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

                        IDENTIFICATION
                        --------------

                PRODUCT CODE:   AC-F597C-MC

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

                PRODUCT DATE:   MARCH 1984

                MAINTAINER:     MERRIMACK DIAGNOSTIC ENGINEERING

                AUTHOR:         BRUCE LUHRS - BRUCE RIBOLINI
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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					

2.7 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 2,0 9,SPACES & 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.

3.5.3 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 BECAUSE 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 OR>
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

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.

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                               ;SEL6 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 PDI 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 BSEL/		
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  F 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

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

THE FOLLOWING ARE ONLY VALID IN PIP 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.
LOCAL.MODEM	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 DEPQ# MD-11-DZQMQ-A1

ITEP NODE SHOULD ALWAYS BE RUN WITH SW 4 * TO O

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 MULTIPOINT
CONTROL STATIONS. THE SEQUENCE BELOW IS FOR POINT TO POINT
IF YOU WISH TO DO MULTIPOINT ADD THE COMMAND WITH THE •

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

WHAT THE ABOVE COMMAND SEQUENCE MEANS:

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

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

```
        INI RXQ TXQ RXC 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 PROBARLY 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 MULTIPOINT 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 O'S AND 1'S MESSAGE 2 IS 20 BYTES LONG AND CONTAINS DATA OF THE CCITT PATTERN. MESSAGE THREE IS 30 BYTES LONG AND CONTAINS ALPHANUMERICS FOR DATA. THE EXPECT LIST ALSO CONTAINS 3 MESSAGES. MESSAGE 1 IS 11 BYTES LONG AND CONTAINS 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
        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 EMPT
```

THEN YOU COULD TO A TRIB ESTABL[illegible]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
WHA! 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)= (0)  13650 ?

GLOBAL POLL PARAMETERS
0000015  NUM SYNC
NEW POLL PARAMETERS (WORD)= (0)  15 ?

013650  CARRIER WAIT TIMER COUNTER
NEW POLL PARAMETERS (WORD)= (0)  13650 ?

000062  DELTA T
NEW POLL PARAMETERS (WORD)= (0)  13650 ?

000000  DEAD T
NEW POLL PARAMETERS (WORD)= (0)  13650 ?

000000  POLL DELAY
NEW POLL PARAMETERS (WORD)= (0)  13650 ?

DCLT> (A)  ?

7.3.1 EXAMPLES STATISTICAL COMMANDS


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

DCLT> (A)  ?

THE SAME WILL HAPPEN IF YOU USE THE ?

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

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

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

7.3.1 EXAMPLES RUN COMMMANDS

YOU CAN FIND SEVERAL EXPAMLES OF THE RUN COMMMAND IN 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 OP 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     F-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 MHFE 0 SEL 0 STR 0
                000     LOCAL STA ERRS
                        OVRN 0 MHFE 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

IF YOU ENTERED REPORT FROM THE DCLT LEVEL
THEN TYPING
        EXIT
WILL RETURN YOU TO THE DCLT LEVEL
        DCLT>
```

&

7.4 THINGS TO WATCH OUT FOR

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

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

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

```
                                .SBTTL  PROGRAM HEADER

002000                          BGNMOD

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

002000                          POINTER BGNRPT,BGNAU,BGNDU

002000                          HEADER  CZCLM,C,0,1800.,0,PRIO7
002000                                                          L$NAME::
002000  103                                                             .ASCII /C/
002001  132                                                             .ASCI. /Z/
002002  103                                                             .ASCII /C/
002003  114                                                             .ASCII /L/
002004  115                                                             .ASCII /M/
002005  000                                                             .BYTE   0
002006  000                                                             .BYTE   0
002007  000                                                             .BYTE   0
002010                                                          L$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::
```

PROGRAM HEADER

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

```
                        .SBTTL  DISPATCH TABLE

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

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

DEFAULT HARDWARE P-TABLE

```
                                .SBTTL  DEFAULT HARDWARE P-TABLE

                                ;++
                                ; THE DEFAULT HARDWARE P-TABLE CONTAINS DEFAULT VALUES OF
                                ; THE TEST-DEVICE PARAMETERS.  THE STRUCTURE OF THIS TABLE
                                ; IS IDENTICAL TO THE STRUCTURE OF THE HARDWARE P-TABLES,
                                ; AND IS USED AS A "TEMPLATE" FOR BUILDING THE P-TABLES.
                                ;--

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

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

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


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

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


002150                                  ENDHW
002150                                                                  L10000:
```

```
                                .SBTTL  GLOBAL EQUATES SECTION


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

002150                                  .EQUAL.S
                                ;
                                ; BIT DEFINITIONS
                                ;
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                          TDU==    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
                                
001000                                  BUFLIM=512.             ;MAX BUFFER SIZE IN BYTES
                                                                ;  APPLIES TO TX,RX AND CMP BUFFS
000017                                  MSGLIM=15.              ;MAX NO. OF MESSAGES PER BUFFER
                                                                ;  (FOR EACH INCREMENT (+1) TO MSGLIM,
                                                                ;   ADD 6 WORDS TO THE POINTER TABLE
                                                                ;   (PTRTAB:) SINCE THIS MEANS 2 MORE
                                                                ;   "POINTER" WORDS PER BUFFER.
                                
004000                                  RBFLIM=2048.            ;MAX NUMBER OF BYTES FROM ALL TRIBS
                                                                ;ALLOWS FOR 32 TRIBS TIMES DEFAULT
                                                                ;ITEP MESSAGE SIZE (58 BYTES).
                                ;MODE OF OPERATION EQUATES
000000                                  REC=0                   ;RECEIVE MODE
000001                                  TRA=1                   ;TRANSMIT MODE
000002                                  PAS=2                   ;PASSIVE MODE
000003                                  ACT=3                   ;ACTIVE MODE
000004                                  DOW=4                   ;DOWN-LINE-LOAD MODE
000005                                  TAL=5                   ;TALK MODE
000006                                  LIS=6                   ;LISTEN MODE

                                ;MAINT LOOP TYPE EQUATES

000000                                  NONE=   0               ;NO LOOP
000001                                  TTL=    1               ;INTERNAL TTL
000002                                  CABLE=  2               ;CABLE LOOP
000003                                  MODLOC= 3               ;MODMEM LOCAL
000004                                  MODREM= 4               ;MODEM REMOTE
000005                                  MOP=    5               ;MOP

                                ;CLOCK ENABLE VALUES TO BE LOADED IN CLK'S CSR

000100                                  LCLKEN= 100             ;L-CLOCK CSR VALUE TO ENABLE THE CLOCK
000111                                  PCLKEN= 111             ;P-CLOCK CSR VALUE TO ENABLE THE CLOCK
001600                                  PCLKCT= 1600            ;P-CLOCK COUNT SET REGISTER FOR COUNTER

                                ;PARAM WORD EQUATES

000001                                  STATB=  BIT0            ;OPERATOR AWAKE ASKED FOR
000002                                  DATCKB= BIT1            ;DATA CHECK BIT
000004                                  ECHOB=  BIT2            ;ECHO BIT
000010                                  MOCHK=  BIT3            ;MODEM CHECK/NO CHECK
000020                                  CRCB=   BIT4            ;CRC CALCULATE ASKED FOR
000040                                  PROTOB= BIT5            ;PROTOCOL PROCESSING ASKED FOR

                                ;OPTION TYPE EQUATES


000000                                  DMP=    0       ;DMP OPTION
000001                                  DMV=    1       ;DMV
000004                                  DMP6=   4       ;DMP 8206

000001                                  MTP=    BIT0    ;MULTIPOINT IF 1 IF PTPT =0
000002                                  TRBB=   BIT1    ;TRIB BIT IF 0=TRIB IF 1=CONTROL

```

```
                                ;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
```

GLOBAL EQUATES SECTION

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

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


                                ; DEVICE BIT DEFINITONS

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

```
                                .SBTTL  GLOBAL DATA SECTION
                                .SBTTL          DEFAULT MESSAGE DEFINITIONS AND TABLES


                                ;**
                                ; THE GLOBAL DATA SECTION CONTAINS DATA THAT ARE USED
                                ; IN MORE THAN ONE TEST.
                                ;--


                                ;MESSAGE BYTE COUNT TABLE

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


                                ;MESSAGE ADDRESS TABLE

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

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

```
                002320  166632  016741
                002324                          EMSG4:
                002324                          MSG5:                           ;"INTERPROCESSOR TEST PROGRAM'S (ITEP)" MESSAGE
                                                                                ; #1, (DP1:)
                002324      177     177     044         .ASCII  <177><177>/$A THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG./
                002327      101     040     124
                002332      110     105     040
                002335      121     125     111
                002340      103     113     040
                002343      102     122     117
                002346      127     116     040
                002351      106     117     130
                002354      040     112     125
                002357      115     120     105
                002362      104     040     117
                002365      126     105     122
                002370      040     124     110
                002373      105     040     114
                002376      101     132     131
                002401      040     104     117
                002404      107     056
                002406      015     012     001         .ASCIZ  <15><12><001><177><177><177><177>
                002411      177     177     177
                002414      177     000
                002416                          EMSG5:
                002416                          MSG6:                           ;ALPHA-NUMERICS (OR FUTURE COMM TURNAROUND MSG)
                002416      043     044     041         .ASCII  /#$!" &'()*+,-.0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ/
                002421      042     047     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
                002507      057     133     134         .ASCIZ  ?/[\]↑_*?
                002512      135     136     137
                002515      045     000
                002517                          EMSG6:
                                                .EVEN
                                                ; ********************************************************************************
                                                ;THESE THREE STORAGE AREAS MUST NOT BE SEPARATED !!!!
                002520      045     116     045 OPBFPT: .ASCII  /%N%A/
                002523      101
                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
```

DEFAULT MESSAGE DEFINITIONS AND TABLES

```
    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
```

```
                                        .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
011516                          PTR13:  .BLKW   MSGLIM*2
011606                          PTR23:  .BLKW   MSGLIM*2
011706                                  .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.
016014                          RXSTAK: .BLKW   54.     ;TX AND RX INT STACKS
016166                          RXSKEN:
```

```
 1                                          ;POLL DEFAULTS FOR TRIBS
 2
 3 016166  000000                  POLDEF:  .WORD   0          ;TX DELAY TIMER
 4 016170  377                              .BYTE   377        ;Q FOR ACTIVE
 5 016171  000                              .BYTE   0          ;R FOR ACTIVE
 6 016172  000                              .BYTE   0          ;Q FOR INACTIVE
 7 016173  100                              .BYTE   100        ;R FOR INACTIVE
 8 016174  000                              .BYTE   0          ;Q FOR PDEAD
 9 016175  020                              .BYTE   20         ;R FOR PDEAD
10 016176  010                              .BYTE   10         ;#NDM INACTIVE
11 016177  002                              .BYTE   2          ;#T/O TO PDEAD
12 016200  010                              .BYTE   10         ;#T/O TO DEAD
13 016201  004                              .BYTE   4          ;MAX MESSAGE COUNTER
14                                          ;       DMP                                DMV
15 016202  005670                  DMVDF1:  .WORD   5670       ;SELCET TIMER [3 SECS ]     454
16 016204  013560                  DMVDF2:  .WORD   13560      ;INTERVAL TIMER [6 SECS ]  1130
17
18                                          ;GLOABAL DEFAULTS
19
20 016206  000015                  GLBDEF:  .WORD   15         ;NUMSYNC
21 016210  013560                  DMVDF3:  .WORD   13560      ;CARRIER WAIT TIMING [6 SECS]  1130
22 016212  000062                  DMVDF4:  .WORD   62         ;DELTA T                     24
23 016214  023420                  DMVDF5:  .WORD   23420      ;DEAD T                    1750
24 016216  000000                           .WORD   0          ;POLL DELAY
25 016220                          GLBEND:
26
27
28
29
30
31
32
33
34
35                                          ;TRIB LIST OF POLL PARAMETERS
36 016220                          POLLIS:  .BLKW   8.*32.
37
38                                          ;GLOBAL LIST OF POLL PARAMETERS
39 017220                          GLBPLS:  .BLKW   5.
40
```

```
;*****************************************************************************
;                                                                             *
;* 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.                                            *
;*****************************************************************************
```

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 INI: 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)
```

F6


```
                                ;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

000004                  MOBITS: .WORD   CTS             ;CLEAR TO SEND (CIRCUIT CB)
000010                          .WORD   DSR             ;DATA SET READY (CIRCUIT CC)
000001                          .WORD   DCD             ;DATA CARRIER DETECT (CIRCUIT CF)
000040                          .WORD   RTS             ;REQUEST TO SEND (CIRCUIT CA)
000200                          .WORD   RI              ;RING INDICATOR (CIRCUIT CE)
040000                          .WORD   SQD             ;SIGNAL QUALITY DETECT (CIRCUIT CG)
002000                          .WORD   TM              ;MODEM IN TEST MODE (RS 449 ONLY CIRCUIT TM)
020544                  MOBITE:

                                ;TABLE OF ADDRESSES OF MODEM SIGNAL MESSAGE POSITIONS

031530                  MOMSGS: .WORD   EVMCTS          ;CLEAR TO SEND (CIRCUIT CB)
031534                          .WORD   EVMDSR          ;DATA SET READY (CIRCUIT CC)
031540                          .WORD   EVMDCD          ;DATA CARRIER DETECT (CIRCUIT CF)
031544                          .WORD   EVMRTS          ;REQUEST TO SEND (CIRCUIT CA)
031550                          .WORD   EVMRI           ;RING INDICATOR (CIRCUIT CE)
031554                          .WORD   EVMSQD          ;SIGNAL QUALITY DETECT (CIRCUIT CG)
031560                          .WORD   EVMTM           ;MODEM IN TEST MODE (RS 449 ONLY CIRCUIT TM)

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

030001                  EVTLST: .WORD   EDTXQ   ;TRANSMIT MESSAGE QUEUED
030025                          .WORD   EDTXC   ;TRANSMIT OF MESSAGE COMPLETE
030054                          .WORD   EDRXQ   ;RECEIVE MESSAGE SPACE QUEUED
030101                          .WORD   EDRXC   ;MESSAGE RECEIVED - RECEIVE COMPLETE
030127                          .WORD   EDDER   ;DEVICE INFORMATION
030174                          .WORD   EDDVI   ;DEVICE INITIALIZE STARTED
030144                          .WORD   EDDCK   ;DATA COMPARISON DONE
026765                          .WORD   LPO     ;NULL STRING
030222                          .WORD   EDDLE   ;DATA COMPARE LENGTH ERROR
030257                          .WORD   EDDDE   ;DATA COMPARE DATA ERROR
030312                          .WORD   EDEOP   ;END OF PASS

                                ;LOCATIONS USED DURING EVENT REPORTING

000000                  EVTSEC: .WORD   0       ;TEMPORARY LOCS TO KEEP EVENT TIME WHILE REPORTING
000000                  EVTMIN: .WORD   0
000000                  EVTTCK: .WORD   0
000000                  EVTADD: .WORD   0       ;TEMP. LOC. TO HOLD ADDRESS DURING EVENT REPORTING
000000                  EVTBCT: .WORD   0       ;       "       "  BYTE COUNT   "       "       "
000000                  EVTTMP: .WORD   0       ;       "       "  OTHER DATA   "       "       "

                                ;REPORT CODING DISPATCH TABLE

043444                  RPTDSP: .WORD   RPTTXQ  ;TRANSMIT QUEUED ENTRY DECODING
043444                          .WORD   RPTTXQ  ;TRANSMIT COMPLETE ENTRY DECODING
043444                          .WORD   RPTTXQ  ;RECEIVER QUEUED ENTRY DECODING
043444                          .WORD   RPTTXQ  ;RECEIVER COMPLETE ENTRY DECODING
043522                          .WORD   RPTDER  ;DEVICE ERROR ENTRY DECODING
043622                          .WORD   RPTDVI  ;DEVICE INIT ENTRY DECODING
044056                          .WORD   RPTDCK  ;DATA COMPARISON ENTRY DECODING
044136                          .WORD   RPTMSC  ;PLACE HOLDER
044056                          .WORD   RPTDLE  ;DATA COMPARISON LENGTH ERROR
043776                          .WORD   RPTDDE  ;DATA COMPARISON DATA ERROR
```

```
     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      00:                         .BYTE   2       ;INDEX FOR  TSS 20
021003      002                         .BYTE   2       ;INDEX FOR  TSS 21
```

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

```
                                        .SBTTL          TABLE FOR GSS ASCII AND ACTION

                                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

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

TABLE FOR GSS ASCII AND ACTION

```
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$
```

COMMAND LINE ACTION TREE

```
                                N86$:   CLI     <'T>,0,N30$                     ;IS NEXT CHAR A "T"
                                        CLI     CLISTR,TRAMOD,N87$,<'RANSMIT'>  ; IS REST OF WORD "RANSMIT"
                                        CLI     CLIBR,0,N115$                   ;  IF YES, DO "TRANSM",BR N115$
                                N87$:   CLI     CLISTR,TALMOD,N30$,<'ALK'>      ; IS REST OF WORD "ALK"
                                        CLI     CLIBR,0,N115$                   ;  IF YES, DO "TALK",BR N115$
                                                                                ; IF NO, ERROR - EXIT


                                ;SECOND KEYWORD (FOR CLEAR OR SHOW)
                                N100$:  CLI     CLISPA,0,N30$                   ;SKIP LEADING SPACES, NONE=ERR
                                N102$:  CLI     CLISTR,CSHEXP,N104$,<'EXPECTBUFF'>      ;IS NEXT WORD "EXPE..."
                                        CLI     CLIEXI,0                                ; IF YES, DO CLR-EXP,EXIT
                                N104$:  CLI     CLISTR,CSHTRN,N30$,<'TRANSMITBUFF'>     ;IS NEXT WORD "TRANS.."
                                        CLI     CLIEXI,0                                ; IF YES, DO CLR-TRN,EXIT
                                                                                        ;IF NO - ERROR - EXIT


                                ;SECOND KEYWORD (FOR SET)
                                N110$:  CLI     CLISPA,0,N30$
                                N111$:  CLI     CLISTR,SETEXP,N112$,<'EXPECTMSG'>
                                        CLI     CLIBR,0,N120$
                                N112$:  CLI     CLISTR,SETTRN,N30$,<'TRANSMITMSG'>
                                        CLI     CLIBR,0,N120$

                                ;GET ADDRESSES FOR DUMP COMMAND
                                N50$:   CLI     CLIALP,0,N51$
                                N51$:   CLI     CLISPA,0,N52$
                                N52$:   CLI     CLIOCT,DMPS,N30$
                                        CLI     <'->,NOTNUM,N125$
                                        CLI     CLIOCT,DMPE,N30$
                                        CLI     <'/>,NOTNUM,N125$
                                        CLI     <'B>,DMPQ,N30$
                                        CLI     CLIBR,0,N125$

                                ;QUALIFIERS FOR THE RUN COMMAND
                                N115$:  CLI     CLIALP,0,N114$
                                N114$:  CLI     <'/>,NOTNUM,N125$
                                        CLI     CLISTR,NO,N116$,<'NO'>
                                N116$:  CLI     <'C>,0,N117$
                                        CLI     CLISTR,CHECK,N117$,<'HECK'>
                                        CLI     CLIBR,0,N115$


                                N117$:  CLI     CLISTR,STATUS,N118$,<'STATUS'>
                                        CLI     CLIBR,0,N115$
                                N118$:  CLI     CLISTR,ECHO,N130$,<'ECHO'>
                                        CLI     CLIBR,0,N115$

                                N130$:  CLI     CLISTR,0,N132$,<'PASS'>
                                        CLI     CLIBR,0,N150$

                                N132$:  CLI     CLISTR,MOSC,N131$,<'MODEM'>
                                        CLI     CLIBR,0,N115$

                                N131$:  CLI     CLISTR,0,N30$,<'LOOP'>
                                        CLI     CLIBR,0,N140$

                                ;GET MESSAGE TYPE FOR SET MESSAGE COMMANDS
```

```
                                N120$:  CLI     <'=>,0,N30$

                                ;   LOOK FOR DEFAULT MESSAGE NAME
                                N60$:   CLI     CLISTR,CMSG1,N61$,<'ONES'>
                                        CLI     CLIBR,0,N121$
                                N61$:   CLI     CLISTR,CMSG0,N62$,<'ZEROES'>
                                        CLI     CLIBR,0,N121$
                                N62$:   CLI     CLISTR,CMSG2,N63$,<'1ALT'>
                                        CLI     CLIBR,0,N121$
                                N63$:   CLI     CLISTR,CMSG3,N64$,<'0ALT'>
                                        CLI     CLIBR,0,N121$
                                N64$:   CLI     CLISTR,CMSG5,N65$,<'ITEP'>
                                        CLI     CLIBR,0,N121$
                                N65$:   CLI     CLISTR,CMSG4,N66$,<'CCITT'>
                                        CLI     CLIBR,0,N121$
                                N66$:   CLI     CLISTR,CMSG6,N67$,<'ALPHA'>
                                        CLI     CLIBR,0,N121$
                                N67$:   CLI     CLISTR,SETET,N68$,<'TRANSMIT'>
                                        CLI     CLIBR,0,N125$

                                ;   LOOK FOR QUOTED MESSAGE
                                N68$:   CLI     <'">,QPRMSG N30$
                                N70$:   CLI     <'">,ENDQO,N71$
                                        CLI     CLIBR,0,N121$
                                N71$:   CLI     CLISPA,0,N72$
                                N72$:   CLI     CLIALN,0,N73$           ;ONLY A-Z,SP,TAB, OR 0-9 BETWEEN "'S
                                        CLI     CLIBR,0,N70$
                                N73$:   CLI     CLIERR,BADCHR           ;PRINT ERROR IF NONE LEGAL CHAR FOR "'S

                                ;GET QUALIFIERS (SIZE OR COPY) FOR SET MESSAGE COMMANDS
                                N121$:  CLI     CLIALP,0,N123$
                                N123$:  CLI     <'/>,NOTNUF,N125$
                                        CLI     CLISTR,SIZE,N122$,<'SIZE'>
                                        CLI     CLIBR,0,N126$
                                N122$:  CLI     CLISTR,QCOPY,N30$,<'COPY'>
                                        CLI     CLIBR,0,N126$

                                ;NUMER FOR SIZE OR COPY
                                N126$:  CLI     <'=>,0,N30$
                                        CLI     CLIDEC,NUM,N30$
                                        CLI     CLIBR,0,N121$

                                ;GET MAINTENANCE LOOP TYPE FOR RUN "LOOP" QUALIFIER
                                N140$:  CLI     <'=>,0,N30$


                                N141$:  CLI     CLISTR,TTLLOP,N142$,<'INTERNALTTL'>
                                        CLI     CLIBR,0,N115$
                                N142$:  CLI     CLISTR,CBLLOP,N143$,<'CABLE'>
                                        CLI     CLIBR,0,N115$
                                N143$:  CLI     CLISTR,LMDLOP,N144$,<'LOCALMODEM'>
                                        CLI     CLIBR,0,N115$
                                N144$:  CLI     CLISTR,RMDLOP,N30$,<'REMOTEMODEM'>
                                        CLI     CLIBR,0,N115$

                                ;GET LINE NUMBER FOR "PASS" RUN QUALIFIER
                                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
```

```
14
15
16                                  ;DEVICE DEPENDENT STORAGE LOCATIONS FOR
17                                  ;  CURRENT DEVICE PARAMTERS
18
19 023052                           SEL0:
20 023052  000000                   BSEL0:  .WORD   0               ;ADDRESSES OF REGISTERS SEL0 THRU BSEL7
21 023054  000000                   BSEL1:  .WORD   0
22 023056                           SEL2:
23 023056  000000                   BSEL2:  .WORD   0
24 023060  000000                   BSEL3:  .WORD   0
25 023062                           SEL4:
26 023062  000000                   BSEL4:  .WORD   0
27 023064  000000                   BSEL5:  .WORD   0
28 023066                           SEL6:
29 023066  000000                   BSEL6:  .WORD   0
30 023070  000000                   BSEL7:  .WORD   0
31
32
33 023072  000000                   INVEC:  .WORD   0               ;INPUT INTERRUPT VECTOR ADDRESS
34 023074  000000                   OUTVEC: .WORD   0               ;OUTPUT INTERRUPT VECTOR ADDRESS
35 023076  000000                   INTPRI: .WORD   0               ;INTERRUPT PRIORITY
36 023100  000000                   OPTYP:  .WORD   0               ;OPTION TYPE
37 023102  000000                   DEVPAR: .WORD   0               ;DEVICE PARAM. BIT 0    BIT1
38                                                                  ;       1       MTP     CONT
39                                                                  ;       0       PTP     TRIB
40 023104  000000                   STATYP: .WORD   0               ;STATION TYPE
41                                  ; DEVICE ERROR MESG TABLES
42 023106  000000                   CON0LS: .WORD   0               ;TABLE HOLDER
43 023110  041075                           .WORD   RXTHEM          ;RX THRESHOLD ERROR MESSAGE ADDR.
44 023112  041075                           .WORD   TXTHEM          ;TX THRESHOLD ERROR MESSAGE ADDR
45 023114  040076                           .WORD   SLTHEM          ;SELECT THRESHOLD MESSAGE
46 023116  040117                           .WORD   STRCM           ;DDCMP START REC MESSAGE ADDR.
47 023120  040140                           .WORD   MARM            ;DDCMP MAINT REC IN RUN
48 023122  040161                           .WORD   MARHM           ;MAINT RECEIVED IN HALD
49 023124  040203                           .WORD   STRMM           ;START REC. IN MAINT MESSAGE.
50 023126  041075                           .WORD   PE142M          ;SPARE
51 023130  040245                           .WORD   DEADTM          ;DEAD TRIB MESSAGE
52 023132  040257                           .WORD   RUSM            ;RUN STATE SET IN ERROR
53 023134  040275                           .WORD   BABTM           ;BABLING TRIB MESSAGE
54 023136  040312                           .WORD   STREAM          ;STREAMING TRIB MESSAGE
55 023140  040226                           .WORD   RIM             ;RING DETECTED
56                                          ;PROCEEDURE ERRORS
57
58 023142  040331                   CON0LS: .WORD   PE100M          ;NO MODE DEF
59 023144  040345                           .WORD   PE102M          ;ILLEGAL TYPE
60 023146  040367                           .WORD   PE104M          ;ILLEGAL MODE CHANGE
61 023150  040413                           .WORD   PE106M          ;CONTROL IN TO UNESTABLISHED TRIB
62 023152  040444                           .WORD   PE110M          ;NON-GLOBAL TO TRIB 0
63 023154  040466                           .WORD   PE112M          ;ILLEGAL REQUEST
64 023156  040517                           .WORD   PE114M          ;ATTEMPT TO ESTABLISH MORE THAN MAX TRIBS
65 023160  040542                           .WORD   PE116M          ;ESTABLISH TO ALREADY ESTABLISHED
66 023162  040576                           .WORD   PE120M          ;ILLEGAL CONTROL IN
67 023164  040622                           .WORD   PE122M          ;ASSIGN BUFFER FOR UNESTABLISHED TRIB
68 023166  040652                           .WORD   PE124M          ;ASSIGN BUFFER FOR HALTED TRIB
69 023170  040701                           .WORD   PE126M          ;ASSIGN BUFFER WITH BYTE COUNT =0
70 023172  040730                           .WORD   PE130M          ;ASSIGN TX BUFFER TO TRIB 0
```

COMMAND LINE ACTION TREE

```
 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                CON035: .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
023266  104     115     120                                                     .ASCIZ  /DMP OR DMV 11/
023271  040     117     122
023274  040     104     115
023277  126     040     061
023302  061     000

                                                                                .EVEN

                        .SBTTL          PROGRAM IDENTIFICATION
                        ; TEST DESCRIPTION
                        ;
                                DESCRIPT        <CZCLMCO DMP DMV-11 DATA COMM. LINK TEST>

023304                                                                  L$DESC::
023304
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     CLISEQ: .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=..,W,N(D)..OR TRIB KILL=N,ALL?
024344      015     012     040     HLP2C:  .ASCIZ  <15><12>/     WHERE W=INDICATES WRITE POLL PARAMS/
024417      040     123     105     HLP3:   .ASCIZ  ? SET EXPECTMSG OR TRANSMITMSG=TYPE/SIZE=N OR /COPY=N?
024504      040     123     105     HLP3A:  .ASCIZ  / SET EXPECT=TRANSMIT/
024531      040     040     040     HLP4:   .ASCIZ  ?   TYPE=ONES,ZEROES,1ALT,0ALT,ITEP,CCITT,ALPHA?
024610      040     040     040     HLP4A:  .ASCIZ  /       OR "OPR SPCD=A-Z,SP,TAB,0-9 IN QUOTES"/
024666      040     122     125     HLP5:   .ASCIZ  ? RUN MODE=MTYP/LOOP=LTYP/CHECK,STATUS,ECHO,MODEM,PASS=N?
024756      040     040     040     HLP6:   .ASCII  /   MTYP=TRAN,REC,ACT,PAS,TAL,LIS,DOWN/<15><12>
025025      040     040     040             .ASCIZ  /   LTYP=INT,CAB,LOC,REM/
025055      116     105     127     EQUQ:   .ASCIZ  /NEW POLL PARAMETERS (WORD)=/
025111      116     105     127     EQUQ1:  .ASCIZ  /NEW POLL PARAMETERS (BYTE LOW)=/
025151      116     105     127     EQUQ2:  .ASCIZ  /NEW POLL PARAMETERS (BYTE HI)=/
025210      123     101     124     DLLQ1:  .ASCIZ  /SATELLITE PASSWORD=/
025234      045     116     045     POLPM:  .ASCIZ  /%N%S5%APOLL  PARAMETERS FOR TRIB %D5/
025301      045     116     045     POLPM3: .ASCIZ  /%N%AGLOBAL POLL PARAMETERS/
025334      122     120     124     CLI$RP: .ASCIZ  /RPT>/
025341      045     116     045     RHLP0:  .ASCIZ  /%N%ATYPE "H" OR "?" FOR HELP!/
025377      104     103     114     RHLP1:  .ASCIZ  /DCLT REPORT CMDS:/
025421      040     105     130     RHLP2:  .ASCIZ  / EXIT OR LOG/
025436      040     124     123     RHLP3:  .ASCIZ  ? TSS NNN(D)/SW  OR GSS/SW?
025470      040     040     040     RHLP4:  .ASCIZ  ?       WHERE /SW= /FULL,/ERROR,/OFFSET=NN(O)?
025544      045     116     045     RPTIV:  .ASCIZ  /%N%A?TRIB STATUS OFFSET=%02%A%TOO BIG?/
025613      045     116     045     SHMSG:  .ASCIZ  ?%N%AMSG: TYPE=%T%A/SIZE=%D3?
025647      132     105     122     SHTYP0: .ASCIZ  /ZEROES/
025656      117     116     105     SHTYP1: .ASCIZ  /ONES/
025663      061     101     114     SHTYP2: .ASCIZ  /1ALT/
025670      060     101     114     SHTYP3: .ASCIZ  /0ALT/
025675      103     103     111     SHTYP4: .ASCIZ  /CCITT/
025703      111     124     105     SHTYP5: .ASCIZ  /ITEP/
025710      101     114     120     SHTYP6: .ASCIZ  /ALPHA/
025716      117     120     122     SHTYP7: .ASCIZ  /OPR SPEC/
025727      045     116     045     SHTRE:  .ASCIZ  \%N%ATRIB ADDRESS LIST IS EMPTY\
025766      045     116     045     SHTRH:  .ASCIZ  \%N%ATRIB ADDRESS LIST:%N\
026017      045     104     063     SHTAP:  .ASCIZ  .%D3%A, \
026027      045     116     045     SHTFL:  .ASCIZ  \%N%ATRIB ADDRESS LIST FULL - ADDRESS= %Z3%A NOT ADDED\
026115      045     116     045     SHTUN:  .ASCIZ  \%N%A?TRIB ADDRESS= %Z3%A IS NOT UNIQUE?\
026165      045     116     045     SHTNF:  .ASCIZ  \%N%A?TRIB ADDRESS= %Z3%A NOT FOUND?\
```

```
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=#O6/
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%03/
    030372   045   123   063   BASM2:   .ASCIZ   /%S3%06/
    030401   045   116   045   BASM1:   .ASCIZ   /%N%06/

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

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

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

```
                197 031566      045     116     000  CR:     .ASCIZ  /%N/              ;CR FOR LINES IN A ROW
                198 031571      045     123     063  STXQ:   .ASCIZ  /%S3%ATXQ/        ;ABOUT TO TRANSMIT
                199 031602      045     123     063  STXC:   .ASCIZ  /%S3%ATXC/        ;TX COMPLETED
                200 031613      045     123     063  SRXQ:   .ASCIZ  /%S3%ARXQ/        ;ABOUT TO RECEIVE
                201 031624      045     123     063  SDVE:   .ASCIZ  /%S3%AERR/        ;DEVICE ERROR
                202 031635      045     123     063  SCM:    .ASCIZ  /%S3%ACMP/        ;ABOUT TO DO DATA CHECKING OF RECVD VS. EXPTD
                203 031646      045     123     063  SDVI:   .ASCIZ  /%S3%AINI/        ;DEVICE ABOUT TO BE INITIALIZED
                204 031657      045     123     063  SCML:   .ASCIZ  /%S3%ACML/        ;COMPARE LENGTH ERROR
                205 031670      045     123     063  SCMD:   .ASCIZ  /%S3%ACMD/        ;COMPARE DATA ERROR
                206 031701      045     123     063  SEOP:   .ASCIZ  /%S3%AEOP/        ;END  OF PASS
                207 031712      045     123     063  SMSC:   .ASCIZ  /%S3%AMSC/        ;MODEM STATUS CHANGE
                208                                          .EVEN
                209
                210                                  ;REV B BY EC
                211                                  ;;NEXT ASCIZ LINES ARE USED IN SATELLITE ID MESSAGES
                212 031724      045     116     045  SECRM:  .ASCIZ  /%N%ASECONDARY BOOT REQ FROM %T%A DEVICE-TYPE= %D3/
                213 032006      104     120     000  DPM:    .ASCIZ  /DP/
                214 032011      104     125     000  DUM:    .ASCIZ  /DU/
                215 032014      104     114     000  DLM:    .ASCIZ  /DL/
                216 032017      104     121     000  DQM:    .ASCIZ  /DQ/
                217 032022      104     101     000  DAM:    .ASCIZ  /DA/
                218 032025      104     125     120  DUPM:   .ASCIZ  /DUP/
                219 032031      104     115     103  DMCM:   .ASCIZ  /DMC/
                220 032035      104     116     000  DNM:    .ASCIZ  /DN/
                221 032040      104     114     126  DLVM:   .ASCIZ  /DLV/
                222 032044      104     115     120  DMPM:   .ASCIZ  /DMP/
                223 032050      104     124     105  DTEM:   .ASCIZ  /DTE/
                224 032054      104     126     000  DVM:    .ASCIZ  /DV/
                225 032057      104     132     000  DZM:    .ASCIZ  /DZ/
                226 032062      125     116     113  UNKM:   .ASCIZ  /UNKNOWN/
                227 032072      113     104     120  KDPM:   .ASCIZ  /KDP/
                228 032076      113     104     132  KDZM:   .ASCIZ  /KDZ/
                229 032102      113     114     000  KLM:    .ASCIZ  /KL/
                230 032105      104     115     126  DMVM:   .ASCIZ  /DMV/
                231                                          .EVEN
                232
                233
                234
```

```
                                .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 REPLY T-O/
033404    045    116    045  TSS20A:  .ASCIZ  /#N#03#S5#AHIGHEST MSG ♦ TX'D#N#03#S5#AHIGHEST MSG ♦ ACK'D/
033476    045    116    045  TSS21A:  .ASCIZ  /#N#03#S5#ANEXT MSG ♦ TO TX#N#03#S5#ATPTR ADDR OF LKNBK/
033565    045    116    045  TSS22A:  .ASCIZ  /#N#03#S5#ALAST MSG ♦ TX'D#N#03#S5#AXPTR ADDR OF LNKBK/
033653    045    116    045  TSS23A:  .ASCIZ  /#N#03#S5#ACTL X REPLY T-O#N#03#S5#ASTRT OF TX BUFF Q/
033740    045    116    045  TSS24A:  .ASCIZ  /#N#03#S5#AEND OF TX BUFF Q#N#03#S5#AHIGHEST MSG ♦ RX'D/
034027    045    116    045  TSS25A:  .ASCIZ  /#N#03#S5#ASTRT OF RX BUFFQ#N#03#S5#AEND OF RX BUFF Q/
034114    045    116    045  TSS26A:  .ASCIZ  /#N#06#S2#ATX DELAY TIMER/
034145    045    116    045  TSS27A:  .ASCIZ  /#N#03#S5#ANO DATA MSG COUNTER#N#03#S5#AT-O COUNTER/
034230    045    116    045  TSS30A:  .ASCII  /#N#06#S2#A/
034242    120    122    105  TS30AA:  .ASCIZ  /PRESET VALUE FOR TX DELAY TIMER/
034302    045    116    045  TSS31A:  .ASCIZ  /#N#03#S5#AQ VAL FOR ACT#N#03#S5#AR VAL FOR ACT/
034361    045    116    045  TSS32A:  .ASCIZ  /#N#03#S5#AQ VAL FOR INACT#N#03#S5#AR VAL FOR INACT/
034444    045    116    045  TSS33A:  .ASCIZ  /#N#03#S5#AQ VAL FOR UNRSP#N#03#S5#AR VAL FOR UNRSP/
034527    045    116    045  TSS34A:  .ASCIZ  /#N#03#S5#ANOM TO INACT#N#03#S5#A♦ T-O TO UNRSP/
034606    045    116    045  TSS35A:  .ASCIZ  /#N#03#S5#A♦ T-O TO DEAD#N#03#S5#AMAX MSG COUNT/
034665    045    116    045  TSS36A:  .ASCIZ  /#N#06#S2#ASELECTION INTERVAL TIMING COUNT/
034737    045    116    045  TSS37A:  .ASCIZ  /#N#06#S2#ABABBLING TRIB TIMING COUNT/
035004    045    116    045  GSS0A:   .ASCIZ  /#N#03#S5#APOLPTR#N#03#S5#ARCVPTR/
035045    045    116    045  GSS1A:   .ASCIZ  /#N#03#S5#AXMTPTR#N#03#S5#ATSP/
035103    045    116    045  GSS2A:   .ASCIZ  /#N#03#S5#ANASP#N#03#S5#ABUFPTR/
035142    045    116    045  GSS3A:   .ASCIZ  /#N#03#S5#AS-OF#N#03#S5#AE-OF/
035177    045    116    045  GSS4A:   .ASCIZ  /#N#03#S5#AS-OQ#N#03#S5#AE-OQ/
035234    045    116    045  GSS5A:   .ASCIZ  /#N#03#S5#AS-OC#N#03#S5#AE-OC/
035271    045    116    045  GSS6A:   .ASCIZ  /#N#03#S5#ATIMER STATUS#N#03#S5#AS-R TIMER [L]/
035347    045    116    045  GSS7A:   .ASCIZ  /#N#03#S5#AS-R TIME [H]#N#03#S5#AB-CW TIME [L]/
035425    045    116    045  GSS10A:  .ASCIZ  /#N#03#S5#AB-CW TIME [H]#N#03#S5#ARPM CNTR/
035477    045    116    045  GSS11A:  .ASCIZ  /#N#06#S2#AACTIM/
035517    045    116    045  GSS12A:  .ASCIZ  /#N#03#S5#AMODEM#N#03#S5#AMODE/
035555    045    116    045  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 #0
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
 89                                    ;DEVICE ERROR MESSAGES
 90 037116      104      105      126  DVEM0:  .ASCII  /DEVICE DID NOT RETURN RUN BIT/
 91 037153      015      012      040          .ASCIZ  <15><12>/    SEL0     SEL2/
 92
 93 037177      106      101      111  DVEM1:  .ASCII  /FAILURE IN MICRO DIAGNOSTICS/
 94 037233      015      012      040          .ASCIZ  <15><12>/    SEL0     SEL6/
 95
 96 037257      124      111      115  DVEM2:  .ASCII  /TIME OUT WAITING FOR TX OR RX TO COMPLETE/
 97 037330      015      012      040          .ASCIZ  <15><12>/    SEL0     SEL2/
 98
 99 037354      124      111      115  DVEM3:  .ASCII  /TIME OUT WAITING FOR RDI/
100 037404      015      012      040          .ASCIZ  <15><12>/    SEL0     SEL2/
101
102 037430      103      117      116  DVEM4:  .ASCII  /CONTROL OR INFORMATION OUT ERROR/
103 037470      015      012      040          .ASCIZ  <15><12>/    SEL2     SEL6/
104
105 037514      111      114      114  DVEM5:  .ASCII  /ILLEGAL TRANSMIT COMPLETE/
106 037545      015      012      040          .ASCIZ  <15><12>/    SEL4     SEL6/
107
108 037571      111      114      114  DVEM6:  .ASCII  /ILLEGAL RECEIVE COMPLETE/
109 037621      015      012      040          .ASCIZ  <15><12>/    SEL4     SEL6/
110
111 037645      121      125      105  DVEM7:  .ASCII  /QUE OVERFLOW BUFFER COMPLETE/
112 037701      015      012      040          .ASCIZ  <15><12>/    SEL4     SEL6/
113
114 037725      122      114      104  DVEM8:  .ASCII  /RLD OR MODE ENABLE OF PASSWORD SW NOT SET/
115 037776      015      012      040          .ASCIZ  <15><12>/    SEL0     SEL2/
116
117 040022      040      104      117  DLLAB:  .ASCII  / DOWN LINE LOAD ABORTED/
118 040051      015      012      040          .ASCIZ  <15><12>/   RXBUF     TXBUF  /
119
120
121 040076      123      105      114  SLTHEM: .ASCIZ  /SELECT THRESHOLD/
122 040117      123      124      101  STRCM:  .ASCIZ  /START RXD IN RUN/
123 040140      115      101      111  MARM:   .ASCIZ  /MAINT RXD IN RUN/
124 040161      115      101      111  MARHM:  .ASCIZ  /MAINT RXD IN HALT/
125 040203      123      124      101  STRMM:  .ASCIZ  /START RXD IN MAINT/
126 040226      122      111      116  RIM:    .ASCIZ  /RING DETECTED/
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 BSEL//
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
```

M7

SEQ 90


```
    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                                      ;PRINT THE 2 OCTAL 0'S IN TEMP3/4
52                                      ;
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$PNTB
   041504  062706  000010                                               ADD     #10,SP
56 041510                               ENDMSG
   041510                                                       1 10004:
   041510  104423                                                       TRAP    C$MSG
57
58                                      ;
59                                      ;PRINT THE 2 OCTAL 0'S IN TEMP3/4
60                                      ; AND THE MESG, WHOSE ADDR, IS IN CONOTM
61                                      ;
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$PNTB
   041542  062706  000012                                               ADD     #12,SP
65 041546                               ENDMSG
   041546                                                       1 10005:
   041546  104423                                                       TRAP    C$MSG
66
67
68 041550                               BGNMSG  ERR15
   041550                                                       ERR15::
69 041550                               PRINTB  #EVTF3F,RSEL4,RSEL6,<R,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$PNTB
   041602  062706  000012                                               ADD     #12,SP
70 041606                               ENDMSG
   041606                                                       1 10006:
   041606  104423                                                       TRAP    C$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   L10007
   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$:     TST     TIMER3          ;SEE IF TIMER #3, TIMING ANYTHING
041774  001406                  BEQ     4$              ; 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     TIMER3          ; ELSE DECREMENT THE TIMER VALUE (BY 1 SEC.)
042012  013777  017446  155416  4$:     MOV     CLKEN,@CLKCSR   ;REENABLE THE CLOCK TO INTERRUPT
```

F8


```
     57 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
```

```
 042112  012737  000010  017350           MOV     #DFR,TEMP          ;SET UP EVENT TYPE
 042120  000511                           BR      LOGS3              ;GO LOG EVENT AND TIME

 042122                          LOGDVI:
 042122  012737  031646  017352           MOV     #SDVI,TEMP1        ;SET UP MSG. TO PRINT
 042130  012737  000012  017350           MOV     #DVI,TEMP          ;SET UP EVENT TYPE
 042136  113737  017402  017354           MOVB    MODTYP,TEMP2
 042144  113737  017404  017355           MOVB    MLTYP,TEMP2+1
 042152  013737  017412  017356           MOV     RPASS,TEMP3
 042160  013737  017410  017360           MOV     PARAM,TEMP4        ;SET UP EVNT ENTRIES
 042166  000466                           BR      LOGS3              ;GO LOG EVENT AND TIME

 042170                          LOGCMP:
 042170  012737  031635  017352           MOV     #SCM,TEMP1         ;SET UP MSG. TO PRINT
 042176  012737  000014  017350           MOV     #DCK,TEMP          ;SET UP EVENT TYPE
 042204  000415                           BR      LOGS3A
 04220.                          LOGCML:
 042206  012737  031657  017352           MOV     #SCML,TEMP1
 042214  012737  000020  017350           MOV     #DLE,TEMP          ;SET UP MSG. AND TYPE
 042222  000406                           BR      LOGS3A             ;GO LOG EVENT AND TIME
 042224                          LOGCMD:
 042224  012737  031670  017352           MOV     #SCMD,TEMP1
 042232  012737  000022  017350           MOV     #DDE,TEMP
 042240  013737  015756  017362  LOGS3A:  MOV     TRIBN,TEMP5
 042246  000436                           BR      LOGS3              ;GO LOG MSG TYPE AND TIME

 042250                          LOGEOP:
 042250  012737  031701  017352           MOV     #SEOP,TEMP1
 042256  012737  000024  017350           MOV     #EOP,TEMP
 042264  000427                           BR      LOGS3              ;GO LOG MSG TYPE AND TIME

 042266                          LOGMSC:
 042266  012737  031712  017352           MOV     #SMSC,TEMP1
 042274  012737  000016  017350           MOV     #MSC,TEMP
 042302  000420                           BR      LOGS3

 042304  013746  017310          LOGS1:   MOV     ERRCNT,-(SP)       ;SAVE CURRENT ERROR COUNT
 042310  013737  015756  017362           MOV     TRIBN,TEMP5        ;SAVE TRIBN
 042316  004737  063756                   JSR     PC,DVMODS          ; GO GET MODEM STATUS
 042322  012604                           MOV     (SP)+,R4           ;GET SAVED ERRCNT VALUE
 042324  020437  017310                   CMP     R4,ERRCNT          ;WERE ANY ERRORS FOUND
 042330  001402                           BEQ     1$                 ; BR IF NONE
 042332  000137  042552                   JMP     LOGEX              ; ELSE, LEAVE WITHOUT LOGGING ANYTHING
                                                                     ;    BUT THE DEVICE ERROR FROM "DVMODS"
 042336  013737  020524  017360  1$:      MOV     MODS,TEMP4         ;AND PUT IT IN TEMP4

 042344                          LOGS3:
 042344  022737  000006  017350           CMP     #RXC,TEMP
 042352  001434                           BEQ     LOGS5              ;IF RXC DON'T PRINT
 042354  032737  000001  017410           BIT     #STATB,PARAM
 042362  001430                           BEQ     LOGS5              ;IF NO STATUS SELECTED
                                                                     ;GO TO 5

 042364  022737  000010  017300           CMP     #10,LNCNT          ;HAVE WE DONE 10?
 042372  001012                           BNE     LOGS4              ;IF NOT GO TO 4
 042374  005037  017300                   CLR     LNCNT              ;ELSE CLEAR IT

```

```
115 042400                                      PRINTF  #CR             ;ELSE PRINT CR
    042400  012746  031566                                                      MOV     #CR,-(SP)
    042404  012746  000001                                                      MOV     #1,-(SP)
    042410  010600                                                              MOV     SP,R0
    042412  104417                                                              TRAP    C$PNTF
    042414  062706  000004                                                      ADD     #4,SP
116 042420                              LOGS4:
117 042420  005237  017300                      INC     LNCNT           ;INC COUNTER OF # OF AWAKE MSGS
118 042424                                      PRINTF  TEMP1           ;PRINT OPERATOR AWAKE MSG.
    042424  013746  017352                                                      MOV     TEMP1,(SP)
    042430  012746  000001                                                      MOV     #1,(SP)
    042434  010600                                                              MOV     SP,R0
    042436  104417                                                              TRAP    C$PNTF
    042440  062706  000004                                                      ADD     #4,SP
119 042444  010346                      LOGS5:  MOV     R3,-(SP)        ;SAVE R3 ON THE STACK
120 042446  013703  017464                      MOV     EVTPTR,R3
121 042452  113723  017350                      MOVB    TEMP,(R3)+      ;LOG EVENT
122 042456  013737  017444  017350              MOV     CLKHZ,TEMP
123 042464  163737  017454  017350              SUB     TIMTCK,TEMP
124 042472  113723  017350                      MOVB    TEMP,(R3)+      ;LOG TIME SINCE START
125 042476  113723  017452                      MOVB    TIMSEC,(R3)+
126 042502  113723  017450                      MOVB    TIMMIN,(R3)+    ;TICKS,SECS AND MINS.
127 042506  013723  017354                      MOV     TEMP2,(R3)+     ;LOG EVNT ENTRY 3
128 042512  013723  017356                      MOV     TEMP3,(R3)+     ;LOG EVNT ENTRY 4
129 042516  013723  017360                      MOV     TEMP4,(R3)+     ;LOG EVNT ENTRY 5
130 042522  013723  017362                      MOV     TEMP5,(R3)+     ;LOG EVNT ENTRY 6
131 042526  020327  020522                      CMP     R3,#EVTEND
1?? 042532  103404                              BLO     LOGS2           ;IF EVENT LOG FULL GO
133                                                                     ;CONTINUE;ELSE GO TO 2
134 042534  012713  177777                      MOV     #-1,(R3)        ;LOG A TABLE END
135 042540  012703  017466                      MOV     #EVTLOG,R3      ;PUT R3 TO START OF TABLE
136 042544  010337  017464              LOGS2:  MOV     R3,EVTPTR       ;RESTORE POINTER
13? 042550  012603                              MOV     (SP)+,R3        ;RESTORE R3
138 042552  000207                      LOGEX:  RTS     PC
139
140
```

DUMP EVENT LOG AND BASE TABLE

```
                                        .SBTTL          DUMP EVENT LOG AND BASE TABLE

                                REPORT: MOV     R2,-(SP)        ;SAVE R2,R3,R4 ON THE STACK
                                        MOV     R3,-(SP)
                                        MOV     R4,-(SP)

                                        ;PRINT REPORT HELP MESSAGE

                                        PRINTF  #RHLP0
042562  012746  025341                                                  MOV     #RHLP0,-(SP)
042566  012746  000001                                                  MOV     #1,-(SP)
042572  010600                                                          MOV     SP,R0
042574  104417                                                          TRAP    C$PNTF
042576  062706  000004                                                  ADD     #4,SP
042602  105037  003411          GETRCL: CLRB    P$GOBD          ;CLEAR GOOD BAD FLAG
042606  105037  003410                  CLRB    P$NNUF

                                        ;PRINT PROMPT RPT>

                                        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$TRV                ;GO PARSE COMMAND LINE
042664  105737  003411                  TSTB    P$GOBD                  ;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$:     CMP     KEYWD1,#RPTSS
042756  001003                          BNE     20$
042760  004737  043006                  JSR     PC,RPTSS        ;JUMP TO  REPORT SS
```

```
                                                    BR      GETRCL          ;IF EQUAL JUMP BACK
                                            20$:    CMP     KEYWD1,#RPEXT           ;SEE IF EXIT REPORT SECTION
                                                    BNE     GETRCL
                                            ENDALL: MOV     (SP)+,R4        ;RESTORE R4,R3,R2
                                                    MOV     (SP)+,R3
                                                    MOV     (SP)+,R2
                                                    RTS     PC              ;RETURN TO CALLING ROUTINE


                                            RPTTSS: MOV     #46,TSSA        ;SET KEY UP TO FIRST ERROR
                                                    TST     TRIBN
                                                    BNE     RDTS2           ;BRANCH IF TSS
                                                    MOV     #54,TSSA        ;IF GSS USE 55
                                            RDTS2:  MOV     #57,TSSE        ;SET UP 57 AS END
                                                    CMPB    #105,TSSKEY     ;IS THIS AN E
                                                    BEQ     RDTSS           ;AND GO READ THEM
                                                    MOV     #37,TSSA
                                                    MOV     #77,TSSE        ;SET UP LIMITS
                                                    CMPB    #106,TSSKEY     ;IS THIS FULL
                                                    BEQ     RDTSS           ;IF SO READ FULL
                                                    MOV     TSSKEY,TSSA
                                                    DEC     TSSA
                                                    MOV     TSSKEY,TSSE

                                            RDTSS:  INC     TSSA
                                                    BISB    #RQI,@#SELO     ;MAKE RQEST
                                                    JSR     PC,TOORIO
                                                    MOV     #-1,TSSFLG      ;SET FLAG
                                                    MOVB    TRIBN,@#SEL3
                                                    MOV     TSSA,@#SEL6
                                                    MOVB    #01,@#SEL2      ;DO CONTROL IN READ TSS
                                                    CMP     TSSA,TSSE       ;ARE WE DONE
                                                    BNE     RDTSS           ;IF NOT GO BACK FOR MORE
                                                    BISB    #RQI,@#SELO     ;MAKE RQEST
                                                    JSR     PC,TOORIO
                                                    MOVB    TRIBN,@#SEL3
                                                    CLRB    @#SEL6
                                                    MOVB    #01,@#SEL2      ;DO CONTROL IN (NO REQUEST)
                                                                            ;THIS GETS LAST OUTPUT
                                                    RTS     PC              ;RETURN WHEN DONE


                                            REPLOG: MOV     R2,-(SP)        ;SAVE R2,R3,R4 ON THE STACK
                                                    MOV     R3,-(SP)
                                                    MOV     R4,-(SP)

                                                    MOV     EVTPTR,R2       ;MAKE R2 A POINTER TO EVENT TABLE
                                                    CMP     EVTLOG,#-1      ;SEE IF EVENT TABLE IS EMPTY
                                                    BNE     RPTO            ;BR IF NO
                                                    PRINTS  #NULEVT         ;IF EMPTY TELL OPERATOR.
                                                                                    MOV     #NULEVT,-(SP)
                                                                                    MOV     #1,(SP)
                                                                                    MOV     SP,R0
                                                                                    TRAP    C$PNTS
                                                                                    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$PNTS
        043506  062706  000010                                                      ADD     #10,SP
    116 043512  004737  044214                    JSR     PC,RPTMSB       ;GO PRINT MODEM STATUS
    117 043516  000137  043272                    JMP     RPT             ;GO BACK FOR NEXT EVENT ENTRY
    118
    119 043522  012237  020622          RPTDER:   MOV     (R2)+,EVTTMP    ;GET ADDRESS OF DEVICE INFO MESSAGE
    120 043526  012237  020652                    MOV     (R2)+,DEV1      ;STORE DEVICE REG CONTENTS FOR PRINTING
    121 043532  012237  020654                    MOV     (R2)+,DEV2
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    122 043536  012237  017362                  MOV     (R2)+,TEMP5
    123 043542                                  PRINTS  #EVTF3,EVTTMP   ;PRINT DEVICE REG CONTENTS.
        043542  013746  020622                                                  MOV     EVTTMP,-(SP)
        043546  012746  030645                                                  MOV     #EVTF3,-(SP)
        043552  012746  000002                                                  MOV     #2,-(SP)
        043556  010600                                                          MOV     SP,R0
        043560  104416                                                          TRAP    C$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
```

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

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

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


044136                          RPTMSC:

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

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


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

```
                                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$PNTS
044322  062706  000004                                                                ADD     #4,SP
204 044324  000207                              RTS     PC              ;RETURN TO EVENT DECODING
205
206                                     ;PRINT TRIBNO
207
208 044326  012237  017362      PNTTRB: MOV     (R2)+,TEMP5
209 044332                              PRINTS  #EVTF6,TEMP5    ;PRINT TRIB NUMBER.
044332  013746  017362                                                                MOV     TEMP5,-(SP)
044336  012746  030756                                                                MOV     #EVTF6,(SP)
044342  012746  000002                                                                MOV     #2,-(SP)
044346  010600                                                                        MOV     SP,R0
044350  104416                                                                        TRAP    C$PNTS
044352  062706  000006                                                                ADD     #6,SP
210 044356  000207                              RTS     PC              ;RETURN TO EVENT
```

```
                                        .SBTTL          CLI FOR 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$      ;RPSUE
044416  000274                                  .WORD   ACTRSF-10$      ;RPSWF
044420  000310                                  .WORD   ACTRSO-10$      ;RPSWO
044422  000026                                  .WORD   ACTRNF-10$      ;RNOTNF
```

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

```
        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$PNTF
045236  062706  000006                                                         ADD     #6,SP
045242  005737  017316          DUM3:   TST     BYTBIT          ;IS THIS BYTE OR WORD
045246  001416                          BEQ     DUM1            ;BR IF WORD
045250  112237  017350                  MOVB    (R2)+,TEMP      ;MOV BYTE TO TEMP
045254                                  PRINTF  #BASM3,<8,TEMP> ;PRINT BYTE
045254  005046                                                                 CLR     -(SP)
045256  153716  017350                                                         BISB    TEMP,(SP)
045262  012746  030363                                                         MOV     #BASM3,-(SP)
045266  012746  000002                                                         MOV     #2,-(SP)
045272  010600                                                                 MOV     SP,R0
045274  104417                                                                 TRAP    C$PNTF
045276  062706  000006                                                         ADD     #6,SP
045302  000411                          BR      DUM2
045304                          DUM1:   PRINTF  #BASM2,(R2)+    ;PRINT WORD
045304  012246                                                                 MOV     (R2)+,-(SP)
045306  012746  030372                                                         MOV     #BASM2,-(SP)
045312  012746  000002                                                         MOV     #2,-(SP)
045316  010600                                                                 MOV     SP,R0
045320  104417                                                                 TRAP    C$PNTF
045322  062706  000006                                                         ADD     #6,SP
045326  020237  017314          DUM2:   CMP     R2,ENADD        ;COMPARE FOR LAST ADD
045332  003005                          BGT     DUMEX           ;IF DONE EXIT
```

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

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
045166  010237  017340                  MOV     R2,CPTR         ;PUT UPDATED R2 BACK TO CURRENT POINT
045472  013702  017332                  MOV     MSGTYP,R2       ;GET MESSAGE TYPE TO USE AS INDEX
045476  006302                          ASL     R2              ;DOUBLE FOR WORD INDEX
045500  013737  017342  017350          MOV     CURADD,TEMP     ;MOVE CURRENT ADD TO TEMP
045506  063737  017334  017350          ADD     CURCC,TEMP      ;ADD CHAR COUNT TO IT TO GET END
045514  013703  017342                  MOV     CURADD,R3       ;SET R3 TO CURRENT START ADD
045520  016237  002150  017354  BLDB2:  MOV     DMSGCT(R2),TEMP2        ;GET BYTE COUNT
045526  016204  002176                  MOV     DMSGAD(R2),R4   ;PUT STARTING FROM ADD IN R4
045532  060437  017354                  ADD     R4,TEMP2        ;ADD IT TO TEMP2 TO GET END OF FROM
045536  112423                  BLDB3:  MOVB    (R4)+,(R3)+     ;MOV BYTE FROM PATTERN TO BUFFER
045540  020337  017350                  CMP     R3,TEMP         ;ALL DONE?
045544  001404                          BEQ     BLDBEX          ;IF SO EXIT
045546  020437  017354                  CMP     R4,TEMP2        ;IS PATTERN COUNT EXPIRED
045552  001762                          BEQ     BLDB2           ;IF SO GO START AGAIN
045554  000770                          BR      BLDB3           ;IF NOT GET ANOTHER BYTE
045556  063737  017334  017342  BLDBEX: ADD     CURCC,CURADD    ;BUMP CURADD
045564  012603                          MOV     (SP)+,R3        ;RESTORE R3 AND R2
045566  012602                          MOV     (SP)+,R2
045570  000207                          RTS     PC              ;RETURN TO CALLER
```

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

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

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

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

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

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

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

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

```

```
                                        .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
                                        ;--
                                        LDRPLS: JSR     PC,GETIND               ;GET INDW FOR THIS TRIBN
                                                MOV     INDW,R3                 ;MOVE WORD INDEX TO R3
                                                MOV     CPTRR,CPTRLS(R3)        ;LOAD CPTRLS LIST
                                                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
                                        ;--
                                        ULRPLS: JSR     PC,GETIND               ;GET INDEX
                                                MOV     INDW,R3                 ;MOVE WORD INDEX TO R3
                                                MOV     CPTRLS(R3),CPTRR        ;LOAD CPTRR FROM LIST INDEX
                                                RTS     PC                      ;RETURN TO CALLER
```

```
                                        .SBTTL          GET REC POINTER TO CPTR

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

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

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

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

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

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

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

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

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

                                        .SBTTL          UNLOAD CPTR LIST (TRANSMIT POINTER)

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

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

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

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

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

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

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

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

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

```
                                        .SBTTL          GET NEXT TX POINTER FROM LIST
                                        ;
                                        ;**
                                        ; FUNCTIONAL DESCRIPTION:      GNTXPR - GET NEXT TX POINTER
                                        ;                   THIS ROUTINE GETS THE NEXT TX POINTER TO CPTR
                                        ; OUTPUTS:          CPTR - POINTER FOR NEXT TRANSMIT MESG
                                        ; SUBORDINATE ROUTINES USED:
                                        ;                   GTVIND -        GET VALID INDEX
                                        ; CALLING SEQUENCE:
                                        ;                   JSR     PC,GNTXPR
                                        ;--
047102  022737  000040  015762  GNTXPR: CMP     #32.,INDEX      ;IS INDEX = DONE
047110  001003                         BNE     GNTX1
047112  012737  177777  015762  GNTX2:  MOV     #-1,INDEX
047120  004737  046462          GNTX1:  JSR     PC,G^VIND
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, QUALAIFIERS
                                        ;               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$:     PRINTS  #SHF1,TEMP,TEMP1,TEMP2,TEMP5    ;,TEMP3,TEMP4 **REV**
   047604  013746  017362                                                                  MOV     TEMP5,-(SP)
   047610  013746  017354                                                                  MOV     TEMP2,-(SP)
   047614  013746  017352                                                                  MOV     TEMP1,-(SP)
   047620  013746  017350                                                                  MOV     TEMP,-(SP)
   047624  012746  027567                                                                  MOV     #SHF1,-(SP)
   047630  012746  000005                                                                  MOV     #5,-(SP)
   047634  010600                                                                          MOV     SP,R0
   047636  104416                                                                          TRAP    C$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$EXIT: RTS     PC                      ;RETURN FROM PARSER
                                ;------------------- ------------------------------------------------------------
                                ;GOTO USER ACTION ROUTINE
047766  116302  000001        TRVACT: MOVB    1(R3),R2                ;GET ACTION CODE FROM CLI NODE
047772  042702  177400                BIC     #177400,R2              ;CLEAR ANY SIGN EXTENSION
047776  013705  003400                MOV     P$ACT,R5                ;GET ADDRESS OF CLI ACTION ROUTINE
050002  004715                        JSR     PC,(R5)                 ;GO DO ACTION DEFINED BY CODE
050004  000207                        RTS     PC                      ;RETURN TO CALLING CODE

                                ;TAKE BRANCH IN TREE
050006  016305  000002        TRVBRC: MOV     2(R3),R5                ;GET BRANCH DISPLACEMENT FROM TREE
050012  060503                        ADD     R5,R3                   ; AND POINT R3 TO THE "MISS" NODE
050014  000207                        RTS     PC                      ; RETURN TO P$TRV

                                ;NO BRANCH TAKEN
050016  062703  000004        TRVNOB: ADD     #4,R3                   ;THINGS OK, UPDATE R3 TO POINT TO NEXT
050022  000207                        RTS     PC                      ; NODE AND RETURN TO P$TRV

                                ;-------------------------------------------------------------------------------
050024  004737  047766        TRVERR: JSR     PC,TRVACT               ;TAKE ERROR ACTION
050030  112737  177777  003411        MOVB    #-1,P$GDBD              ;SET ERROR RETURN FLAG
050036  005726                        TST     (SP)+                   ;GET RID OF "JSR PUSH TO TRVERR"
050040  000137  047764                JMP     P$EXIT                  ;RETURN DIRECT TO EXIT OF P$TRV ROUTINE

050044  004737  047766        TRVEXI: JSR     PC,TRVACT               ;TAKE EXIT ACTION
050050  105037  003411                CLRB    P$GDBD                  ;SET GOOD/BAD FLAG TO "SUCCESS (0)"
050054  005726                        TST     (SP)+                   ;GET RID OF "JSR PUSH TO TRVEXI"
050056  000137  047764                JMP     P$EXIT                  ;RETURN DIRECT TO EXIT OF P$TRV ROUTINE

050062  004737  047766        TRVBR:  JSR     PC,TRVACT               ;GO TAKE BRANCH ACTION
050066  000137  050006                JMP     TRVBRC

050072  004737  047766        TRVBIF: JSR     PC,TRVACT
050076  105737  003411                TSTB    P$GDBD                  ;SEE IF P$GDBD SET OR CLEARED BY ACTION
050102  001402                        BEQ     1$                      ;IF CLEAR FALL THRU TO NEXT NODE
050104  000137  050006                JMP     TRVBRC                  ;ELSE TAKE THE "MISS" BRANCH
050110  000137  050016        1$:     JMP     TRVNOB                  ;JUST UPDATE TO NEXT NODE IF THINGS OK

050114  005005                TRVSPA: CLR     R5                      ;CLEAR "SPACE OR TAB FOUND" FLAG
050116  121427  000011        1$:     CMPB    (R4),#11                ;SEE IF CHAR. IN CMD LINE= TAB
050122  001003                        BNE     2$                      ;BR IF NO, NOT A TAB
050124  005204                        INC     R4                      ;INC INPUT STRING POINTER
050126  005205                        INC     R5                      ;INDICATE A TAB FOUND
050130  000772                        BR      1$                      ;GO CHECK NEXT CHAR

050132  121427  000040        2$:     CMPB    (R4),#40                ;SEE IF CHAR. IN CMD LINE= SPACE
050136  001003                        BNE     10$                     ;BR IF NO, NON-SPACE OR NON-TAB CHAR.
050140  005204                        INC     R4                      ;INC INPUT STRING POINTER
050142  005205                        INC     R5                      ;INDICATE A SPACE FOUND
050144  000764                        BR      1$                      ;GO CHECK NEXT CHAR
050146  005705                10$:    TST     R5                      ;SEE IF ANY SPACES OR TABS FOUND
050150  001404                        BEQ     15$                     ;BR IF NO, TAKE NO ACTION
050152  004737  047766                JSR     PC,TRVACT               ;GO TAKE ACTION IF ANY FOUND
050156  000137  050016                JMP     TRVNOB                  ;JUST GO UPDATE R3 TO NEXT NODE IF OK
050162  000137  050006        15$:    JMP     TRVBRC                  ;TAKE BRANCH (MISS) IF NONE FOUND
```

```


050166  012737  000012  003406  TRVDEC: MOV     #10.,P$RADX             ;USE DECIMAL AS RADIX AND ASSUME +
050174  000137  050206                  JMP     TRVNMA
050200                          TRVOCT: ;(SAME AS TRVNUM SINCE DEFAULT RADIX IS OCTAL)
050200  012737  000010  003406  TRVNUM: MOV     #8.,P$RADX              ;USE OCTAL AS RADIX AND ASSUME +
050206  005005                  TRVNMA: CLR     R5                      ;CLEAR DIGIT COUNTER
050210  121427  000053                  CMPB    (R4),#'+                ;SEE IF THERE'S A + SIGN THERE
050214  001001                          BNE     10$                     ; BR IF NO
050216  000406                          BR      11$                     ; ELSE P$RADX ALREADY SAYS +, JUST BR
050220  121427  000055          10$:    CMPB    (R4),#'-                ;SEE IF THERE'S A - SIGN THERE
050224  001004                          BNE     1$                      ; BR IF NO
050226  112737  177777  003407          MOVB    #-1,P$RADX+1            ;SET "MINUS FLAG" (HI BYTE OF P$RADX)
050234  005204                  11$:    INC     R4                      ;BUMP R4 TO POINT TO FIRST CHAR

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

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

050334  005705                  2$:     TST     R5                      ;SEE IF FOUND ANY NUMERICS
050336  001464                          BEQ     5$                      ;BR IF NO, TAKE "MISS" BRANCH
050340  010401                          MOV     R4,R1                   ;GET POINTER TO START OF NUMERIC STRING
050342  160501                          SUB     R5,R1
050344  005037  003404                  CLR     P$NUM                   ;CLEAR LOC. WHERE VALUE WILL BE STORED
050350  112102                  3$:     MOVB    (R1)+,R2                ;GET ASCII CHAR AND CONVERT IT TO A #
050352  162702  000060                  SUB     #60,R2
050356  006337  003404                  ASL     P$NUM                   ;SHIFT CURRENT VALUE TO MAKE ROOM
050362  103437                          BCS     7$                      ;ERROR IF NUMBER TOO BIG
050364  013737  003404  003402          MOV     P$NUM,P$CNT             ;SAVE FOR LATER IN CASE DECIMAL RADIX
0' )372 006337  003404                  ASL     P$NUM
050376  103431                          BCS     7$                      ;ERROR IF NUMBER TOO BIG
050400  006337  003404                  ASL     P$NUM
050404  103426                          BCS     7$                      ;ERROR IF NUMBER TOO BIG
050406  123727  003406  000012          CMPB    P$RADX,#10.             ;SEE IF DECIMAL RADIX
050414  001004                          BNE     4$                      ;BR IF NOT EQUAL
050416  063737  003402  003404          ADD     P$CNT,P$NUM
050424  103416                          BCS     7$                      ;ERROR IF NUMBER TOO BIG
050426  060237  003404          4$:     ADD     R2,P$NUM
```

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

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


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

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


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

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

```
                                .SBTTL  REPORT CODING SECTION


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

050736                                  BGNRPT
050736                                                                  L$RPT::

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

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

```
                                .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
```

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

 8 050752                               BGNINIT
   050752                                                                   L$INIT::
 9
33
34 050752  005737  017376              TST     DCLFLG                  ;IS DOCLEAN SET
35 050756  001403                      BEQ     INIT1                   ;BRANCH IF NOT
36 050760  005037  017376              CLR     DCLFLG                  ;IF SET CLEAR IT
37 050764                              DOCLN
   050764  104444                                                               TRAP    C$DCLN
38 050766  005037  017416      INIT1:  CLR     RUNING                  ; INIT "DCLT RUNNING" FLAG
39 050772  012737  177777  017400      MOV     #-1,RESFLG              ;SET RESTART FLAG
40 051000                              READEF  #EF,START               ;IF HERE CAUSE OF START,DO SOME INIT
   051000  012700  000040                                                       MOV     #EF,START,R0
   051004  104447                                                               TRAP    C$REFG
41 051006                              BCOMPLETE       START
   051006  103417                                                               BCS     START
42 051010                              READEF  #EF,RESTART             ;IF HERE CAUSE OF RESTART, DO SOME INIT
   051010  012700  000037                                                       MOV     #EF,RESTART,R0
   051014  104447                                                               TRAP    C$REFG
43 051016                              BCOMPLETE       RESTRT
   051016  103514                                                               BCS     RESTRT
44 051020                              READEF  #EF,CONTINUE            ;SEE IF WE'RE HERE CAUSE OF A CONTINUE
   051020  012700  000036                                                       MOV     #EF,CONTINUE,R0
   051024  104447                                                               TRAP    C$REFG
45 051026                              BNCOMPLETE      S1              ;BR IF NOT HERE CAUSE OF CONTINUE
   051026  103002                                                               BCC     S1
46 051030  000137  051650              JMP     ENDIT                   ;JMP IF HERE CAUSE OF A CONTINUE
47 051034                      S1:     READEF  #EF,NEW                 ;SEE IF THIS IS A "NEW PASS"
   051034  012700  000035                                                       MOV     #EF,NEW,R0
   051040  104447                                                               TRAP    C$REFG
48 051042                              BCOMPLETE       NEW             ;IF YES, BR AROUND LOGUNIT 0 SETUP
   051042  103522                                                               BCS     NEW
49 051044  000524                      BR      GETPRM
50
51 051046  005037  017400      START:  CLR     RESFLG                  ;CLEAR RESTART FLAG SINCE HERE ON START
52 051052                              BRESET                          ;INIT ENTIRE BUS
   051052  104433                                                               TRAP    C$RESET
53 051054  005037  017442              CLR     CLKVEC                  ;CLEAR CLK VECTOR PTR, AS A FLAG IN
54                                                                     ; NO CLOCK IS FOUND.
55 051060  012702  017436              MOV     #CLKCSR,R2              ;SETUP R2 AS A PTR. TO CLOCK INFO BLOCK
56 051064                              CLOCK   1,R1                    ;LOOK FOR A LINE CLOCK
   051064  012700  000114                                                       MOV     #1,R0
   051070  104462                                                               TRAP    C$CLCK
   051072  010001                                                               MOV     R0,R1
57 051074                              BNCOMPLETE      S2              ; IF NONE THERE GO LOOK FOR A DP CLOCK
   051074  103004                                                               BCC     S2
58 051076  004737  041654              JSR     PC,CLRSET               ; GO SET UP CLOCK INFO TABLE & CLK VEC.
59 051102  012737  000100  017446      MOV     #CLKEN,CLKEN            ;SETUP THE ENABLE LINE CLOCK DATA
60 051110  000457                      BR      RESTRT
61
```

```
                                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
051122                          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$RDBU
                                        BNCOMPLETE      S4              ;BR IF NOT, NO CHANCE OF A CLOCK
051164  103021                                                                      BCC     S4
051166  012737  000100  017442  MOV     #100,CLKVEC             ;LOAD 100 AS CLK VECTOR
051174  005037  017440          CLR     CLKBR                   ;LOAD 0 AS CLK INT. LEVEL
051200  012737  017446  017436  MOV     #CLKEN,CLKCSR           ;KLUDGE UP THE CSR & ENABLE DATA LOCS
051206                          GMANID  L5060,CLKHZ,D,377,50.,60.,,YES
051206  104443                                                                      TRAP    C$GMAN
051210  000406                                                                      BR      10000$
051212  017444                                                                      .WORD   CLKHZ
051214  000052                                                                      .WORD   T$CODE
051216  027121                                                                      .WORD   L5060
051220  000377                                                                      .WORD   377
051222  000064                                                                      .WORD   T$LOLIM
051224  000074                                                                      .WORD   T$HILIM
051226                                                                  10000$:
051226  000410                  BR      RESTRT


051230                          S4:     PRINTF  #BDCLK
051230  012746  027232                                                              MOV     #BDCLK,-(SP)
051234  012746  000001                                                              MOV     #1,-(SP)
051240  010600                                                                      MOV     SP,R0
051242  104417                                                                      TRAP    C$PNTF
051244  062706  000004                                                              ADD     #4,SP
051250  005037  017450          RESTRT: CLR     TIMMIN                  ;CLEAR TIME SINCE START LOCATIONS
051254  005037  017452                  CLR     TIMSEC
051260  013737  017444  017454        MOV     CLKHZ,TIMTCK            ;LOAD TICKS/SEC
051265  012702  017466                MOV     #EVTLOG,R2              ;INIT EVENT TABLE TO ALL 1'S AFTER EACH
051272  010237  017464                MOV     R2,EVTPTR               ; START OR RES AND INIT TABLE POINTER
051276  012722  177777        1$:     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

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

```
     051340  010001                                                                          MOV     R0,R1
  97 051342                                  BNCOMPLETE      GETPRM          ;IF NO P TABLE AVAIL., GO GET NEXT ONE
     051342  103365                                                                          BCC     GETPRM
  98
  99 051344  011137  01.406                  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$:     BIS     #BIT1,STATYP            ;SET STATION TYPE
 152 051652                          ENDIT:
 153 051652                                  SETVEC  CLKVEC,#CLKINT,#340     ;SETUP CLOCK VECTOR
     051652  012746  000340                                                                  MOV     #340,-(SP)
     051656  012746  041700                                                                  MOV     #CLKINT,-(SP)
     051662  013746  017442                                                                  MOV     CLKVEC,-(SP)
     051666  012746  000003                                                                  MOV     #5,-(SP)
     051672  104437                                                                          TRAP    C$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.
                                ;--

051770                                  BGNAUTO
051770                                                                  L$AUTO::

051770                                  ENDAUTO
051770                                                                  L10014:
051770  104461                                                                  TRAP    C$AUTO
```

```
                                .SBTTL  CLEANUP CODING SECTION

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

                                        BGNCLN
                                                                                L$CLEAN::

                                        CLR     RUNING          ; INIT DCLT RUNNING FLAG
                                        MOV     #-1,CLNSET      ;SET THE CLEANUP FLAG
                                        JSR     PC,HLTTRB       ;HALT ALL TRIBS
                                        CLR     CLNSET
                                        CLRB    TRIBN           ;
                                        CLR     TEMP            ; MODEM SIGNALS TO CLEAR
                                        JSR     PC,WRMCS        ; GO CLEAR MODEM SIGNALS
                                        CLR     @CLKCSR         ;DISABLE CLOCK
                                        SETPRI  #PRIO7          ;SET PROCESSOR PRIORITY BACK TO 7
052034  012700  000340                                                  MOV     #PRIO7,R0
052040  104441                                                         TRAP    C$SPRI
                                        EXIT    CLN
052042  104432                                                         TRAP    C$EXIT
052044  000002                                                         .WORD   L10015-.

                                        .EVEN

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

ADD UNIT SECTION

```
                        .SBTTL  ADD UNIT SECTION

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

052056                          BGNAU
052056                                                          L$AU::

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

                        .EVEN

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

```
                                        .SBTTL  TEST 1:  SETUP AND MODES OF OPERATION
                                        ;++
                                        ; TEST TO DETECT FAULTS IN THE DATA COMMUNICATION LINK.  THIS TEST WILL
                                        ; THE PROVIDE COVERAGE NECESSARY TO ISOLATE FAILURES TO THE COMPUTER
                                        ; EQUIPMENT, THE COMMUNICATION LINK, OR THE MODEM.
                                        ;--


052064                                          BGNTST
052064                                                                                  T1::

                                        .SBTTL          PROGRAM SETUP SECTION

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

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

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

                                        ; CLEAR COUNTS AND SET UP DEFAULTS

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

052164  005037  017254                  CLR     RXPTR           ; ZERO RX POINTER
052170  012737  011512  017240          MOV     #PTR13,CMPPTR   ;INIT COMP POINTER

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

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

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

PROGRAM SETUP SECTION

```
     68 052262  013737  017246  017342          MOV     CCURAD,CURADD   ;SET UP CURRENT ADDR. TO START OF CMPBUF
     69 052270  012737  000005  017332          MOV     #5,MSGTYP
     70 052276  013737  002162  017334          MOV     MSG5C,CURCC
     71 052304  004737  045446                  JSR     PC,BLDBUF       ;PUT DEFAULT MESSAGE INTO CMPBUF
     72 052310  012737  000001  017242          MOV     #1,CMPTOT       ;BUMP THE COMP MESG COUNT
     73 052316  012737  000003  017402          MOV     #ACT,MODTYP     ;SET DEFAULT MODE= ACTIVE
     74 052324  005037  017404                  CLR     MLTYP           ;SET DEFAULT MAINTENANCE LOOP MODE =NONE
     75 052330  012737  000001  017412          MOV     #1,RPASS        ;SET UP DEFAULT "RUN PASS" COUNT TO 1
     76 052336  012737  000002  017410          MOV     #2,PARAM        ;SET UP PROG. PARAMETERS - DATA CHECKING ENABLD
     77                                                                 ;OPERATOR STATUS MSGS. PRINT OFF
     78 052344  012737  000061  003252          MOV     #KTRB,KEYWD1    ;SET UP KEYWRD.
     79 052352  004737  055472                  JSR     PC,ACTKAL       ;ZERO TRIB LIST
     80
     81 052356  004737  047214                  JSR     PC,WRDEFP       ;GO WRITE DEFAULTS TO TRIBS
     82
     83 052362                                  PRINTF  #HLPC
        052362  012746  024040                                                          MOV     #HLPC,-(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. COUN. 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
```

COMMAND LINE FETCH & INTERPRETATION SECTION

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

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

ACTION TABLE AND ROUTINES

```
58 053606  000264          .WORD   ACTPRT-10$      ;PRINT
59 053610  001610          .WORD   ACTMOS-10$      ;MODEM STATUS CHANGE
60 053612  002474          .WORD   ACTSLS-10$      ;SHOW TRIB LIST
61 053614  001776          .WORD   ACTETB-10$      ;ESTABLISH TRIB
62 053616  002006          .WORD   ACTKTB-10$      ;KILL TRIB
63 053620  002016          .WORD   ACTKAL-10$      ;KILL ALL
64 053622  002730          .WORD   ACTEKT-10$      ;FLAG TRIB KILLED
65 053624  003334          .WORD   ACTCKT-10$      ;CHECK VALID TRIB
66 053626  002100          .WORD   ACTEWS-10$      ;POLL PARAMETERS
67 053630  000054          .WORD   ACTEXT-10$      ;EXIT
68 053632  001310          .WORD   ACTSEX-10$      ;SET EXT COMMAND REV B EC
69
```

```
                1
                2 053634  112737  177777  003410  ACTNUF: MOVB    #-1,P$NNUF      ;SET FLAG TO SAY NEED MORE OF COMMAND
                3 053642  000207          ACTNUL: RTS     PC              ;RETURN TO PARSER
                4
                5 053644  012737  000001  003252  ACTCLR: MOV     #CLEAR,KEYWD1   ;SET LOC TO SAY A CLEAR WAS TYPED
                6 053652  000207          RTS     PC
                7
                8 053654  012737  000002  003252  ACTSHO: MOV     #SHOW,KEYWD1    ;SET LOC. TO SAY A SHOW WAS TYPED
                9 053662  000207          RTS     PC
               10
               11 053664  012702  003260          ACTHLP: MOV     #HLPTAB,R2      ;SETUP R2 AS A POINTER TO HELP MSG TABLE
               12 053670                  1$:     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$PNTF
                  053706  062706  000006                                          ADD     #6,SP
               13 053712  020227  003304          CMP     R2,#HLPEND      ;SEE IF ALL INFO PRINTED YET
               14 053716  001364          BNE     1$              ;IF NO KEEP PRINTING
               15 053720  012737  000005  003252  MOV     #HLP,KEYWD1     ;SET LOC. TO SAY A HELP WAS TYPED
               16 053726  000207          RTS     PC
               17 053730  012737  000066  003252  ACTEXT: MOV     #EXIT,KEYWD1
               18 053736  000207          RTS     PC              ;SET UP KEYWORD AND SCOOT OUT OF HERE
               19 053740  012737  000055  003252  ACTPRT: MOV     #PRNT,KEYWD1    ;SET LOC. TO SAY A HELP WAS TYPED
               20 053746  004737  042554          JSR     PC,REPORT       ;CALL ROUTINE TO PRINT EVENT LOG AND BASE TABLE
               21 053752  000207          RTS     PC
               22
               23 053754  012737  000004  003252  ACTRUN: MOV     #RUN,KEYWD1     ;SET RUN FLAG
               24 053762  112737  177777  003410          MOVB    #-1,P$NNUF      ;SET FLAG TO SAY NEED MORE OF COMMAND
               25 053770  012737  000001  017412          MOV     #1,RPASS        ;SET DEFAULT RUN "PASS" TO 1
               26 053776  000207          RTS     PC
               27
               28 054000  012737  011512  017240  ACTCSE: MOV     #PTR13,CMPPTR   ;INIT COMPARE MESSAGE POINTER
               29 054006  013701  017240          MOV     CMPPTR,R1
               30
               31 054012  013702  017242          MOV     CMPTOT,R2
               32 054016  105037  003410          CLRB    P$NNUF          ;FLAG THAT HAVE VALID COMMAND AT THIS PT.
               33 054022  023727  003252  000002  CMP     KEYWD1,#SHOW    ;SEE IF A CLEAR OR SHOW WAS TYPED
               34 054030  001471          BEQ     ACTSHW          ;BR IF A SHOW WAS TYPED
               35 054032  012737  000001  017242  MOV     #1,CMPTOT       ;CLEAR COMPARE MESSAGE COUNT, CHAR. COUNT
               36 054040  005037  017244          CLR     CTOTCC          ; AND RESET POINTER
               37
               38 054044  012737  011512  017240          MOV     #PTR13,CMPPTR   ;INIT COMPARE MESSAGE POINTER
               39 054052  013737  017240  017340          MOV     CMPPTR,CPTR     ;SET UP TO FILL IN DEFAULT MESSAGE
               40 054060  012701  004416          MOV     #CMPBUF,R1
               41 054064  010137  017246          MOV     R1,CCURAD
               42 054070  000431          BR      ACTCLR
               43
               44 054072  012701  011416  ACTCST: MOV     #PTRTAB,R1
               45 054076  013702  017260          MOV     TXMTOT,R2
               46 054102  105037  003410          CLRB    P$NNUF          ;FLAG THAT HAVE VALID COMMAND AT THIS PT.
               47 054106  023727  003252  000002  CMP     KEYWD1,#SHOW    ;SEE IF A CLEAR OR SHOW WAS TYPED
               48 054114  001437          BEQ     ACTSHW          ;BR IF A SHOW WAS TYPED
               49 054116  012737  000001  017260          MOV     #1,TXMTOT       ;CLEAR TRANSMIT MESSAGE COUNT, CHAR. COUNT
               50 054124  005037  017262          CLR     TTOTCC          ; AND RESET POINTER
               51 054130  012737  011416  017236          MOV     #PTRTAB,TXPTR
```

```
     52 054136  013737  017236  017340          MOV     TXPTR,CPTR
     53 054144  012701  003416                  MOV     #TXBUF,R1
     54 054150  010137  017264                  MOV     R1,TCURAD
     55
     56 054154  012702  001000          ACTCLB: MOV     #BUFLIM,R2
     57 054160  010137  017342                  MOV     R1,CURADD       ;SET UP TO PUT DEFAULT MSG IN LIST AFTER 033'S
     58 054164  012737  000005  017332          MOV     #5,MSGTYP
     59 054172  013737  002162  017334          MOV     MSG5C,CURCC
     60 054200  105021                  1$:     CLRB    (R1)+           ;FILL EXPT OR TRAN BUFFER WITH 0'S IF A CLEAR
     61 054202  005302                          DEC     R2              ;DO "BUFLIM" NUMBER OF BYTE LOCATIONS
     62 054204  001375                          BNE     1$
     63 054206  004737  045446                  JSR     PC,BLDBUF       ;"CLEAR" REALLY MEANS TO PUT DEFAULT MSG IN
     64 054212  000207                          RTS     PC              ;WHEN DONE, RETURN TO PARSER
     65
     66
     67 054214  012705  00333[illegible]  ACTSHW: MOV     #SHTAB,R5
     68 054220  122571  000000          5$:     CMPB    (R5)+,@(R1)     ;LOOK AT FIRST BYTE OF MSG TO DECIPHER TYPE
     69 054224  001404                          BEQ     6$
     70 054226  020527  003343                  CMP     R5,#SHTEND      ;SEE IF LOOKED AT ALL OF DEFAULTS YET
     71 054232  001372                          BNE     5$
     72 054234  005205                          INC     R5              ;MUST BE OPR. SPEC'D THEN
     73 054236  162705  003335          6$:     SUB     #SHTAB+1,R5
     74 054242  006305                          ASL     R5
     75 054244  016137  000002  017350          MOV     2(R1),TEMP
     76 054252                                  PRINTF  #SHMSG,SHTYTB(R5),TEMP  ;PRINT MSG SIZE & TYPE
        054252  013746  017350                                                          MOV     TEMP,-(SP)
        054256  016546  003314                                                          MOV     SHTYTB(R5),-(SP)
        054262  012746  025613                                                          MOV     #SHMSG,-(SP)
        054266  012746  000003                                                          MOV     #3,(SP)
        054272  010600                                                                  MOV     SP,R0
        054274  104417                                                                  TRAP    C$PNTF
        054276  062706  000010                                                          ADD     #10,SP
     77 054302  062701  000004                          ADD     #4,R1           ;BUMP R1 TO NEXT SET OF POINTERS
     78 054306  005302                          DEC     R2
     79 054310  001[illegible]                  BNE     ACTSHW
     80 054312  013737  017402  020652          MOV     MODTYP,DEV1
     81 054320  013737  017404  020654          MOV     MLTYP,DEV2
     82 054326  013737  017412  020656          MOV     RPASS,DEV3
     83 054334  013737  017410  020660          MOV     PARAM,DEV4
     84 054342  004737  047344                  JSR     PC,SHWOP        ;SHOW THE OPERATOR THE CURRENT MODE..... ALSO
     85 054346  000207                          RTS     PC
     86
     87 054350  013737  003404  017312  ACTDMS: MOV     P$NUM,STADD     ;SETUP STARTING ADDRESS FOR DUMP
     88 054356  005037  017316                  CLR     BYTBIT          ;SET DEFAULT OF WORD DUMP
     89 054362  012737  000052  003252          MOV     #DMPS,KEYWD1    ;FLAG THAT A DUMP WAS TYPED
     90 054370  000403                          BR      ACTDME
     91
     92 054372  012737  177777  017316  ACTDMQ: MOV     #-1,BYTBIT      ;SET DUMP FLAG TO "DUMP WORD"
     93 054400  013737  003404  017314  ACTDME: MOV     P$NUM,ENADD     ;SETUP END ADDRESS FOR DUMP (*START IF NO [illegible]
     94 054406  105037  003410          ACTDMX: CLRB    P$NNUF          ;CLEAR NOT-ENOUGH FLAG, "DUMP N-N/B" IS VALID
     95 054412  000207                          RTS     PC
     96
```

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

ACTION TABLE AND ROUTINES

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

ACTION TABLE AND ROUTINES

```
 1 055142  012737  000036  003254  ACTNO:  MOV     #NO,QUALFG
 2 055150  000207                          RTS     PC
 3
 4 055152  022737  000036  003254  ACTECH: CMP     #NO,QUALFG
 5 055160  001422                          BEQ     1$
 6 055162  052737  000004  017410          BIS     #ECHOB,PARAM
 7 055170  022737  000002  017402          CMP     #PAS,MODTYP             ;BE SURE IN PASSIVE MODE IF
 8 055176  001416                          BEQ     2$                      ;IF TRYING TO SET /ECHO
 9 055200                                  PRINTF  #CLINPS
   055200  012746  023541                                                  MOV     #CLINPS,-(SP)
   055204  012746  000001                                                  MOV     #1,-(SP)
   055210  010600                                                          MOV     SP,R0
   055212  104417                                                          TRAP    C$PNTF
   055214  062706  000004                                                  ADD     #4,SP
10 055220  112737  177777  003411          MOVB    #-1,P$GDBD
11 055226  042737  000004  017410  1$:     BIC     #ECHOB,PARAM
12 055234  005037  003254          2$:     CLR     QUALFG                  ;CLEAR "NO" OUT OF QUALIFIER FLAG
13 055240  000501                          BR      ACTLXX
14
15 055242  012701  000002          ACTCHK: MOV     #DATCKB,R1              ;SET DATA CHECK BIT
16 055246  000413                          BR      ACTQFG
17
18 055250  012701  000001          ACTSTS: MOV     #STATB,R1       ;SET THE STATUS BIT
19 055254  000410                          BR      ACTQFG
20
21 055256  012701  000020          ACTCRC: MOV     #CRCB,R1        ;SET THE CRC BIT
22 055262  000405                          BR      ACTQFG
23
24 055264  012701  000010          ACTMOS: MOV     #MOCHK,R1       ;SET THE MODEM BIT
25 055270  000402                          BR      ACTQFG
26
27 055272  012701  000040          ACTPRO: MOV     #PROTOB,R1      ;SET THE PROTOCOL BIT
28
29 055276  050137  017410          ACTQFG: BIS     R1,PARAM
30 055302  022737  000036  003254          CMP     #NO,QUALFG
31 055310  001002                          BNE     1$
32 055312  040137  017410                  BIC     R1,PARAM
33 055316  005037  003254          1$:     CLR     QUALFG                  ;CLEAR "NO" OUT OF QUALIFIER FLAG
34 055322  000450                          BR      ACTLXX
35
36 055324  015737  003404  017412  ACTRPS: MOV     P$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
```

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

```
                056134  000000                                                                  .WORD   T$LOLIM
                056136  000377                                                                  .WORD   T$HILIM
                056140                                                                  10003$:
     70 056140  113737  017356  017351          MOVB    TEMP3,TEMP+1
     71 056146  000715                          BR      ACTWS7
     72
     73 056150  105037  003410          ACTSLS: CLRB    P$NNUF          ; CLEAR THE INCOMPLETE CMD FLAG
     74 056154  012737  000002  003252          MOV     #SHOW,KEYWD1    ; SET UP TO LOOK LIKE A SHOW CMD
     75 056162  105737  003411                  TSTB    P$GDBD          ; SEE IF WAS AN ERROR FROM ..KTB
     76 056166  001401                          BEQ     10$             ; BR IF NO
     77 056170  000504                          BR      5$              ;   ELSE EXIT
     78 056172  005037  017300          10$:    CLR     LNCNT           ; INIT ADDR/LINE COUNTER
     79 056176  005737  015754                  TST     TRBTOT          ; SEE IF LIST EMPTY
     80 056202  001011                          BNE     1$              ;  BR IF NO
     81 056204                                  PRINTS  #SHTRE          ; PRINT THE TRIB LIST IS EMPTY
                056204  012746  025727                                                          MOV     #SHTRE,-(SP)
                056210  012746  000001                                                          MOV     #1,-(SP)
                056214  010600                                                                  MOV     SP,R0
                056216  104416                                                                  TRAP    C$PNTS
                056220  062706  000004                                                          ADD     #4,SP
     82 056224  000456                          BR      4$
     83 056226  012702  015712          1$:     MOV     #TRIBLS,R2      ; POINT R2 TO THE TRIB ADDR LIST
     84 056232  012705  000040                  MOV     #32.,R5         ; SETUP R5 AS A COUNTER
     85 056236                                  PRINTS  #SHTRH          ; PRINT TRIB LIST HEADER
                056236  012746  025766                                                          MOV     #SHTRH,-(SP)
                056242  012746  000001                                                          MOV     #1,-(SP)
                056246  010600                                                                  MOV     SP,R0
                056250  104416                                                                  TRAP    C$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
```

```
                056574  104416                                                          TRAP    C$PNTS
                056576  062706  000004                                                  ADD     #4,SP
 99             056602  000207          5$:     RTS     PC              ;RETURN TO CALL
100
101             056604                  ACTEKT:
102             056604  005037  003414          CLR     VALTRB          ;INIT. VALID TRIB FLAG   REV B EC
103             056610  105037  003410          CLRB    P$NNOF          ;CLEAR NOT ENOUGH INFO FLAG
104             056614  105737  003411          TSTB    P$GDBD          ; SEE IF WAS AN ERROR FROM ..KTB
105             056620  001401                  BEQ     10$             ; BR IF NO
106             056622  000571                  BR      ACTEXX          ;   ELSE EXIT
107             056624  013701  003404  10$:    MOV     P$NUM,R1
108             056630  005701                  TST     R1              ; SEE THAT TRIB ADDR NOT 0,377
109             056632  001403                  BEQ     1$
110             056634  022701  000377          CMP     #377,R1
111             056640  103012                  BHIS    2$              ;;REV B EC
112             056642          1$:     PRINTS  #SHT1V,R1
                056442  010146                                                          MOV     R1,-(SP)
                056444  012746  026543                                                  MOV     #SHT1V,-(SP)
                056450  012746  000002                                                  MOV     #2,(SP)
                056454  010600                                                          MOV     SP,R0
                056456  104416                                                          TRAP    C$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  #SHTFL,R1       ;PRINT ERROR IS LIST FULL
    056656  010146                                                                          MOV     R1,-(SP)
    056660  012746  026027                                                                  MOV     #SHTFL,-(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$:     PRINTF  #SHTUN,R1       ; PRINT ADDR NOT UNIQUE ERROR
    056764  010146                                                                          MOV     R1,-(SP)
    056766  012746  026115                                                                  MOV     #SHTUN,-(SP)
    056772  012746  000002                                                                  MOV     #2,-(SP)
    056776  010600                                                                          MOV     SP,R0
    057000  104417                                                                          TRAP    C$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$NNCF      ; SET INCOMPLETE INFO FLAG
    057016  032737  000001  023102          BIT     #MTP,DEVPAR     ; SEE IF IN PT PT OR MULTIPT MODE
    057024  001013                          BNE     1$              ; BR IF IN MULTIPT MODE
    057026                                  PRINTF  #CLIPPE         ; TRIB CMOS 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  052737  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$PNTF
057120  062706  000004                                                 ADD     #4,SP
057124  000137  052472                 JMP     GETCL
057130  052737  000001  023102  44$:   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  #SHTLPA         ;PRINT ERROR MUST ESTABLISH TRIB
057156  012746  026316                                                 MOV     #SHTLPA,-(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  #SHTLP          ;PRINT ERROR LOOP MUST BE INT FOR MTP
057214  012746  026231                                                 MOV     #SHTLP,-(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 TRTB
057260  001013                         BNE     6$              ;BRANCH IF CONTROL
057262                                 PRINTF  #SHTLPB         ;PRINT ERROR MUST BE CONTROL
057262  012746  026371                                                 MOV     #SHTLPB,-(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  041462                 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  #SHTLPC
```

ACTION TABLE AND ROUTINES

```
        057342  012746  026433                                                          MOV     #SHTLPC,-(SP)
        057346  012746  000001                                                          MOV     #1,-(SP)
        057352  010600                                                                  MOV     SP,R0
        057354  104417                                                                  TRAP    C$PNTF
        057356  062706  000004                                                          ADD     #4,SP
    38  057362                                  PRINTF  #SHTLPD         ;PRINT ERROR ...
        057362  012746  026504                                                          MOV     #SHTLPD,-(SP)
        057366  012746  000001                                                          MOV     #1,-(SP)
        057372  010600                                                                  MOV     SP,R0
        057374  104417                                                                  TRAP    C$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  #SHTBR          ;ERROR
        057504  012746  026605                                                          MOV     #SHTBR,-(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  017234  2$:     MOV     #PTRTAB,TXPTR   ;INIT TRANSMIT MESSAGE POINTER
    58  057536  012737  011512  017240          MOV     #PTR13,CMPPTR   ;INIT COMPARE MESSAGE POINTER
    59  057544  012737  011606  017254          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     CUNSET
    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     CNCNT           ;CLEAR COUNTER THAT IS USED FOR STATUS
    77  057664  004737  041[.]                  JSR     PC,LOGDVI       ;LOG ABOUT TO INIT DEVICE
    78  057670  004737  062752                  JSR     PC,DVINIT       ;INIT DEVICE
    79
```

```
 80
 81 057674  012737  177777  015762  GTRX2:  MOV     #-1,INDEX       ;MAKE INDEX = -1
 82 057702  013737  017354  017350  GTRX2C: MOV     CURCC,TEMP
 83 057710  032737  000001  02310?          BIT     #MTP,DEVPAR
 84 057716  001404                          BEQ     GTRX2?          ;IF NOT MULTI GO TO 2?
 85 057720  032737  C00002  017410          BIT     #DATCKB,PARAM   ;IS THERE DATA CHECKING
 86 057726  001005                          BNE     GTRX2A          ;BRANCH IF CHECKING
 87 057730  012737  001000  017334  GTRX2?: MOV     #BUFLIM,CURCC   ;SET UP CHAR COUNT TO 'BUFLIM'
 88 057736  005037  017350                  CLR     TEMP
 89 057742  004737  04646?          GTRX2A: JSR     PC,GTVIND       ;GET VALID INDEX
 90 057746  02?737  000040  015762          CMP     #32.,INDEX      ;IS IT 32
 91 057754  001423                          BEQ     GTRX2B          ;YES.. ALL DONE GO EXECUTE MODE
 92
 93                                         ;GET RXBUF PTR FIGURE
 94
 95 057756  012737  005416  017354          MOV     #RXBUF,TEMP2    ;TEMP = 0 FOR PTP OR MTP:& NO CHK
 96 057764  013737  015762  017???          MOV     INDEX,MPLY      ;INDEX X TEMP. RXBUF ADDDR =
 97 057772  004737  046436                  JSR     PC,MTPLY        ;NEW RXBUF ADDR.
 98 057776  013737  017354  017342          MOV     TEMP2,CURADD    ;SET UP RX BUFFER ADDRESS
 99
100                                         ;GET CURRENT POINTER FIGURE
101
102 060004  004737  046546                  JSR     PC,GRPTCP
103
104                                         ;GO LOAD '33' TO BUFFER
105
106 060010  012737  000010  017352          MOV     #10,MSGTYP      ;SET UP FOR 33 TO FILL RX BUFFERS
107 060016  004737  045446                  JSR     PC,BLDBUF       ;CLEAR RX BUFFER
108 060022  000727                          BR      GTRX2C          ;GO BACK FOR MORE
109 060024  013702  017402          GTRX2B: MOV     MODTYP,R2
110 060030  006302                          ASL     R2
111 060032  000172  017420                  JMP     @MODE(R2)       ;MODE DISPATCH
112
```

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

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

```
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
```

```
                                        .SBTTL          PASSIVE MODE SECTION

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

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

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

060150                                  ALCK:
060150  032737  000002  017410          1$:     BIT     #DATCKB,PARAM   ;IS IT DATA CHECK
060156  001003                                  BNE     1$              ;BRANCH IF CHECK
060160  013737  017260  017276                   MOV     TXMTOT,RXMTOT   ;IF NOCH MAKE RX=TX
060166  004737  046364                           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 VALID
```

```
                                .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,ULRPTR       ;GET RX INDEX
060224  004737  047302                  JSR     PC,LOGAQR       ;LOG AND QUE REC.
060230  004737  046506                  JSR     PC,LDRPTR       ;RESTORE RX PTR TO LIST
060234  032737  000010  017414  ALCK1:  BIT     #QTX,FLAG
060242  001422                         BEQ     ALCK2           ;IF NO TX"S GO TO 2
060244  004737  047102                  JSR     PC,GNTXPR
060250  013702  017340                  MOV     CPTR,R2
060254  011237  017354                  MOV     (R2),TEMP2
060260  012237  017350                  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                        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.
```

```
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
                                                                        TRAP    C$ERSOFT
   061154  104457                                                       .WORD   1
   061156  000001                                                       .WORD   EDDLE
   061160  030222                                                       .WORD   ERR10
   061162  041430
62 061164  004737  042206            JSR     PC,LOGCML       ;LOG LENGTH ERROR
63
64 061170  005037  017360    CMPS7:  CLR     TEMP4           ;CLEAR BAD BYTE COUNTER
65 061174  012737  000001  017346    MOV     #1,OFSET        ;SET OFSET BYTE COUNT TO 1
66 061202  122123            CMPS1:  CMPB    (R1)+,(R3)+     ;COMPARE RX WITH EXPETED
67 061204  001422                    BEQ     CMPS6           ;IF EQUAL, THEN GO TO 6
68
69 061206  005237  017360    CMPS2:  INC     TEMP4           ;INC BAD COUNT
70 061212  023727  017360  000005    CMP     TEMP4,#5        ;IS IT MORE THEN 5
71 061220  101014                    BHI     CMPS6           ;IF SO GO  FOR MORE
72 061222  114337  017370            MOVB    -(R3),GOOD      ;STORE GOOD BYTE FOR ERROR
73 061226  114137  017371            MOVB    -(R1),BAD       ;STORE BAD BYTE FOR ERROR
74 061232  005237  017310            INC     ERRCNT
75 061236                            ERRSOFT 2,EDDDE,ERR1    ;REPORT COMPARISON FAILURE TO OPR.
                                                                        TRAP    C$ERSOFT
   061236  104457                                                       .WORD   2
   061240  000002                                                       .WORD   EDDDE
   061242  030257                                                       .WORD   ERR1
   061244  041340
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
                                                                        TRAP    C$ERSOFT
   061274  104457                                                       .WORD   3
   061276  000003                                                       .WORD   EDDDE
   061300  030257                                                       .WORD   ERR2
   061302  041402
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  001405                          BEQ     1$              ;IF IT IS DON'T DECREMENT, LOOP FOREVER
061372  005537  017412                  DEC     RPASS           ;DEC PASS COUNT
061376  001402                          BEQ     2$              ;IF DONE EXIT TEST
061400  000137  057674          1$:     JMP     GTRX,P          ;ELSE GO BACK AND DISPATCH
061404  005037  017416          2$:     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,TEMP5     ;MOV TRIBN TO TEMP5 FOR MTP DEFAULT
061440  032737  000001  023102          BIT     #MTP,DEVPAR     ;IS THIS MULTIPOINT
061446  001010                          BNE     1$              ;IF SO BRANCH
061450                                  GMANID  DLLQ1,TEMP5,0,377,0,377,NO
061450  104443                                                          TRAP    C$GMAN
061452  000406                                                          BR      100045$
061454  017356                                                          .WORD   TEMP5
061456  000022                                                          .WORD   T$CODE
061460  025210                                                          .WORD   DLLQ1
061462  000377                                                          .WORD   377
061464  000000                                                          .WORD   T$LOLIM
061466  000377                                                          .WORD   T$HILIM
061470                                                          100045$:

061470  113737  017356  002650  1$:     MOVB    TEMP5,PASS1
061476  113737  017356  002651          MOVB    TEMP5,PASS2
061504  113737  017356  002652          MOVB    TEMP5,PASS3
061512  113737  017356  002653          MOVB    TEMP5,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 MOP 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

```
                                ;SET THE DOWN LINE LOAD MSG TO 02
                                ;SET CC
                                ;CLEAR THE GO AHEAD FLAG
                                ;GO TO THE DOWN LINE TX RX ROUTINE
                                ; RETURN WHEN TX AND RX ARE COMPLETED
DLLPRI:
                                PRINTF  #DLLCM
                                                                MOV     #DLLCM,-(SP)
                                                                MOV     #1,(SP)
                                                                MOV     SP,R0
                                                                TRAP    C$PNTF
                                                                ADD     #4,SP
                                JMP     GTRA5
DLLEA:
                                ERRSOFT 13,DLLAB,ERR14
                                                                TRAP    C$ERSOFT
                                                                .WORD   13
                                                                .WORD   DLLAB
                                                                .WORD   ERR14
                                JMP     GTRA5           ;PRINT ABORT AND EXIT
DLTXRX:
                                BIS     #QRX,FLAG       ;SET THE QUE RX FLAG
                                MOV     #RXBUF,DVRXA    ;SET THE DEVICE RX BUFFER TO RXBUF
                                MOV     #RXBUF,TEMP2    ;SET UP FOR LOG
                                MOV     #256.,DVRCC     ;SET UP FOR CC OF 256
                                MOV     #256.,TEMP3     ;SET UP FOR LOG
                                JSR     PC,DVRXQ        ; GO QUE RX
                                JSR     PC,LOGRXQ       ;AND LOG IT...

                                MOV     CURADD,DVTXA    ;SET UP FOR TX
                                MOV     CURADD,TEMP2    ;AND LOG
                                MOV     CURCC,DVTCC     ;SE UP FOR TX COUNT
                                MOV     CURCC,TEMP3     ;AND LOG IT
                                JSR     PC,LOGTXQ       ;LOG THE TX QUEUED
                                BIS     #QTX!ETX,FLAG   ;SET UP TO QUE AND EXPECTED
DLLE2:                          JSR     PC,DVTXRX       ;GO TO DEVICE ROUTINE
                                BIT     #DLLGA,FLAG     ;TEST FOR GO AHEAD BIT
                                BNE     DLLE1           ;IF SET GO TO ONE
                                BIT     #QTX,FLAG       ;ELSE CHECK FOR TX DONE
                                BNE     DLLE6           ;IF DONE THEN BRANCH
                                                        ;ELSE ERROR
                                MOV     #TXNC,CONDTM
DLLE7:                          MOV     RXBUF,TEMP3
                                MOV     TXBUF,TEMP4
DLLE7A:                         MOV     #DLLAB,TEMP2
                                JSR     PC,LOGVE        ;LOG ERROR
                                JMP     DLLEA           ;ABORT TEST

DLLE6:                          MOV     DVTXA,TEMP2
                                MOV     DVTCC,TEMP3
                                JSR     PC,LOGTXC       ;LOG TX DONE
```

```
104 062056  042737  000210  017414          BIC     #QTX!ETX,FLAG   ;CLEAR QUE AND EXPECTED
105 062064  052737  001000  017414          BIS     #DLLGA,FLAG     ;SET THE GO AHEAD BIT
106 062072  023737  002174  017252          CMP     DLLM2C,DVICC
107 062100  001475                          BEQ     DLLE5           ;EXIT IF SECOND MSG.
108 062102  000723                          BR      DLLE2           ;AND GO BACK TO 2
109 062104  032737  000004  017414  DLLE1:  BIT     #QRX,FLAG       ;IS THE A RX COMPLETED
110 062112  001004                          BNE     DLLE8           ;IF SO GO TO 8
111 062114  012737  041252  017366          MOV     #RXNC,CONOTM    ;ELSE SET UP ERROR AND ABORT.
112 062122  000730                          BR      DLLE7
113 062124  013737  017270  017354  DLLE8:  MOV     DVRXA,TEMP2
114 062132  013737  017272  017356          MOV     DVRCC,TEMP3
115 062140  004737  042074                  JSR     PC,LOGRXC       ;LOG RECEIVE COMPLETE
116 062144  122737  000010  005416          CMPB    #10,RXBUF       ;CHECK FOR FIRST WORD OF RX
117                                                                 ;SEC BOOT MSG.
118 062152  001404                          BEQ     DLLE3
119 062154  012737  041272  017366  DLLE4:  MOV     #RXM1,CONOTM    ;SET UP MESG AND ABORT
120 062162  000710                          BR      DLLE7           ;ABORT TEST
121
122 062164  122737  000001  005420  DLLE3:  CMPB    #1,RXBUF+2      ;IS SECOND WORD 1 ?
123 062172  001407                          BEQ     DLLE5A          ;YES,BRANCH
124 062174  012737  041315  017366          MOV     #RXM2,CONOTM
125 062202  013737  005420  017356          MOV     RXBUF+2,TEMP3
126 062210  000703                          BR      DLLE7A          ;SET UP MESSAGE AND ABORT
127
128
129                                         ;;PRINT ID OF DEVICE REQUESTING LOAD    REV B BY EC
130 062212  012737  032062  017350  DLLE5A: MOV     #UNKM,TEMP      ;SET UP FOR UNKNOWN DEVICE
131 062220  113703  005417                  MOVB    RXBUF+1,R3      ;GET DEVTYPE FROM MESSAGE
132 062224  120327  000042                  CMPB    R3,#34.         ;OUT OF LEGAL RANGE ?
133 062230  101006                          BHI     DLLE5B          ;YES,BRANCH
134 062232  132703  000001                  BITB    #1,R3           ;ODD ?
135 062236  001003                          BNE     DLLE5B          ;YES,BRANCH
136 062240  016337  023222  017350          MOV     DLLIND(R3),TEMP ;GET ASCII MESSAGE FROM TABLE
137
138 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
139
140
141 062274  000207                  DLLE5:  RTS     PC              ;RETURN TO CALLER
142
143
144
```

```
                                        .SBTTL          TALK MODE SECTION

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

062276  012737  177777  015762  TALK:   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
```

```
49 062476  001277                    BNE     TALCK
50 062500  022737  050111  002526    CMP     #"IT,OPBUF+2
51 062506  001273                    BNE     TALCK
52 062510  042737  000210  017414    BIC     #GTX!E.TX,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
                                ;--

062550  012737  177777  015760  LISCK:  MOV     #-1,INDEX
062556  004737  046460          JSR     PC,GTVIND       ;GET FIRST TRIB
062562  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  134302                  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  001520                          BNE     LISCKA          ;IF NOT EXIT THEN GO BACK
062730  022737  052111  002526          CMP     #'IT,OPBUF+2    ;IF FIRST HALF OK CHECK NEXT PART
062736  001514                          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
063000  001030                               BNE     DVIN4           ;BRANCH IF CONTROL OR PTP
063006  012777  060000  140044                 MOV     #60000,@SEL0    ;SET MCLR AND ENTER P MOP
063012  005737  017456          DVIN4A: TST     TIMER1
063014  001375                               BNE     DVIN4A          ;IF TIMER RUNS OUT IT MEANS
063022  012737  037725  017354                 MOV     #D.2M8,TEMP2    ;SWITHCES ARE NOT SET CORRECTLY
063030  017737  140024  017356                 MOV     @SEL0,TEMP3
063036  017737  140022  017360                 MOV     @SEL2,TEMP4
063042  004737  042104                       JSR     PC,LGDVE
063046  005237  017310                       INC     ERRCNT
                                               ERRSOFT 14,DVEM8,ERR13
063048  104457                                                                  TRAP    C$ERSOFT
063050  000016                                                                  .WORD   14
063052  037[illegible]                                                          .WORD   DVEM8
063054  041460                                                                  .WORD   ERR13
063056  000735                               BR      DVINIT
063060  012777  040000  137764  DVIN4:  MOV     #MCLR,@SEL0     ;DO A MASTER CLEAR
063066  022737  000004  023100                 CMP     #DMP6,OPTYP     ;IS THIS A 8206
063074  001005                               BNE     DVIN6           ;IF NOT GO TO 6
063076  112777  000200  137750                 MOVB    #200,@BSEL1     ;SET RUN FOR 8206
063104  000240                               NOP
063106  000240                               NOP                     ;SLIGHT DELAY
063110  005777  137736          DVIN6:  TST     @SEL0           ;IS RUN BIT SET
063114  100426                               BMI     DVIN1           ;IF YES GO TO 1 ELSE...
063116                                       BREAK
063116  104422                                                                  TRAP    C$BRK
```

DEVICE INIT SUBROUTINE

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

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

```
212 063562  004737  065114                    JSR     PC,TOORIO       ;WAIT TIL PORT IS OURS
213 063566  113777  015756  137264            MOVB    TRIBN,@#SEL3    ;SET UP TRIB NO.
214 063574  012777  000001  137264            MOV     #01,@#SEL6      ;ESTABLISH TRIB
215 063602  112777  000001  137246            MOVB    #01,@#SEL2      ;CLEAR RDI AND DO COMMAND.
216
217                                           .WRITE POLL PARAMS IF NESC.
218 063610  022737  000003  023102            CMP     #3,DEVPAR       ;IS THIS A MULTIPOINT CONTROL
219 063616  001022                            BNE     POLLEN          ;BRANCH IF NOT.
220 063620  004737  047154                    JSR     PC,GETIND       ;GET VALID INDEX
221 063624  013737  015762  017232            MOV     INDEX,MPLY      ;MOVE INDEX TO MULTIPIER
222 063632  012737  000020  017350            MOV     #16.,TEMP
223 063640  012737  016220  017354            MOV     #POLLIS,TEMP2
224 063646  004737  046436                    JSR     PC,MTPLY        ;RETURN WITH ADDRESS
225                                                                   ;OF FIRST WORD IN TEMP2
226
227 063652  013737  017354  021022            MOV     TEMP2,TSSE
228 063660  004737  064634                    JSR     PC,WRIPP        ;WRITE POLL PARMAS
229
230                                           ; ISTRT TRIB
231
232 063664  152777  000200  137160  POLLEN:   BISB    #RQI,@#SEL0     ;REQUEST IN
233 063672  004737  065114                    JSR     PC,TOORIO       ;WAIT TIL PORT IS OURS.
234 063676  113777  015756  137154            MOVB    TRIBN,@#SEL3
235 063704  012777  000004  137154            MOV     #04,@#SEL6      ;MAKE IT MAINT MODE
236 063712  022737  000004  017402            CMP     #DOW,MODTYP     ;IS THIS DOWN LINE LOAD
237 063720  001406                            BEQ     POLLE2
238 063722  012777  000003  137136            MOV     #03,@#SEL6      ;TO ISTRT
239 063730  052737  000400  017414            BIS     #PUNST,FLAG     ;SET THE RUN STATE FLAG
240 063736  112777  000001  137112  POLLE2:   MOVB    #01,@#SEL2      ;DO COMMAND
241 063744  000675                            BR      DVES1           ;GO BACK
242 063746  052737  002000  017414  DVINEX:   BIS     #INOVR,FLAG     ;INDICATE INIT CODE IS DONE
243 063754  000207                            RTS     PC              ;RETURN TO CALLER
244
245
246
247
248
```

```
                                        .SBTTL                  DEVICE GET MODEM STATUS SUBROUTINE
 2
12
13
14                                      ;++
15                                      ; FUNCTIONAL DESCRIPTION:
16                                      ;       "DVMODS"   GET MODEM STATUS
17                                      ;
18                                      ; IMPLICIT INPUTS:
19                                      ;       THE BIT POSITION AND AVAILABLITY OF THE MODEM SIGNALS CTS,DSR,...RI,.
20                                      ;       IN THE DEPENDENT PORTION OF THE GLOBAL EQUATES SECTION.
21                                      ;
22                                      ; OUTPUTS:
23                                      ;       CURRENT MODEM SIGNAL VALUES IN "MODS"
24                                      ;
25                                      ; SUBORDINATE ROUTINES USED:
26                                      ;
27                                      ;
28                                      ; CALLING SEQUENCE:
29                                      ;       JSR     PC,DVMODS
30                                      ;--
31
32
33
39
40 063756  152777  000200  137066  DVMODS: BISB    #RQI,@#BSEL0    ;SET RQI
41 063764  004737  065114                  JSR     PC,TOORIO       ;GO TIME OUT CHECK
42 063770  012777  000020  137070          MOV     #20,@#SEL6      ;READ MODEM STATUS
43 063776  112777  00000.  137052          MOVB    #01,@#BSEL2     ;DO CONTROL IN
44 064004  000207                          RTS     PC              ;RETURN TO CALLER
45
```

```
                        .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  052737  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  112777  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 RESTARTED
                        ;       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  052737  000010  017414  DVTXRX: BIT     #QTX,FLAG       ;ANY TX TO QUE
064076  001424                        BEQ     DVTR5           ;IF NOT GO WAIT FOR OUTPUT
064100  042737  000010  017414        BIC     #QTX,FLAG       ;CLEAR FLAG
                        ;
                        ;
064106  152777  000200  136736        BISB    #RQI,@#SEL0     ;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,@#SEL3    ;SET UP TRIB NO.
064142  112777  000004  136706        MOVB    #4,@#SEL2       ;DO COMMAND
                        ;
064150                  DVTR5:
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
```

```
 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  001755                          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  001005                          BNE     DVTR4           ;IF RX 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 TRTB NUMBER
127 064420  014237  017256                  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  001465                          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
```

```
     138 064500  013737  066654  015756          MOV     RSEL3,TRIBN
     139 064506  013737  066656  017360          MOV     RSEL6,TEMP4     ;ELSE
     140 064514  004737  042104                  JSR     PC,LOGVE        ;LOG ERROR
     141 064520                                  ERRSOFT 10,DVEM6,ERR13
         064520  104457                                                          TRAP    C$ERSOFT
         064522  000012                                                          .WORD   10
         064524  037571                                                          .WORD   DVEM6
         064526  041460                                                          .WORD   ERR13
     142
     143 064530  000430                          BR      DVTRX1          ;AND EXIT
     144
     145 064532  013702  015770          DVTR5A: MOV     RSPTRS,R2
     146 064536  012237  017272                  MOV     (R2)+,DVRCC
     147 064542  012237  017270                  MOV     (R2)+,DVRXA     ;UNLOAD ADDR
     148 064546  012237  017350                  MOV     (R2)+,TEMP
     149 064552  113737  017351  015756          MOVB    TEMP+1,TRIBN
     150 064560  105037  015757                  CLRB    TRIBN+1
     151 064564  013737  015756  017266          MOV     TRIBN,DVRTB     ;UNLOAD TRIBN
     152 064572  020227  016166                  CMP     R2,#RXSKEN      ;IS IT AT THE END
     153 064576  001002                          BNE     2$
     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                  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
                                        ;

064752  152777  000200  136112  WRMCS:  BISB    #RQI,@#SEL0     ;DO REQUEST IN
064740  004737  065114                  JSR     PC,TOORIO       ;WAIT TIL PORT IS OURS
064744  113777  015756  136106          MOVB    TRIBN,@#SEL3    ;SET UP TRIBN
064752  013777  017350  136102          MOV     TEMP,@#SEL4
064760  012777  000021  136100          MOV     #21,@#SEL0      ;DO WRITE MODEM
064766  112777  000001  136062          MOVB    #01,@#SEL2      ;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 TRIBLSTT
                                        ;
                                        ; INPUTS:       TRIBLS  - CONTAINS VALID TRIBS
                                        ;
                                        ; SUBORDINATE ROUTINES USED:
                                        ;
                                        ;               TOORIO    TIME OUT OR INPUT OR OUTPUTN INTERRUPT
                                        ;
                                        ; CALLING SEQUENCE:
                                        ;       JSR     PC,HLTTRB
                                        ;

065000  022737  000001  023102  HLTTRB: CMP     #1,DEVPAR       ;IS THIS TRIB OR CONTROL
065004  001440                  BEQ     HLTREX          ;BRANCH IF TRIB
065006  032737  000002  017410          BIT     #DATCKB,PARAM
065014  001004                  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,@#SEL0     ;DO REQUEST IN
065062  004737  065114                  JSR     PC,TOORIO       ;WAIT TIL PORT IS OURS
065066  113777  015756  135764          MOVB    TRIBN,@#SEL3    ;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
```

TIME OUT OR INPUT INT. OR OUTPUT INT.

```
                                .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  052737  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  012737  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$ERSOFT
        065206  000007                                                          .WORD   7
        065210  037354                                                          .WORD   DVEM3
        065212  041460                                                          .WORD   ERR13
     41 065214  000737                          BR      TOOR10
     42
     43 065216                          TOOR1:  BREAK
        065216  104422                                                          TRAP    C$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,@#SEL2     ;CLEAR RDO
065302  000207                          RTS     PC              ;RETURN TO CALLER
065304                          OUTH1:
065304  017703  135546                  MOV     @#SEL2,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    @#SEL6,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     CON01E          ; YES,BRANCH
 60 065350  022703  000304                    CMP     #304,R3         ; MODEM DISCONNECT(DSR DROPPED)?
 61 065354  001404                            BEQ     CON01F          ; YES, EXIT
 62 065356  022703  000032                    CMP     #32,R3          ; MODEM RING ?
 63 065362  001401                            BEQ     CON01F          ; YES,BRANCH
 64 065364  000402                            BR      CON01E          ; GO HANDLE INTERRUPT
 65 065366                          CON01F:
 66 065366  000137  066452                    JMP     OUTHEX          ; EXIT
 67
 68 065372  032703  000100          CON01E: BIT     #BIT6,R3        ;IS THIS ERROR IN THE 100-176 RANGE
 69                                                                 ;OR THE 300-376 RANGE
 70 065376  001052                            BNE     CON01           ;BRANCH IF YES.
 71 065400  022703  000024                    CMP     #24,R3          ;IS THIS A RUN STATE
 72 065404  001011                            BNE     CON01B          ;IF NOT GO TO 1B
 73 065406  032737  000400  017414            BIT     #RUNST,FLAG     ;TEST THE RUN STATE
 74 065414  001437                            BEQ     CON01A          ;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          CON01B: CMP     #2,R3           ;IS IT RX THRESH
 78 065434  001004                            BNE     CON01C          ;BRANCH IF NOT
 79 065436  005237  017302                    INC     OPVAR           ;BUMP OPVAR
 80 065442  000137  066452                    JMP     OUTHEX          ;AND EXIT
 81 065446  022703  000004          CON01C: CMP     #4,R3           ;IS IT TX THRESH
 82 065452  001004                            BNE     CON01D          ;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          CON01D: CMP     #6,R3           ;IS IT SELECT
 86 065470  001411                            BEQ     CON01A          ;BRANCH IF SO
 87 065472  022703  000032                    CMP     #32,R3          ;IS IT RING D
 88 065476  001406                            BEQ     CON01A
 89 065500  022703  000022                    CMP     #22,R3          ;IS IT DEAD TRIB
 90 065504  001403                            BEQ     CON01A          ;BRANCH IF SO
 91 065506  012737  177777  017324            MOV     #-1,FTLFLG      ;SET FATAL ERROR FLAG
 92 065514  016337  023106  017366  CON01A: MOV     CON01S(R3),CONOTM
 93 065522  000427                            BR      CON04           ;THEN GO TO 4
 94
 95
 96 065524  012737  177777  017324  CON01:  MOV     #-1,FTLFLG      ;SET FATAL ERROR FLAG
 97 065532  032703  000200                    BIT     #BIT7,R3        ;IS THIS 300 RANGE
 98 065536  001006                            BNE     CON03           ;IF SO GO TO 3
 99 065540  042703  000100                    BIC     #BIT6,R3        ;CLEAR TOP BIT
100 065544  016337  023142  017366            MOV     CON01S(R3),CONOTM
101 065552  000413                            BR      CON04           ;LOAD UP MSG AND GO TO 4
102
103 065554  022703  000306          CON03:  CMP     #306,R3         ;IS THIS QUE OVER FLOW
104 065560  001003                            BNE     CON03A
105 065562  012737  177777  017330            MOV     #-1,OVRCNT
106 065570  042703  000300          CON03A: BIC     #BIT7!BIT6,R3   ;CLEAR THE TOP BITS
107 065574  016337  023210  017366            MOV     CON03S(R3),CONOTM
108
109 065602  017737  135260  017360  CON04:  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
```

```
                065634  104457                                                                          TRAP    C$ERRSOFT
                065636  000007                                                                          .WORD   7
                065640  037430                                                                          .WORD   D$ERM4
                065642  041512                                                                          .WORD   EF$ERM4
        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,@#SEL6      ;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,@#SEL6    ;
        128     065700  001011                          BNE     INFOHA          ;BRANCH IF RD/TSS
        129     065702  022777  000020  135156          CMP     #20,@#SEL6
        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     CONO4           ;AND PRINT IT
        133     065724  005037  017326          INFOHA: CLR     TSSFLG          ;CLEAR FLAG
        134     065730  017704  135126                  MOV     @#SEL4,R4
        135     065734  017703  135126                  MOV     @#SEL6,R3
        136     065740  042703  177740                  BIC     #177740,R3      ;CLEAR ALL BUT LAST 5 BITS
        137     065744  105777  135110                  TSTB    @#SEL3                  ;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  021630  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$PRTS
                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)
```

....B1
CZCLMCO DMP/V-11 DCL....C1
CZCLMCO DMP/V-11 DCL....D1
CZCLMCO DMP/V-11 DCL....E1
CZCLMCO DMP/V-11 DCL....F1
CZCLMCO DMP/V-11 DCL....G1
CZCLMCO DMP/V-11 DCL....H1
CZCLMCO DMP/V-11 DCL....I1
CZCLMCO DMP/V-11 DCL....J1
CZCLMCO DMP/V-11 DCL....K1
CZCLMCO DMP/V-11 DCL....L1
CZCLMCO DMP/V-11 DCL....M1
CZCLMCO DMP/V-11 DCL....N1

CZCLMCO DMP/V-11 DCL....B2
CZCLMCO DMP/V-11 DCL....C2
CZCLMCO DMP/V-11 DCL....D2
CZCLMCO DMP/V-11 DCL....E2
CZCLMCO DMP/V-11 DCL....F2
CZCLMCO DMP/V-11 DCL....G2
CZCLMCO DMP/V-11 DCL....H2
CZCLMCO DMP/V-11 DCL....I2
CZCLMCO DMP/V-11 DCL....J2
CZCLMCO DMP/V-11 DCL....K2
CZCLMCO DMP/V-11 DCL....L2
CZCLMCO DMP/V-11 DCL....M2
CZCLMCO DMP/V-11 DCL....N2

CZCLMCO DMP/V-11 DCL....B3
CZCLMCO DMP/V-11 DCL....C3
CZCLMCO DMP/V-11 DCL....D3
CZCLMCO DMP/V-11 DCL....E3
CZCLMCO DMP/V-11 DCL....F3
CZCLMCO DMP/V-11 DCL....G3
CZCLMCO DMP/V-11 DCL....H3
CZCLMCO DMP/V-11 DCL....I3
CZCLMCO DMP/V-11 DCL....J3
CZCLMCO DMP/V-11 DCL....K3
CZCLMCO DMP/V-11 DCL....L3
CZCLMCO DMP/V-11 DCL....M3
CZCLMCO DMP/V-11 DCL....N3

CZCLMCO DMP/V-11 DCL....B4
CZCLMCO DMP/V-11 DCL....C4
CZCLMCO DMP/V-11 DCL....D4
CZCLMCO DMP/V-11 DCL....E4
CZCLMCO DMP/V-11 DCL....F4
CZCLMCO DMP/V-11 DCL....G4
CZCLMCO DMP/V-11 DCL....H4
CZCLMCO DMP/V-11 DCL....I4
CZCLMCO DMP/V-11 DCL....J4
CZCLMCO DMP/V-11 DCL....K4
CZCLMCO DMP/V-11 DCL....L4
CZCLMCO DMP/V-11 DCL....M4
CZCLMCO DMP/V-11 DCL....N4

CZCLMCO DMP/V-11 DCL....B5
CZCLMCO DMP/V-11 DCL....C5
CZCLMCO DMP/V-11 DCL....D5
CZCLMCO DMP/V-11 DCL....E5
CZCLMCO DMP/V-11 DCL....F5
CZCLMCO DMP/V-11 DCL....G5
CZCLMCO DMP/V-11 DCL....H5
CZCLMCO DMP/V-11 DCL....I5
CZCLMCO DMP/V-11 DCL....J5
CZCLMCO DMP/V-11 DCL....K5
CZCLMCO DMP/V-11 DCL....L5
CZCLMCO DMP/V-11 DCL....M5
CZCLMCO DMP/V-11 DCL....N5

CZCLMCO DMP/V-11 DCL....B6
CZCLMCO DMP/V-11 DCL....C6
CZCLMCO DMP/V-11 DCL....D6
CZCLMCO DMP/V-11 DCL....E6
CZCLMCO DMP/V-11 DCL....F6
CZCLMCO DMP/V-11 DCL....G6
CZCLMCO DMP/V-11 DCL....H6
CZCLMCO DMP/V-11 DCL....I6
CZCLMCO DMP/V 11 DCL....J6
CZCLMCO DMP/V-11 DCL....K6
CZCLMCO DMP/V-11 DCL....L6
CZCLMCO DMP/V-11 DCL....M6
CZCLMCO DMP/V-11 DCL....N6

CZCLMCO DMP/V-11 DCL....B7
CZCLMCO DMP/V-11 DCL....C7
CZCLMCO DMP/V-11 DCL....D7
CZCLMCO DMP/V-11 DCL....E7
CZCLMCO DMP/V-11 DCL....F7
CZCLMCO DMP/V-11 DCL....G7
CZCLMCO DMP/V-11 DCL....H7
CZCLMCO DMP/V-11 DCL....I7
CZCLMCO DMP/V-11 DCL....J7
CZCLMCO DMP/V-11 DCL....K7
CZCLMCO DMP/V-11 DCL....L7
CZCLMCO DMP/V-11 DCL....M7
CZCLMCO DMP/V-11 DCL....N7

CZCLMCO DMP/V-11 DCL....B8
CZCLMCO DMP/V-11 DCL....C8
CZCLMCO DMP/V-11 DCL....D8
CZCLMCO DMP/V-11 DCL....E8
CZCLMCO DMP/V-11 DCL....F8
CZCLMCO DMP/V-11 DCL....G8
CZCLMCO DMP/V-11 DCL....H8
CZCLMCO DMP/V-11 DCL....I8
CZCLMCO DMP/V-11 DCL....J8
CZCLMCO DMP/V-11 DCL....K8
CZCLMCO DMP/V-11 DCL....L8
CZCLMCO DMP/V-11 DCL....M8
CZCLMCO DMP/V-11 DCL....N8

CZCLMCO DMP/V-11 DCL....B9
CZCLMCO DMP/V-11 DCL....C9
CZCLMCO DMP/V-11 DCL....D9
CZCLMCO DMP/V-11 DCL....E9
CZCLMCO DMP/V-11 DCL....F9
CZCLMCO DMP/V-11 DCL....G9
CZCLMCO DMP/V-11 DCL....H9
CZCLMCO DMP/V-11 DCL....I9
CZCLMCO DMP/V-11 DCL....J9
CZCLMCO DMP/V-11 DCL....K9
CZCLMCO DMP/V-11 DCL....L9
CZCLMCO DMP/V-11 DCL....M9
CZCLMCO DMP/V-11 DCL....N9

CZCLMCO DMP/V-11 DCL....B10
CZCLMCO DMP/V-11 DCL....C10
CZCLMCO DMP/V-11 DCL....D10
CZCLMCO DMP/V-11 DCL....E10
CZCLMCO DMP/V-11 DCL....F10
CZCLMCO DMP/V-11 DCL....G10
CZCLMCO DMP/V-11 DCL....H10
CZCLMCO DMP/V-11 DCL....I10
CZCLMCO DMP/V-11 DCL....J10
CZCLMCO DMP/V-11 DCL....K10
CZCLMCO DMP/V-11 DCL....L10
CZCLMCO DMP/V-11 DCL....M10
CZCLMCO DMP/V-11 DCL....N10

CZCLMCO DMP/V-11 DCL....B11
CZCLMCO DMP/V-11 DCL....C11
CZCLMCO DMP/V-11 DCL....D11
CZCLMCO DMP/V-11 DCL....E11
CZCLMCO DMP/V-11 DCL....F11
CZCLMCO DMP/V-11 DCL....G11
CZCLMCO DMP/V-11 DCL....H11
CZCLMCO DMP/V-11 DCL....I11
CZCLMCO DMP/V-11 DCL....J11
CZCLMCO DMP/V-11 DCL....K11
CZCLMCO DMP/V-11 DCL....L11
CZCLMCO DMP/V-11 DCL....M11
CZCLMCO DMP/V-11 DCL....N11

CZCLMCO DMP/V-11 DCL....B12
CZCLMCO DMP/V-11 DCL....C12
CZCLMCO DMP/V-11 DCL....D12
CZCLMCO DMP/V-11 DCL....E12
CZCLMCO DMP/V-11 DCL....F12
CZCLMCO DMP/V-11 DCL....G12
CZCLMCO DMP/V-11 DCL....H12
CZCLMCO DMP/V-11 DCL....I12
CZCLMCO DMP/V-11 DCL....J12
CZCLMCO DMP/V-11 DCL....K12
CZCLMCO DMP/V-11 DCL....L12
CZCLMCO DMP/V-11 DCL....M12
CZCLMCO DMP/V-11 DCL....N12

CZCLMCO DMP/V-11 DCL....B13
CZCLMCO DMP/V-11 DCL....C13
CZCLMCO DMP/V-11 DCL....D13
CZCLMCO DMP/V-11 DCL....E13
CZCLMCO DMP/V-11 DCL....F13
CZCLMCO DMP/V-11 DCL....G13
CZCLMCO DMP/V-11 DCL....H13
CZCLMCO DMP/V-11 DCL....I13
CZCLMCO DMP/V-11 DCL....J13
CZCLMCO DMP/V-11 DCL....K13
CZCLMCO DMP/V-11 DCL....L13
CZCLMCO DMP/V-11 DCL....M13
CZCLMCO DMP/V-11 DCL....N13

CZCLMCO DMP/V-11 DCL....B14
CZCLMCO DMP/V-11 DCL....C14
CZCLMCO DMP/V-11 DCL....D14
CZCLMCO DMP/V-11 DCL....E14
CZCLMCO DMP/V-11 DCL....F14
CZCLMCO DMP/V-11 DCL....G14
CZCLMCO DMP/V-11 DCL....H14
CZCLMCO DMP/V-11 DCL....I14
CZCLMCO DMP/V-11 DCL....J14
CZCLMCO DMP/V-11 DCL....K14
CZCLMCO DMP/V-11 DCL....L14
CZCLMCO DMP/V-11 DCL....M14
CZCLMCO DMP/V-11 DCL....N14

CZCLMCO DMP/V-11 DCL....B15
CZCLMCO DMP/V-11 DCL....C15
CZCLMCO DMP/V-11 DCL....D15
CZCLMCO DMP/V-11 DCL....E15
CZCLMCO DMP/V-11 DCL....F15
CZCLMCO DMP/V-11 DCL....G15
CZCLMCO DMP/V-11 DCL....H15
CZCLMCO DMP/V-11 DCL....I15
CZCLMCO DMP/V-11 DCL....J15
CZCLMCO DMP/V-11 DCL....K15
CZCLMCO DMP/V-11 DCL....L15
CZCLMCO DMP/V-11 DCL....M15
CZCLMCO DMP/V-11 DCL....N15

CZCLMCO DMP/V-11 DCL....B16
CZCLMCO DMP/V-11 DCL....C16
CZCLMCO DMP/V-11 DCL....D16
CZCLMCO DMP/V-11 DCL....E16
CZCLMCO DMP/V-11 DCL....F16
CZCLMCO DMP/V-11 DCL....G16
CZCLMCO DMP/V-11 DCL....H16
CZCLMCO DMP/V-11 DCL....I16
CZCLMCO DMP/V-11 DCL....J16
CZCLMCO DMP/V-11 DCL....K16
CZCLMCO DMP/V-11 DCL....L16
CZCLMCO DMP/V-11 DCL....M16

```
        056060  153716  017350                                                          BISB    TEMP,(SP)
        066064  013746  017366                                                          MOV     CONOTM,-(SP)
        066070  012746  000003                                                          MOV     #3,(SP)
        066074  010600                                                                  MOV     SP,R0
        066076  104416                                                                  TRAP    C$PNTS
        066100  062706  000010                                                          ADD     #10,SP
   159  066104  000137  066452                  JMP     OUTMEX
   160  066110  010437  017350          INFOH7: MOV     R4,TEMP
   161  066114  005037  017352                  CLR     TEMP1
   162  066120  005037  017354                  CLR     TEMP2
   163  066124  005037  017356                  CLR     TEMP3
   164  066130  005037  017360                  CLR     TEMP4
   165  066134  032737  000400  017350          BIT     #BIT8,TEMP
   166  066142  001402                          BEQ     1$
   167  066144  005237  017352                  INC     TEMP1
   168  066150  032737  001000  017350  1$:     BIT     #BIT9,TEMP
   169  066156  001402                          BEQ     2$
   170  066160  005237  017354                  INC     TEMP2
   171  066164  032737  002000  017350  2$:     BIT     #BIT10,TEMP
   172  066172  001402                          BEQ     4$
   173  066174  005237  017356                  INC     TEMP3
   174  066200  032737  004000  017350  4$:     BIT     #BIT11,TEMP
   175  066206  001402                          BEQ     3$
   176  066210  005237  017360                  INC     TEMP4
   177  066214                          3$:     PRINTS  CONOTM,<B,TEMP>,<B,TEMP1>,<B,TEMP2>,<B,TEMP3>,<B,TEMP4>
        066214  005046                                                                  CLR     -(SP)
        066216  153716  017360                                                          BISB    TEMP4,(SP)
        066222  005046                                                                  CLR     -(SP)
        066224  153716  017356                                                          BISB    TEMP3,(SP)
        066230  005046                                                                  CLR     -(SP)
        066232  153716  017354                                                          BISB    TEMP2,(SP)
        066236  005046                                                                  CLR     -(SP)
        066240  153716  017352                                                          BISB    TEMP1,(SP)
        066244  005046                                                                  CLR     -(SP)
        066246  153716  017350                                                          BISB    TEMP,(SP)
        066252  013746  017366                                                          MOV     CONOTM,-(SP)
        066256  012746  000006                                                          MOV     #6,-(SP)
        066262  010600                                                                  MOV     SP,R0
        066264  104416                                                                  TRAP    C$PNTS
        066266  062706  000016                                                          ADD     #16,SP
   178  066272  000467                          BR      OUTMEX
   179  066274                          BACCHO:
   180  066274  032703  000004                  BIT     #BIT2,R3
   181  066300  001035                          BNE     BACCTX          ;IF BIT IS SET GO DO TX
   182  066302  022737  000022  015766          CMP     #18.,CRX        ;IS THIS GOING TO BREAK THE BANK?
   183  066310  001001                          BNE     1$
   184  066312                                  DOCLN
        066312  104444                                                                  TRAP    C$DCLN
   185  066314  005237  015766          1$:     INC     CRX
   186
   187  066320  013702  015772                  MOV     RSPTRE,R2       ;LOAD R2 WITH POINTER
   188  066324  017722  134536                  MOV     @SEL6,(R2)+
   189  066330  017722  134526                  MOV     @SEL4,(R2)+
   190  066334  017722  134516                  MOV     @SEL2,(R2)+
   191  066340  022702  016156                  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
066364  104457                                                          TRAP    C$ERSOFT
066366  000014                                                          .WORD   12
066370  037645                                                          .WORD   DVEM7
066372  041550                                                          .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
066432  104444                                                          TRAP    C$DCLN

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

066452  142777  000200  134376  OUTHEX: BICB    #RDO,@#SEL2     ;CLEAR RDO
066460  005737  017330                  TST     OVRCNT          ;TEST THE OVER FLOW COUNT
066464  001427                          BEQ     OUTHE3          ;BRANCH IF ZERO
066466                          OUTHE4: BREAK
066466  104422                                                          TRAP    C$BRK
066470  032737  000002  017414          BIT     #OTINT,FLAG     ;IS OUTPUT INTERRUPT SET
066476  001402                          BEQ     OUTHE5          ;BRANCH IF NOT
066500  000137  065254                  JMP     OUTHDL          ;WHEN SET GO BACK FOR NEXT ON QUE
066504  032737  000001  017414  OUTHE5: BIT     #ININT,FLAG     ;TEST FOR INPUT INT
066512  001414                          BEQ     OUTHE3          ;BRANCH IF NOT INPUT
066514  042737  000001  017414          BIC     #ININT,FLAG
066522  105077  134340                  CLRB    @#SEL6
066526  112777  000001  134322          MOVB    #01,@#SEL2      ;DO NO REQUEST
066534  012737  177777  017322          MOV     #-1,RQIFLG      ;SET RQI FLAG
066542  000751                          BR      OUTHE4

                                ;
                                ; SEE IF FATAL ERROR HAS OCCURRED
                                ;

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

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

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

066672                          ENDSRV
066672                                                                  L10021:
066672  000002                                                                  RTI
```

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

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

```
                        .SBTTL  HARDWARE PARAMETER CODING SECTION


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

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


                        .SBTTL          DEVICE INDEPENDENT SECTION

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


                        .SBTTL          DEVICE DEPENDENT SECTION

066716                          GPRMA   CSRADR,2,0,160000,177776,YES
066716  001031                                                    .WORD   T$CODE
066720  067031                                                    .WORD   CSRADR
066722  160000                                                    .WORD   T$LOLIM
066724  177776                                                    .WORD   T$HILIM
066726                          GPRMA   VECTOR,4,0,300,776,YES
066726  002031                                                    .WORD   T$CODE
066730  067056                                                    .WORD   VECTOR
066732  000300                                                    .WORD   T$LOLIM
066734  000776                                                    .WORD   T$HILIM
066736                          GPRMD   PRIOR,6,0,340,4,7,YES
066736  003032                                                    .WORD   T$CODE
066740  067111                                                    .WORD   PRIOR
066742  000340                                                    .WORD   340
066744  000004                                                    .WORD   T$LOLIM
066746  000007                                                    .WORD   T$HILIM
066750                          GPRMD   OPTYPM,1,0,7,0,4,YES
066750  005032                                                    .WORD   T$CODE
066752  067126                                                    .WORD   OPTYPM
066754  000007                                                    .WORD   7
066756  000000                                                    .WORD   T$LOLIM
066760  000004                                                    .WORD   T$HILIM
066762                          GPRML   PTPMLP,10,1,YES
066762  004130                                                    .WORD   T$CODE
066764  067137                                                    .WORD   PTPMLP
066766  000001                                                    .WORD   1
066770                          XFERP   ENDHWL
066770  004044                                                    .WORD   T$CODE
```

DEVICE DEPENDENT SECTION

```
                                        GPRML   TRIBCO,10,2,YES
066772  004130                                                          .WORD   T$CODE
066774  067173                                                          .WORD   TRIBCO
066776  000002                                                          .WORD   2
                        ENDHWL:
                                        ENDHRD
067000                                                                  .EVEN
                                                                L10023:
                                        .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
                        ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;

067264                  $PATCH:
067264                          .BLKW   30

067344                                  LASTAD

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

000001                  .END
```

K1

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
ACTFLP  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
ACTMPX  055122
ACTNO   055142
ACTNUF  053634
ACTNUM  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
ALLTB   060210
ASSEMB  = 000010
ATVMOD  = 000027
BABTN   040275
BACCHO  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  045436
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
CBLOOP  = 000045
CCURAD  017246
CHECK   = 000003
CLEAR   = 000001
CLIACT  055436
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  014360
CLIRT   014774
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$GETB= 000026          DLLE7   062004          DVEM5   037514          EFM2    027627          EVTF3F  030717
C$GETW= 000027          DLLE7A  062020          DVEM6   037571          EF.CON= 000036 G        EVTF4   031124
C$GMAN= 000043          DLLE8   062124          DVEM7   037645          EF.NEW= 000035 G        EVTF4A  031226
C$GPHR= 000042          DLLGA = 001000          DVEM8   037725          EF.PWR= 000034 G        EVTF4B  031016
C$GPLO= 000030          DLLIND  023222          DVEST   063554          EF.RES= 000037 G        EVTF44  031055
C$GPRI= 000040          DLLMOD= 000033          DVES1   063540          EF.STA= 000040 G        EVTF5A  031324
C$INIT= 000011          DLLM1   002647          DVES1A  063454          EFMB  = 000063          EVTF6   030756
C$INLP= 000020          DLLM1C  002172          DVI   = 000012          EMSG0   002221          EVTLOG  017466
C$MANI= 000050          DLLM1E  002654          DVINEX  063746          EMSG1   002222          EVTLST  020562
C$MEM = 000031          DLLM2   002654          DVINIT  062752          EMSG2   002223          EVTMIN  020612
C$MSG = 000023          DLLM2C  002174          DVINS   066656 G        EMSG3   002224          EVTPTR  017464
C$OPEN= 000034          DLLM2E  003130          DVIN1   063172          EMSG4   002324          EVTSEC  020610
C$PNTB= 000014          DLLPRI  061602          DVIN11  063326          EMSG5   002416          EVTTCK  020614
C$PNTF= 000017          DLLQ1   025210          DVIN12  063334          EMSG6   002517          EVTTMP  020622
C$PNTS= 000016          DLM     032014          DVIN13  063246          EMSG8   002647          EXIT  = 000066
C$PNTX= 000015          DLTXRX  061642          DVIN4   063060          ENADD   017314          E$END = 002100
C$QIO = 000377          DLVM    032040          DVIN4A  063006          ENDALL  042776          E$LOAD= 000035
C$RDBU= 000007          DMCM    032031          DVIN6   063110          ENDEVT  044204          FACSIM  045572
C$REFG= 000047          DMP   = 000000          DVM     032054          ENDHWL  067000          FHDPLX  017406
C$RESE= 000033          DMPE  = 000053          DVMODS  063756          ENDIT   051652          FLAG    017414
C$REVI= 000003          DMPM    032044          DVOUTS  066674 G        ENDQD = 000017          FTLFLG  017324
C$RFLA= 000021          DMPQ  = 000054          DVRCC   017272          EOP   = 000024          F$AU  = 000015
C$RPT = 000025          DMPS  = 000052          DVRCLS  015612          EQUQ    025055          F$AUTO= 000020
C$SEFG= 000046          DMP6  = 000004          DVRCT   017274          EQUQ1   025111          F$BGN = 000040
C$SPRI= 000041          DMSGAD  002176          DVREX   064066          EQUQ2   025151          F$CLEA= 000007
C$SVEC= 000037          DMSGCT  002150          DVRTB   017266          ERRCNT  017310          F$DU  = 000016
C$TPRI= 000013          DMV   = 000001          DVRXA   017270          ERR1    041340 G        F$END = 000041
DAM     032022          DMVDF1  016202          DVRXQ   064006          ERR10   041430 G        F$HARD= 000004
DATCKB= 000002          DMVDF2  016204          DVTCC   017252          ERR13   041460 G        F$HW  = 000013
DCD   = 000001          DMVDF3  016210          DVTCLS  015652          ERR14   041512 G        F$INIT= 000006
DCK   = 000014          DMVDF4  016212          DVTCT   017256          ERR15   041550 G        F$JMP = 000050
DCLFLG  017376          DMVDF5  016214          DVTREX  064622          ERR16   041610 G        F$MOD = 000000
DDE   = 000022          DMVM    032105          DVTRX1  064616          ERR2    041402 G        F$MSG = 000011
DEADTM  040245          DMM     032035          DVTR3   064150          ERX   = 000100          F$PROT= 000021
DER   = 000010          DGLOB   045776          DVTR4   064304          ETRB  = 000060          F$PWR = 000017
DEVPAR  023102          DGL1    046036          DVTR4A  064370          ETWS  = 000065          F$RPT = 000012
DEV1    020652          DOGL2   046146          DVTR4B  064442          ETX   = 000200          F$SET = 000003
DEV2    020654          DOGL4   046154          DVTR5   064446          EVL   = 000004 G        F$SOFT= 000005
DEV3    020656          DOW   = 000004          DVTR5A  064532          EVMCTS  031530          F$SRV = 000010
DEV4    020660          DPLX    067000          DVTTB   017254          EVMDCD  031540          F$SUB = 000002
DFPTBL  002130 G        DPM     032006          DVTXA   017250          EVMDSR  031534          F$SW  = 000014
DIAGMC= 000000          DQM     032017          DVTXRX  064070          EVMOCG  031410          F$TEST= 000001
DISCON  041150          DSR   = 000010          DZM     032057          EVMOHD  031433          GARPEX  047006
DIVN15  063274          DTEM    032050          ECHO  = 000037          EVMOST  031513          GARPFL  046744
DLE   = 000020          DUM     032011          ECHOB = 000004          EVMRI   031550          GARP1   046760
DLL     061420          DUMEX   045346          EDDCK   030144          EVMRTS  031544          GATCEX  047072
DLLAB   040022          DUMPSR  045212          EDDDE   030257          EVMSQD  031554          GATCFL  047016
DLLCM   027160          DUM1    045304          EDDER   030122          EVMTM   031560          GATC1   047036
DLLEA   061626          DUM2    045326          EDDLE   030222          EVTADD  020616          GETCL   052472
DLLE1   062104          DUM3    045242          EDDVI   030174          EVTBCT  020620          GETIND  047154
DLLE2   061752          DUM4    045216          EDEOP   030312          EVTEND  020522          GETI1   047160
DLLE3   062164          DUPM    032025          EDMOS   030326          EVTF0   030447          GETI2   047200
DLLE4   062154          DVEM0   037116          EDRXC   030101          EVTF1   030545          GETPRM  051316
DLLE5   062274          DVEM1   037177          EDRXQ   030054          EVTF2   030574          GETRCL  [illegible]02
DLLE5A  062212          DVEM2   037257          EDTXC   030025          EVTF3   030646          GLBDEF  016206
DLLE5B  062246          DVEM3   037354          EDTXQ   030001          EVTF3C  030660          GLBEND  016220
DLLE6   062036          DVEM4   037430          EFM11   027724          EVTF3D  030675          GLBPLS  017220
```

M1

Symbol table

```
GNTXPR  047102          G$HILI= 000002          INIT1   050766          LOGEOP  042250          L$LUN   002074 G
GNTX1   047120          G$LOLI= 000001          INOVR = 002000          LOGEX   042552          L$MREV  002050 G
GNTX2   047112          G$NO  = 000000          INTPRI  023076          LOGMSC  042266          L$NAME  002000 G
GOOD    017370          G$OFFS= 000400          INVEC   023072          LOGRXC  042074          L$PRIO  002042 G
GRPTCP  046546          G$OFSI= 000376          ISR   = 000100 G        LOGRXQ  042056          L$PROT  050744 G
GSSIND  021130          G$PRMA= 000001          IXE   = 004000 G        LOGS1   042304          L$PRT   002112 G
GSSLST  021030          G$PRMD= 000002          I$AU  = 000041          LOGS2   042544          L$RCPT  002062 G
GSS0A   035004          G$PRML= 000000          I$AUTO= 000041          LOGS3   042344          L$REV   002010 G
GSS1A   035045          G$RADA= 000140          I$CLN = 000041          LOGS3A  042240          L$RPT   050736 G
GSS10A  035425          G$RADB= 000000          I$DU  = 000041          LOGS4   042420          L$SPC   002056 G
GSS11A  035477          G$RADD= 000040          I$HRD = 000041          LOGS5   042444          L$SPCP  002020 G
GSS12A  035517          G$RADL= 000120          I$INIT= 000041          LOGTXC  042040          L$SPTP  002024 G
GSS13A  035555          G$RADO= 000020          I$MOD = 000041          LOGTXQ  042022          L$STA   002030 G
GSS14A  035616          G$XFER= 000004          I$MSG = 000041          LOGUNT  017372          L$TEST  002114 G
GSS15A  035637          G$YES = 000010          I$PROT= 000040          LOOPS   003362          L$TIML  002014 G
GSS16A  035747          HELP  = 000000          I$PTAB= 000041          LOT   = 000010 G        L$UNIT  002012 G
GSS17A  036057          HELPDC= 000000          I$PWR = 000041          LP0     026765          L10000  002150
GSS2A   035103          HLP   = 000005          I$RPT = 000041          LP00    026766          L10001  041400
GSS20A  036141          HLPEND  003304          I$SEG = 000041          LP1     026775          L10002  041426
GSS21A  036206          HLPF    024116          I$SETU= 000041          LP2     027006          L10003  041456
GSS22A  036253          HLPTAB  003260          I$SRV = 000041          LP3     027014          L10004  041510
GSS23A  036320          HLP0    024040          I$SUB = 000041          LP4     027027          L10005  041546
GSS24A  036365          HLP1    024123          I$TSI = 000041          L$ACP   002110 G        L10006  041606
GSS25A  036432          HLP2    024136          J$JMP = 000167          L$APT   002036 G        L10007  041646
GSS26A  036477          HLP2B   024254          KALL  = 000062          L$AU    052056 G        L10010  042020
GSS27A  036521          HLP2C   024344          KDPM    032072          L$AUT   002070 G        L10011  050742
GSS3A   035142          HLP3    024417          KDZM    032076          L$AUTO  051770 G        L10013  051766
GSS30A  036543          HLP3A   024504          KEYWD1  003252          L$CCP   002106 G        L10014  051770
GSS31A  036576          HLP4    024531          KLM     032102          L$CLEA  051772 G        L10015  052046
GSS32A  036653          HLP4A   024610          KTRB  = 000061          L$CO    002032 G        L10016  052054
GSS33A  036736          HLP5    024666          LCLKEN= 000100          L$DEPO  002011 G        L10017  052062
GSS34A  036761          HLP6    024756          LCPREX  046264          L$DESC  023304 G        L10020  066704
GSS35A  037026          HLTREX  065112          LCPRLS  046234          L$DESP  002076 G        L10021  066672
GSS36A  037050          HLTTRB  064776          LCPRL1  046266          L$DEVP  002060 G        L10022  066702
GSS37A  037071          HLTTR1  065040          LCPR1   046242          L$DISP  002124 G        L10023  067000
GSS4A   035177          HLTTR2  065032          LCPR2   046314          L$DLY   002116 G        L5060   027121
GSS5A   035234          HLTTR3  065024          LCPTEX  046434          L$DTP   002040 G        MARHM   040161
GSS6A   035271          HOE   = 100000 G        LCPTLS  046364          L$DTYP  002034 G        MARM    040140
GSS7A   035347          IBE   = 010000 G        LCPT1   046406          L$DU    052050 G        MCLR  = 040000
GTRA2   052072          IDU   = 000040 G        LDRCLS  046604          L$DUT   002072 G        MLTYP   017404
GTRA3   052134          IEI   = 000001          LDRPLS  046506          L$DVTY  023266 G        MOBITE  020544
GTRA4   052142          IER   = 020000 G        LDTCLS  046704          L$EF    002052 G        MOBITS  020526
GTRA5   052402          IEO   = 000020          LDTPLS  046644          L$ENVI  002044 G        MOCHK = 000010
GTREX   057576          INDEX   015762          LGDVE   042104          L$ETP   002102 G        MODE    017420
GTRX2   057674          INDW    015760          LIS   = 000006          L$EXP1  002046 G        MODES   003344
GTRX2A  057742          INFOHA  065724          LISCK   062530          L$EXP4  002064 G        MODLOC= 000003
GTRX2B  060024          INFOHD  065650          LISCKA  062570          L$EXP5  002066 G        MODREM= 000004
GTRX2C  057702          INFOH1  065672          LISMOD= 000032          L$HARD  066710 G        MODS    020524
GTRX2D  057730          INFOH2  066004          LISP    027103          L$HIME  002120 G        MODTYP  017402
GTR9    057056          INFOH4  066010          LMOLOP= 000046          L$HPCP  002016 G        MOMSGS  020544
GTVIND  046462          INFOH5  066016          LNCNT   017300          L$HPTP  002022 G        MOP   = 000043
GTVI1   046466          INFOH6  066044          LOE   = 040000 G        L$HW    002130 G        MOSC  = 000056
GTXRXB  052072          INFOH7  066110          LOGAUX  047302          L$ICP   002104 G        M00     026674
G$CNTO= 000200          INFOH8  065720          LOGCMD  042224          L$INIT  050752 G        M01     026704
G$DELM  000372          INFOM   041212          LOGCML  042206          L$LADP  002026 G        M02     026715
G$DISP= 000003          INFOTB  065666          LOGCMP  042170          L$LAST  067354 G        M03     026725
G$EXCP= 000400          ININT = 000001          LOGDVI  042122          L$LOAD  002100 G        M04     026734
```

Symbol table

MO5	026751	N00125	022352	N00207	045004	N0D6	021234	N162$	023022
MO6	026756	N00126	022356	N00021	021352	N00060	021746	N163$	023040
MPLY	017232	N00127	022372	N00210	045006	N00?1	021752	N20$	021352
MSC	= 000016	N00013	021272	N00211	045022	N00?2	021774	N25$	021374
MSG	002736	N00130	022376	N00212	045024	N00?3	022000	N30$	02141
MSGLIM	= 000017	N00131	022412	N00213	045040	N00?4	022004	N40$	0213[illegible]
MSGTRN	027415	N00132	022416	N00214	045042	N00?5	022010	N42$	021204
MSGTRU	027446	N00133	022436	N00215	045054	N00?6	022014	N43$	021220
MSGTYP	017332	N00134	022442	N00216	045060	N00?7	022020	N44$	021236
MSG0	002220	N00135	022446	N00217	045072	N007	021236	N45$	021254
MSG0C	002150	N00136	022452	N0022	021356	N00?0	022024	N46$	021272
MSG1	002221	N00137	022456	N00220	045074	N00?1	022030	N47$	021332
MSG1C	002152	N0014	021306	N00221	045106	N00?2	022034	N50$	022000
MSG2	002222	N00140	022462	N00222	045112	N00?3	022040	N51$	022004
MSG2C	002154	N00141	022466	N00223	045116	N00?4	022044	N52$	022010
MSG3	002223	N00142	022472	N00224	045122	N00?5	022050	N60$	022234
MSG3C	002156	N00143	022474	N00225	045136	N00?6	022062	N61$	022254
MSG4	002224	N00144	022500	N00226	045140	N00?7	022066	N62$	022276
MSG4C	002160	N00145	022504	N00227	045154	NOEXM	041132	N63$	022316
MSG5	002324	N00146	022520	N0023	021370	NONE	= 000000	N64$	022336
MSG5C	002162	N00147	022524	N00230	045156	NOTNUM	= 000050	N65$	022356
MSG6	002416	N0015	021312	N00231	045174	NULEVT	030407	N66$	022376
MSG6C	002164	N00150	022540	N00232	045200	NULL	= 000000	N67$	022416
MSG8	002646	N00151	022544	N00233	045204	NUM	= 000014	N68$	022442
MSG8C	002170	N00152	022550	N00234	045206	N10$	021174	N70$	022446
MTP	= 000001	N00153	022554	N00235	045210	N100$	021644	N71$	022456
MTPLEX	046460	N00154	022560	N0024	021374	N102$	021650	N72$	022462
MTPLY	046456	N00155	022564	N0025	021406	N104$	021674	N73$	022472
NEW	051510	N00156	022606	N0026	021412	N105$	022722	N80$	021414
NO	= 000036	N00157	022612	N0027	021414	N106$	022726	N81$	021420
NOCR	027256	N00016	021326	N003	021202	N107$	022744	N82$	021462
NSG0	021170	N00160	022626	N0030	021420	N108$	022770	N83$	021504
N0D1	021174	N00161	022632	N0031	021434	N110$	021722	N84$	021526
N0D10	021252	N00162	022654	N0032	021440	N112$	021736	N85$	021550
N0D100	022102	N00163	022660	N0033	021456	N113$	021752	N86$	021600
N0D101	022106	N00164	022702	N0034	021462	N114$	022044	N87$	021626
N0D102	022124	N00165	022706	N0035	021500	N115$	022040	OFSET	017346
N0D103	022130	N00166	022712	N0036	021504	N116$	022062	OPBFPT	002520
N0D104	022144	N00167	022716	N0037	021522	N117$	022106	OPBUF	002524
N0D105	022150	N0017	021332	N004	021216	N118$	022130	OPCNT	002166
N0D106	022164	N00170	022722	N0040	021526	N120$	022230	OPEND	002646
N0D107	022170	N00171	022726	N0041	021544	N121$	022474	OPRMM	027114
N0D11	021254	N00172	022742	N0042	021550	N122$	022524	OPRMSG	= 000015
N0D110	022204	N00173	022744	N0043	021574	N123$	022500	OPTYP	023100
N0D111	022210	N00174	022764	N0044	021600	N125$	023050	OPTYPM	067226
N0D112	022224	N00175	022770	N0045	021604	N126$	022544	OPVAR	017302
N0D113	022230	N00176	023004	N0046	021622	N130$	022150	OPVAR1	017304
N0D114	022234	N00177	023010	N0047	021626	N131$	022210	OTINT	= 000002
N0D115	022250	N0020	021200	N005	021220	N132$	022170	OUTHDL	065254
N0D116	022254	N00200	023022	N0050	021640	N140$	022560	OUTHEX	066452
N0D117	022272	N00201	023026	N0051	021644	N141$	022564	OUTHE2	066626
N0D12	021266	N00202	023040	N0052	021650	N142$	022612	OUTHE3	066544
N0D120	022276	N00203	023044	N0053	021672	N143$	022632	OUTHE4	066466
N0D121	022312	N00204	023050	N0054	021674	N144$	022660	OUTHE5	066504
N0D122	022316	N00205	044774	N0055	021720	N150$	022706	OUTHE6	066604
N0D123	022332	N00206	045000	N0056	021722	N160$	023004	OUTHI	065304
N0D124	022336			N0057	021726	N161$	023010	OUTVEC	023074

Symbol table

```
OVRCNT  017330        PRI    = 002000 G     RMDLOP= 000047     R11$   045006     SMSC    031712
O$APTS= 000000        PRIOR    067111       RNOTNF= 000012     R12$   045024     SQD   = 040000
O$AU  = 000001        PRIO0  = 000000 G     RPASS    017412    R125$  045210     SRXQ    031613
O$BGNR= 000001        PRIO1  = 000040 G     RPEXT  = 000002    R13$   045042     STADD   017312
O$BGNS= 000000        PRIO2  = 000100 G     RPGSS  = 000004    R14$   045060     START   051046
O$DU  = 000001        PRIO3  = 000140 G     RPHLP  = 000001    R15$   045074     STATB = 000001
O$ERRT= 000000        PRIO4  = 000200 G     RPLOG  = 000003    R20$   045116     STATUS= 000016
O$GNSW= 000000        PRIO5  = 000240 G     RPSWE  = 000007    R21$   045140     STATYP  023104
O$POIN= 000001        PRIO6  = 000300 G     RPSWF  = 000010    R22$   045156     STRCM   040117
O$SETU= 000000        PRIO7  = 000340 G     RPSWO  = 000011    R30$   045206     STREAM  040312
PARAM   017410        PRNT   = 000055       RPT      043272    SAVSP   017364     STRMM   040203
PAS   = 000002        PROTO  = 000041       RPTAA    043342    SCM     031635     STXC    031602
PASC  = 000042        PROTOB= 000040        RPTDCK   044056    SCMD    031670     STXQ    031571
PASMOD= 000030        PSCNT    017306       RPTDDE   043776    SCML    031657     SVCGBL= 000000
PASS1   002650        PST      027045       RPTDER   043522    SDVE    031624     SVCINS= 000001
PASS2   002651        PTPMLP   067137       RPTDLE   044056    SDVI    031646     SVCSUB= 000001
PASS3   002652        PTREND   015406       RPTDSP   020624    SECRM   031724     SVCTAG= 000001
PASS4   002653        PTRIMB   011416       RPTDV1   043622    SEL0    023052     SVCTST= 000001
PCADD   017374        PTR13    011512       RPTEOP   043672    SEL2    023056     S$LSYM= 010000
PCK     027056        PTR23    011606       RPTIV    025544    SEL4    023062     S1      051034
PCLKCT= 001600        P$ACT    003400       RPTMSB   044214    SEL6    023066     S2      051112
PCLKEN= 000111        P$BUFA   003374       RPTMSC   044136    SEOP    031701     S3      051162
PCPM    027672        P$CNT    003402       RPTSN  = 000006    SETET  = 000067    S4      051230
PEC     027066        P$EXIT   047764       RPTSS  = 000005    SETEXP= 000010     TABEX   027337
PE100M  040331        P$GDBD   003411       RPTTSS   043006    SETTRN= 000011     TAL   = 000005
PE102M  040345        P$NNUF   003410       RPTTXQ   043444    SHF0    027531     TALCK   062276
PE104M  040367        P$NUM    003404       RPTO     043336    SHF1    027567     TALMOD= 000035
PE106M  040413        P$RADX   003406       RPT1     043324    SHMSG   025613     TCURAD  017264
PE110M  040444        P$TREE   003376       RQI    = 000200    SHOW   = 000002    TEMP    017350
PE112M  040466        P$TRV    047646       RQIFLG   017322    SHTAB   003334     TEMP1   017352
PE114M  040517        P$TR5    047656       RSEL3    066654    SHTAP   026017     TEMP2   017354
PE116M  040542        QCOPY  = 000013       RSEL4    066650    SHTBR   026605     TEMP3   017356
PE120M  040576        QRX    = 000004       RSEL6    066652    SHTEND  003343     TEMP4   017360
PE122M  040622        QTX    = 000010       RSPTRE   015772    SHTFL   026027     TEMP5   017362
PE124M  040652        QUALFG   003254       RSPTRS   015770    SHTIV   026543     TIMERS  017462
PE126M  040701        QUALVL   003256       RTS    = 000040    SHTLP   026231     TIMER1  017456
PE130M  040730        QUEOM    041162       RUN    = 000004    SHTLPA  026316     TIMER2  017460
PE132M  040756        RBFLIM= 004000        RUNING   017416    SHTLPB  026371     TIMMIN  017450
PE134M  041002        RDI    = 000020       RUNST  = 000400    SHTLPC  026433     TIMSEC  017452
PE136M  041034        RDO    = 000200       RUSM     040257    SHTLPD  026504     TIMTCK  017454
PE140M  041056        RDTSS    043112       RXBUF    005416    SHTNF   026165     TM    = 002000
PE142M  041075        RDTS2    043030       RXC    = 000006    SHTRE   025727     TOINOT  064156
PE144M  041103        REC    = 000000       RXMTOT   017276    SHTRH   025766     TOIN1   064252
PLCK    060122        RECMOD= 000031        RXM1     041272    SHTUN   026115     TOIN2   064254
PMS     027075        REPLOG   043224       RXM2     041315    SHTYP0  025647     TOORIO  065114
PNCK    027054        REPORT   042554       RXNC     041252    SHTYP1  025656     TOOR1   065216
PNEC    027064        RESFLG   017400       RXONLY   060036    SHTYP2  025663     TOOR2   065234
PNMS    027073        RESTRT   051250       RXON3    060054    SHTYP3  025670     TOOR3   065144
PNST    027043        RHLPEN   003314       RXPTR    017234    SHTYP4  025675     TOTCC   017344
PNT   = 001000 G      RHLPTB   003304       RXQ    = 000004    SHTYP5  025703     TRA   = 000001
PNTTRB  044326        RHLP0    025341       RXQUAL   046164    SHTYP6  025710     TRAMOD= 000034
POLDEF  016160        RHLP1    025377       RXQUEX   046232    SHTYP7  025716     TRBB  = 000002
POLLEN  063664        RHLP2    025421       RXQU1    046172    SHTYTB  003314     TRBTOT  015754
POLLE2  063736        RHLP3    025436       RXSKEN   016166    SHWOP   047344     TRIBCO  067133
POLLIS  016220        RHLP4    025470       RXSTAK   016012    SIZE   = 000012    TRIBUS  015712
POLPM   025274        RI     = 000200       RXTHEM   041075    SLST   = 000057    TRIBN   015756
POLPM3  025301        RIM      040226       R10$   045000     SLTHEM  040076     TRVACT  047766
```

Symbol table

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TRVALN  050560        TSS12A  032675        TSS7A   032545        T$NS0 = 000000        ULRCLS  046624
TRVALP  050514        TSS13A  032772        TS30AA  034242        T$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  050204        TSS21A  033476        TXNC    041232        T$TAGN= 010024        UPTEX   060516
TRVNOB  050036        TSS22A  033565        TXONLY  060064        T$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$$INI= 010013        WRIPL   064642
TSSFLG  017326        TSS34A  034527        T$GMAN= 000000        T$$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$$SRV= 010022        X$FALS= 000040
TSS0A   032112        TSS4A   032325        T$LSYM= 010000        T$$TES= 010020        X$OFFS= 000400
TSS1A   032146        TSS5A   032373        T$LTNO= 000001        T1      052064 G      X$TRUE= 000020
TSS10A  032603        TSS6A   032455        T$NEST= 177777        UAM   = 000200 G      $PATCH  067264
TSS11A  032637

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

*** Assembler statistics


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

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

```
$PATCH 113-380
ACT     26-180   82-73    86-1     87-49
ACTATV  83-36    86-10
ACTBCR  83-54    85-450
ACTCHK  83-16    87-150
ACTCKT  83-65    88-1700
ACTCLB  84-42    84-560
ACTCLP  83-50    87-430
ACTCLR  83-14    84-50
ACTCOP  83-24    85-134
ACTCRC  83-45    87-210
ACTCSE  83-19    84-280
ACTCST  83-20    84-440
ACTDLL  83-40    86-150
ACTDME  83-56    84-90    84-930
ACTDMQ  83-57    84-920
ACTDMS  83-55    84-870
ACTDMX  84-940
ACTE5A  88-1330  88-135
ACTE5B  88-1320
ACTELS  83-44    87-40
ACTEKE  88-115   88-1380
ACTEKT  83-64    88-1010
ACTEQO  83-28    85-340
ACTETB  83-61    88-10
ACTEWS  83-66    88-230
ACTEXT  83-67    84-170
ACTEXX  88-106   88-113   88-123   88-136   88-146   88-164   88-1670
ACTHLP  83-18    84-110
ACTKAL  82-79    83-63    88-70
ACTKTB  83-62    88-40
ACTLIS  83-39    86-120
ACTLLP  83-51    87-450
ACTLPX  87-40    87-42    87-44    87-46    87-490
ACTLXX  87-13    87-34    87-37    87-50    87-540
ACTM2X  86-2     86-10    86-13    86-16    86-19    86-230
ACTME1  85-49    85-51    85-53    85-55    85-57    85-640
ACTMEX  85-27    85-43    85-60    85-65    85-72    85-75    85-790
ACTMOP  83-48    87-390
ACTMOS  83-59    87-240
ACTMS0  83-29    85-480
ACTMS1  83-30    85-500
ACTMS2  83-31    85-520
ACTMS3  83-32    85-540
ACTMS4  83-33    85-560
ACTMS5  83-34    85-580
ACTMS6  83-35    85-610
ACTNO   83-43    87-10
ACTNUF  83-53    84-20
ACTNUL  83-13    84-30
ACTNUM  83-25    85-160
ACTOPM  83-26    85-290
ACTPAS  83-37    86-40
ACTPRO  83-46    87-270
ACTPRT  83-58    84-190
ACTQFG  87-16    87-19    87-22    87-25    87-290
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Cross reference table (CREF V05.00)

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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#
ASSEM#   21-12    21-12
ATVMOD   26-145#  37-48
BABTM    38-53    41-129#
BACCHD  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   53-300
BLDB2   53-380   53-45
BLDB3   53-410   53-46
BLDBEX  53-43    53-470
BLDBUF  53-250   82-64    82-71    82-161   82-192   84-63    89-107
BOF     25-00
BSEL0   38-200   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   38-210   77-117*  77-118* 100-101* 100-150* 100-167* 100-179*
BSEL2   38-230   47-64*   47-71*  100-142  100-166* 100-215* 100-240* 101-43*  102-51*  103-74*  104-25*  105-20*  105-59*  107-51*
       107-40  107-214* 107-225*
BSEL3   38-240   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   38-260
BSEL5   38-270   77-125*  77-126*
BSEL6   38-290   47-70*  100-119  100-162* 100-165* 107-52   107-123  107-127  107-129  107-135  107-224*
BSEL7   38-300   77-129*  77-130*
BUFEX   40-1120  82-144   82-173
BUFLIM  26-30    29-3     29-4     52-25    52-32    54-63    82-142   82-171   84-56    89-87
BUFTSM  38-78    41-1530
BYTBIT  31-280   51-31    84-88*   84-92*
C$AU    21-120   81-36
C$AUTO  21-120   78-19
C$BRF   21-120  100-106  100-139  103-101  106-43   107-217
C$BSEG  21-120
```

Cross reference table (CREF V05.00)

```
C$BSUB  21-120
C$CEFG  21-120
C$CLCK  21-120   77-56    77-62
C$CLEA  21-120   79-43
C$CLOS  21-120
C$CLP1  21-120
C$CVEC  21-120
C$DCLN  21-120   77-37    107-184  107-208
C$DODU  21-120
C$DRPT  21-120
C$DU    21-120   80-35
C$EDIT  21-120   21-98
C$ERDF  21-120
C$ERHR  21-120
C$ERRO  21-120
C$ERSF  21-120
C$ERSO  21-120   95-61    95-75    95-84    97-67    100-96   100-115  100-127  103-97   103-119  103-141  106-40   107-114  107-197
        107-212
C$ESCA  21-120
C$ESEG  21-120
C$ESUB  21-120
C$ETST  21-120  109-15
C$EXIT  21-120   77-169   79-27    82-95    82-130
C$GETB  21-120
C$GETW  21-120
C$GMAN  21-120   47-16    55-26    77-76    82-103   88-52    88-67    88-69    97-41    98-27
C$GPHR  21-120   77-96
C$GPLO  21-120
C$GPRI  21-120
C$INIT  21-120   77-185
C$INLP  21-120
C$MANI  21-120   82-91
C$MEM   21-120
C$MSG   21-120   43-30    43-34    43-38    43-56    43-65    43-70    43-74
C$OPEN  21-120
C$PNTB  21-120   43-29    43-33    43-37    43-55    43-64    43-69    43-73
C$PNTF  21-120   46-115   46-118   47-10    47-24    47-28    49-5     49-32    49-43    51-30    51-34    51-36    52-30    55-17
        55-25    74-138   74-176   77-80    82-42    82-83    82-111   82-115   82-144   82-153   82-173   82-184   84-12    84-76
        85-20    85-45    87-9     87-53    88-29    88-51    88-66    88-122   88-145   88-165   88-174   89-10    89-18    89-23
        89-29    89-37    89-38    89-55    97-63    97-138   99-24    99-42
C$PNTS  21-120   47-85    47-103   47-108   47-115   47-123   47-124   47-145   47-146   47-154   47-162   47-171   47-188   47-205
        47-209   73-33    73-71    88-81    88-85    88-89    88-93    88-98    88-112   107-155  107-158  107-177
C$PNTX  21-120
C$QIO   21-120
C$RDBU  21-120   77-71
C$REFG  21-120   77-40    77-42    77-44    77-47
C$RESE  21-120   21-120   77-52
C$REVI  21-120   21-98
C$RFLA  21-120
C$RPT   21-120   75-41
C$SEFG  21-120
C$SPRI  21-120   77-168   79-26
C$SVEC  21-120   77-153   77-165   77-166
C$TPRI  21-120
CABLE   26-270
CARLOS  38-82    41-1570
```

Cross reference table (CREF V05.00)

```
CBLLOP  26-1590  37-190
CCURAD  31-70    54-75*  54-83   54-87*  82-60*  82-68   82-190  82-195*  84-41*
CHECK   26-1250  37-96
CLEAR   26-1230  37-32   84-5
CLI$PM  40-40    82-103
CLI$RP  40-360   47-16
CLIACT  82-106   83-50
CLIALN  26-1160  37-159
CLIALP  26-1150  37-82   37-92   37-164
CLIBCR  40-110   85-45
CLIBDL  40-90    87-53
CLIBIF  26-1120
CLIBR   26-1110  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  40-80    74-138
CLIDEC  26-1180  37-173  37-199  37-210  50-16
CLIERM  40-50    47-24   82-111
CLIERR  26-1090  37-41   37-161  50-26
CLIEXI  26-1100  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  40-70    74-176
CLINPS  40-100   87-9
CLINUF  40-60    47-28   82-115
CLINUM  26-1140
CLIOCT  26-1170  37-84   37-86   50-24
CLIPPE  40-130   88-174
CLIPW   40-140   89-10
CLIRAC  47-19    48-20
CLIRT   47-18    50-30
CLISEO  40-120   85-20
CLISPA  26-1130  37-19   37-45   37-66   37-75   37-83   37-158  37-200  50-3    50-15
CLISTR  26-1190  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  37-160   82-105
CLKBR   32-380   77-74*
CLKCSR  32-370   45-35*  45-56*  77-55   77-65*  77-66*  77-67*  77-75*  79-25*  82-33*
CLKEN   32-410   45-56   77-59*  77-68*  77-75   82-33
CLKHZ   32-400   45-38   45-53   46-122  77-76   77-83
CLKINT  45-330   77-153
CLKSET  44-1120  77-58   77-64
CLKVEC  32-390   77-53*  77-73*  77-153
CLNSET  31-290   79-19*  79-21*  89-65*  107-35
CLRPEX  59-180
CLRPL1  59-150   59-17
CLRPLS  59-130   91-20
CMDBUF  28-30    47-16   47-17   82-103  82-104
CMPBUF  29-40    54-61*  54-75   82-60   84-40
CMPNEW  95-360   95-89
CMPPTR  31-40    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   95-660   95-80
CMPS2   95-690
```

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   107-7.
CON01C  107-78   107-81#
CON01D  107-82   107-85#
CON01E  107-59   107-64   107-6.#
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  103-151*  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*  9?-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*  85-36*  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#   33 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#  24-5
```

Cross reference table (CREF V05.00)

Cross reference table (CREF V05.00)

```
DMVDF2   30-16#    77-141*
DMVDF3   30-21#    77-142*
DMVDF4   30-22#    77-143*
DMVDF5   30-23#    77-144*
DMVM     38-105    40-230#
DNM      38-95     40-220#
DOGL1    55-20#    55-33
DOGL2    55-32#
DOGL4    55-30     55-35#
DOGL0B   55-13#    82-138
DOW      26-19#    86-15    100-84    100-236
DPLX    112-27    112-62#
DPM      38-88     40-213#
DQM      38-91     40-216#
DSR      26-208#   34-4
DTEM     38-98     40-223#
DUM      38-89     40-214#
DUM1     51-32     51-36#
DUM2     51-35     51-37#
DUM3     51-31#    51-42
DUM4     51-29#    51-41
DUMEX    51-38     51-44#
DUMPSR   51-28#    82-125
DUPM     38-93     40-218#
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*
```

```
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
ECHOB   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#  95-61
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#
ENDII   77-46    77-150   77-152#
ENDQQ   26-137#  37-156
EOP     26-81#   46-86
EQUQ    40-30#   55-26    88-52
EQUQ1   40-31#   88-67
```

Cross reference table (CREF V05.00)

```
EQUQ2   40-32#   88-69
ERR1    43-28#   95-75
ERR10   43-36#   95-61
ERR13   43-54#   100-96   100-115  100-127  103-97   103-119  103-141  106-40
ERR14   43-63#   97-67    107-114
ERR15   43-68#   107-197
ERR16   43-72#   107-212
ERR2    43-32#   95-84
ERRCNT  31-25#   46-94    46-98    89-75*   95-60*   95-74*   95-83*   96-23    100-95*  100-114* 100-126* 103-96*  106-39*  107-113*
ERX     26-89#   90-17    92-21    93-26    94-127   97-48    99-29    103-134
ETRB    26-170#  37-205   88-1     88-114
ETWS    26-175#  37-211
ETX     26-90#   91-19    93-26    94-101   97-87    97-104   98-40    98-52    103-112
EVL     25-0#
EVMCTS  34-14    40-186#
EVMDCD  34-16    40-188#
EVMDSR  34-15    40-187#
EVMOCG  40-179#  47-171
EVMOHD  40-184#  47-188
EVMOST  40-185#  47-203
EVMRI   34-18    40-190#
EVMRTS  34-17    40-189#
EVMSQD  34-19    40-191#
EVMTM   34-20    40-192#
EVTADD  34-42#   47-111*  47-115   47-138*  47-145   47-150*  47-154   47-158*  47-162
EVTBCT  34-43#   47-112*  47-115   47-139*  47-145   47-151*  47-154   47-159*  47-162
EVTEND  33-4#    46-131   47-93    77-87
EVTF0   40-153#  47-103
EVTF1   40-154#  47-108
EVTF2   40-155#  47-115
EVTF3   40-156#  47-123
EVTF3C  40-157#  43-55    47-124
EVTF3D  40-158#  43-64
EVTF3F  40-159#  43-69    43-73
EVTF4   40-174#  47-154
EVTF44  40-173#  47-146
EVTF4A  40-175#  47-162
EVTF4B  40-172#  47-145
EVTF5A  40-177#  43-29
EVTF6   40-160#  47-209
EVTLOG  33-2     33-3#    46-135   47-83    47-91    77-84
EVTLST  34-25#   47-108
EVTMIN  34-40#   47-107*  ' 108
EVTPTR  33-2#    46-120   -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$BGN   21-12#   21-33    43-28    43-32    43-36    43-54    43-63    43-68    43-72    45-33    75-9     76-8     77-8     77-169
        78-10    79-8     79-27    80-8     81-9     82-23    82-95    82-130   108-22   108-42   109-15   112-13   115-49
F$CLFA  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$HARD      21-12Ø  112-13  112-53  112-56
F$HW        21-12Ø  23-10   23-59
F$INIT      21-12Ø  77-8    77-185
F$JMP       21-12Ø  43-76   43-76   77-169  79-27   80-19   80-19   81-20   81-20   82-95   82-130
F$MOD       21-12Ø  21-33   113-49
F$MSG       21-12Ø  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$PROT      21-12Ø  76-8    76-14
F$PWR       21-12Ø
F$RPT       21-12Ø  75-9    75-41
F$SEG       21-12Ø
F$SOFT      21-12Ø
F$SRV       21-12Ø  45-33   45-57   108-22  108-31  108-42  108-50
F$SUB       21-12Ø
F$SW        21-12Ø
F$TEST      21-12Ø  82-23   109-15
FACSIM      54-58Ø  85-73
FHDPLX      32-130  77-99*  100-63
FLAG        32-23Ø  56-31*  89-71*  90-17*  91-19*  92-21*  93-26*  94-46   94-51   94-65   94-100*  94-101*  94-109*  94-112
            94-123*  94-127*  94-138*  97-48*  97-58*  97-74*  97-87*  97-89   97-91   97-104*  97-105*  97-109   98-40*   98-52*
            99-29*  100-156*  100-239*  100-242*  102-35  102-38*  103-59  103-61*  103-102  103-112  103-130*  103-134  103-156*  106-44
           106-49  106-51*  107-34*  107-73  107-218  107-221  107-223*  108-28*  108-49*
FTFLG       31-33Ø  107-91*  107-96*  107-232  107-234*
G$CNTO      21-12Ø
G$DELM      21-12Ø
G$DISP      21-12Ø
G$EXCP      21-12Ø
G$HLPI      21-12Ø
G$LOLI      21-12Ø
G$NO        21-12Ø  47-16   82-103  97-41   98-27
G$OFFS      21-12Ø  47-16   55-26   77-76   82-103  88-52   88-67   88-69   97-41   98-27   112-27  112-48  112-49  112-50
           112-51  112-52  112-54
G$OFSI      21-12Ø  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$PRMA      21-12Ø  112-48  112-49
G$PRMO      21-12Ø  47-16   55-26   77-76   82-103  88-52   88-67   88-69   97-41   98-27   112-50  112-51
G$PRML      21-12Ø  112-27  112-52  112-54
G$RADA      21-12Ø  47-16   82-103  98-27
G$RADB      21-12Ø
G$RADD      21-12Ø  77-76
G$RADL      21-12Ø  112-27  112-52  112-54
G$RADO      21-12Ø  55-26   88-52   88-67   88-69   97-41   112-48  112-49  112-50  112-51
G$XFER      21-12Ø  112-53
G$YES       21-12Ø  55-26   77-76   88-52   88-57   88-69   112-27  112-48  112-49  112-50  112-51  112-52  112-54
GARP1       68-19Ø  68-24
GARPEX      68-21   68-25Ø
GARPEL      68-17Ø  94-141
GATC1       69-18Ø  69-23
GATCEX      69-20   69-25Ø
GATCEL      69-15Ø  94-128  94-132
GETCI       82-92   82-101Ø  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       70-37Ø  70-41
GETI2       70-42Ø
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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    107-145
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    89-10#
GTRX2C  89-82#   89-108
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GTVI1    62-190   62-21
GTVIND   56-27    57-28    60-32    62-180   68-19    69-18    70-15    89-34    89-89    95-36    97-37    98-21    99-22    100-205
         105-49
GTXRXB   82-350
HELP      2-30    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    2-80     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      26-1270  37-20    37-22    84-15
HLPO     40-150   82-83
HLP1     28-8     40-170
HLP2     28-9     40-180
HLP2B    28-10    40-210
HLP2C    28-11    40-220
HLP3     28-12    40-230
HLP3A    28-13    40-240
HLP4     28-14    40-250
HLP4A    28-15    40-260
HLP5     28-16    40-270
HLP6     28-17    40-280
HLPEND   28-180   84-13
HLPF     40-160   49-5     84-12
HLPTAB   28-80    84-11
HLTREX   105-41   105-51   105-610
HLTTR1   105-490  105-60
HLTTR2   105-43   105-470
HLTTR3   105-450  105-46
HLTTRB    79-20    96-32   105-400
HOE       25-00
I$AU     21-120   81-90    81-360
I$AUTO   21-120   78-100   78-190
I$CLN    21-120   79-80    79-27    79-430
I$DU     21-120   80-80    80-350
I$HRD    112-130  112-560
I$INIT   21-120   77-80    77-169   77-1850
I$MOD    21-120   21-33    21-330   113-49   113-490
I$MSG    21-120   43-280   43-300   43-320   43-340   43-360   43-380   43-540   43-560   43-630   43-650   43-680   43-700   43-720
         43-740
I$PROT   21-120   76-80
I$PTAB   21-120
I$PWR    21-120
I$RPT    21-120   75-90    75-410
I$SEG    21-120   82-23
I$SETU   21 120
I$SRV    21-120   45-330   45-570   108-220  108 310  108 420  108-500
I$SUB    21 120   82-23
I$TST    21 120   82-23    82-230   82-95    82-130   109 15   109-150  109-150
IBE       25-00
IDU       25-00
IEO      26-2330
IEI      26-2320
IER       25-00
INDEX    29-240   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*   88-30    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*
INFO1B  107-126# 107-130
INFOH1  107-124 107-127#
INFOH2  107-144 107-150#
INFOH4  107-150 107-152#
INFOH5  107-152 107-155#
INFOH6  107-153 107-157#
INFOH7  107-154 107-160#
INFOH8  107-138 107-146#
INFOHA  107-128 107-133#
INFOHD  107-45  107-122#
INFOM   41-158# 107-131
ININT   26-85#  106-49  106-51  107-221  107-223  108-28
INIT1   77-35   77-38#
INOVR   26-105# 100-242
INTPRI  38-35#  77-135*  77-165  77-166
INVEC   38-33#  77-132*  77-165
ISR     25-0#
IXE     25-0#
J$JMP   21-12#  43-76   80-19   81-20
KALL    26-172# 37-209
KDPM    38-102  40-227#
KDZM    38-103  40-228#
KEYWD1  28 4#   47-31   47-35   49-8*   49-10*  49-13*  49-17*  49-22*  82-78*  82-118  82-120  82 123  82-127  82-131
        82-134  84-5*   84-8*   84-15*  84-17*  84-19*  84-23*  84-33   84-47   84-89*  85-3*   85-6*   85-69   85-74*
        88-1*   88-4*   88-8    88-74*  88-114
KLM     38-104  40-229#
KTRB    26-171# 37-207  82-78   88-4    88-8
L$ACP   21-98#
L$APT   21-98#
L$AU    21-98   81-9#
L$AUT   21-98#
L$AUTO  21-98   78-10#
L$CCP   21-98#
L$CLEA  21-98   79-8#
L$CO    21-98#
L$DEPO  21-98#
L$DESC  21-98   39-36#
L$DESP  21 98#
L$DEVP  21-98#
L$DISP  21-98   22-6#
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 25#
L$EF    21-98#
L$ENVI  21-98#
L$ETP   21-98#
L$EXP1  21-98#
L$EXP4  21-98#
L$EXPS  21-98#
L$HARD  21-98   112-13  112 130
```

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L$HIME  21-98#
L$HPCP  21-98#
L$HPTP  21-93#
L$HW    21-98    23-10    25-10#
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  57-50    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*
LOF     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    26-235#  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#
MSG0    27-12    27-28   27-38#
MSG0C   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#
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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	37-195	37-195#	
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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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#	21-76	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   27-194  85-37*  98-33*  98-37   98-38
OPENU   27-68#  98-25
OPRMM   40-98#  98-27
OPRMSG  26-135#  37-155
OPTYP   38-36#  77-137*  77-138  86-140  100-99  100-131  100-173  106-29
OPTYPM 112-51   112-81#
OPVAR   31-22#  89-72*  96-21  107-79*
OPVAR1  31-23#  89-73*  96-20  107-83*
OTINT   26-86#  103-102  106-44  107-34  107-218  108-49
OUTH1  107-36   107-39#
OUTHDL 103-105  106-48  107-33#  107-220
OUTHE2 107-253  107-256#
OUTHE3 107-216  107-222  107-232#
OUTHE4 107-217#  107-227  107-257
OUTHE5 107-219  107-221#
OUTHE6 107-233  107-252#
OUTHEX 107-66   107-76  107-80  107-84  107-115  107-126  107-156  107-159  107-178  107-196  107-211  107-214#
OUTVEC  38-34#  77-133*  77-134*  77-166
OVRCNT  31-35#  107-105*  107-195  107-210  107-215  107-258*
P$ACT   28-54#  47-19*  74-65  82-106*
P$BUFA  28-52#  47-17*  74-20  82-104*
P$CNT   28-55#  74-157*  74-164  74-221*  74-228*  74-233
P$EXIT  74-23   74-58#  74-82  74-87
P$GDBD  28-59#  47-11*  47-22  49-33*  49-44*  74-80*  74-85*  74-93  74-139*  74-177*  82-101*  82-109  85-21*  85-71*
        87-10*  87-51*  88-10*  88-11  88-75  88-104  88-175*  89-20*  89-24*  89-30*  89-39*  89-40
P$NNUF  28-58#  47-12*  47-26  49-2*  49-19*  49-23*  49-25*  49-37*  49-40*  82-102*  82-113  84-2*  84-24*  84-32*
        84-46*  84-94*  85-79*  86-5*  86-24*  87-54*  88-7*  88-73*  88-103*  88-171*
P$NUM   28-56#  49-28  49-32  49-35  49-41  49-43  49-46  74-152*  74-155*  74-157  74-158*  74-160*  74-164*  74-166*
        74-172*  84-87  84-93  85-18  85-23  85-25  87-36  88-107
P$RADX  28-57#  74-117*  74-120*  74-127*  74-134  74-162  74-170
P$TRS   74-22#  74-31  74-51  74-56
P$TREE  28-53#  47-18*  74-21  82-105*
P$TRV   47-21   74-19#  82-108
PARAM   32-14#  46-67  46-107  82-76*  82-88  84-83  86-23*  87-6*  87-11*  87-29*  87-32*  89-4  89-46  89-62
        89-85  91-17*  93-21  94-71  94-77  94-139  95-33  97-49*  98-22*  99-23*  105-42
PAS     26-17#  86-4  87-7  94-97  94-121
PASC    26-156#  37-199
PASMOD  26-146#  37-50
PASS1   27-79#  97-44*
PASS2   27-80#  97-45*
PASS3   27-81#  97-46*
PASS4   27-82#  97-47*
PCADD   32-40   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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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    28-13#    49-4
RI        26-211#   34-7
RIM       38-55     41-126#
RMDLOP    26-161#   37-194
RNOTN#    26-188#   50-15     50-17     50-22
RPASS     32-22#    46-66     82-75*    82-87     82-93     84-25*    84-82     87-36*    96-26     96-28*
RPEXT     26-180#   47-35     49-10     50-8
RPGSS     26-182#   50-10
RPHLP     26-179#   49-8      50-4      50-6
RPLOG     26-181#   49-13     50-12
RPSWE     26-185#   50-18
RPSWF     26-186#   50-20
RPSWO     26-187#   50-24
RPT       47-88#    47-117    47-125    47-137    47-147    47-155    47-164    47-176
RPT0      47-84     47-95     47-99     47-102#
RPT1      47-92     47-98#
RPTAA     47-103#
RPTDCK    34-54     47-158#
RPTDDE    34-57     47-150#
RPTDER    34-52     47-119#
RPTDLE    34-56     47-157#
RPTDSP    34-48#    47-109
RPTDVI    34-53     47-127#
RPTEOP    34-58     47-138#
RPTIV     40-42#    49-43
RPTMSB    47-116    47-170    47-173    47-188#
RPTMSC    34-55     47-167#
RPTSN     26-184#   50-16
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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
         55-26    55-26    55-26    55-26#   75-41#   77-76    77-76    77-76    77-76#   77-185#  78-19#   79-43#   80-35#   81-36#
         82-103   82-103   82-103   82-103#  88-52    88-52    88-52    88-52#   88-67    88-67    88-67    88-67#   88-69    88-69
         88-69    88-69#   97-41    97-41    97-41    97-41#   98-27    98-27    98-27    98-27#   108-31#  108-50#  109-15#  112-56#
S1       77-45    77-47#
S2       77-57    77-62#
S3       77-63    77-71#
S4       77-72    77-80#
SAVSP    31-52#   82-84*   107-248
SCM      40-202#  46-71
SCMD     40-205#  46-79
SCPL     40-204#  46-75
SDVE     40-201#  46-57
SDVI     40-203#  46-62
SECRP    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
SMFO     40-115#  73-33
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SHF1      40-123#   73-71
SHMSG     40-43#    84-76
SHOW      26-124#   37-37     84-8      84-33     84-47     88-74
SHTAB     28-32#    84-67     84-73
SHTAP     40-54#    88-89
SHTBR     40-64#    89-55
SHTEND    28-33#    84-70
SHTFL     40-55#    88-145
SHTIV     40-63#    88-112
SHTLP     40-58#    89-23
SHTLPA    40-59#    89-18
SHTLPB    40-60#    89-29
SHTLPC    40-61#    89-37
SHTLPD    40-62#    89-38
SHTNF     40-57#    49-32     88-122
SHTRE     40-52#    88-81
SHTRH     40-53#    88-85
SHTUN     40-56#    88-165
SHTYP0    28-27     40-44#
SHTYP1    28-27     40-45#
SHTYP2    28-27     40-46#
SHTYP3    28-27     40-47#
SHTYP4    28-27     40-48#
SHTYP5    28-27     40-49#
SHTYP6    28-27     40-50#
SHTYP7    28-27     40-51#
SHTYTB    28-27#    84-76
SHWOP     47-134    73-22#    82-89     84-84
SIZE      26-132#   37-166    85-10     85-16
SLST      26-169#   37-203
SLTHEM    38-45     41-121#
SMSC      40-207#   46-90
SQO       26-212#   34-8
SRXQ      40-200#   46-49
STADD     31-26#    51-28     34-87*
START     77-41     77-51#
STATB     26-41#    46-107    73-37     87-18
STATUS    26-136#   37-107
STATYP    38-40#    77-145*   77-148*   77-151* 100-162
STRCM     38-46     41-122#
STREAM    38-54     41-130#
STRMM     38-49     41-125#
STXC      40-199#   46-44
STXQ      40-198#   46-39
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          23-10     39-25     39-36     43-28     43-32     43-36     43-54     43-63     43-68     43-72     45-33     75-9      76-8      77-8
          78-10     79-8      80-8      81-9      108-22    108-42    112-13    113-48    113-48    113-48    113-48#
SVCINS    21-12#    21-18#    21-98     21-98     21-98     21-98     21-98     21-98     21-98     21-98     21-98     21-98     21-98     21-98
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Cross reference table (CREF V05.00)

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Cross reference table (CREF V05.00)

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88-66	88-66	88-66	88-66	88-66	88-66	88-66	88-66	88-66	88-66	88-66	88-66	88-66	88-66
88-66	88-66	88-66	88-66	88-66	88-66	88-66	88-67	88-67	88-67	88-67	88-67	88-67	88-67
88-67	88-67	88-67	88-67	88-67	88-67	88-67	88-67	88-67	88-67	88-67	88-67	88-67	88-67
88-67	88-67	88-67	88-69	88-69	88-69	88-69	88-69	88-69	88-69	88-69	88-69	88-69	88-69
88-69	88-69	88-69	88-69	88-69	88-69	88-69	88-69	88-69	88-69	88-69	88-69	88-69	88-81
88-81	88-81	88-81	88-81	88-81	88-81	88-81	88-81	88-81	88-81	88 81	88-81	88-81	88-81
88-85	88-85	88-85	88-85	88-85	88-85	88-85	88-85	88-85	88-85	88-85	88-85	88-85	88-85

Cross reference table (CREF V05.00)

88-85	88-89	88-89	88-89	88-89	88-89	88-89	88-89	88-89	88-89	88-89	88-89	88-89	88-89
88-89	88-89	88-89	88-89	88-89	88-89	88-89	88-89	88-93	88-93	88-93	88-93	88-93	88-93
88-93	88-93	88-93	88-93	88-93	88-93	88-93	88-93	88-93	88-98	88-98	88-98	88-98	88-98
88-98	88-98	88-98	88-98	88-98	88-98	88-98	88-98	88-98	88-98	88-112	88-112	88-112	88-112
88-112	88-112	88-112	88-112	88-112	88-112	88-112	88-112	88-112	88-112	88-112	88-112	88-112	88-112
88-122	88-122	88-122	88-122	88-122	88-122	88-122	88-122	88-122	88-122	88-122	88-122	88-122	88-122
88-122	88-122	88-122	88-122	88-145	88-145	88-145	88-145	88-145	88-145	88-145	88-145	88-145	88-145
88-145	88-145	88-145	88-145	88-145	88-145	88-145	88-145	88-165	88-165	88-165	88-165	88-165	88-165
88-165	88-165	88-165	88-165	88-165	88-165	88-165	88-165	88-165	88-165	88-165	88-165	88-174	88-174
88-174	88-174	88-174	88-174	88-174	88-174	88-174	88-174	88-174	88-174	88-174	88-174	88-174	89-10
89-10	89-10	89-10	89-10	89-10	89-10	89-10	89-10	89-10	89-10	89-10	89-10	89-10	89-10
89-18	89-18	89-18	89-18	89-18	89-18	89-18	89-18	89-18	89-18	89-18	89-18	89-18	89-18
89-18	89-23	89-23	89-23	89-23	89-23	89-23	89-23	89-23	89-23	89-23	89-23	89-23	89-23
89-23	89-23	89-29	89-29	89-29	89-29	89-29	89-29	89-29	89-29	89-29	89-29	89-29	89-29
89-29	89-29	89-29	89-37	89-37	89-37	89-37	89-37	89-37	89-37	89-37	89-37	89-37	89-37
89-37	89-37	89-37	89-37	89-38	89-38	89-38	89-38	89-38	89-38	89-38	89-38	89-38	89-38
89-38	89-38	89-38	89-38	89-38	89-55	89-55	89-55	89-55	89-55	89-55	89-55	89-55	89-55
89-55	89-55	89-55	89-55	89-55	89-55	95-61	95-61	95-61	95-61	95-61	95-61	95-61	95-61
95-61	95-61	95-61	95-61	95-75	95-75	95-75	95-75	95-75	95-75	95-75	95-75	95-75	95-75
95-75	95-75	95-84	95-84	95-84	95-84	95-84	95-84	95-84	95-84	95-84	95-84	95-84	95-84
97-41	97-41	97-41	97-41	97-41	97-41	97-41	97-41	97-41	97-41	97-41	97-41	97-41	97-41
97-41	97-41	97-41	97-41	97-41	97-41	97-41	97-41	97-41	97-41	97-63	97-63	97-63	97-63
97-63	97-63	97-63	97-63	97-63	97-63	97-63	97-63	97-63	97-63	97-63	97-67	97-67	97-67
97-67	97-67	97-67	97-67	97-67	97-67	97-67	97-67	97-67	97-138	97-138	97-138	97-138	97-138
97-138	97-138	97-138	97-138	97-138	97-138	97-138	97-138	97-138	97-138	97-138	97-138	97-138	97-138
97-138	97-138	98-27	98-27	98-27	98-27	98-27	98-27	98-27	98-27	98-27	98-27	98-27	98-27
98-27	98-27	98-27	98-27	98-27	98-27	98-27	98-27	98-27	98-27	98-27	98-27	99-24	99-24
99-24	99-24	99-24	99-24	99-24	99-24	99-24	99-24	99-24	99-24	99-24	99-24	99-24	99-42
99-42	99-42	99-42	99-42	99-42	99-42	99-42	99-42	99-42	99-42	99-42	99-42	99-42	99-42
100-96	100-96	100-96	100-96	100-96	100-96	100-96	100-96	100-96	100-96	100-96	100-96	100-106	100-106
100-105	100-115	100-115	100-115	100-115	100-115	100-115	100-115	100-115	100-115	100-115	100-115	100-115	100-127
100-127	100-127	100-127	100-127	100-127	100-127	100-127	100-127	100-127	100-127	100-127	100-139	100-139	100-139
103-97	103-97	103-97	103-97	103-97	103-97	103-97	103-97	103-97	103-97	103-97	103-97	103-101	103-101
103-101	103-119	103-119	103-119	103-119	103-119	103-119	103-119	103-119	103-119	103-119	103-119	103-119	103-141
103-141	103-141	103-141	103-141	103-141	103-141	103-141	103-141	103-141	103-141	103-141	106-40	106-40	106-40
106-40	106-40	106-40	106-40	106-40	106-40	106-40	106-40	106-40	106-43	106-43	106-43	107-114	107-114
107-114	107-114	107-114	107-114	107-114	107-114	107-114	107-114	107-114	107-114	107-155	107-155	107-155	107-155
107-155	107-155	107-155	107-155	107-155	107-155	107-155	107-155	107-155	107-155	107-155	107-155	107-155	107-155
107-158	107-158	107-158	107-158	107-158	107-158	107-158	107-158	107-158	107-158	107-158	107-158	107-158	107-158
107-158	107-158	107-158	107-158	107-158	107-158	107-158	107-158	107-158	107-158	107-158	107-158	107-158	107-177
107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177
107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177
107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177
107-177	107-177	107-184	107-184	107-184	107-197	107-197	107-197	107-197	107-197	107-197	107-197	107-197	107-197
107-197	107-197	107-197	107-208	107-208	107-208	107-212	107-212	107-212	107-212	107-212	107-212	107-212	107-212
107-212	107-212	107-212	107-212	107-217	107-217	107-217	108-31	108-31	108-31	108-50	108-50	108-50	109-15
109-15	109-15	112-13	112-13	112-13	112-27	112-27	112-27	112-27	112-27	112-27	112-27	112-27	112-27
112-48	112-48	112-48	112-48	112-48	112-48	112-48	112-48	112-48	112-48	112-48	112-48	112-49	112-49
112-49	112-49	112-49	112-49	112-49	112-49	112-49	112-49	112-49	112-50	112-50	112-50	112-50	112-50
112-50	112-50	112-50	112-50	112-50	112-50	112-50	112-50	112-50	112-50	112-50	112-51	112-51	112-51
112-51	112-51	112-51	112-51	112-51	112-51	112-51	112-51	112-51	112-51	112-51	112-51	112-52	112-52
112-52	112-52	112-52	112-52	112-52	112-52	112-52	112-53	112-53	112-53	112-54	112-54	112-54	112-54
112-54	112-54	112-54	112-54	112-54	112-56	112-56	112-56	113-48	113-48	113-48	113-48	113-48	113-48
113-48	113-48	113-48											
SVCOUB	21-120	21-200											
SVCTAG	21-120	21-220	23-59	43-30	43-34	43-38	43-56	43-65	43-70	43-74	45-57	47-16	55-26	75-41

Cross reference table (CREF V05.00)

	77-76	77-185	78-19	79-43	80-35	81-36	82-103	88-52	88-67	88-69	97-41	98-27	108-31	108-50
	109-15	112-56												
SVCTST	21-139	21-190	82-63											
T$$AU	81-96	81-20	81-36											
T$$AUT	78-100	78-19												
T$$CLC	79-86	79-27	79-43											
T$$DU	80-89	80-19	80-35											
T$$HAR	112-15	112-130	112-56											
T$$HW	23-90	23-100	23-59											
T$$INI	77-89	77-169	77-185											
T$$MSG	43-258	43-30	43-320	43-34	43-360	43-38	43-540	43-56	43-630	43-65	43-680	43-70	43-720	43-74
	43-76													
T$$PRO	76-86													
T$$RPT	75-98	75-41												
T$$SRV	45-330	45-57	108-220	108-31	108-420	108-50								
T$$TES	82-250	82-95	82-130	109-15										
T$ARGC	21-90	21-98	21-98	21-98	21-98	21-98	21-98	21-98	21-98	21-98	21-98	21-980	21-980	21-980
	21-990	21-980	21-980	43-29	43-29	43-29	43-29	43-29	43-290	43-290	43-290	43-290	43-33	43-33
	43-33	43-330	43-330	43-37	43-37	43-37	43-37	43-370	43-370	43-370	43-55	43-55	43-55	43-55
	43-550	43-550	43-550	43-64	43-64	43-64	43-64	43-64	43-640	43-640	43-640	43-640	43-69	43-69
	43-69	43-69	43-69	43-690	43-690	43-690	43-690	43-73	43-73	43-73	43-73	43-73	43-730	43-730
	43-730	43-730	46-115	46-115	46-1150	46-118	46-118	46-1180	47-10	47-10	47-100	47-24	47-24	47-240
	47-25	47-28	47-280	47-85	47-85	47-850	47-103	47-103	47-1030	47-108	47-108	47-108	47-108	47-108
	47-108	47-1080	47-1080	47-1080	47-1080	47-1080	47-115	47-115	47-115	47-115	47-1150	47-1150	47-1150	47-123
	47-123	47-123	47-1230	47-1230	47-124	47-124	47-124	47-124	47-1240	47-1240	47-1240	47-145	47-145	47-145
	47-145	47-1450	47-1450	47-1450	47-146	47-146	47-146	47-146	47-1460	47-1460	47-1460	47-154	47-154	47-154
	47-154	47-154	47-1540	47-1540	47-1540	47-1540	47-162	47-162	47-162	47-162	47-162	47-1620	47-1620	47-1620
	47-1620	47-171	47-171	47-1710	47-188	47-188	47-1880	47-203	47-203	47-2030	47-209	47-209	47-209	47-2090
	47-2090	49-5	49-5	49-5	49-50	49-50	49-32	49-32	49-32	49-320	49-320	49-43	49-43	49-43
	49-430	49-430	51-30	51-30	51-30	51-300	51-300	51-34	51-34	51-34	51-340	51-340	51-36	51-36
	51-36	51-360	51-360	52-30	52-30	52-300	55-17	55-17	55-170	55-25	55-25	55-25	55-250	55-250
	73-33	73-33	73-33	73-33	73-33	73-33	73-330	73-330	73-330	73-330	73-330	73-71	73-71	73-71
	73-71	73-71	73-71	73-710	73-710	73-710	73-710	73-710	74-138	74-138	74-1380	74-176	74-176	74-1760
	77-80	77-80	77-800	82-42	82-42	82-420	82-83	82-83	82-830	82-111	82-111	82-1110	82-115	82-115
	82-150	82-144	82-144	82-144	82-1440	82-1440	82-153	82-153	82-153	82-1530	82-1530	82-173	82-173	82-173
	82-173	82-1730	82-184	82-184	82-184	82-1840	82-1840	84-12	84-12	84-12	84-120	84-120	84-76	84-76
	84-76	84-76	84-760	84-760	84-760	85-20	85-20	85-200	85-45	85-45	85-450	87-9	87-9	87-90
	87-53	87-53	87-530	88-29	88-29	88-29	88-290	88-290	88-51	88 51	88 51	88-510	88-510	88 66
	88-66	88-66	88-66	88-660	88-660	88-660	88-81	88-81	88-810	88-85	88-85	88-850	88-89	88-89
	88-89	88-890	88-890	88-93	88-93	88-930	88-98	88-98	88-980	88-112	88-112	88-112	88-1120	88-1120
	88-122	88-122	88-122	88-1220	88-1220	88-145	88-145	88-145	88-1450	88-1450	88-165	88-165	88-165	88-1650
	88-1650	88-174	88-174	88-1740	89-10	89-10	89-100	89-18	89-18	89-180	89-23	89-23	89-230	89-29
	89-29	89-290	89-37	89-37	89-370	89-38	89-38	89-380	89-55	89-55	89-550	97-63	97-63	97-630
	97-138	97-138	97-138	97-138	97-1380	97-1380	97-1380	99-24	99-24	99-240	99-42	99-42	99-420	107-155
	107-155	107-155	107-1550	107-1550	107-158	107-158	107-158	107-158	107-1580	107-1580	107-1580	107-177	107-177	107-177
	107-177	107-177	107-177	107-177	107-1770	107-1770	107-1770	107-1770	107-1770	107-1770	107-1770			
T$COUE	47-16	47-16	47-16	47-160	47-160	47-160	55-26	55-26	55-26	55-260	55-260	55-260	77-76	77-76
	77-76	77-760	77-760	77-760	82-103	82-103	82-103	82-1030	82-1030	82-1030	88-52	88-52	88-52	88-520
	88-520	88-520	88-67	88-67	88-67	88-67	88-670	88-670	88-69	88-69	88-69	88-690	88-690	88-690
	97-41	97-41	97-41	97-410	97-410	97-410	98-27	98-27	98-27	98-270	98-270	98-270	112-27	112-27
	112-27	112-270	112-270	112-270	112-48	112-48	112-48	112-480	112-480	112-480	112-49	112-49	112-49	112-490
	112-490	112-490	112-50	112-50	112-50	112-500	112-500	112-500	112-51	112-51	112-51	112-510	112-510	112-510
	112-51	112-52	112-52	112-520	112-520	112-520	112-53	112-53	112-53	112-53	112-53	112-530	112-530	112-530
	112-530	112-54	112-54	112-54	112-540	112-540	112-540							
T$ERRN	21-135	95-61	95-610	95-75	95-750	95-84	95-840	97-67	97-670	100-96	100-960	100-115	100-1150	100-127
	100-127	103-97	103-970	103-119	103-1190	103-141	103-1410	106-40	106-400	107-114	107-1140	107-197	107-1970	107-212

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        107 212#
T$EXCP  47-16    47-16#   55-26    55-26#   77-76    77-76#   82-103   82-103#  88-52    88-52#   88-67    88-67#   88-69    88-69#
        97-41    97-41#   98-27    98-27#   112-48   112-48#  112-49   112-49#  112-50   112-50#  112-51   112-51#
T$FLAG  43-76    43-76#   43-76#   77-169   77-169   77-169#  77-169#  79-27    79-27    79-27#   79-27#   80-19    80-19#   80-19#
        81-20    81-20#   81-20#   82-95    82-95    82-95#   82-95#   82-130   82-130   82-130#  82-130#
T$GMAN  21-12#   47-16    47-16#   47-16#   55-26#   55-26#   77-76#   77-76#   82-103   82-103#  82-103#  88-52#   88-52#   88-67#
        88-67#   88-69#   88-69#   97-41#   97-41#   98-27    98-27#   98-27#
T$HILI  47-16    47-16#   55-26    55-26#   77-76    77-76#   82-103   82-103#  88-52    88-52#   88-67    88-67#   88-69    88-69#
        97-41    97-41#   98-27    98-27#   112-48   112-48#  112-49   112-49#  112-50   112-50#  112-51   112-51#
T$LAST  21-12#   113-48#
T$LOLT  47-16    47-16#   55-26    55-26#   77-76    77-76#   82-103   82-103#  88-52    88-52#   88-67    88-67#   88-69    88-69#
        97-41    97-41#   98-27    98-27#   112-48   112-48#  112-49   112-49#  112-50   112-50#  112-51   112-51#
T$LSYM  21-12    21-12#   23-59    43-30    43-34    43-38    43-56    43-65    43-70    43-74    45-57    75-41    77-185   78-19
        79-43    80-35    81-36    108-31   108-50   109-15   112-56
T$LTNO  113-48#
T$NEST  21-12#   21-33    21-33    21-33#   23-10    23-10    23-10#   23-59    23-59    23-59    23-59#   43-28    43-28    43-28#
        43-30    43-30    43-30    43-30#   43-32    43-32    43-32#   43-34    43-34    43-34    43-34#   43-36    43-36    43-36#
        43-38    43-38    43-38    43-38#   43-54    43-54    43-54#   43-56    43-56    43-56    43-56#   43-63    43-63    43-63#
        43-65    43-65    43-65    43-65#   43-68    43-68    43-68#   43-70    43-70    43-70    43-70#   43-72    43-72    43-72#
        43-74    43-74    43-74    43-74#   45-33    45-33    45-33#   45-57    45-57    45-57    45-57#   75-9     75-9     75-9#
        75-41    75-41    75-41    75-41#   76-8     76-8     76-8#    76-14    76-14    76-14    76-14#   77-8     77-8     77-8#
        77-185   77-185   77-185   77-185#  78-10    78-10    78-10#   78-19    78-19    78-19    78-19#   79-8     79-8     79-8#
        79-43    79-43    79-43    79-43#   80-8     80-8     80-8#    80-35    80-35    80-35    80-35#   81-9     81-9     81-9#
        81-36    81-36    81-36    81-36#   82-23    82-23    82-23#   108-22   108-22   108-22#  108-31   108-31   108-31   108-31#
        108-42   108-42   108-42#  108-50   108-50   108-50   108-50#  109-15   109-15   109-15   109-15#  112-13   112-13   112-13#
        112-53   112-56   112-56   112-56#  112-56#  113-49   113-49   113-49   113-49#
T$NSO   21-33#   113-49
T$NS1   23-10#   23-59    43-28#   43-30    43-32#   43-34    43-36#   43-38    43-54#   43-56    43-63#   43-65    43-68#   43-70
        43-72#   43-74    45-33#   45-57    75-9#    75-41    76-8#    76-14    77-8#    77-185   78-10#   78-19    79-8#    79-43
        80-64    80-35    81-9#    81-36    82-23#   109-15   112-13#  112-53   112-56
T$NS2   108-22#  108-31   108-42#  108-50
T$PTNO  21-12#
T$SAVL  21-12#
T$SEGL  21-12#
T$SUBN  21-12#   82-23#
T$TAGL  21-12#
T$TAGN  21-12#   23-10    23-10    23-10#   43-28    43-28    43-28#   43-32    43-32    43-32#   43-36    43-36    43-36#   43-54
        43-54    43-54#   43-63    43-65    43-63#   43-68    43-68    43-68#   43-72    43-72    43-72#   45-33    45-33    45-33#
        75-9     75-9     75-9#    76-8     76-8     76-8#    77-8     77-8     77-8#    78-10    78-10    78-10#   79-8     79-8
        79-8#    80-8     80-8     80-8#    81-9     81-9     81-9#    82-23    82-23    82-23#   108-22   108-22   108-22#  108-42
        108-42   108-42#  112-13   112-13   112-13#
T$TEMP  22-8     22-8     22-8#    22-8#    23-59    23-59#   43-30    43-30#   43-34    43-34#   43-38    43-38#   43-56    43-56#
        43-65    43-65#   43-70    43-70#   43-74    43-74    43-76    43-76#   45-57    45-57#   47-16    47-16    47-16    47-16#
        47-16#   55-26    55-26    55-26    55-26    55-26#   55-26#   55-26#   75-41    75-41#   76-14    76-14#   77-76    77-76
        77-76    77-76#   77-76#   77-76#   77-169   77-169#  77-185   77-185#  78-19    78-19#   79-27    79-27#   79-43    79-43#
        80-19    80-19#   80-35    80-35#   81-20    81-20#   81-36    81-36#   82-95    82-95#   82-103   82-103   82-103   82-103#
        82-103#  82-130   82-130#  88-52    88-52    88-52    88-52#   88-52#   88-67    88-67    88-67    88-67#
        88-67#   88-69    88-69    88-69    88-69#   88-69#   88-69#   97-41    97-41    97-41    97-41#   97-41#   97-41#
        98-27    98-27    98-27    98-27#   98-27#   98-27#   108-31   108-31#  108-50   108-50#  109-15   109-15#  112-27   112-27
        112-27   112-27#  112-27#  112-27#  112-48   112-48   112-48   112-48#  112-48#  112-48#  112-49   112-49   112-49   112-49#
        112-49#  112-49#  112-50   112-50   112-50   112-50#  112-50#  112-50#  112-51   112-51   112-51   112-51#  112-51#  112-51#
        112-52   112-52   112-52   112-52#  112-52#  112-52#  112-54   112-54   112-54   112-54#  112-54#  112-54#  112-56   112-56#
        113-49   113-49#
T$TEST  23-10#   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
        82 175  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  21-125# 82-230
T1      22-9    82-230
TABEX   40 111# 82-153  82-184
TAL     26-200  36-21   99-47
TALCK   32 32   98-200  98-49   98-51
TALMOD  26-151# 37-61
TCURAD  31-140  82-59*  82-62   82-159  82-164*  84-54*
TEMP    31-486  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   88-55   88-66   88-66   88-67   88-68   88-70*
        88-68*  88-89   88-128* 88-138* 88-142*  88-147  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   31-479  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   31-488  46-64*  46-65*  46-127  53-28    53-40*  53-44   58-24*  58 31   61-21*  64-20*  64-22   72-14*  73-32*
        73-35   73-44*  73-47*  73-71   88-9     88-45   88-129* 88-131  89-50*  89 53   89-95*  89-98   94-55*  94-67*
        93-75   94-81   94-90*  94-91   95-104*  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* 100-117* 100-223* 100-227 103-91*  103-114* 103-136* 106-35* 107-111* 107-162* 107-170*
       107-177
TEMP3   31-490  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   31-500  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   31-518  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*  75-71   96-20*
TIMER1  32-478  45-45   45-47*  82-37*  82-38    100-83*  100-89  100-107  106-28*  106-31*  106-32
TIMER2  32-486  45-48   45-50*
TIMER3  32-494  45-51   45-55*  100-185* 100-186  103-82*  103-89  105-44*  105-45
TIMMIN  32-458  45-42*  46-126  77-81*
TIMSEC  32-470  45-39*  45-40   45-43*  46-125   77-82*
TIMTCK  32-462  45-36*  45-38*  45-53   46-123   77-83*
TM      26-215# 34-9
TOIN1   103-90  103-101#
TOIN2   103-102#
TOINOT  103-859 103-103  103-109
TOOR1   106-33  106-43#
TOOR2   106-45  106-49#
TOOR3   106-30  106-32#  106-50
TOOR10  37-60   37-68   100-158  100-212  100-233  101-41   102-46  103-70  104-21  105-16  105-56  106-[illegible]  106-41
TOTCC   31-483  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     26-167  86-18
TRAMOD  26-150# 37-59
TRBB    26-67#  55-29   77-149  88-36   88-54   89-27
```

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TAB 2	29-21#	88-14*	88-79	88-125*	88-143	88-158*	89-16	89-31	89-48					
TPIS.C	112-54	112-80#												
TRIBS	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
	79-32*	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			
TRVAIN	74-41	74-195#												
TRVBIP	74-40	74-181#												
TRVBUF	74-37	74-92#												
TRVBX	74-36	74-89#												
TRVBX1	74-50	74-70#	74-90	74-95	74-114	74-178	74-193	74-214	74-240					
TRVDAC	74-43	74-117#												
TRVERR	74-34	74-79#												
TRVEXT	74-35	74-84#												
TRVNPA	74-115	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#												
TRVSPC	74-38	74-98#												
TRVSTR	74-44	74-216#												
TS20A	41-28#													
TSEL*	43-73	103-117	107-263#											
TSEL4	43-73	103-115	107-262#											
TSEL6	43-73	103-116	107-261#											
TSPTR	29-29#	89-70*	103-122	103-129*	107-201	107-205*								
TSS0A	35-9	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#													

Cross reference table (CREF V05.00)

```
BCOMPL    1-15#    21-12#   77-41    77-43    77-48    82-92
BERROR    1-19#    21-12#
BGNAU     1-23#    21-12#   81-9
BGNAUT    1-31#    21-12#   78-10
BGNCLN    1-39#    21-12#   79-8
BGNDU     1-47#    21-12#   80-8
BGNHRD    1-55#    21-12#   112-13
BGNHW     1-66#    21-12#   23-10
BGNINI    1-77#    21-12#   77-8
BGNMOD    1-85#    21-12#   21-33
BGNMSG    1-98#    21-12#   43-28    43-32    43-36    43-54    43-63    43-68    43-72
BGNPRO    1-106#   21-12#   76-8
BGNPTA    1-114#   21-12#
BGNRPT    1-144#   21-12#   75-9
BGNSEG    1-152#   21-12#
BGNSET    1-161#   21-12#
BGNSFT    1-182#   21-12#
BGNSRV    1-193#   21-12#   45-33    108-22   108-42
BGNSUB    1-201#   21-12#
BGNSW     1-225#   21-12#
BGNTST    1-236#   21-12#   82-23
BNCOMP    1-266#   21-12#   77-45    77-57    77-63    77-72    77-97
BNERRO    1-270#   21-12#
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BRESET    1-278#   21-12#   77-52
CKLOOP    1-282#   21-12#
CLI       21-40#   37-19    37-20    37-21    37-22    37-23    37-24    37-25    37-26    37-27    37-28    37-29    37-30    37-31
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          37-49    37-50    37-51    37-52    37-53    37-54    37-55    37-56    37-57    37-58    37-59    37-60    37-61    37-62
          37-66    37-67    37-68    37-69    37-70    37-75    37-76    37-77    37-78    37-79    37-82    37-83    37-84    37-85
          37-86    37-87    37-88    37-89    37-92    37-93    37-94    37-95    37-96    37-97    37-107   37-108   37-109   37-110
          37-124   37-125   37-127   37-128   37-130   37-131   37-134   37-137   37-138   37-139   37-140   37-141   37-142   37-143
          37-144   37-145   37-146   37-147   37-148   37-149   37-150   37-151   37-152   37-155   37-156   37-157   37-158   37-159
          37-160   37-161   37-164   37-165   37-166   37-167   37-168   37-169   37-172   37-173   37-174   37-177   37-188   37-189
          37-190   37-191   37-192   37-193   37-194   37-195   37-198   37-199   37-200   37-202   37-203   37-204   37-205   37-206
          37-207   37-208   37-209   37-210   37-211   37-212   37-213   37-216   50-3     50-4     50-5     50-6     50-7     50-8
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          50-23    50-24    50-25    50-26    50-27
CLOCK     1-286#   21-12#   77-56    77-62
CLOSE     1-292#   21-12#
CLRVEC    1-296#   21-12#
COMMEN    1-301#   21-12#
DELAY     1-322#   21-12#
DESCRI    1-317#   21-12#   39-36
DEVTYP    1-341#   21-12#   39-25
DISPAT    1-346#   21-12#   22-8
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ENDCLN    1-413#   21-12#   79-43
ENDCOM    1-425#   21-12#
ENDDU     1-441#   21-12#   80-35
ENDHRD    1-453#   21-12#   112-56
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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
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EXIT      1-771#  21-12#   43-76    77-169   79-27    80-19    81-20    82-95    82-130
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GETPRI    1-834#  21-12#
GETWOR    1-829#  21-12#
GMANIA    1-839#  21-12#
GMANID    1-848#  21-12#   47-16    55-26    77-76    82-103   88-52    88-67    88-69    97-41    98-27
GMANIL    1-859#  21-12#
GPHARD    1-868#  21-12#   77-96
GPRMA     1-874#  21-12#  112-48   112-49
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#
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GPRML     1-934#  21-12#  112-27   112-52   112-54
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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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	49-43	49-43	49-43#	49-43#	49-43#	49-43#	49-43#	51-30	51-30	51-30	51-30	51-30	51-30	51-30#
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M$HNAP    1-B24#  21-12#  21-98   21-98#
M$INCR    1-D26#  21-12#  21-33   21-33#  23-10   23-10   23-10#  23-10#  43-28   43-28   43-28#  43-28#  43-29#  43-30#
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         43-69    43-69   43-69   43-69   43-69   43-69#  43-73   43-73   43-73   43-73   43-73   43-73#  46-115  46-115
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Cross reference table (CREF V05.00)

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        47-203#  47-209   47-209   47-209   47-209#  49-5     49-5     49-5     49-5#    49-32    49-32    49-32    49-32#   49-43
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        51-36#   52-30    52-30    52-30#   55-17    55-17    55-17#   55-25    55-25    55-25    55-25#   73-33    73-33    73-33
        73-33    73-33    73-33    73-33#   73-71    73-71    73-71    73-71    73-71    73-71    73-71#   74-138   74-138   74-138#
        74-176   74-176   74-176#  77-80    77-80    77-80#   77-153   77-153   77-153   77-153   77-153#  77-165   77-165   77-165
        77-165   77-165#  77-166   77-166   77-166   77-166#  77-166#  82-42    82-42    82-42#   82-83    82-83    82-83#   82-111
        82-111   82-111#  82-115   82-115   82-115#  82-144   82-144   82-144   82-144#  82-153   82-153   82-153   82-153#  82-173
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        88-98#   88-112   88-112   88-112   88-112#  88-122   88-122   88-122   88-122#  88-145   88-145   88-145   88-145#  88-165
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        97-63    97-63#   97-138   97-138   97-138   97-138   97-138#  99-24    99-24    99-24#   99-42    99-42    99-42#   107-155
       107-155  107-155  107-155#  107-158  107-158  107-158  107-158  107-158#  107-177  107-177  107-177  107-177  107-177  107-177
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        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#   43-64#   43-69    43-69    43-69    43-69    43-69    43-69#   43-69#   43-69#   43-69#   43-69#   43-73    43-73
        43-73    43-73    43-73    43-73#   43-73#   43-73#   43-73#   46-115   46-115   46-115#  46-115#  46-118   46-118
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        47-85    47-85    47-85#   47-85#   47-103   47-103   47-103#  47-103#  47-108   47-108   47-108   47-108   47-108   47-108
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        47-145   47-145   47-145   47-145   47-145#  47-145#  47-145#  47-145#  47-146   47-146   47-146   47-146   47-146#  47-146#
        47-146#  47-146#  47-154   47-154   47-154   47-154   47-154   47-154#  47-154#  47-154#  47-154#  47-154#  47-162   47-162
        47-162   47-162   47-162   47-162#  47-162#  47-162#  47-162#  47-162#  47-171   47-171   47-171#  47-171#  47-188   47-188
        47-188#  47-188#  47-203   47-203   47-203#  47-203#  47-209   47-209   47-209   47-209#  47-209#  47-209#  49-5     49-5
        49-5     49-5#    49-5#    49-5#    49-32    49-32    49-32    49-32#   49-32#   49-32#   49-43    49-43    49-43    49-43#
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        51-36    51-36    51-36    51-36#   51-36#   52-30    52-30    52-30#   52-30#   55-17    55-17    55-17#   55-17#
        55-25    55-25    55-25    55-25#   55-25#   55-25#   73-33    73-33    73-33    73-33    73-33    73-33#   73-33#   73-33#
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        73-71#   73-71#   74-138   74-138   74-138#  74-138#  74-176   74-176   74-176#  74-176#  77-80    77-80    77-80#   77-80#
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        77-165#  77-165#  77-166   77-166   77-166   77-166   77-166#  77-166#  77-166#  77-166#  82-42    82-42    82-42#   82-42#
        82-83    82-83    82-83#   82-83#   82-111   82-111   82-111#  82-111#  82-115   82-115   82-115#  82-115#  82-144   82-144
        82-144   82-144#  82-144#  82-144#  82-153   82-153   82-153   82-153#  82-153#  82-153#  82-173   82-173   82-173   82-173#
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        84-76    84-76    84-76    84-76    84-76#   84-76#   84-76#   84-76#   85-20    85-20    85-20#   85-20#   85-45    85-45
        85-45#   85-45#   87-9     87-9     87-9#    87-53    87-53    87-53#   87-53#   88-29    88-29    88-29    88-29#
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        88-66#   88-81    88-81    88-81#   88-81#   88-85    88-85    88-85#   88-85#   88-89    88-89    88-89    88-89#
        88-89#   88-89#   88-93    88-93    88-93#   88-93#   88-98    88-98    88-98#   88-98#   88-112   88-112   88-112   88-112#
        88-112#  88-112#  88-122   88-122   88-122   88-122#  88-122#  88-122#  88-145   88-145   88-145   88-145#  88-145#  88-145#
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        97-138   97-138   97-138   97-138   97-138#  97-138#  97-138#  97-138#  99-24    99-24    99-24#   99-24#   99-42    99-42
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	107-158#	107-158#	107-177	107-177	107-177	107-177	107-177	107-177	107-177	107-177#	107-177#	107-177#	107-177#	107-177#
	107-177#	107-177#												
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	88-69	88-69#	97-41	97-41#	98-27	98-27#	112-27	112-27#	112-48	112-48#	112-49	112-49#	112-50	112-50#
	112-51	112-51#	112-52	112-52#	112-54	112-54#								
M$RBRO	1-C52#	21-12#												
M$RNRO	1-C62#	21-12#	77-56	77-56#	77-62	77-62#	77-96	77-96#						
M$SETS	1-D32#	21-12#	21-33	21-33#	23-10	23-10#	43-28	43-28#	43-32	43-32#	43-36	43-36#	43-54	43-54#
	43-63	43-63#	43-68	43-68#	43-72	43-72#	45-33	45-33#	75-9	75-9#	76-8	76-8#	77-8	77-8#
	78-10	78-10#	79-8	79-8#	80-8	80-8#	81-9	81-9#	82-23	82-23#	108-22	108-22#	108-42	108-42#
	112-13	112-13#												
M$STAR	1-A33#	21-12#												
M$SVC	1-C33#	21-12#	43-29	43-29#	43-30	43-30#	43-33	43-33#	43-34	43-34#	43-37	43-37#	43-38	43-38#
	43-55	43-55#	43-56	43-56#	43-64	43-64#	43-65	43-65#	43-69	43-69#	43-70	43-70#	43-73	43-73#
	43-74	43-74#	43-76#	46-115	46-115#	46-118	46-118#	47-10	47-10#	47-16	47-16#	47-24	47-24#	47-28
	47-28#	47-85	47-85#	47-103	47-103#	47-108	47-108#	47-115	47-115#	47-123	47-123#	47-124	47-124#	47-145
	47-145#	47-146	47-146#	47-154	47-154#	47-162	47-162#	47-171	47-171#	47-188	47-188#	47-203	47-203#	47-209
	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#	55-26	55-26#	73-33	73-33#	73-71	73-71#	74-138	74-138#	74-176
	74-176#	75-41	75-41#	77-37	77-37#	77-40	77-40#	77-42	77-42#	77-44	77-44#	77-47	77-47#	77-52
	77-52#	77-56	77-56#	77-62	77-62#	77-71	77-71#	77-76	77-76#	77-80	77-80#	77-96	77-96#	77-153
	77-153#	77-165	77-165#	77-166	77-166#	77-168	77-168#	77-169	77-169#	77-185	77-185#	78-19	78-19#	79-26
	79-26#	79-27	79-27#	79-43	79-43#	80-19#	80-35	80-35#	81-20#	81-36	81-36#	82-42	82-42#	82-83
	82-83#	82-91	82-91#	82-95	82-95#	82-103	82-103#	82-111	82-111#	82-115	82-115#	82-130	82-130#	82-144
	82-144#	82-153	82-153#	82-175	82-173#	82-184	82-184#	84-12	84-12#	84-76	84-76#	85-20	85-20#	85-45
	85-45#	87-9	87-9#	87-53	87-53#	88-29	88-29#	88-51	88-51#	88-52	88-52#	88-66	88-66#	88-67
	88-67#	88-69	88-69#	88-81	88-81#	88-85	88-85#	88-89	88-89#	88-93	88-93#	88-98	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#	95-61	95-75	95-84	97-41	97-41#
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	107-155#	107-158	107-158#	107-177	107-177#	107-184	107-184#	107-197	107-208	107-208#	107-212	107-217	107-217#	109-15
	109-15#													
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	47-145#	47-146#	47-154#	47-162#	47-171#	47-188#	47-203#	47-209#	49-5#	49-32#	49-43#	51-30#	51-34#	51-36#
	52-30#	55-17#	55-25#	55-26#	73-33#	73-71#	74-138#	74-176#	75-41#	77-37#	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#	80-35#	81-36#	81-36#	82-42#	82-42#	82-83#	82-83#	82-91#	82-91#	82-95#
	82-95#	82-103#	82-103#	82-111#	82-111#	82-115#	82-115#	82-130#	82-130#	82-144#	82-144#	82-153#	82-153#	82-175#
	82-175#	82-184#	82-184#	84-12#	84-12#	84-76#	84-76#	85-20#	85-20#	85-45#	85-45#	87-9#	87-9#	87-53#
	87-53#	88-29#	88-29#	88-51#	88-51#	88-52#	88-52#	88-66#	88-66#	88-67#	88-67#	88-69#	88-69#	88-81#
	88-81#	88-85#	88-85#	88-89#	88-89#	88-93#	88-93#	88-98#	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#	95-61#	95-75#	95-84#	97-41#	97-41#	97-63#	97-63#	97-67#	97-67#
	97-138#	97-138#	98-27#	98-27#	99-24#	99-24#	99-42#	99-42#	100-96#	100-106#	100-106#	100-115#	100-127#	100-139#
	100-139#	103-97#	103-101#	103-101#	103-119#	103-141#	106-40#	106-43#	107-114#	107-155#	107-158#	107-158#	107-177#	107-177#
	107-184#	107-184#	107-197#	107-208#	107-208#	107-212#	107-212#	107-217#	107-217#	107-217#	107-217#	107-217#	107-217#	107-217#
	107-217#	109-15#												
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	43-74	43-74#	46-115	46-115#	46-118	46-118#	47-10	47-10#	47-16	47-16#	47-24	47-24#	47-28	47-28#
	47-85	47-85#	47-103	47-103#	47-108	47-108#	47-115	47-115#	47-123	47-123#	47-124	47-124#	47-145	47-145#
	47-146	47-146#	47-154	47-154#	47-162	47-162#	47-171	47-171#	47-188	47-188#	47-203	47-203#	47-209	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#	55-26	55-26#	73-33	73-33#	73-71	73-71#	74-138	74-138#	74-176	74-176#
	75-41	75-41#	77-37	77-37#	77-40	77-40#	77-42	77-42#	77-44	77-44#	77-47	77-47#	77-52	77-52#
	77-56	77-56#	77-62	77-62#	77-71	77-71#	77-76	77-76#	77-80	77-80#	77-96	77-96#	77-153	77-153#
	77-165	77-165#	77-166	77-166#	77-168	77-168#	77-169	77-169#	77-185	77-185#	78-19	78-19#	79-26	79-26#
	79-27	79-27#	79-43	79-43#	80-35	80-35#	81-36	81-36#	82-42	82-42#	82-83	82-83#	82-91	82-91#
	82-95	82-95#	82-103	82-103#	82-111	82-111#	82-115	82-115#	82-130	82-130#	82-144	82-144#	82-153	82-153#

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        95-84#   97-41    97-41#   97-63    97-63#   97-67    97-67#   97-67#   97-138   97-138#  98-27    98-27#   99-24    99-24#
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       100-139#  103-97   103-97#  103-97#  103-101  103-101#  103-119  103-119#  103-119#  103-141  103-141#  106-40   106-40#
       106-40#   106-43   106-43#  107-114  107-114#  107-114#  107-155  107-155#  107-158  107-158#  107-177  107-177#  107-184  107-184#
       107-197   107-197#  107-197#  107-208  107-208#  107-212  107-212#  107-212#  107-217  107-217#  109-15   109-15#
M$WORD   1-C94#   21-12#   21-98    21-98#   22-8     22-8     22-8#    43-76    43-76#   47-16    47-16    47-16#   47-16#   55-26
        55-26    55-26#   55-26#   77-76    77-76    77-76#   77-76#   77-169#  79-27#   80-19    80-19#   81-20    81-20#   82-95#
        82-103   82-103   82-103#  82-103#  82-130#  88-52    88-52    88-52#   88-52#   88-67    88-67    88-67#   88-67#   88-69
        88-69    88-69#   88-69#   95-61    95-61    95-61    95-61#   95-75    95-75    95-75    95-75#   95-84    95-84    95-84
        95-84#   97-41    97-41    97-41#   97-41#   97-67    97-67    97-67    97-67#   98-27    98-27    98-27#   98-27#   100-96
       100-96    100-96   100-96#  100-115  100-115  100-115  100-115#  100-127  100-127  100-127  100-127#  103-97   103-97   103-97
       103-97#   103-119  103-119  103-119  103-119#  103-141  103-141  103-141  103-141#  106-40   106-40   106-40   106-40#  107-114
       107-114   107-114  107-114#  107-197  107-197  107-197  107-197#  107-212  107-212  107-212  107-212#  112-27   112-27#  112-48
       112-48#   112-49   112-49#   112-50   112-50#  112-51   112-51#   112-52   112-52#   112-53   112-53#   112-54   112-54#  113-48
       113-48
M$XFER   1-@82#   21-12#   112-53   112-53#
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    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
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
RELAGS   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#
XFERI    1-@16#   21-12#   112-53
XFERT    1-@20#   21-12#
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CZCLMCO DMP/V-11 DCL....B1
CZCLMCO DMP/V-11 DCL....C1
CZCLMCO DMP/V-11 DCL....D1
CZCLMCO DMP/V-11 DCL....E1
CZCLMCO DMP/V-11 DCL....F1
CZCLMCO DMP/V-11 DCL....G1
CZCLMCO DMP/V-11 DCL....H1
CZCLMCO DMP/V-11 DCL....I1
CZCLMCO DMP/V-11 DCL....J1
CZCLMCO DMP/V-11 DCL....K1
CZCLMCO DMP/V-11 DCL....L1
CZCLMCO DMP/V-11 DCL....M1
CZCLMCO DMP/V-11 DCL....N1

CZCLMCO DMP/V-11 DCL....B2
CZCLMCO DMP/V-11 DCL....C2
CZCLMCO DMP/V-11 DCL....D2
CZCLMCO DMP/V-11 DCL....E2
CZCLMCO DMP/V-11 DCL....F2
CZCLMCO DMP/V-11 DCL....G2
CZCLMCO DMP/V-11 DCL....H2
CZCLMCO DMP/V-11 DCL....I2
CZCLMCO DMP/V-11 DCL....J2
CZCLMCO DMP/V-11 DCL....K2
CZCLMCO DMP/V-11 DCL....L2
CZCLMCO DMP/V-11 DCL....M2
CZCLMCO DMP/V-11 DCL....N2

CZCLMCO DMP/V-11 DCL....B3
CZCLMCO DMP/V-11 DCL....C3
CZCLMCO DMP/V-11 DCL....D3
CZCLMCO DMP/V-11 DCL....E3
CZCLMCO DMP/V-11 DCL....F3
CZCLMCO DMP/V-11 DCL....G3
CZCLMCO DMP/V-11 DCL....H3
CZCLMCO DMP/V-11 DCL....I3
CZCLMCO DMP/V-11 DCL....J3
CZCLMCO DMP/V-11 DCL....K3
CZCLMCO DMP/V-11 DCL....L3
CZCLMCO DMP/V-11 DCL....M3
CZCLMCO DMP/V-11 DCL....N3

CZCLMCO DMP/V-11 DCL....B4
CZCLMCO DMP/V-11 DCL....C4
CZCLMCO DMP/V-11 DCL....D4
CZCLMCO DMP/V-11 DCL....E4
CZCLMCO DMP/V-11 DCL....F4
CZCLMCO DMP/V-11 DCL....G4
CZCLMCO DMP/V-11 DCL....H4
CZCLMCO DMP/V-11 DCL....I4
CZCLMCO DMP/V-11 DCL....J4
CZCLMCO DMP/V-11 DCL....K4
CZCLMCO DMP/V-11 DCL....L4
CZCLMCO DMP/V-11 DCL....M4
CZCLMCO DMP/V-11 DCL....N4
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CZCLMCO DMP/V-11 DCL....B5
CZCLMCO DMP/V-11 DCL....C5
CZCLMCO DMP/V-11 DCL....D5
CZCLMCO DMP/V-11 DCL....E5
CZCLMCO DMP/V-11 DCL....F5
CZCLMCO DMP/V-11 DCL....G5
CZCLMCO DMP/V-11 DCL....H5
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