37-46     37-46     37-46#    37-47     37-47     37-47#    37-48     37-48     37-48#    37-49     37-49
         37-49#    37-50     37-50     37-50#    37-51     37-51     37-51#    37-52     37-52     37-52#    37-53     37-53     37-53#    37-54
         37-54     37-54#    37-55     37-55     37-55#    37-56     37-56     37-56#    37-57     37-57     37-57#    37-58     37-58     37-58#
         37-59     37-59     37-59#    37-60     37-60     37-60#    37-61     37-61     37-61#    37-62     37-62     37-62#    37-66     37-66
         37-66#    37-67     37-67     37-67#    37-68     37-68     37-68#    37-69     37-69     37-69#    37-70     37-70     37-70#    37-75
         37-75     37-75#    37-76     37-76     37-76#    37-77     37-77     37-77#    37-78     37-78     37-78#    37-79     37-79     37-79#
         37-82     37-82     37-82#    37-83     37-83     37-83#    37-84     37-84     37-84#    37-85     37-85     37-85#    37-86     37-86
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	37-86#	37-87	37-87	37-87#	37-88	37-88	37-88#	37-89	37-89	37-89#	37-92	37-92	37-92#	37-93
	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#
	37-107	37-107	37-107#	37-108	37-108	37-108#	37-109	37-109	37-109#	37-110	37-110	37-110#	37-124	37-124
	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
	37-131	37-131#	37-134	37-134	37-134#	37-137	37-137	37-137#	37-138	37-138	37-138#	37-139	37-139	37-139#
	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
	37-190#	37-191	37-191	37-191#	37-192	37-192	37-192#	37-193	37-193	37-193#	37-194	37-194	37-194#	37-195
	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#	
X$ALWA	21-12#													
X$FALS	21-12#	112-53												
X$OFFS	21-12#	112-53												
X$TRUE	21-12#													

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BCOMPL    1-150#  21-120#  77-41   77-43   77-48   82-92
BERROR    1-190#  21-120#
BGNAU     1-230#  21-120#  81-9
BGNAUT    1-310#  21-120#  78-10
BGNCLN    1-390#  21-120#  79-8
BGNDU     1-470#  21-120#  80-8
BGNHRD    1-550#  21-120#  112-13
BGNHW     1-660#  21-120#  23-10
BGNINI    1-770#  21-120#  77-8
BGNMOD    1-850#  21-120#  21-33
BGNMSG    1-980#  21-120#  43-28   43-32   43-36   43-54   43-63   43-68   43-72
BGNPRO    1-1060#  21-120#  76-8
BGNPTA    1-1140#  21-120#
BGNRPT    1-1440#  21-120#  75-9
BGNSEG    1-1520#  21-120#
BGNSET    1-1610#  21-120#
BGNSFT    1-1820#  21-120#
BGNSRV    1-1930#  21-120#  45-33   108-22  108-42
BGNSUB    1-2010#  21-120#
BGNSW     1-2250#  21-120#
BGNTST    1-2360#  21-120#  82-23
BNCOMP    1-2660#  21-120#  77-45   77-57   77-63   77-72   77-97
BNERRO    1-2700#  21-120#
BREAK     1-2740#  21-120#  100-106  100-139  103-101  106-43  107-217
BRESET    1-2780#  21-120#  77-52
CKLOOP    1-2820#  21-120#
CLI      21-400#  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
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         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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         50-23   50-24   50-25   50-26   50-27
CLOCK     1-2860#  21-120#  77-56   77-62
CLOSE     1-2920#  21-120#
CLRVEC    1-2960#  21-120#
COMMEN    1-3010#  21-120#
DELAY     1-3220#  21-120#
DESCRI    1-3170#  21-120#  39-36
DEVTYP    1-3410#  21-120#  39-25
DISPAT    1-3460#  21-120#  22-8
DISPLA    1-3600#  21-120#
DOCLN     1-3760#  21-120#  77-37   107-184  107-208
DODU      1-3800#  21-120#
DORPT     1-3850#  21-120#
ENDAU     1-3890#  21-120#  81-36
ENDAUT    1-4010#  21-120#  78-19
ENDCLN    1-4130#  21-120#  79-43
ENDCOM    1-4250#  21-120#
ENDDU     1-4410#  21-120#  80-35
ENDHRD    1-4530#  21-120#  112-56
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Cross reference table (CREF V05.00)

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ENDINI   1-475#  21-12#  77-185
ENDMOD   1-487#  21-12#  113-49
ENDMSG   1-500#  21-12#  43-30   43-34   43-38   43-56   43-65   43-70   43-74
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
FEQUAL   1-810#  21-12#
GETBYT   1-824#  21-12#
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
GPRMD    1-903#  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#
       88-69    88-69#  97-41   97-41#  98-27   98-27#  112-50  112-51
GPRML    1-934#  21-12#  112-27  112-52  112-54
HEADER   1-954#  21-12#  21-98
INLOOP   1-962#  21-12#
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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M$CHEC   1-E18#  21-12#  43-76   43-76#  77-169  77-169#  79-27   79-27#  80-19   80-19#  81-20   81-20#  82-95   82-95#
       82-130   82-130#
M$CNTO   1-E82#  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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     112-51   112-51#  112-52  112-52#  112-54  112-54#
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     47-108   47-108   47-108#  47-115  47-115  47-115#  47-123  47-123#  47-124  47-124  47-124#  47-145  47-145  47-145#
     47-146   47-146   47-146#  47-154  47-154  47-154   47-154#  47-162  47-162  47-162  47-162#  47-171  47-171#  47-188
     47-188#  47-203   47-203#  47-209  47-209#  49-5     49-5#   49-32   49-32#  49-43   49-43#  51-30   51-30#  51-34
     51-34#   51-36    51-36#  52-30   52-30#  55-17   55-17#  55-25   55-25#  73-33   73-33   73-33   73-33   73-33#
     73-71    73-71   73-71   73-71   73-71#  74-138  74-138#  74-176  74-176#  77-80   77-80#  82-42   82-42#  82-83
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                88-98#  88-112  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   89-23#   89-29   89-29#   89-37   89-37#   89-38   89-38#   89-55   89-55#   97-63    97-63#   97-138
                97-138  97-138# 99-24    99-24#  99-42    99-42#  107-155  107-155# 107-158  107-158  107-158# 107-177  107-177  107-177
               107-177 107-177 107-177#
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                39-25#  39-36   39-36#
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                43-70   43-70#  43-74    43-74#  45-57    45-57#  75-41    75-41#  76-14    76-14#  77-185   77-185#  78-19    78-19#
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               113-49  113-49#
M$DEFA           1-E70#  21-12#  47-16    47-16#  55-26    55-26#  77-76    77-76#  82-103   82-103#  88-52    88-52#   88-67    88-67#
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               100-127 100-127# 103-97    103-97#  103-119  103-119# 103-141  103-141# 106-40   106-40#  107-114  107-114# 107-197  107-197#
               107-212 107-212#
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M$ESCS           1-D10#  21-12#
M$EXCP           1-E01#  21-12#  47-16    47-16   47-16#   55-26   55-26    55-26#  77-76    77-76   77-76#   82-103   82-103   82-103#
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                98-27#  112-48  112-48   112-48#  112-49   112-49  112-49#  112-50  112-50   112-50#  112-51   112-51   112-51#
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M$EXTJ           1-D18#  21-12#  43-76    43-76#  77-169#  79-27#  80-19    80-19#  81-20    81-20#  82-95#   82-130#
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               113-48  113-48#
M$GENB           1-C38#  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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               112-56  112-56# 113-49    113-49#
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Cross reference table (CREF V05.00)

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	43-68	43-68#	43-72	43-72#	45-33	45-33#	75-9	75-9#	76-8	76-8#	77-8	77-8#	78-10	78-10#
	79-8	79-8#	80-8	80-8#	81-9	81-9#	108-22	108-22#	108-42	108-42#	112-13	112-13#	113-48	113-48#
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	43-29	43-29	43-29	43-29	43-29#	43-29#	43-29#	43-29#	43-29#	43-29#	43-29#	43-30	43-30#	43-33
	43-33	43-33	43-33	43-33	43-33	43-33#	43-33#	43-33#	43-33#	43-33#	43-34	43-34#	43-37	43-37
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	47-103	47-103	47-103	47-103	47-103#	47-103#	47-103#	47-103#	47-108	47-108	47-108	47-108	47-108	47-108
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	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#
	47-162#	47-162#	47-162#	47-162#	47-162#	47-162#	47-171	47-171	47-171	47-171	47-171	47-171#	47-171#	47-171#
	47-171#	47-188	47-188	47-188	47-188	47-188	47-188#	47-188#	47-188#	47-188#	47-203	47-203	47-203	47-203
	47-203	47-203#	47-203#	47-203#	47-203#	47-209	47-209	47-209	47-209	47-209	47-209	47-209#	47-209#	47-209#
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	73-71#	73-71#	73-71#	73-71#	74-138	74-138	74-138	74-138	74-138	74-138#	74-138#	74-138#	74-138#	74-176
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M$HNAP    1-B24#  21-12#  21-98   21-98#
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Cross reference table (CREF V05.00)

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MANUAL          1-;62#    21-12#    82-91
MEMORY          1-;66#    21-12#
NODCL          21-45#     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
                50-9      50-10     50-11     50-12     50-13     50-14     50-15     50-16     50-17     50-18     50-19     50-20     50-21     50-22
                50-23     50-24     50-25     50-26     50-27
OPEN            1-;71#    21-12#
POINTE          1-;76#    21-12#    21-70
PRINTB          1-<39#    21-12#    43-29     43-33     43-37     43-55     43-64     43-69     43-73
PRINTF          1-<79#    21-12#    46-115    46-118    47-10     47-24     47-28     49-5      49-32     49-43     51-30     51-34     5i-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
PRINTS          1-=19#    21-12#    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
PRINTX          1-=59#    21-12#
READBU          1-=99#    21-12#    77-71
READEF          1->03#    21-12#    77-40     77-42     77-44     77-47
RFLAGS          1->08#    21-12#
SETPRI          1->13#    21-12#    77-168    79-26
SETVEC          1->18#    21-12#    77-153    77-165    77-166
SLASH           1->24#    21-12#
STARS           1->38#    21-12#
SVC             1->52#    21-11#    21-12
XFER            1-@12#    21-12#    43-76#    77-169#   79-27#    80-19#    81-20#    82-95#    82-130#
XFERF           1-@16#    21-12#    112-53
XFERT           1-@20#    21-12#
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