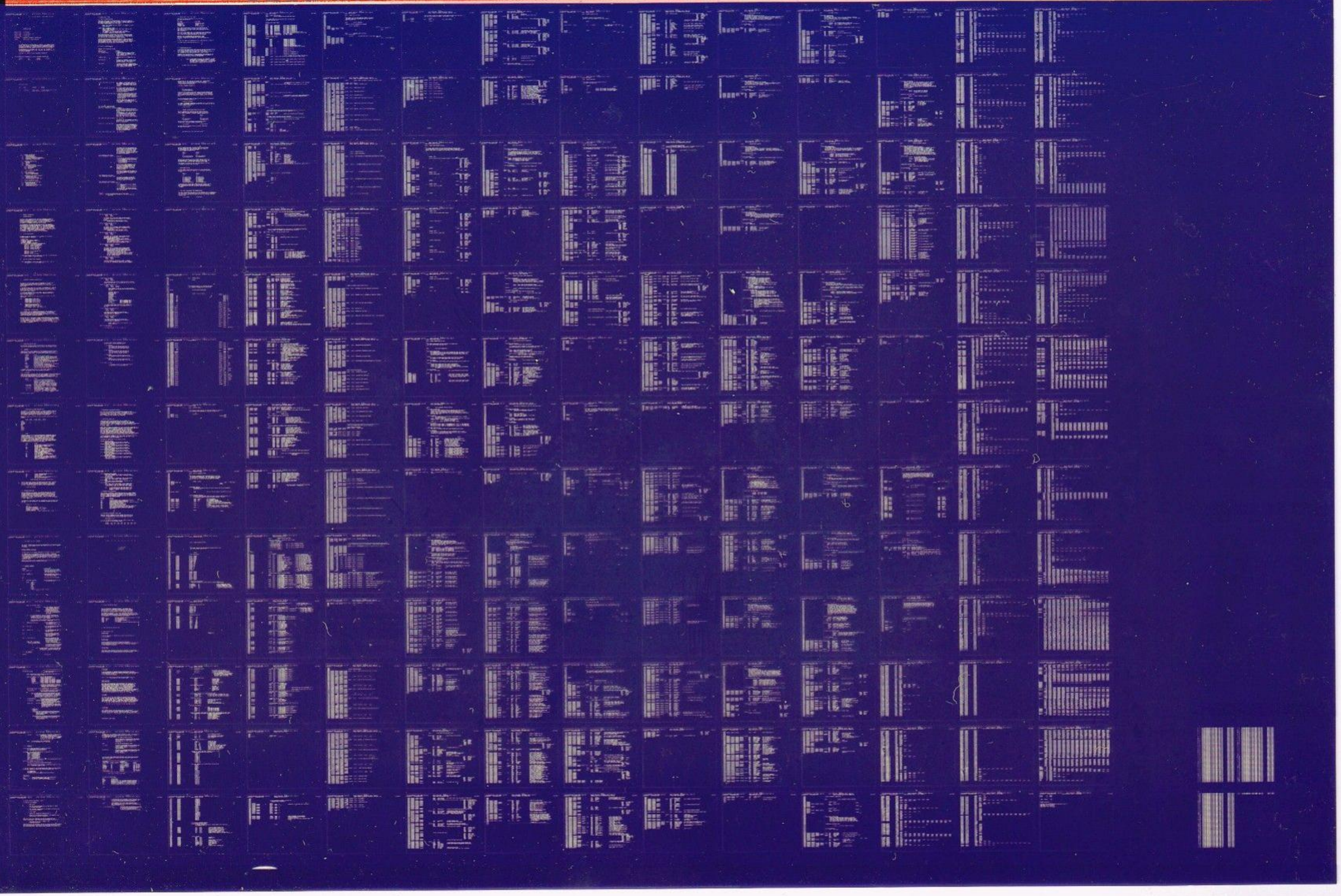
DMR11,DMC11 DMR/C11 DCLT
CZCLKAO

AH-F593A-MC
FICHE 1 OF 1



SEQ 0001

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1                               .TITLE  CZCLKAO DMR,DMC-11 DATA COMM. LINK TEST
2
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.REM &

IDENTIFICATION

PRODUCT CODE: AC-F591A-MC

PRODUCT NAME: CZCLKAO DMR/C11 DCLT

PRODUCT DATE: 17-APRIL-80

MAINTAINER: MERRIMACK DIAGNOSTIC ENGINEERING

AUTHOR: BRUCE LUHRS - BRUCE RIBOLINI

REVISION HISTORY:

REV	DATE	AUTHOR	REASON
A	23-APR-80	BRUCE LUHRS BRUCE RIBOLINI	ORIGINAL ISSUE, DCLT FOR THE DMC OR DMR-11

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 DMR/DMC-11 TO DMR/DMC-11 COMMUNICATION LINKS. THIS DCLT PROGRAM WILL PROVIDE THE COVERAGE NECESSARY TO DETECT FAILURES TO 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 DMR/DMC-11 DCLT PROGRAM, THE FOLLOWING MINIMUM HARDWARE IS REQUIRED:

- A PDP-11 CPU
- MINIMUM OF 24K WORDS OF MEMORY
- A WORKING, LINE OR REAL-TIME CLOCK
- A CONSOLE TERMINAL
- ANY XXDP+ SUPPORTED LOAD MEDIA
- ONE OF THESE DMR-11 OR DMC-11 CONFIGURATIONS:
  - DMC11-AL - LOCAL MICROPROCESSOR
  - DMC11-AL - REMOTE MICROPROCESSOR
  - DMC11-DA - E.I.A. LINE UNIT
  - DMC11-FA - CCITT V.35 LINE UNIT
  - DMC11-MA - 1M BPS LINE UNIT
  - DMC11-MD - 56K BPS LINE UNIT

  - DMR11-AA - E.I.A. (RS 232/423)
  - DMR11-AB - CCITT V.35
  - DMR11-AC - LOCAL
  - DMR11-AE - E.I.A. (RS 422)

IF DOWN-LINE-LOADING A DMC-11 SATELLITE, THE SATELLITE END REQUIRES:
- M9301-YJ/M9312 - BOOTSTRAP MODULE

1.3 RELATED DOCUMENTS AND STANDARDS

- XXDP+ USER'S MANUAL (CHQUS?.SEQ WHERE ? IS THE REV. LEVEL OF THE MANUAL - "C" IS THE CURRENT REV.).

1.4 DIAGNOSTIC HIERARCY 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 DMR OR DMC-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 DMR OR DMC-11, BUT TO TEST THE COMMUNICATION LINK TO WHICH THEY ARE CONNECTED.

SOME OF THE DIAGNOSTICS THAT COULD BE RUN IF THE DMC-11 OR DMR-11 LOOKS BAD:

DMR:
- CZDMIA0 DMR-11 FCTNL DIAG
- CZDMPA1 M8207 STATIC DIAG #1
- CZDMQA2 M8207 STATIC DIAG #2
- CZDMRC0 M8203 STATIC DIAG #1
- CZDMSC0 M8203 STATIC DIAG #2

DMC:
- CZDMCC0 BSC W/R MICRO-PROC TST
- CZDMEC0 DDCMP MDLN UNIT TST
- CZDMGD0 DMC-11 CROM + JMUP TEST
- MD-11-DZDMHB1 DMC-11 FREE RUNNING TEST

1.5 ASSUMPTIONS - RESTRICTIONS

IT IS ASSUMED THAT THE COMMUNICATIONS DEVICE (DMC OR DMR-11) HAS BEEN TESTED USING THE PREREQUISTE 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.

BECAUSE THE DMC-11 AND DMR-11 SUPPORT DDCMP OPERATION IN THE FIRMWARE, THE PDP-11 D.C.L.T. PROGRAM IS UNABLE TO CONTROL OR KNOW EXACTLY WHAT IS BEING TRANSMITTED AT ANY GIVEN TIME. ALL DATA MESSAGES ARE ENCLOSED IN A DDCMP ENVELOPE AND THERE MAY ALSO BE CONTROL MESSAGES (AKS, NAKS,....) BEING TRANSMITTED. BECAUSE OF THIS PLEASE BEWARE IF IF YOU ARE SCOPING DATA.

2.0 OPERATING INSTRUCTIONS

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

2.1 COMMANDS

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

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

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

2.2 SWITCHES

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

SWITCH	EFFECT
/TESTS:LIST	EXECUTE ONLY THOSE TESTS SPECIFIED IN THE LIST. LIST IS A STRING OF TEST NUMBERS, FOR EXAMPLE - /TESTS:1:5:7-10. THIS LIST WILL CAUSE TESTS 1,5,7,8,9,10 TO BE RUN. ALL OTHER TESTS WILL NOT BE RUN.
/PASS:DDDDD	EXECUTE DDDDD PASSES (DDDDD = 1 TO 64000)
/FLAGS:FLGS	SET SPECIFIED FLAGS. FLAGS ARE DESCRIBED IN SECTION 2.3.
/EOP:DDDDD	REPORT END OF PASS MESSAGE AFTER EVERY DDDDD PASSES ONLY. (DDDDD = 1 TO 64000)
/UNITS:LIST	TEST/ADD/DROP ONLY THOSE UNITS SPECIFIED IN THE LIST. LIST EXAMPLE - /UNITS:0:5:10-12 USE UNITS 0,5,10,11,12 (UNIT NUMBERS = 0-63)

EXAMPLE OF SWITCH USAGE:

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

THE EFFECT OF THIS COMMAND WILL BE: 1) TESTS 1 THROUGH 5 WILL BE EXECUTED, 2) ALL UNITS WILL TESTED 1000 TIMES AND 3) THE END OF PASS MESSAGES WILL BE PRINTED AFTER EACH 100 PASSES ONLY. A SWITCH CAN BE RECOGNIZED BY THE FIRST THREE CHARACTERS. YOU MAY, FOR EXAMPLE, TYPE "/TES:1-5" INSTEAD OF "/TESTS:1-5".

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

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

2.3 FLAGS

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

FLAG	EFFECT
HOE	HALT ON ERROR - CONTROL IS RETURNED TO RUNTIME SERVICES COMMAND MODE
LOE	LOOP ON ERROR
IER*	INHIBIT ALL ERROR REPORTS
IBE*	INHIBIT ALL ERROR REPORTS EXCEPT FIRST LEVEL (FIRST LEVEL CONTAINS ERROR TYPE, NUMBER, PC, TEST AND UNIT)
IXE*	INHIBIT EXTENDED ERROR REPORTS (THOSE CALLED BY PRINTX MACRO'S)
PRI	DIRECT MESSAGES TO LINE PRINTER
PNT	PRINT TEST NUMBER AS TEST EXECUTES
BOE	"BELL" ON ERROR
UAM	UNATTENDED MODE (NO MANUAL INTERVENTION)
ISR	INHIBIT STATISTICAL REPORTS (DOES NOT APPLY TO DIAGNOSTICS WHICH DO NOT SUPPORT STATISTICAL REPORTING)

IDR	INHIBIT PROGRAM DROPPING OF UNITS
ADR	EXECUTE AUTODROP CODE
LOT	LOOP ON TEST
EVL	EXECUTE EVALUATION (ON DIAGNOSTICS WHICH HAVE EVALUATION SUPPORT)

*ERROR MESSAGES ARE DESCRIBED IN SECTION 3.1

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

```
/FLAGS:LOE:IER:BOE
```

2.4 HARDWARE QUESTIONS

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

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

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

UNIT 0
FULL DUPLEX OPERATION :  (L) Y ?
DMR,DMC-11 CSR ADDRESS : (O)  160170 ?
INTERRUPT VECTOR ADDRESS:  (O)  300  ?
INTERRUPT PRIORITY : (O)   5  ?
DEVICE OPTION TYPE : (O=DMC, 5=DMR-DMC MODE ,7=DMR) (O)  0 ?
```

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.

MESSAGE COMMANDS AVAILABLE:

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 PUTS DEFAULT ITEP MSG IN SO NOT REALLY EMPTY
CLEAR	TRANSMITLIST	ZEROES TRANSMITLIST (000'S) AND THEN PUTS DEFAULT ITEP MSG IN SO NOT REALLY EMPTY
HELP ?		TYPES HELP INFO FOR OPERATOR
SET	EXPECTMSG=TYPE/QUAL	DEFINE A MESSAGE TO BE PUT ON THE EXPECTED LIST
	WHERE: ''TYPE'' IS: =ONES =ZEROES =1ALT =0ALT =ITEP =CCITT =ALPHA =''A-Z,0-9,SPACES OR TABS IN QUOTES''	

K 1

SEQ 0010

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	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
PRINT		PRINTS THE EVENT LOG AFTER ASKING THE OPERATOR IF HE WANTS THE DMR/DMC-11 BASE TABLE PRINTED
DUMP	SSSSSS-EEEEEE/B	PRINTS THE CONTENTS OF THE MEMORY LOCATIONS BETWEEN OCTAL ADDRESSES ''SSSSSS'' AND ''EEEEEE'' WHERE ''SSSSSS'' IS THE START ADDRESS AND ''-EEEEE'' IS THE END ADDRESS.

WHERE ''/B'' IS OPTIONAL:
DEFAULT IS PRINT WORDS
''/B'' CAUSES PRINT BYTES

IF ''-EEEEEE'' IS NOT SPECIFIED THEN THE CONTENTS OF ''SSSSSS'' IS PRINTED IN WORD FORMAT.

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

2.5.2 RUN COMMAND

COMMAND	DESCRIPTION

SEQ 0011

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 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.

/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. (IGNORED IN MODES OTHER THAN PASSIVE)

/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
- =CABLE
- =LOCALMODEM (DMR IN DMR MODE AND RS449 MODEMS ONLY. CAUSES A 'WRITE MODEM'' TO BE DONE TO SET UP LOCAL-LOOPBACK (MAINT1) . ALSO CALLED ANALOG-LOOPBACK.
- =REMOTEMODEM (DMR IN DMR MODE AND RS449 MODEMS ONLY. CAUSES A 'WRITE MODEM'' TO BE DONE TO SET UP REMOTE-LOOPBACK (MAINT2) . ALSO CALLED DIGITAL-LOOPBACK.

SEQ 0012

/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''

2.5.3 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/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/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 MOD=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

COMMAND LINE INTERPRETER ERRORS:

ERROR MESSAGE:	MEANING
?ILL CMD-BAD SYNTX?	A COMMAND WITH AN ILLEGAL CHAR WAS TYPED - RETYPE THE COMMAND. THE VALID COMMANDS AND THEIR SYNTAX ARE SHOWN IN SECTION 2.5.
?INCMPLTE CMD?	A REQUIRD PART OF A COMMAND WAS LEFT OUT.
?NUM TOO BIG?	THE VALUE OF A NUMERIC STRING IN THE COMMAND LINE WAS LARGER THAN 65535 OR 177777 OCTAL. (> 16 BITS).
?BAD RADIX?	A "8" OR "9" WAS TYPED WHEN AN OCTAL STRING WAS EXPECTED. PROBABLY OCCURRED WHEN TYPING A "DUMP" COMMAND WHERE OCTAL ADDRESSES ARE EXPECTED.

?'LOOP'' VALID ONLY IN ACTIVE? THE ''/LOOP=..'' SWITCH WAS TYPED IN A RUN COMMAND BUT THE MODE WAS NOT SET TO ACTIVE. MAINTENANCE LOOP IS ONLY POSSIBLE IF THE MODE OF OPERATION IS ACTIVE.

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

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

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

DCLT OR DEVICE ERROR MESSAGES:

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.

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 MESSAGE WAS TRUNCATED TO COMPLETELY FILL THE BUFFER. NO MORE MESSAGES CAN BE ADDED TO THAT BUFFER.

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 MISTMATCHES 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 RECEIVE. WAS A DIFFENT LENGTH THEN THE MESSAGE THAT WAS EXPECTED.

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

```
TIME OUT WAITING FOR RDI TO CLEAR
        SEL0    SEL2
        XXXXXX  XXXXXX

      THIS MEANS THAT A SOFTWARE TIMER EXPIRED BEFORE
      THE DEVICE CLEARED RDI IN RESPONSE TO THE DROPPING
      OF RQI.
      NOTE: PROGRAM RESETS TIMER AND WAITS AGAIN
            SO AN EFFECTIVE LOOP ON ERROR IS SETUP.

TIME OUT WAITING FOR RDI TO SET
        SEL0    SEL2
        XXXXXX  XXXXXX

      THIS MEANS THAT A SOFTWARE TIMER EXPIRED BEFORE
      THE DEVICE CAUSED AN INTERRUPT IN RESPONSE TO THE
      PROGRAM SETING RQI.
      NOTE: PROGRAM RESETS TIMER AND WAITS AGAIN
            SO AN EFFECTIVE LOOP ON ERROR IS SETUP.

TIME OUT WAITING FOR RUN TO SET
        SEL0    SEL2
        XXXXXX  XXXXXX

      THIS MEANS THAT A SOFTWARE TIMER EXPIRED BEFORE
      THE DEVICE SET THE RUN BIT IN RESPONSE TO THE
      PROGRAM SETING MASTER CLEAR.
      NOTE: PROGRAM RESETS TIMER AND ISSUES ANOTHER
            MASTER CLEAR AND WAITS AGAIN SO AN EFFECITVE
            LOOP ON ERROR IS SETUP.
            THIS ERROR COULD INDICATE WRONG ADDRESS FOR
            DMR/DMC-11 WAS GIVEN IN HARDWARE P TABLE.

TIME OUT WAITING FOR OUTPUT INTERRUPT
        SEL0    SEL2
        XXXXXX  XXXXXX

      THIS MEANS THAT A SOFTWARE TIMER EXPIRED BEFORE
      THE DEVICE SET OUTPUT INTERRUPT IN RESPONSE TO
      PROGRAM REQUESTING DEVICE TO TRANSMIT OR RECIEVE.
      NOTE: PROGRAM RESETS TIMER AND WAITS AGAIN SO AN
            EFFECTIVE LOOP ON ERROR IS SET UP.
            THIS ERROR WILL OCCUR WHEN ONE NODE IS STARTED
            IN RX OR TX MODE AND THE OTHER IS STILL BEING
            SET UP. IGNORE THIS ERROR IF PROGRAM CONTINUES
            WITHOUT FURTHER ERRORS.

INPUT INTERRUPT WHEN EXPECTING OUTPUT
        SEL0    SEL2
        XXXXXX  XXXXXX

      THIS WILL HAPPEN IF THE DEVICE IS BAD. IT MEANS
      THAT AFTER THE PROGRAM HAS ISSUED ALL INPUT REQUESTS
      TO THE DEVICE, THE DEVICE ISSUES AN INPUT INTERRUPT
```

ILLEGAL OUTPUT INTERRUPT
SEL2 SEL6
XXXXXX XXXXXX

THIS HAPPENS WHEN THE DEVICE ISSUES AN OUTPUT INTERRUPT WITHOUT SETTING 'RDO'. IF THIS HAPPENS THE DEVICE IS BAD.

CONTROL OUT INSTEAD OF BA-CC OUT
SEL2 SEL6
XXXXXX XXXXXX MMMMMM

WHERE 'MMMMM' IS ONE OF THE FOLLOWING MESSAGES THAT RESULT FROM INTERPRETING THE REGISTER CONTENTS FOR YOU:

PROCEDURE ERROR/HALT
NON EXIST MEM
DDCMP START REC
DISCONNECT
LOST DATA
DDCMP MAINT REC
OVERRUN
TIME OUT
DATA CHECK
RUN SET ILLEAGLLY (DMR IN DMR-MODE ONLY)
CD GLITCHED (DMR IN DMR-MODE ONLY)
RX IDLE (DMR IN DMR-MODE ONLY)
CTS FALILED (DMR IN DMR-MODE ONLY)

THIS ERROR OCCURS WHEN THE DEVICE SETS CONTROL OUT TO INDICATE ERROR CONTIDION. THE PROGRAM EXPECTS A BACC OUT.

TX BUFF COMPLETED AND SHOULD BE RX
SEL4 SEL6
XXXXXX XXXXXX

THIS ERROR OCCURS WHEN THE THE DEVICE HAS A BACC OUT WITH TX COMPLETED AND THE PROGRAM WAS EXPECTING A RX COMPLETED.

RX BUFF COMPLETED AND SHOULD BE TX
SEL4 SEL6
XXXXXX XXXXXX

THIS ERROR OCCURS WHEN THE THE DEVICE HAS A BACC OUT WITH RX COMPLETED AND THE PROGRAM WAS EXPECTING A TX COMPLETED.

WHERE 'XXXXX' IS THE OCTAL CONTENTS OF THAT DEVICE REGISTER.

DOWN LINE LOAD ABORTED

THIS ERROR CAN ONLY OCCUR IN A NODE THAT

IS A DLL 'HOST'' WHEN IT HAPPENS IT ALSO
PRINTS ONE OF THE FOLLWING QUALIFERS:

TX NOT COMPLETE
HOST DEVICE DID NOT GIVE BACC OUT TX
THIS SHOULD NOT HAPPEN BECAUSE DEVICE
DOES NOT NEED AN ACK FOR MAINT MESGS.

RX NOT COMPLETE
HOST DEVICE DID NOT GIVE BACC OUT RX
THIS CAN HAPPEN IF SATELLITE DOES NOT
SEND THE SEC BOOT REQUEST MESSAGE.

SEC REQ WORD1
HOST RECIEVED A MESSAGE FROM SATELLITE
BUT MESSAGE WAS NOT 1ST WORD OF SEC BOOT REQ.

SEC REQ WORD2
HOST RECIEVED A MESSAGE FROM SATELLITE
BUT MESSAGE WAS NOT 2ND WORD OF SEC BOOT REQ.

CALLED FROM PC. XXXXXX

THIS MESSAGE OCCURS WITH OTHER ERROR MESAGES
TO INDICATE PC OF CALLING ROUTINE.

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'' IS REPORTED WHEN '' X NUMBER OF DCLT PASSES'' ARE 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 'N'' 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 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 AVALIABLE 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'' 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 1ST BYTE OF MESSAGE,
        TOTAL NO. OF BYTES, MODEM STATUS AT THAT TIME.
TRANSMIT MESSAGE COMPLETED:
        EVENT TIME, ADDRESS OF 1ST BYTE OF MESSAGE,
        TOTAL NO. OF BYTES, MODEM STATUS AT THAT TIME.
RECEIVE SPACE QUEUED:
        EVENT TIME, ADDRESS OF 1ST BYTE OF MESSAGE,
        TOTAL NO. OF BYTES, MODEM STATUS AT THAT TIME.
RECEIVE MESSAGE COMPLETED:
        EVENT TIME, ADDRESS OF 1ST BYTE OF MESSAGE,
        TOTAL NO. OF BYTES, MODEM STATUS AT THAT TIME.
DATA COMPARISON STARTED:
        EVENT TIME, 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 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 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, NO. OF "NOBUFF'S"(NO. OF CONTROL-OUTS WITH THE NO-BUFFER SET SINCE THE LAST "DCLT RUN" COMMAND.)

NOTE: IF THE NODES ON THE LINK ARE SIMILAR WITH RESPECT TO CONSOLE SPEED AND SETUP, THE NUMBER OF "NOBUFFS" SHOULD BE NEAR ZERO.

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 TRANSMITING 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
MSC	ABNORMAL MODEM STATUS CHANGE
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

4.3 PRINTING OF DMR/DMC-11 BASE TABLE

WHEN THE "PRINT" COMMAND IS GIVEN, BEFORE THE EVENT LOG IS PRINTED, THE DCLT DMR/DMC-11 DCLT PROGRAM ASKS IF YOU WISH TO HAVE THE CONTENTS OF THE DEVICE'S BASE TABLE PRINTED:

BASE TABLE (L) N ?

IF A "Y" IS TYPED AS AN ANSWER, THE 256. BYTES OF BASE TABLE WILL BE PRINTED IN THE FOLLOWING FORMAT:

```
017370:   000   001   002   003   004   005   006   007
017400:   010   011   012   013   014   015   016   017
```

SEQ 0022

```
                    ;;    ;;    ;;    ;;    ;;    ;;    ;;    ;;    ;;
                    ;;    ;;    ;;    ;;    ;;    ;;    ;;    ;;    ;;
                017760:  370   371   372   373   374   375   376   377
```

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] SPARE
.WORD   0               ;[12] OPTION TYPE(0=DMC,5=DMR-DMC MODE,7=DMR)
```

6.0 MODE AND MESSAGE DESCRIPTIONS

6.1 MODE DESCRIPTIONS

TRANSMIT MODE

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

RECEIVE MODE

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.

PASSIVE MODE

THEN 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.

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.

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

DOWN-LINE-LOAD

THE 'HOST' OR ORIGINATING STATION REQUESTS THE 'SATELLITE' OR
BOOT STATION 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
M9301-YJ/M9312 STARTING AT LOC. 0. THIS IMAGE DATA WILL CONTAIN A
CODE THAT PRINTS A MESSAGE SAYING DOWN-LINE-LOAD WAS SUCESSFUL.
THE BOOTING PROCESS OVERWRITES PART OF THE 'VECTOR' AREA SO THE DCLT
PROGRAM MUST BE RELOADED IN THE 'SATELLITE' SYSTEM.

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 SWTICHED

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'.

MAINTENANCE 'LOOP' MODES

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

INTERNALTTL	THE "LU LOOP" BIT IS SET SO THAT THE UNIT'S SERIAL LINE OUT IS LOOPED BACK TO THE SERIAL LINE IN AT THE TTL LEVEL BEFORE LEVEL CONVERSION.
CABLE	NOT USED BY DMR OR DMC-11 CODE.
LOCALMODEM	FOR DMR-11 IN DMR MODE AND RS449 MODEMS ONLY. CAUSES A "WRITE MODEM" TO BE DONE TO SET UP LOCAL-LOOPBACK (MAINT1) . ALSO CALLED ANALOG-LOOPBACK.
REMOTEMODEM	FOR DMR-11 IN DMR MODE AND RS449 MODEMS ONLY. CAUSES A "WRITE MODEM" TO BE DONE TO SET UP REMOTE-LOOPBACK (MAINT2) . ALSO CALLED DIGITAL-LOOPBACK.

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	"/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
		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

SEQ 0026

```
                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/[\]^_%)

                ''A-Z,0-9,SPACES,TABS''         THESE ARE THAT THE CHARACTERS THAT CAN
                                                BE TYPED BETWEEN QUOTATION MARKS (''..'')
                                                TO SPECIFIY A UNIQUE MESSAGE.
                                                (CALLED AN OPERATOR SPECIFIED MESSAGE.)
```

6.3 INTERFACING TO AN ''ITEP'' NODE

WHEN DCLT IS USED TO INTERFACE TO AN ITEP NODE.
THE TABLE BELOW APPLIES:

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 INCORPERATED PATCH FROM DEPO# MD-11-DZDMO-A1

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

6.4 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.

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.

A POSSIBLE COMMMAND SEQUENCE IS:

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

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

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

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

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.
POSSIBLE COMMAND SEQUENCE IS:

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

2.) TRANSMIT ON ONE NODE RECEIVE ON THE OTHER

NOW TRY TRANSMIITING 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:

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

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

R M=TR/PAS=3	R M=R/CH/PAS=3

NOW RUN THRU THE SEQUENCE AGAIN WITH NODE A RECEIVING
AND NODE B RECEIVING.

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:

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
R M=ACT/NOCH/PAS=3	R M=P/NOCH/PAS=3

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.

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.

NODE A	NODE B
C E	C E
C T	C T
SE T=0ALT/S=10	SE E=0ALT/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

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.

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.

R M=LIS/NOST	R M=TA/NOST

LIS> TLK>

&

```
                                .SBTTL  PROGRAM HEADER

002000                                  BGNMOD



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

002000                                  POINTER BGNRPT,BGNAU,BGNDU


002000                                  HEADER  CZCLK,A,0,1800.,0
002000
002000  103                                                             L$NAME::
002001  132                                                                     .ASCII /C/
002002  103                                                                     .ASCII /Z/
002003  114                                                                     .ASCII /C/
002004  113                                                                     .ASCII /L/
002005  000                                                                     .ASCII /K/
002006  000                                                                     .BYTE   0
002007  000                                                                     .BYTE   0
002010                                                                          .BYTE   0
002010  101                                                             L$REV::
002011                                                                          .ASCII  /A/
002011  060                                                             L$DEPO::
002012                                                                          .ASCII  /0/
002012  000000                                                          L$UNIT::
002014                                                                          .WORD   0
002014  003410                                                          L$TIML::
002016                                                                          .WORD   1800.
002016  035764                                                          L$HPCP::
002020                                                                          .WORD   L$HARD
002020  000000                                                          L$SPCP::
002022                                                                          .WORD   0
002022  002130                                                          L$HPTP::
002024                                                                          .WORD   L$HW
002024  000000                                                          L$SPTP::
002026                                                                          .WORD   0
002026  036346                                                          L$LADP::
002030                                                                          .WORD   L$LAST
002030  000000                                                          L$STA::
002032                                                                          .WORD   0
002032  000000                                                          L$CO::
002034                                                                          .WORD   0
002034  000000                                                          L$DTYP::
002036                                                                          .WORD   0
002036  000000                                                          L$APT::
002040                                                                          .WORD   0
002040  002124                                                          L$DTP::
                                                                                .WORD   L$DISPATCH
```

```
1457  002042
1458  002042  000000
1459  002044
1460  002044  000000
1461  002046
1462  002046  000000
1463  002050
1464  002050      003
1465  002051      003
1466  002052
1467  002052  000000
1468  002054  000000
1469  002056
1470  002056  000000
1471  002060
1472  002060  012026
1473  002062
1474  002062  024364
1475  002064
1476  002064  000000
1477  002066
1478  002066  000000
1479  002070
1480  002070  025316
1481  002072
1482  002072  025310
1483  002074
1484  002074  000000
1485  002076
1486  002076  012042
1487  002100
1488  002100  104035
1489  002102
1490  002102  000000
1491  002104
1492  002104  024400
1493  002106
1494  002106  025266
1495  002110
1496  002110  025264
1497  002112
1498  002112  024372
1499  002114
1500  002114  000000
1501  002116
1502  002116  000000
1503  002120
1504  002120  000000
1505
1506
```

```
L$PRIO::
        .WORD   0
L$ENVI::
        .WORD   0
L$EXP1::
        .WORD   0
L$MREV::
        .BYTE   C$REVISION
        .BYTE   C$EDIT
L$EF::
        .WORD   0
        .WORD   0
L$SPC::
        .WORD   0
L$DEVP::
        .WORD   L$DVTYP
L$REPP::
        .WORD   L$RPT
L$EXP4::
        .WORD   0
L$EXP5::
        .WORD   0
L$AUT::
        .WORD   L$AU
L$DUT::
        .WORD   L$DU
L$LUN::
        .WORD   0
L$DESP::
        .WORD   L$DESC
L$LOAD::
        EMT     E$LOAD
L$ETP::
        .WORD   0
L$ICP::
        .WORD   L$INIT
L$CCP::
        .WORD   L$CLEAN
L$ACP::
        .WORD   L$AUTO
L$PRT::
        .WORD   L$PROT
L$TEST::
        .WORD   0
L$DLY::
        .WORD   0
L$HIME::
        .WORD   0
```

```
                                .SBTTL  DISPATCH TABLE

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

                                        DISPATCH 1
002122  000001                                                         .WORD   1
002124                                                          L$DISPATCH::
002124  025324                                                          .WORD   T1
```

```
                                .SBTTL  DEFAULT HARDWARE P-TABLE

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

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


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

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


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

002132  160170                          .WORD   160170          ;[2] CSR ADDRESS
002134  000300                          .WORD   300             ;[4] INTERRUPT VECTOR
002136  000240                          .WORD   240             ;[6] INTERRUPT PRIORITY (5)
002140  000000                          .WORD   0               ;[10] DEVICE PARAMETERS WORD
                                                                ;   (ENABLE CRC, STRIP SYNC, COMPATIBLE MODE...)
002142  000000                          .WORD   0               ;[12] DEVICE OPTION TYPE(0=DMC,5=DMR-DMC MODE,
                                                                ; 7=DMR.
002144  000004                          .WORD   4               ;[14] BAUD RATE (0=2.4K, 1=4.8K, 2=9.6K, 3= 19.2K,
                                                                ; 4=56K, 5=250K, 6=500K, 7=1 MEGA-BAUD)
002146  000000                          .WORD   0               ;[16] LINE INTERFACE (422, V.35, INT, EIA...)


002150                          ENDHW
002150                                                                  L10000:
```

```
                                .SBTTL  GLOBAL EQUATES SECTION



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

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

```
1617                                    ;
1618                                    ; PRIORITY LEVEL DEFINITIONS
1619                                    ;
1620            000340                  PRI07== 340
1621            000300                  PRI06== 300
1622            000240                  PRI05== 240
1623            000200                  PRI04== 200
1624            000140                  PRI03== 140
1625            000100                  PRI02== 100
1626            000040                  PRI01== 40
1627            000000                  PRI00== 0
1628                                    ;
1629                                    ;OPERATOR FLAG BITS
1630                                    ;
1631            000004                  EVL==         4
1632            000010                  LOT==        10
1633            000020                  ADR==        20
1634            000040                  IDU==        40
1635            000100                  ISR==       100
1636            000200                  UAM==       200
1637            000400                  BOE==       400
1638            001000                  PNT==      1000
1639            002000                  PRI==      2000
1640            004000                  IXE==      4000
1641            010000                  IBE==     10000
1642            020000                  IER==     20000
1643            040000                  LOE==     40000
1644            100000                  HOE==    100000
1645
```

```
                        ;***** 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.
                        
                        ;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
000020                          CRCB=   BIT4            ;CRC CALCUALTE ASKED FOR
000040                          PROTOB= BIT5            ;PROTOCOL PROCESSING ASKED FOR
                        
                        ;OPTION TYPE EQUATES
                        
000000                          DMC=    0               ;DMC
000004                          DMRC6=  4               ;8206 DMR IN DMC MODE
000005                          DMRC7=  5               ;8207 DMR IN DMC MODE
000006                          DMR6=   6               ;8206 DMR IN DMR MODE
000007                          DMR7=   7               ;8207 DMR IN DMR MODE
                        
                        ;EVENT LOG MESSAGE TYPES (USED TO LOCATE EVENT DESCRIPTION IN EVENT TABLE
                        ;  AND DISPATCHING TO SEPERATE 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
```

```
1702            000014                  DCK=    14              ;DATA COMPARISON RESULTS
1703
1704            000020                  DLE=    20              ;DATA COMPARISON LENGH ERROR
1705            000022                  DDE=    22              ;DATA COMPARISON DATA ERROR
1706            000024                  EOP=    24              ;END OF PASS
1707
1708                                ;;;;EQUATES FOR FLAG WORD;;;;;;
1709
1710            000001                  ININT= 1                ;INPUT INT. REC.
1711            000002                  OTINT= 2                ;OUTPUT INT REC
1712            000004                  QRX=   4                ;RX QUED /COMPL
1713            000010                  QTX=    10              ;TX QUED/COMPL
1714            000020                  CTX=    20              ;TX COMPL AND IN TXSEL4 AND TSEL6
1715            000040                  CRX=    40              ;RX COMPL AND IN TSEL4 AND TSEL6
1716            000100                  ERX=    100             ;EXPECT TO GET A RX COMPLED
1717            000200                  ETX=    200             ;EXPECT TO GET A TX COMPLETED
1718            000400                  DLLGA=  400             ;DOWN LINE LOAD GO AHEAD BIT
1719            001000                  DMRRUN= 1000            ;DMR RUN MODE EXPECTED
1720
1721                                ; SPECIAL CLI CODES FOR "CHAR" ARGUMENT IN CLI CALLS
1722                                ;  (COMMAND LINE INTERPRETER DEFINITIONS)
1723            000000                  CLIERR= 0
1724            000001                  CLIEXI= 1
1725            000002                  CLIBR=  2
1726            000003                  CLIBIF= 3
1727            000004                  CLISPA= 4
1728            000005                  CLINUM= 5
1729            000006                  CLIALP= 6
1730            000007                  CLIALN= 7
1731            000010                  CLIOCT= 8.
1732            000011                  CLIDEC= 9.
1733            000012                  CLISTR= 10.
1734
1735                                ; DEFS FOR COMMAND LINE INTERPRETATION ACTION VALUES
1736            000000                  NULL=0
1737            000001                  CLEAR=1
1738            000002                  SHOW=2
1739            000003                  CHECK=3
1740            000004                  RUN=4
1741            000005                  HLP=5
1742            000006                  CSHEXP=6
1743            000007                  CSHTRN=7
1744            000010                  SETEXP=10
1745            000011                  SETTRN=11
1746            000012                  SIZE=12
1747            000013                  QCOPY=13
1748            000014                  NUM=14
1749            000015                  OPRMSG=15
1750            000016                  STATUS=16
1751            000017                  ENDQO=17
1752            000020                  CMSG0=20
1753            000021                  CMSG1=21
1754            000022                  CMSG2=22
1755            000023                  CMSG3=23
1756            000024                  CMSG4=24
1757            000025                  CMSG5=25
```

```
1758            000026                          CMSG6=26
1759            000027                          ATVMOD=27
1760            000030                          PASMOD=30
1761            000031                          RECMOD=31
1762            000032                          LISMOD=32
1763            000033                          DLLMOD=33
1764            000034                          TRAMOD=34
1765            000035                          TALMOD=35
1766            000036                          NO=36
1767            000037                          ECHO=37
1768            000040                          CRC=40
1769            000041                          PROTO=41
1770            000042                          PASC=42
1771            000043                          MOP=43
1772            000044                          TTLLOP=44
1773            000045                          CBLLOP=45
1774            000046                          LMDLOP=46
1775            000047                          RMDLOP=47
1776            000050                          NOTNUF=50
1777            000051                          BADCHR=51
1778            000052                          DMPS=52
1779            000053                          DMPE=53
1780            000054                          DMPQ=54
1781            000055                          PRNT=55
1782
1783
1784                                    ;***** DEVICE DEPENDENT EQUATES
1785                                    ; MODEM SIGNAL BIT DEFINITONS
1786                                    ;       IF SIGNAL AVAILABLE IN DEVICE, EQUATE NAME TO BIT POSITION,
1787                                    ;       ELSE EQUATE IT TO = 0
1788
1789            000004                          CTS=    BIT2            ;CLEAR TO SEND (CIRCUIT CB)
1790            000010                          DSR=    BIT3            ;DATA SET READY (CIRCUIT CC)
1791            000001                          DCD=    BIT0            ;DATA CARRIER DETECT (CIRCUIT CF)
1792            000040                          RTS=    BIT5            ;REQUEST TO SEND (CIRCUIT CA)
1793            000200                          RI=     BIT7            ;RING INDICATOR (CIRCUIT CE)
1794            040000                          SQD=    BIT14           ;SIGNAL QUALITY DETECT (CIRCUIT CG)
1795            001000                          TM      BIT9            ;MODEM IN TEST MODE (RS 449 ONLY CIRCUIT TM)
1796
1797
1798
1799                                    ; DEVICE SIGNALS
1800            000040                          RQI=    BIT5            ;REQUEST IN
1801            000200                          RDI=    BIT7            ;READY IN
1802            000200                          RDO=    BIT7
1803            000001                          BACC=   BIT0            ;BUFFER ADDR. CHAR COUNT
1804            040000                          MCLR=   BIT14           ;MASTER CLEAR
1805            004000                          LULOOP= BIT11           ;LINE UNIT LOOP(TTL)
1806            000400                          MAINTB= BIT8            ;MAINT MODE BIT
1807            002000                          HALFDB= BIT10           ;HALF DUPLEX BIT
1808            000004                          RXBIT=  BIT2            ;RX BIT
1809            000100                          IEO=    BIT6            ;ENABLE OUTPUT INTERRUPT BIT
1810
```

```
                                        .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                          MSGOC:  .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  000206                          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
```

```
 1867  002320  166632  016741
 1868  002324                          EMSG4:
 1869  002324                          MSG5:                           ;''INTERPROCESSOR TEST PROGRAM'S (ITEP)'' MESSAGE
 1870                                                                  ; #1, (DP1:)
 1871  002324  077577  040444  052040          .ASCII  <177><177>/$A THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG./
 1872  002332  042510  050440  044525
 1873  002340  045503  041040  047522
 1874  002346  047127  043040  054117
 1875  002354  045040  046525  042520
 1876  002362  020104  053117  051105
 1877  002370  052040  042510  046040
 1878  002376  055101  020131  047504
 1879  002404  027107
 1880  002406  005015  077401  077577          .ASCIZ  <15><12><001><177><177><177><177>
 1881  002414  000177
 1882  002416                          EMSG5:
 1883  002416                          MSG6:                           ;ALPHA-NUMERICS (OR FUTURE COMM TURNAROUND MSG)
 1884  002416  022043  021041  023040          .ASCII  /#$!'' &'()*+,-.0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ/
 1885  002424  024047  025051  026053
 1886  002432  027055  030460  031462
 1887  002440  032464  033466  034470
 1888  002446  035472  036474  037476
 1889  002454  040500  041502  042504
 1890  002462  043506  044510  045512
 1891  002470  046514  047516  050520
 1892  002476  051522  052524  053526
 1893  002504  054530     132
 1894  002507     057  056133  057135          .ASCIZ  ?/[\]^_%?
 1895  002514  022537     000
 1896  002517                          EMSG6:
 1897          002520                          .EVEN
 1898
 1899                                  ; ***************************************************************************
 1900                                  ;THESE THREE STORAGE AREAS MUST NOT BE SEPERATED !!!!
 1901
 1902  002520  047045  040445         OPBFPT: .ASCII  /%N%A/
 1903  002524  000122                  OPBUF:  .BLKB   82.              ;BUFFER FOR OPERATOR SPEC'D MESSAGES
 1904  002646                          OPEND:
 1905
 1906                                  ; THE ABOVE THREE LINES MUST BE KEPT TOGETHER
 1907                                  ; ***************************************************************************
 1908
 1909  002646     033                  MSG8:   .BYTE   33              ;RECEIVE BUFFER FILL PATTERN
 1910  002647                          EMSG8:
 1911
 1912                                  ; DOWN-LINE-LOAD MESSAGE DEFINITIONS
 1913
 1914  002647     006                  DLLM1:  .BYTE   6
 1915  002650     000                          .BYTE   0
 1916  002651     000                          .BYTE   0
 1917  002652     000                          .BYTE   0
 1918  002653     000                          .BYTE   0
 1919  002654                          DLLM1E:
 1920  002654     000                  DLLM2:  .BYTE   0       ;CODE
 1921  002655     000                          .BYTE   0       ;LOAD NUMBER
 1922  002656     006                          .BYTE   6       ;LOAD ADDRESS LSB
```

```
1923  002657  000                     .BYTE   0
1924  002660  006                     .BYTE   6
1925  002661  000                     .BYTE   0       ;LOAD ADDRESS
1926                          ;
1927                          ;IMAGE DATA
1928                          ;
1929  002662  005037  000006          CLR     @#6
1930  002666  000005                  RESET
1931  002670  012706  001000          MOV     #1000,SP
1932  002674  012701  177560          MOV     #177560,R1      ;SET UP TTY
1933  002700  010700                  MOV     PC,R0           ;MAKE ADDR.PIC
1934  002702  062700  000034          ADD     #<MSG-.>,R0     ;ADDRESS MSG.
1935  002706  105761  000004  1$:     TSTB    4(R1)           ;TTY READY?
1936  002712  100375                  BPL     1$              ;WAIT TIL YES
1937  002714  112061  000006          MOVB    (R0)+,6(R1)     ;TYPE A CHAR
1938  002720  001372                  BNE     1$              ;KEEP GOING
1939  002722  012737  000026  000024  MOV     #26,@#24        ;SET UP POWER FAIL
1940  002730  005037  000026          CLR     @#26            ;MAKE SURE T BIT CLAER
1941  002734  000777                  BR      .               ;JUMP ON YOURSELF
1942  002736  006412  047502  052117  MSG:    .ASCII  <12><15>/BOOT MESSAGE WAS RECEIVED SUCCESSFULLY -END OF TEST!!/
1943  002744  046440  051505  040523
1944  002752  042507  053440  051501
1945  002760  051040  041505  044505
1946  002766  042526  020104  052523
1947  002774  041503  051505  043123
1948  003002  046125  054514  026440
1949  003010  047105  020104  043117
1950  003016  052040  051505  020524
1951  003024     041
1952  003025     012  027015  027056          .ASCIZ  <12><15>/....RELOAD PROGRAM..../
1953  003032  051056  046105  040517
1954  003040  020104  051120  043517
1955  003046  040522  027115  027056
1956  003054  000056
1957  003056     006                          .BYTE   6
1958  003057     000                          .BYTE   0
1959  003060     000                          .BYTE   0
1960  003061     000                          .BYTE   0
1961  003062                       DLLM2E:
1962
1963                                        .EVEN
1964
```

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

003062  000122                  CMDBUF: .BLKB   82.              ;BUFFER FOR OPERATOR COMMANDS
003204  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
003206  000000                  QUALFG: .WORD   0                ;THIS LOC HOLDS QUALIFIER VALUE (SIZE OR COPY)
003210  000000                  QUALVL: .WORD   0
003212  012525                  HLPTAB: .WORD   HLP1
003214  012540                          .WORD   HLP2
003216  012646                          .WORD   HLP3
003220  012733                          .WORD   HLP4
003222  013012                          .WORD   HLP4A
003224  013070                          .WORD   HLP5
003226  013152                          .WORD   HLP6
003230                          HLPEND:
003230  013305  013314  013321  SHTYTB: .WORD   SHTYP0,SHTYP1,SHTYP2,SHTYP3,SHTYP4,SHTYP5,SHTYP6,SHTYP7
003236  013326  013333  013341
003244  013346  013354

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

003250    000     377     252   SHTAB:  .BYTE   0,377,252,125,203,177,043
003253    125     203     177
003256    043
003257                          SHTEND:
        003260                          .EVEN

003260  013365                  MODES:  .WORD   MO0      ;ADDRESSES OF MODE TYPES IN ASCII
003262  013375                          .WORD   MO1
003264  013406                          .WORD   MO2
003266  013416                          .WORD   MO3
003270  013425                          .WORD   MO4
003272  013442                          .WORD   MO5
003274  013447                          .WORD   MO6

003276  013456                  LOOPS:  .WORD   LP0      ;ADDRESSES OF LOOP TYPES IN ASCII
003300  013466                          .WORD   LP1
003302  013477                          .WORD   LP2
003304  013505                          .WORD   LP3
003306  013520                          .WORD   LP4

                                        ;COMMAND LINE TRAVERSE LOCATIONS (USED BY 'PSTRV')

003310  000000                  PSBUFA: .WORD   0                ;LOC. TO HOLD ADDR. OF CMD LINE BUFFER
003312  000000                  PSTREE: .WORD   0                ;LOC. TO HOLD ADDR. OF PARSING TREE
003314  000000                  PSACT:  .WORD   0                ;LOC. TO HOLD ADDR. OF ACTION ROUTINE
003316  000000                  PSCNT:  .WORD   0                ;LOC. TO BE A COUNTER LOCATION
003320  000000                  PSNUM:  .WORD   0                ;LOC. TO HOLD NUMERIC VALUE FROM PARSE
003322  000000                  PSRADX: .WORD   0                ;LOC. TO HOLD RADIX USED(LO) AND +/-(HI BYTE)
003324    000                   PSNNUF: .BYTE   0                ;RETURN =0 IF ENOUGH OF COMMAND FOUND
003325    000                   PSGDBD: .BYTE   0                ;RETURN CODE 0 IF NO ERROR FOUND
```

```
2018                                    .SBTTL          MESSAGE BUFFERS AND POINTER TABLES
2019
2020  003326  001000                    TXBUF:  .BLKB   BUFLIM  ;TRANSMITTER BUFFERS
2021  004326  001000                    RXBUF:  .BLKB   BUFLIM  ;RECEIVER BUFFERS
2022  005326  001000                    CMPBUF: .BLKB   BUFLIM  ;COMPARISON BUFFERS
2023  006326  000264                    PTRTAB: .BLKW   180.    ;TABLE FOR MESSAGE ADDRS. & BYTE COUNTS
2024  007076                            PTREND:                 ; END OF MSG. PTR. TABLE
2025
2026  007076  000000                    RXPTR:  .WORD   0       ;RECEIVER MESSAGE POINTER
2027  007100  000000                    TXPTR:  .WORD   0       ;TRANMITTER BUFFER POINTER
2028  007102  000000                    CMPPTR: .WORD   0       ;COMPARISON BUFFER POINTER
2029  007104  000000                    CMPTOT: .WORD   0       ;CMP MSG TOTAL
2030  007106  000000                    CTOTCC: .WORD   0       ;COMPARE BUFFER CHAR. COUNT
2031  007110  000000                    CCURAD: .WORD   0       ;CURRENT ADDR OF CMP BUFF TO ADD AT
2032
2033  007112  000000                    DVTXA:  .WORD   0       ;DEVICE TX ADDR
2034  007114  000000                    DVTCC:  .WORD   0       ;DEVICE TX CHAR COUNT
2035  007116  000000                    DVTCT:  .WORD   0       ;DEVICE TX MESSAGE COUNT
2036  007120  000000                    TXMTOT: .WORD   0       ;TX MSG TOTAL
2037  007122  000000                    TTOTCC: .WORD   0       ;TX BUFFER CHAR. COUNT
2038  007124  000000                    TCURAD: .WORD   0       ;CURRENT ADDR. OF TX BUFF TO ADD AT
2039
2040  007126  000000                    DVRXA:  .WORD   0       ;DEVICE RX ADDR
2041  007130  000000                    DVRCC:  .WORD   0       ;DEVICE RX CHAR COUNT
2042  007132  000000                    DVRCT:  .WORD   0       ;DEVICE RX MESSAGE COUNT
2043  007134  000000                    RXMTOT: .WORD   0       ;RX MSG TOTAL
2044
2045  007136  000000                    LNCNT:  .WORD   0       ;NUMBER OF OPERATOR AWAKE MSGS
2046  007140  000000                    NOBUF:  .WORD   0       ;NUMBER OF NO BUFFS
2047  007142  000000                    PSCNT:  .WORD   0       ;PASS COUNTER
2048  007144  000000                    ERRCNT: .WORD   0       ;ERROR COUNTER
2049  007146  000000                    STADD:  .WORD   0       ;START ADDR.
2050  007150  000000                    ENADD:  .WORD   0       ;END ADDR. FOR DUMP
2051  007152  000000                    BYTBIT: .WORD   0       ;BYTE BIT FOR DUMP ROUTINE
2052
2053                                    ;OTHER MESSSAGE RELATED STORAGE LOCATIONS
2054
2055  007154  000000                    MSGTYP: .WORD   0       ;TYPE OF DATA 0=0'S,1=1'S,2=10'S,3=01'S
2056                                                            ;4=CCITT,5=QUICK FOX,6=ALPHA/NUM,7=OPER
2057  007156  000000                    CURCC:  .WORD   0       ;TX/RX/CMP CHAR COUNT
2058  007160  000000                    CPTRR:  .WORD   0       ;CURRENT RX POINTER
2059  007162  000000                    CPTR:   .WORD   0       ;CURRENT POINTER
2060  007164  000000                    CURADD: .WORD   0       ;CURRENT TX/RX/CMP START ADDD
2061  007166  000000                    TOTCC:  .WORD   0       ;TOTAL CHAR COUNT NOT MORE THEN 'BUFLIM'
2062  007170  000000                    OFSET:  .WORD   0       ;OFFSET COUNT
2063  007172  000000                    TEMP:   .WORD   0       ;TEMPORARY LOCATIONS (USED A LOT)
2064  007174  000000                    TEMP1:  .WORD   0
2065  007176  000000                    TEMP2:  .WORD   0
2066  007200  000000                    TEMP3:  .WORD   0
2067  007202  000000                    TEMP4:  .WORD   0
2068  007204  000000                    CONOTM: .WORD   0       ;CONTROL OUT ERROR MSG. ADDRESS
2069  007206  000000                    CONTIN: .WORD   0       ;WORD FOR CONTORL IN
2070  007210      000                   GOOD:   .BYTE   0       ;BYTE TO HOLD EXPECTED MESSAGE DATA BYTE FOR ERR REPORT
2071  007211      000                   BAD:    .BYTE   0       ;BYTE TO HOLD RECEIVED MESSAGE DATA BYTE FOR ERR REPORT
2072
```

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2073                                    ;MORE INDEPENDENT CODE STORAGE LOCATIONS
2074
2075  007212  000000                    LOGUNT: .WORD   0       ;LOC. TO HOLD LOGICAL UNIT NUMBER
2076  007214  000000                    PCADD:  .WORD   0       ;LOC. HOLD PC OF CALLIN ROUTINE
2077  007216  000000                    RESFLG: .WORD   0       ;LOC TO HOLD FLAG (-1) THAT A RESTART WAS GIVEN
2078  007220  000000                    MODTYP: .WORD   0       ;DCLT MODE OF OPERATION TYPE
2079                                                            ;  (0=REC-ONLY, 1=TX-ONLY, 2=PASSIVE-LOOPBK,
2080                                                            ;   3=ACTIVE-LOOPBK, 4=DOWN L.L., 5=TALK, 6=LISTEN)
2081  007222  000000                    MLTYP:  .WORD   0       ;MAINTENANCE LOOP TYPE (0=NONE, 1=INTERNAL TTL,
2082                                                            ;  2=CABLE, 3=MODEM-ANALOG LOOPBK (LOCAL),
2083                                                            ;  4=MODEM-DIGITAL LOOPBK (REMOTE), 5=MOP)
2084  007224  000000                    FHDPLX: .WORD   0       ;FULL OR HALF DUPLEX FLAG (1=FULL FROM P-TABLE)
2085  007226  000002                    PARAM:  .WORD   2       ;PROGRAM PARAMETERS
2086                                                            ; BIT0= STATUS MSGS TO OPR PRINTED (1=YES)
2087                                                            ; BIT1= DATA CHECKING DONE ON RCVD MSGS (1=YES)
2088                                                            ; BIT2= ECHO (TRANSMIT) RCV'D MSG.(PASSIVE)(1=YES)
2089                                                            ; BIT3= SPARE
2090                                                            ; BIT4= CRC CALC./CHECK DONE (1=YES)
2091                                                            ; BIT5= PROTOCOL EMULATION (1=YES)
2092                                                            ; BIT6= SPARE
2093  007230  000000                    RPASS:  .WORD   0       ;PASS NUMBER FROM RUN COMMAND
2094  007232  000000                    FLAG:   .WORD   0       ;DEVICE FLAG WORD
2095
2096                                    ;MODE DISPATCH TABLE
2097  007234  031014                    MODE:   .WORD   RXONLY  ;RX ONLY DISPATCH
2098  007236  031046                            .WORD   TXONLY  ;TX ONLY DISPATCH
2099  007240  031106                            .WORD   PLCK    ;PASSIVE LOOP BACK DISP
2100  007242  031142                            .WORD   ALCK    ;ACTIVE LOOP BACK DISP
2101  007244  032262                            .WORD   DLL     ;DOWN LINE LOAD DISP
2102  007246  032750                            .WORD   TALCK   ;TALK MODE DISPATCH
2103  007250  033170                            .WORD   LISCK   ;LISTEN MODE DISPATCH
2104
2105
2106                                    .SBTTL          CLOCK TABLES, EVENT LOG AND POINTERS
2107  007252  000000                    CLKCSR: .WORD   0       ;CLOCK CSR ADDRESS
2108  007254  000000                    CLKBR:  .WORD   0       ;CLOCK INTERRUPT LEVEL
2109  007256  000000                    CLKVEC: .WORD   0       ;CLOCK INTERRUPT VECTOR
2110  007260  000074                    CLKHZ:  .WORD   60.     ;CLOCK'S HERTZ RATE
2111  007262  000000                    CLKEN:  .WORD   0       ;CLOCK'S CSR VALUE TO INTRPT. ENABLE IT
2112
2113  007264  000000                    TIMMIN: .WORD   0       ;PLACE TO KEEP TIME-SINCE-START
2114  007266  000000                    TIMSEC: .WORD   0
2115  007270  000000                    TIMTCK: .WORD   0       ;PLACE TO KEEP # OF TICKS/SEC
2116
2117  007272  000000                    TIMER1: .WORD   0       ;EVENT TIMER #1 (TICKS)
2118  007274  000000                    TIMER2: .WORD   0       ;EVENT TIMER #2 (TICKS)
2119  007276  000000                    TIMER3: .WORD   0       ;EVENT TIMER #3 (SECONDS)
2120
```

```
                                ;EVENT LOG TABLE AND ITS NEXT ENTRY POINTER
007300  007302                  EVTPTR: .WORD   EVTLOG  ;POINTER TO NEXT FREE SPACE IN EVENT LOG
007302  000341                  EVTLOG: .BLKW   225.    ;EVENT LOG BUFFER
010204  000001                  EVTEND: .BLKW   1.      ;APPROXIMATE END OF EVENT TABLE (ALLOWS CIRCULAR QUE)

                                .SBTTL          MODEM DATA SECTION

010206  000000                  MODS:   .WORD   0       ;MODEM STATUS

                                ;TABLE OF MODEM SIGNAL BIT DEFINITIONS

010210  000004                  MOBITS: .WORD   CTS             ;CLEAR TO SEND (CIRCUIT CB)
010212  000010                          .WORD   DSR             ;DATA SET READY (CIRCUIT CC)
010214  000001                          .WORD   DCD             ;DATA CARRIER DETECT (CIRCUIT CF)
010216  000040                          .WORD   RTS             ;REQUEST TO SEND (CIRCUIT CA)
010220  000200                          .WORD   RI              ;RING INDICATOR (CIRCUIT CE)
010222  040000                          .WORD   SQD             ;SIGNAL QUALITY DETECT (CIRCUIT CG)
010224  001000                          .WORD   TM              ;MODEM IN TEST MODE (RS 449 ONLY CIRCUIT TM)
010226                          MOBITE:

                                ;TABLE OF ADDRESSES OF MODEM SIGNAL MESSAGE POSITIONS

010226  016004                  MOMSGS: .WORD   EVMCTS          ;CLEAR TO SEND (CIRCUIT CB)
010230  016010                          .WORD   EVMDSR          ;DATA SET READY (CIRCUIT CC)
010232  016014                          .WORD   EVMDCD          ;DATA CARRIER DETECT (CIRCUIT CF)
010234  016020                          .WORD   EVMRTS          ;REQUEST TO SEND (CIRCUIT CA)
010236  016024                          .WORD   EVMRI           ;RING INDICATOR (CIRCUIT CE)
010240  016030                          .WORD   EVMSQD          ;SIGNAL QUALITY DETECT (CIRCUIT CG)
010242  016034                          .WORD   EVMTM           ;MODEM IN TEST MODE (RS 449 ONLY CIRCUIT TM)

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

010244  014430                  EVTLST: .WORD   EDTXQ   ;TRANSMIT MESSAGE QUEUED
010246  014454                          .WORD   EDTXC   ;TRANSMIT OF MESSAGE COMPLETE
010250  014503                          .WORD   EDRXQ   ;RECEIVE MESSAGE SPACE QUEUED
010252  014530                          .WORD   EDRXC   ;MESSAGE RECEIVED - RECEIVE COMPLETE
010254  014556                          .WORD   EDDER   ;DEVICE INFORMATION
010256  014623                          .WORD   EDDVI   ;DEVICE INITIALIZE STARTED
010260  014573                          .WORD   EDDCK   ;DATA COMPARISON DONE
010262  013456                          .WORD   LPO     ;NULL STRING
010264  014651                          .WORD   EDDLE   ;DATA COMPARE LENGTH ERROR
010266  014706                          .WORD   EDDDE   ;DATA COMPARE DATA ERROR
010270  014741                          .WORD   EDEOP   ;END OF PASS

                                ;LOCATIONS USED DURING EVENT REPORTING

010272  000000                  EVTSEC: .WORD   0       ;TEMPORARY LOCS TO KEEP EVENT TIME WHILE REPORTING
010274  000000                  EVTMIN: .WORD   0
010276  000000                  EVTTCK: .WORD   0
010300  000000                  EVTADD: .WORD   0       ;TEMP. LOC. TO HOLD ADDRESS DURING EVENT REPORTING
010302  000000                  EVTBCT: .WORD   0       ;       ''      ''  BYTE COUNT    ''      ''      ''
010304  000000                  EVTTMP: .WORD   0       ;       ''      ''  OTHER DATA    ''      ''      ''

                                ;REPORT CODING DISPATCH TABLE
```

```
 2177  010306  021702                RPTDSP: .WORD   RPTTXQ  ;TRANSMIT QUEUED ENTRY DECODING
 2178  010310  021702                        .WORD   RPTTXQ  ;TRANSMIT COMPLETE ENTRY DECODING
 2179  010312  021702                        .WORD   RPTTXQ  ;RECEIVER QUEUED ENTRY DECODING
 2180  010314  021702                        .WORD   RPTTXQ  ;RECEIVER COMPLETE ENTRY DECODING
 2181  010316  021754                        .WORD   RPTDER  ;DEVICE ERROR ENTRY DECODING
 2182  010320  022050                        .WORD   RPTDVI  ;DEVICE INIT ENTRY DECODING
 2183  010322  022244                        .WORD   RPTDCK  ;DATA COMPARISON ENTRY DECODING
 2184  010324  021530                        .WORD   RPT     ;PLACE HOLDER
 2185  010326  022244                        .WORD   RPTDLE  ;DATA COMPARISON LENGH ERROR
 2186  010330  022170                        .WORD   RPTDDE  ;DATA COMPARISON DATA ERROR
 2187  010332  022114                        .WORD   RPTEOP  ;END OF PASS
 2188
 2189
 2190  010334  000000                DEV1:   .WORD   0               ;TEMP LOCS TO HOLD DATA FOR EVENT REPORTING
 2191  010336  000000                DEV2:   .WORD   0               ;  AND SHOW MODE,... SUBROUTINE
 2192  010340  000000                DEV3:   .WORD   0
 2193  010342  000000                DEV4:   .WORD   0
 2194
```

```
2195                    .SBTTL          COMMAND LINE ACTION TREE
2196
2197                    ;SAMPLE CLI TREE NODE   (ALWAYS AT LEAST 1 WORD)
2198                    ; ----------------------
2199                    ; ! ACTION  ! CHAR CODE !
2200                    ; ----------------------
2201                    ; !  MISS DISPLACEMENT  !       ONLY IF 'MISS'' ARGUMENT DEFINED
2202                    ; ----------------------
2203                    ; ! NEXT NODE DISPLMNT  !       ONLY IF 'ASCII'' ARGUMENT DEFINED
2204                    ; ----------------------
2205                    ; ! ASCIZ MATCH STRING  !       ONLY IF 'ASCII'' ARGUMENT DEFINED
2206                    ; !             (.EVEN) !
2207                    ; ----------------------
2208
2209
2210  010344            CLITRE:
2211
2212                    ;FIRST KEYWORD
2213  010344                    CLI     CLISPA,0,N10$                   ;SKIP ANY LEADIN SPACES
2214  010350            N10$:   CLI     <'?>,HLP,N42$                   ;IS THE FIRST NON-SP CHAR A '?''
2215  010354                    CLI     CLIEXI,0                        ;  IF YES DO 'HLP'' AND EXIT
2216  010356            N42$:   CLI     CLISTR,HLP,N43$,<'HELP'>        ;ELSE, IS FIRST WORD A 'HELP''
2217  010372                    CLI     CLIEXI,0                        ;  IF YES DO 'HLP'' AND EXIT
2218  010374            N43$:   CLI     CLISTR,PRNT,N45$,<'PRINT'>      ;ELSE, IS FIRST WORD A 'PRINT''
2219  010410                    CLI     CLIEXI,0                        ;  IF YES DO 'PRINT'' AND EXIT
2220  010412            N45$:   CLI     CLISTR,RUN,N46$,<'RUN'>         ;ELSE, IS FIRST WORD A 'RUN'
2221  010424                    CLI     CLIBR,0,N80$                    ;  IF YES DO 'RUN'' & GOTO N80$
2222  010430            N46$:   CLI     CLISTR,NOTNUF,N40$,<'DUMP'>     ;ELSE, IS FIRST WORD A 'DUMP''
2223  010444                    CLI     CLIBR,0,N50$                    ;  IF YES GOTO N80$
2224  010450            N40$:   CLI     CLISTR,CLEAR,N20$,<'CLEAR'>     ;ELSE, IS FIRST WORD A 'CLEAR''
2225  010464                    CLI     CLIBR,NOTNUF,N100$              ;  IF YES DO 'CLR'' & GOTO N100$
2226  010470            N20$:   CLI     <'S>,NOTNUF,N30$                ;ELSE, IS FIRST CHAR. A 'S''
2227  010474                    CLI     CLISTR,SHOW,N25$,<'HOW'>        ;  IF YES IS REST OF WORD 'HOW''
2228  010506                    CLI     CLIBR,0,N100$                   ;    IF YES, DO 'SHOW'',BR N100$
2229  010512            N25$:   CLI     CLISTR,0,N30$,<'ET'>            ;  ELSE, IS REST OF WORD 'ET''
2230  010524                    CLI     CLIBR,0,N110$                   ;    IF YES, DO 'SET'', BR N110$
2231  010530            N30$:   CLI     CLIERR,0                        ;OTHERWISE ''ILL CMD'' - EXIT
2232
2233                    ;SECOND KEYWORD (MODE=) FOR RUN COMMAND
2234
2235  010532            N80$:   CLI     CLISPA,0,N30$                   ;SKIP LEADING SPS, IF NONE-ERR
2236  010536            N81$:   CLI     CLISTR,NOTNUF,N30$,<'MODE'>     ;IS NEXT WORD 'MODE=''
2237  010552                    CLI     <'=>,0,N30$                     ;  IF NO, IT'S WRONG -ERR -EXIT
2238  010556                    CLI     CLISTR,ATVMOD,N82$,<'ACTIVE'>   ;IS NEXT WORD ''ACTIVE''
2239  010574                    CLI     CLIBR,0,N115$                   ;  IF YES, DO ''ACTIVE'',BR N115$
2240  010600            N82$:   CLI     CLISTR,PASMOD,N83$,<'PASSIVE'>  ;IS NEXT WORD ''PASSIVE''
2241  010616                    CLI     CLIBR,0,N115$                   ;  IF YES, DO ''PASSVE'',BR N115$
2242  010622            N83$:   CLI     CLISTR,RECMOD,N84$,<'RECEIVE'>  ;IS NEXT WORD ''RECEIVE''
2243  010640                    CLI     CLIBR,0,N115$                   ;  IF YES, DO ''RECVE'',BR N115$
2244  010644            N84$:   CLI     CLISTR,LISMOD,N85$,<'LISTEN'>   ;IS NEXT WORD ''LISTEN''
2245  010662                    CLI     CLIBR,0,N115$                   ;  IF YES, DO ''LISTEN'',BR N115$
2246  010666            N85$:   CLI     CLISTR,DLLMOD,N86$,<'DOWNLINELOAD'>     ;IS NEXT WORD ''DOW...''
2247  010712                    CLI     CLIBR,0,N115$                   ;  IF YES, DO ''DWNLL'',BR N115$
2248  010716            N86$:   CLI     <'T>,0,N30$                     ;IS NEXT CHAR A ''T''
2249  010722                    CLI     CLISTR,TRAMOD,N87$,<'RANSMIT'>  ;  IS REST OF WORD ''RANSMIT''
2250  010740                    CLI     CLIBR,0,N115$                   ;  IF YES, DO ''TRANSM'',BR N115$
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2251  010744                    N87$:   CLI     CLISTR,TALMOD,N30$,<'ALK'>       ; IS REST OF WORD ''ALK''
2252  010756                            CLI     CLIBR,0,N115$                    ;  IF YES, DO 'TALK'',BR N115$
2253                                                                             ; IF NO, ERROR - EXIT
2254
2255                            ;SECOND KEYWORD (FOR CLEAR OR SHOW)
2256  010762                    N100$:  CLI     CLISPA,0,N30$                    ;SKIP LEADING SPACES, NONE=ERR
2257  010766                    N102$:  CLI     CLISTR,CSHEXP,N104$,<'EXPECTBUFF'>       ;IS NEXT WORD 'EXPE...''
2258  011010                            CLI     CLIEXI,0                         ; IF YES, DO CLR-EXP,EXIT
2259  011012                    N104$:  CLI     CLISTR,CSHTRN,N30$,<'TRANSMITBUFF'>      ;IS NEXT WORD 'TRANS..''
2260  011036                            CLI     CLIEXI,0                         ; IF YES, DO CLR-TRN,EXIT
2261                                                                             ;IF NO - ERROR - EXIT
2262
2263
2264                            ;SECOND KEYWORD (FOR SET)
2265  011040                    N110$:  CLI     CLISPA,0,N30$
2266  011044                    N111$:  CLI     CLISTR,SETEXP,N112$,<'EXPECTMSG'>
2267  011064                            CLI     CLIBR,0,N120$
2268  011070                    N112$:  CLI     CLISTR,SETTRN,N30$,<'TRANSMITMSG'>
2269  011112                            CLI     CLIBR,0,N120$
2270
2271                            ;GET ADDRESSES FOR DUMP COMMAND
2272  011116                    N50$:   CLI     CLIALP,0,N51$
2273  011122                    N51$:   CLI     CLISPA,0,N52$
2274  011126                    N52$:   CLI     CLIOCT,DMPS,N30$
2275  011132                            CLI     <'->,NOTNUF,N125$
2276  011136                            CLI     CLIOCT,DMPE,N30$
2277  011142                            CLI     <'/>,NOTNUF,N125$
2278  011146                            CLI     <'B>,DMPQ,N30$
2279  011152                            CLI     CLIBR,0,N125$
2280
2281                            ;QUALIFIERS FOR THE RUN COMMAND
2282  011156                    N115$:  CLI     CLIALP,0,N114$
2283  011162                    N114$:  CLI     <'/>,NOTNUF,N125$
2284  011166                            CLI     CLISTR,NO,N116$,<'NO'>
2285  011200                    N116$:  CLI     <'C>,0,N117$
2286  011204                            CLI     CLISTR,CHECK,N117$,<'HECK'>
2287  011220                            CLI     CLIBR,0,N115$
2288
2289
2290                            ;N113$: CLI     CLISTR,CRC,N30$,<'RC16'>
2291                            ;       CLI     CLIBR,0,N115$
2292
2293  011224                    N117$:  CLI     CLISTR,STATUS,N118$,<'STATUS'>
2294  011242                            CLI     CLIBR,0,N115$
2295  011246                    N118$:  CLI     CLISTR,ECHO,N130$,<'ECHO'>
2296  011262                            CLI     CLIBR,0,N115$
2297
2298
2299  011266                    N130$:  CLI     CLISTR,0,N131$,<'PASS'>
2300  011302                            CLI     CLIBR,0,N150$
2301  011306                    N131$:  CLI     CLISTR,0,N30$,<'LOOP'>
2302  011322                            CLI     CLIBR,0,N140$
2303
2304                            ;GET MESSAGE TYPE FOR SET MESSAGE COMMANDS
2305  011326                    N120$:  CLI     <'=>,0,N30$
2306
```

```
 2307
 2308  011332                    ;   LOOK FOR DEFAULT MESSAGE NAME
 2309  011346                    N60$:   CLI     CLISTR,CMSG1,N61$,<'ONES'>
 2310  011352                            CLI     CLIBR,0,N121$
 2311  011370                    N61$:   CLI     CLISTR,CMSG0,N62$,<'ZEROES'>
 2312  011374                            CLI     CLIBR,0,N121$
 2313  011410                    N62$:   CLI     CLISTR,CMSG2,N63$,<'1ALT'>
 2314  011414                            CLI     CLIBR,0,N121$
 2315  011430                    N63$:   CLI     CLISTR,CMSG3,N64$,<'0ALT'>
 2316  011434                            CLI     CLIBR,0,N121$
 2317  011450                    N64$:   CLI     CLISTR,CMSG5,N65$,<'ITEP'>
 2318  011454                            CLI     CLIBR,0,N121$
 2319  011470                    N65$:   CLI     CLISTR,CMSG4,N66$,<'CCITT'>
 2320  011474                            CLI     CLIBR,0,N121$
 2321  011510                    N66$:   CLI     CLISTR,CMSG6,N67$,<'ALPHA'>
 2322                                    CLI     CLIBR,0,N121$
 2323
 2324  011514                    ;   LOOK FOR QUOTED MESSAGE
 2325  011520                    N67$:   CLI     <''>,OPRMSG,N30$
 2326  011524                    N70$:   CLI     <''>,ENDQO,N71$
 2327  011530                            CLI     CLIBR,0,N121$
 2328  011534                    N71$:   CLI     CLISPA,0,N72$
 2329  011540                    N72$:   CLI     CLIALN,0,N73$           ;ONLY A-Z,SP,TAB, OR 0-9 BETWEEN '"S
 2330  011544                            CLI     CLIBR,0,N70$
 2331                            N73$:   CLI     CLIERR,BADCHR           ;PRINT ERROR IF NONE LEGAL CHAR FOR '"S
 2332
 2333  011546                    ;GET QUALIFIERS (SIZE OR COPY) FOR SET MESSAGE COMMANDS
 2334  011552                    N121$:  CLI     CLIALP,0,N123$
 2335  011556                    N123$:  CLI     <'/>,NOTNUF,N125$
 2336  011572                            CLI     CLISTR,SIZE,N122$,<'SIZE'>
 2337  011576                            CLI     CLIBR,0,N126$
 2338  011612                    N122$:  CLI     CLISTR,QCOPY,N30$,<'COPY'>
 2339                                    CLI     CLIBR,0,N126$
 2340
 2341  011616                    ;NUMER FOR SIZE OR COPY
 2342  011622                    N126$:  CLI     <'=>,0,N30$
 2343  011626                            CLI     CLIDEC,NUM,N30$
 2344                                    CLI     CLIBR,0,N121$
 2345
 2346  011632                    ;GET MAINTENANCE LOOP TYPE FOR RUN 'LOOP'' QUIALIFIER
 2347                            N140$:  CLI     <'=>,0,N30$
 2348
 2349  011636                    N141$:  CLI     CLISTR,TTLLOP,N142$,<'INTERNALTTL'>
 2350  011660                            CLI     CLIBR,0,N115$
 2351  011664                    N142$:  CLI     CLISTR,CBLLOP,N143$,<'CABLE'>
 2352  011700                            CLI     CLIBR,0,N115$
 2353  011704                    N143$:  CLI     CLISTR,LMDLOP,N144$,<'LOCALMODEM'>
 2354  011726                            CLI     CLIBR,0,N115$
 2355  011732                    N144$:  CLI     CLISTR,RMDLOP,N30$,<'REMOTEMODEM'>
 2356  011754                            CLI     CLIBR,0,N115$
 2357
 2358                            ;GET LINE NUMBER FOR 'PASS'' RUN QUALIFIER
 2359  011760                    N150$:  CLI     <'=>,0,N30$
 2360  011764                            CLI     CLIDEC,PASC,N30$
 2361  011770                            CLI     CLIBR,0,N115$
 2362
```

```
 2363
 2364
 2365                                ;END-OF-LINE
 2366  011774                       N125$:  CLI     CLIEXI,0
 2367
```

```
2368
2369
2370                                    ;DEVICE DEPENDENT STORAGE LOCATIONS FOR
2371                                    ;  CURRENT DEVICE PARAMTERS
2372
2373  011776                            SEL0:
2374  011776  000000                    BSEL0:  .WORD   0               ;ADDRESSES OF REGISTERS SEL0 THRU BSEL7
2375  012000  000000                    BSEL1:  .WORD   0
2376  012002                            SEL2:
2377  012002  000000                    BSEL2:  .WORD   0
2378  012004  000000                    BSEL3:  .WORD   0
2379  012006                            SEL4:
2380  012006  000000                    BSEL4:  .WORD   0
2381  012010  000000                    BSEL5:  .WORD   0
2382  012012                            SEL6:
2383  012012  000000                    BSEL6:  .WORD   0
2384  012014  000000                    BSEL7:  .WORD   0
2385
2386
2387  012016  000000                    INVEC:  .WORD   0               ;INPUT INTERRUPT VECTOR ADDRESS
2388  012020  000000                    OUTVEC: .WORD   0               ;OUTPUT INTERRUPT VECTOR ADDRESS
2389  012022  000000                    INTPRI: .WORD   0               ;INTERRUPT PRIORITY
2390  012024  000000                    OPTYP:  .WORD   0               ;DEVICE OPTION TYPE(0=DMC,5=DMR-DMC MODE
2391                                                                    ;7=DMR).
2392
2393
2394
2395
2396                                    ;       ERRTBL
```

```
                                .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
                                ;
012026                                  DEVTYP  <DMR,DMC-11>
012026                                                                  L$DVTYP::
012026  046504  026122  046504                                                .ASCIZ  /DMR,DMC-11/
012034  026503  030461     000
        012042                                                          .EVEN


                                .SBTTL          PROGRAM IDENTIFICATION
                                ; TEST DESCRIPTION
                                ;
012042                                  DESCRIPT        <CZCLKAO DMR, DMC-11 DATA COMM. LINK TEST>
012042                                                                  L$DESC::
012042  055103  046103  040513                                                .ASCIZ  /CZCLKAO DMR, DM
012050  020060  046504  026122
012056  042040  041515  030455
012064  020061  040504  040524
012072  041440  046517  027115
012100  046040  047111  020113
012106  042524  052123     000
        012114
                                .EVEN                                   .EVEN
```

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

012114  041504  052114  000076  CLI$PM: .ASCIZ  /DCLT>/
012122  047045  040445  044477  CLIERM: .ASCIZ  /%N%A?ILL CMD-BAD SYNTX?/
012130  046114  041440  042115
012136  041055  042101  051440
012144  047131  054124  000077
012152  047045  040445  044477  CLINUF: .ASCIZ  /%N%A?INCMPLTE CMD?/
012160  041516  050115  052114
012166  020105  046503  037504
012174     000
012175     045  022516  037501  CLINBG: .ASCIZ  /%N%A?NUM TOO BIG?/
012202  052516  020115  047524
012210  020117  044502  037507
012216     000
012217     045  022516  037501  CLIBRX: .ASCIZ  /%N%A?BAD RADIX?/
012224  040502  020104  040522
012232  044504  037530     000
012237     045  022516  037501  CLIBDL: .ASCIZ  /%N%A?'LOOP'' VALID ONLY IN ACTIVE?/
012244  046042  047517  021120
012252  053040  046101  042111
012260  047440  046116  020131
012266  047111  040440  052103
012274  053111  037505     000
012301     045  022516  037501  CLINPS: .ASCIZ  /%N%A?'ECHO'' VALID ONLY IN PASSIVE?/
012306  042442  044103  021117
012314  053040  046101  042111
012322  047440  046116  020131
012330  047111  050040  051501
012336  044523  042526  000077
012344  047045  040445  044477  CLIBCR: .ASCIZ  /%N%A?ILL CHR- ''A-Z,0-9,SP,TAB'' ONLY?/
012352  046114  041440  051110
012360  020055  040442  055055
012366  030054  034455  051454
012374  026120  040524  021102
012402  047440  046116  037531
012410     000
012411     045  022516  037501  CLISE0: .ASCIZ  /%N%A?'SIZE=0'' NOT VALID?/
012416  051442  055111  036505
012424  021060  047040  052117
012432  053040  046101  042111
012440  000077
012442  047045  040445  044124  HLP0:   .ASCIZ  /%N%ATHIS IS DCLT. TYPE 'H'' OR '?'' FOR DETAILS/
012450  051511  044440  020123
012456  041504  052114  020056
012464  054524  042520  021040
012472  021110  047440  020122
012500  037442  020042  047506
012506  020122  042504  040524
012514  046111  000123
012520  047045  052045     000  HLPF:   .ASCIZ  /%N%T/
012525     104  046103  020124  HLP1:   .ASCIZ  /DCLT CMDS:/
012532  046503  051504  000072
012540  041440  042514  051101  HLP2:   .ASCII  / CLEAR OR SHOW  EXPECTLIST OR TRANSMITLIST/<15><12>
012546  047440  020122  044123
```

```
 2491  012554  053517  020040  054105
 2492  012562  042520  052103  044514
 2493  012570  052123  047440  020122
 2494  012576  051124  047101  046523
 2495  012604  052111  044514  052123
 2496  012612  005015
 2497  012614  050040  044522  052116          .ASCII  / PRINT/<15><12>
 2498  012622  005015
 2499  012624  042040  046525  020120          .ASCIZ  ? DUMP START-END/B?
 2500  012632  052123  051101  026524
 2501  012640  047105  027504  000102
 2502  012646  051440  052105  042440  HLP3:   .ASCIZ  ? SET EXPECTMSG OR TRANSMITMSG=TYPE/SIZE=N OR /COPY=N?
 2503  012654  050130  041505  046524
 2504  012662  043523  047440  020122
 2505  012670  051124  047101  046523
 2506  012676  052111  051515  036507
 2507  012704  054524  042520  051457
 2508  012712  055111  036505  020116
 2509  012720  051117  027440  047503
 2510  012726  054520  047075     000
 2511  012733     040  020040  054524  HLP4:   .ASCIZ  ?   TYPE=ONES,ZEROES,1ALT,0ALT,ITEP,CCITT,ALPHA?
 2512  012740  042520  047475  042516
 2513  012746  026123  042532  047522
 2514  012754  051505  030454  046101
 2515  012762  026124  040460  052114
 2516  012770  044454  042524  026120
 2517  012776  041503  052111  026124
 2518  013004  046101  044120  000101
 2519  013012  020040  020040  020040  HLP4A:  .ASCIZ  /       OR 'DPR SPCD=A-Z,SP,TAB,0-9 IN QUOTES'/
 2520  013020  047440  020122  047442
 2521  013026  051120  051440  041520
 2522  013034  036504  026501  026132
 2523  013042  050123  052054  041101
 2524  013050  030054  034455  044440
 2525  013056  020116  052521  052117
 2526  013064  051505  000042
 2527  013070  051040  047125  046440  HLP5:   .ASCIZ  ? RUN MODE=MTYP/LOOP=LTYP/CHECK,STATUS,ECHO,PASS=N?
 2528  013076  042117  036505  052115
 2529  013104  050131  046057  047517
 2530  013112  036520  052114  050131
 2531  013120  041457  042510  045503
 2532  013126  051454  040524  052524
 2533  013134  026123  041505  047510
 2534  013142  050054  051501  036523
 2535  013150  000116
 2536  013152  020040  046440  054524  HLP6:   .ASCII  /   MTYP=TRAN,REC,ACT,PAS,TAL,LIS,DOWN/<15><12>
 2537  013160  036520  051124  047101
 2538  013166  051054  041505  040454
 2539  013174  052103  050054  051501
 2540  013202  052054  046101  046054
 2541  013210  051511  042054  053517
 2542  013216  006516     012
 2543  013221     040  020040  052114          .ASCIZ  /   LTYP=INT,CAB,LOC,REM/
 2544  013226  050131  044475  052116
 2545  013234  041454  041101  046054
 2546  013242  041517  051054  046505
```

```
 2547  013250     000
 2548
 2549  013251     045  022516  046501  SHMSG:  .ASCIZ  ?%N%AMSG: TYPE=%T%A/SIZE=%D3?
 2550  013256  043523  020072  054524
 2551  013264  042520  022475  022524
 2552  013272  027501  044523  042532
 2553  013300  022475  031504     000
 2554  013305     132  051105  042517  SHTYP0: .ASCIZ  /ZEROES/
 2555  013312  000123
 2556  013314  047117  051505     000  SHTYP1: .ASCIZ  /ONES/
 2557  013321     061  046101  000124  SHTYP2: .ASCIZ  /1ALT/
 2558  013326  040460  052114     000  SHTYP3: .ASCIZ  /0ALT/
 2559  013333     103  044503  052124  SHTYP4: .ASCIZ  /CCITT/
 2560  013340     000
 2561  013341     111  042524  000120  SHTYP5: .ASCIZ  /ITEP/
 2562  013346  046101  044120  000101  SHTYP6: .ASCIZ  /ALPHA/
 2563  013354  050117  020122  050123  SHTYP7: .ASCIZ  /OPR SPEC/
 2564  013362  041505     000
 2565  013365     122  041505  044505  MO0:    .ASCIZ  /RECEIVE/
 2566  013372  042526     000
 2567  013375     124  040522  051516  MO1:    .ASCIZ  /TRANSMIT/
 2568  013402  044515  000124
 2569  013406  040520  051523  053111  MO2:    .ASCIZ  /PASSIVE/
 2570  013414  000105
 2571  013416  041501  044524  042526  MO3:    .ASCIZ  /ACTIVE/
 2572  013424     000
 2573  013425     104  053517  046116  MO4:    .ASCIZ  /DOWNLINELOAD/
 2574  013432  047111  046105  040517
 2575  013440  000104
 2576  013442  040524  045514     000  MO5:    .ASCIZ  /TALK/
 2577  013447     114  051511  042524  MO6:    .ASCIZ  /LISTEN/
 2578  013454  000116
 2579  013456     000                  LP0:    .ASCIZ  //
 2580  013457     057  047514  050117  LP00:   .ASCIZ  ?/LOOP=?
 2581  013464  000075
 2582  013466  047111  042524  047122  LP1:    .ASCIZ  ?INTERNAL?
 2583  013474  046101     000
 2584  013477     103  041101  042514  LP2:    .ASCIZ  ?CABLE?
 2585  013504     000
 2586  013505     114  041517  046101  LP3:    .ASCIZ  ?LOCALMODEM?
 2587  013512  047515  042504  000115
 2588  013520  042522  047515  042524  LP4:    .ASCIZ  ?REMOTEMODEM?
 2589  013526  047515  042504  000115
 2590  013534  047516                  PNST:   .ASCII  /NO/
 2591  013536  052123  052101  051525  PST:    .ASCIZ  /STATUS/
 2592  013544     000
 2593  013545     116     117          PNCK:   .ASCII  /NO/
 2594  013547     103  042510  045503  PCK:    .ASCIZ  /CHECK/
 2595  013554     000
 2596  013555     116     117          PNEC:   .ASCII  /NO/
 2597  013557     105  044103  000117  PEC:    .ASCIZ  /ECHO/
 2598
 2599
 2600  013564  047045  040445  044514  LISP:   .ASCIZ  /%N%ALIS>/
 2601  013572  037123     000
 2602  013575     124  045514  000076  OPRMM:  .ASCIZ  /TLK>/
```

```
 2603  013602  044124  051511  040440  L5060:  .ASCIZ  /THIS A 50. OR 60. HZ. LSI-11:/
 2604  013610  032440  027060  047440
 2605  013616  020122  030066  020056
 2606  013624  055110  020056  051514
 2607  013632  026511  030461  000072
 2608                                  .EVEN
 2609
 2610
 2611
 2612                                  ;
 2613                                  ; FORMAT STATEMENTS USED IN PRINT CALLS
 2614                                  ;
 2615
 2616  013640  047045  040445  047504  DLLCM:  .ASCIZ  /%N%ADOWN LINE LOAD COMPLETED SUCCESSFULLY/
 2617  013646  047127  046040  047111
 2618  013654  020105  047514  042101
 2619  013662  041440  046517  046120
 2620  013670  052105  042105  051440
 2621  013676  041525  042503  051523
 2622  013704  052506  046114  000131
 2623  013712  047045  040445  040502  NOCLK:  .ASCIZ  /%N%ABAD CLOCK - PROGRAM WILL HANG ON 'TIMEOUT'!!/
 2624  013720  020104  046103  041517
 2625  013726  020113  020055  051120
 2626  013734  043517  040522  020115
 2627  013742  044527  046114  044040
 2628  013750  047101  020107  047117
 2629  013756  021040  044524  042515
 2630  013764  052517  021124  020441
 2631  013772     000
 2632  013773     115  054101  020056  TABEX:  .ASCIZ  /MAX. CHAR. MSG COUNT EXCEEDED -/
 2633  014000  044103  051101  020056
 2634  014006  051515  020107  047503
 2635  014014  047125  020124  054105
 2636  014022  042503  042105  042105
 2637  014030  026440     000
 2638  014033     102  043125  042506  BUFEX:  .ASCIZ  /BUFFER FULL -/
 2639  014040  020122  052506  046114
 2640  014046  026440     000
 2641  014051     045  022516  022524  MSGTRN: .ASCIZ  /%N%T%A MSG. NOT BUILT !!/
 2642  014056  020101  051515  027107
 2643  014064  047040  052117  041040
 2644  014072  044525  052114  020440
 2645  014100  000041
 2646  014102  047045  040445  044103  MSGTRU: .ASCIZ  /%N%ACHAR. COUNT EXCEEDS BUFF LIMIT - MSG TRUNCATED/
 2647  014110  051101  020056  047503
 2648  014116  047125  020124  054105
 2649  014124  042503  042105  020123
 2650  014132  052502  043106  046040
 2651  014140  046511  052111  026440
 2652  014146  046440  043523  052040
 2653  014154  052522  041516  052101
 2654  014162  042105     000
 2655  014165     045  022516  032523  SHF0:   .ASCIZ  ?%N%S5%AMODE=%T%T%T%A/PASS=%Z5?
 2656  014172  040445  047515  042504
 2657  014200  022475  022524  022524
 2658  014206  022524  027501  040520
```

```
 2659  014214  051523  022475  032532
 2660  014222     000
 2661
 2662
 2663  014223     045  022516  032523  SHF1:   .ASCIZ  ?%N%S5%S5%S5%A/%T%A/%T%A/%T?
 2664  014230  051445  022465  032523
 2665  014236  040445  022457  022524
 2666  014244  027501  052045  040445
 2667  014252  022457  000124
 2668
 2669  014256  051445  022465  052101  EFM2:   .ASCIZ  /%S5%ATOTAL MISMATCHES IN MSG = %D5/
 2670  014264  052117  046101  046440
 2671  014272  051511  040515  041524
 2672  014300  042510  020123  047111
 2673  014306  046440  043523  036440
 2674  014314  022440  032504     000
 2675  014321     045  022516  031523  PCPM:   .ASCIZ  /%N%S3%ACALLED FROM PC=%O6/
 2676  014326  040445  040503  046114
 2677  014334  042105  043040  047522
 2678  014342  020115  041520  022475
 2679  014350  033117     000
 2680  014353     045  032523  040445  EFM11:  .ASCIZ  /%S5%ACOMPARE COUNT=%D5%S3%ARECEIVE COUNT=%D5/
 2681  014360  047503  050115  051101
 2682  014366  020105  047503  047125
 2683  014374  036524  042045  022465
 2684  014402  031523  040445  042522
 2685  014410  042503  053111  020105
 2686  014416  047503  047125  036524
 2687  014424  042045  000065
 2688
 2689
 2690                                  ;EVENT DESCRIPTION MESSAGES
 2691
 2692  014430  051124  047101  046523  EDTXQ:  .ASCIZ  /TRANSMIT MSG QUEUED/
 2693  014436  052111  046440  043523
 2694  014444  050440  042525  042525
 2695  014452  000104
 2696  014454  051124  047101  046523  EDTXC:  .ASCIZ  /TRANSMIT MSG COMPLETED/
 2697  014462  052111  046440  043523
 2698  014470  041440  046517  046120
 2699  014476  052105  042105     000
 2700  014503     122  041505  044505  EDRXQ:  .ASCIZ  /RECEIVE SPACE QUEUED/
 2701  014510  042526  051440  040520
 2702  014516  042503  050440  042525
 2703  014524  042525  000104
 2704  014530  042522  042503  053111  EDRXC:  .ASCIZ  /RECEIVE MSG COMPLETED/
 2705  014536  020105  051515  020107
 2706  014544  047503  050115  042514
 2707  014552  042524  000104
 2708  014556  042504  044526  042503  EDDER:  .ASCIZ  /DEVICE ERROR/
 2709  014564  042440  051122  051117
 2710  014572     000
 2711  014573     104  052101  020101  EDDCK:  .ASCIZ  /DATA COMPARISON STARTED/
 2712  014600  047503  050115  051101
 2713  014606  051511  047117  051440
 2714  014614  040524  052122  042105
```

```
014622     000
014623     104  053105  041511  EDDVI:  .ASCIZ  /DEVICE INIT AND SETUP/
014630  020105  047111  052111
014636  040440  042116  051440
014644  052105  050125     000
014651     104  052101  020101  EDDLE:  .ASCIZ  /DATA COMPARISON LENGTH ERROR/
014656  047503  050115  051101
014664  051511  047117  046040
014672  047105  052107  020110
014700  051105  047522  000122
014706  040504  040524  041440  EDDDE:  .ASCIZ  /DATA COMPARISON DATA ERROR/
014714  046517  040520  044522
014722  047523  020116  040504
014730  040524  042440  051122
014736  051117     000
014741     105  042116  047440  EDEOP:  .ASCIZ  /END OF PASS/
014746  020106  040520  051523
014754     000

                                ;*****************************************************
                                ;THESE TWO STORAGE AREAS MUST NOT BE SEPERATED !!!!

                                ;EVENT REPORTING MESSAGES
014755     040  041040  051501  BASM1A: .ASCIZ  /  BASE TABLE/
014762  020105  040524  046102
014770  000105

014772  051445  022463  031517  BASM3:  .ASCIZ  /%S3%03/
015000     000
015001     045  031523  047445  BASM2:  .ASCIZ  /%S3%06/
015006  000066
015010  047045  047445  000066  BASM1:  .ASCIZ  /%N%06/




015016  047045  040445  044124  NULEVT: .ASCIZ  /%N%ATHE EVENT LOG IS EMPTY/
015024  020105  053105  047105
015032  020124  047514  020107
015040  051511  042440  050115
015046  054524     000
015051     045  022516  037101  EVTF0:  .ASCIZ  /%N%A>>> EVENT LOG ENTRY <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<</
015056  037076  042440  042526
015064  052116  046040  043517
015072  042440  052116  054522
015100  036040  036074  036074
015106  036074  036074  036074
015114  036074  036074  036074
015122  036074  036074  036074
015130  036074  036074  036074
015136  036074  036074  036074
015144  036074     000
015147     045  022516  032504  EVTF1:  .ASCIZ  /%N%D5%A:%Z2%A:%Z2%S3%T/
015154  040445  022472  031132
015162  040445  022472  031132
015170  051445  022463  000124
```

```
 2771  015176  047045  051445  022463  EVTF2:  .ASCIZ  /%N%S3%AADDR OF MSG=%O6%S3%ABYTE COUNT=%D5/
 2772  015204  040501  042104  020122
 2773  015212  043117  046440  043523
 2774  015220  022475  033117  051445
 2775  015226  022463  041101  052131
 2776  015234  020105  047503  047125
 2777  015242  036524  042045  000065
 2778  015250  047045  051445  022463  EVTF3:  .ASCIZ  /%N%S3%T%N/
 2779  015256  022524  000116
 2780  015262  051445  022463  033117  EVTF3C: .ASCIZ  /%S3%O6%S3%O6/
 2781  015270  051445  022463  033117
 2782  015276     000
 2783  015277     045  031523  047445  EVTF3D: .ASCIZ  /%S3%O6%S3%O6%S3%T/
 2784  015304  022466  031523  047445
 2785  015312  022466  031523  052045
 2786  015320     000
 2787  015321     045  022516  031523  EVTF4:  .ASCIZ  /%N%S3%AADDR OF MSG=%O6%S3%ABYTE COUNT=%D5%S3%ANO. OF CMP ERRS=%D5/
 2788  015326  040445  042101  051104
 2789  015334  047440  020106  051515
 2790  015342  036507  047445  022466
 2791  015350  031523  040445  054502
 2792  015356  042524  041440  052517
 2793  015364  052116  022475  032504
 2794  015372  051445  022463  047101
 2795  015400  027117  047440  020106
 2796  015406  046503  020120  051105
 2797  015414  051522  022475  032504
 2798  015422     000
 2799  015423     045  022516  031523  EVTF4A: .ASCIZ  /%N%S3%AADDR OF MSG=%O6%S3%ARX BYTES=%D5%S3%ACOMPARE BYTES=%D5/
 2800  015430  040445  042101  051104
 2801  015436  047440  020106  051515
 2802  015444  036507  047445  022466
 2803  015452  031523  040445  054122
 2804  015460  041040  052131  051505
 2805  015466  022475  032504  051445
 2806  015474  022463  041501  046517
 2807  015502  040520  042522  041040
 2808  015510  052131  051505  022475
 2809  015516  032504     000
 2810  015521     045  022516  031523  EVTF4B: .ASCIZ  /%N%S3%APASS=%D5%S3%AERRORS=%D5%S3%ANOBUFFS=%D5/
 2811  015526  040445  040520  051523
 2812  015534  022475  032504  051445
 2813  015542  022463  042501  051122
 2814  015550  051117  036523  042045
 2815  015556  022465  031523  040445
 2816  015564  047516  052502  043106
 2817  015572  036523  042045  000065
 2818  015600  051445  022465  041101  EVTF5A: .ASCIZ  /%S5%ABYTE # IN MSG.=%D5%S3%AEXPTD=%O3%S3%ARECVD=%O3/
 2819  015606  052131  020105  020043
 2820  015614  047111  046440  043523
 2821  015622  036456  042045  022465
 2822  015630  031523  040445  054105
 2823  015636  052120  036504  047445
 2824  015644  022463  031523  040445
 2825  015652  042522  053103  036504
 2826  015660  047445  000063
```

```
 2827
 2828  015664  047045  051445  022471  EVMOCG: .ASCIZ  /%N%S9%ACHANGED TO:/
 2829  015672  041501  040510  043516
 2830  015700  042105  052040  035117
 2831  015706     000
 2832
 2833                                  ; ************************************************************************
 2834                                  ;DO NOT SEPERATE THE NEXT LIST OF MESSAGES - MODEM SIGNAL HEADER AND REPORT
 2835
 2836  015707     045  022516  034123  EVMOHD: .ASCIZ  /%N%S8%AMODEM STATUS: CTS DSR DCD RTS RI  SQD TM/
 2837  015714  040445  047515  042504
 2838  015722  020115  052123  052101
 2839  015730  051525  020072  052103
 2840  015736  020123  051504  020122
 2841  015744  041504  020104  052122
 2842  015752  020123  044522  020040
 2843  015760  050523  020104  046524
 2844  015766     000
 2845  015767     045  022516  034523  EVMOST: .ASCII  /%N%S9%S9%S5%A/
 2846  015774  051445  022471  032523
 2847  016002  040445
 2848  016004     130     040     040  EVMCTS: .BYTE   'X,40,40,40
 2849  016007     040
 2850  016010     130     040     040  EVMDSR: .BYTE   'X,40,40,40
 2851  016013     040
 2852  016014     130     040     040  EVMDCD: .BYTE   'X,40,40,40
 2853  016017     040
 2854  016020     130     040     040  EVMRTS: .BYTE   'X,40,40,40
 2855  016023     040
 2856  016024     130     040     040  EVMRI:  .BYTE   'X,40,40,40
 2857  016027     040
 2858  016030     130     040     040  EVMSQD: .BYTE   'X,40,40,40
 2859  016033     040
 2860  016034     130     040     040  EVMTM:  .BYTE   'X,40,40,40
 2861  016037     040
 2862  016040     000                  .BYTE   0
 2863        016042                    .EVEN
 2864
 2865                                  ;EXECUTION STATUS MESSAGES TO BE PRINTED TO KEEP OPERATOR AWAKE
 2866  016042  047045     000          CR:     .ASCIZ  /%N/            ;CR FOR LINES IN A ROW
 2867  016045     045  031523  040445  STXQ:   .ASCIZ  /%S3%ATXQ/      ;ABOUT TO TRANSMIT
 2868  016052  054124  000121
 2869  016056  051445  022463  052101  STXC:   .ASCIZ  /%S3%ATXC/      ;TX COMPLETED
 2870  016064  041530     000
 2871  016067     045  031523  040445  SRXQ:   .ASCIZ  /%S3%ARXQ/      ;ABOUT TO RECEIVE
 2872  016074  054122  000121
 2873  016100  051445  022463  042501  SDVE:   .ASCIZ  /%S3%AERR/      ;DEVICE ERROR
 2874  016106  051122     000
 2875  016111     045  031523  040445  SCM:    .ASCIZ  /%S3%ACMP/      ;ABOUT TO DO DATA CHECKING OF RECVD VS. EXPTD
 2876  016116  046503  000120
 2877  016122  051445  022463  044501  SDVI:   .ASCIZ  /%S3%AINI/      ;DEVICE ABOUT TO BE INITIALIZED
 2878  016130  044516     000
 2879  016133     045  031523  040445  SCML:   .ASCIZ  /%S3%ACML/      ;COMPARE LENGTH ERROR
 2880  016140  046503  000114
 2881  016144  051445  022463  041501  SCMD:   .ASCIZ  /%S3%ACMD/      ;COMPARE DATA ERROR
 2882  016152  042115     000
```

```
 2883  016155      045  031523  040445  SEOP:   .ASCIZ  /%S3%AEOP/      ;END  OF PASS
 2884  016162  047505  000120
 2885                                          .EVEN
 2886
```

```
 2887
 2888                                   ;DEVICE ERROR MESSAGES
 2889
 2890  016166  044524  042515  047440  DVEM0:  .ASCII  /TIME OUT WAITING FOR RDI TO CLEAR/
 2891  016174  052125  053440  044501
 2892  016202  044524  043516  043040
 2893  016210  051117  051040  044504
 2894  016216  052040  020117  046103
 2895  016224  040505     122
 2896  016227     015  020012  020040          .ASCIZ  <15><12>/   SEL0     SEL2  /
 2897  016234  042523  030114  020040
 2898  016242  020040  051440  046105
 2899  016250  020062  000040
 2900  016254  044524  042515  047440  DVEM1:  .ASCII  /TIME OUT WAITING FOR RDI TO SET/
 2901  016262  052125  053440  044501
 2902  016270  044524  043516  043040
 2903  016276  051117  051040  044504
 2904  016304  052040  020117  042523
 2905  016312     124
 2906  016313     015  020012  020040          .ASCIZ  <15><12>/   SEL0     SEL2  /
 2907  016320  042523  030114  020040
 2908  016326  020040  051440  046105
 2909  016334  020062  000040
 2910  016340  044524  042515  047440  DVEM3:  .ASCII  /TIME OUT WAITING FOR RUN TO SET/
 2911  016346  052125  053440  044501
 2912  016354  044524  043516  043040
 2913  016362  051117  051040  047125
 2914  016370  052040  020117  042523
 2915  016376     124
 2916  016377     015  020012  020040          .ASCIZ  <15><12>/   SEL0     SEL2  /
 2917  016404  042523  030114  020040
 2918  016412  020040  051440  046105
 2919  016420  020062  000040
 2920  016424  044524  042515  047440  DVEM4:  .ASCII  /TIME OUT WAITING FOR OUTPUT INTERRUPT/
 2921  016432  052125  053440  044501
 2922  016440  044524  043516  043040
 2923  016446  051117  047440  052125
 2924  016454  052520  020124  047111
 2925  016462  042524  051122  050125
 2926  016470     124
 2927  016471     015  020012  020040          .ASCIZ  <15><12>/   SEL0     SEL2  /
 2928  016476  042523  030114  020040
 2929  016504  020040  051440  046105
 2930  016512  020062  000040
 2931  016516  047111  052520  020124  DVEM5:  .ASCII  /INPUT INTERRUPT WHEN EXPECTING OUTPUT/
 2932  016524  047111  042524  051122
 2933  016532  050125  020124  044127
 2934  016540  047105  042440  050130
 2935  016546  041505  044524  043516
 2936  016554  047440  052125  052520
 2937  016562     124
 2938  016563     015  020012  020040          .ASCIZ  <15><12>/   SEL0     SEL2  /
 2939  016570  042523  030114  020040
 2940  016576  020040  051440  046105
 2941  016604  020062  000040
 2942  016610  046111  042514  040507  DVEM6:  .ASCII  /ILLEGAL OUTPUT INTERRUPT/
```

```
 2943  016616  020114  052517  050124
 2944  016624  052125  044440  052116
 2945  016632  051105  052522  052120
 2946  016640  005015  020040  051440          .ASCIZ  <15><12>/   SEL2     SEL6  /
 2947  016646  046105  020062  020040
 2948  016654  020040  042523  033114
 2949  016662  020040     000
 2950  016665     103  047117  051124  DVEM7:  .ASCII  /CONTROL OUT INSTEAD OF BA-CC OUT/
 2951  016672  046117  047440  052125
 2952  016700  044440  051516  042524
 2953  016706  042101  047440  020106
 2954  016714  040502  041455  020103
 2955  016722  052517     124
 2956  016725     015  020012  020040          .ASCIZ  <15><12>/   SEL2     SEL6  /
 2957  016732  042523  031114  020040
 2958  016740  020040  051440  046105
 2959  016746  020066  000040
 2960
 2961  016752  054124  041040  043125  DVEM8:  .ASCII  /TX BUFF COMPLETED AND SHOULD BE RX/
 2962  016760  020106  047503  050115
 2963  016766  042514  042524  020104
 2964  016774  047101  020104  044123
 2965  017002  052517  042114  041040
 2966  017010  020105  054122
 2967  017014  005015  020040  051440          .ASCIZ  <15><12>/   SEL4     SEL6  /
 2968  017022  046105  020064  020040
 2969  017030  020040  042523  033114
 2970  017036  020040     000
 2971  017041     122  020130  052502  DVEM9:  .ASCII  /RX BUFF COMPLETED AND SHOULD BE TX/
 2972  017046  043106  041440  046517
 2973  017054  046120  052105  042105
 2974  017062  040440  042116  051440
 2975  017070  047510  046125  020104
 2976  017076  042502  052040     130
 2977  017103     015  020012  020040          .ASCIZ  <15><12>/   SEL4     SEL6  /
 2978  017110  042523  032114  020040
 2979  017116  020040  051440  046105
 2980  017124  020066  000040
 2981  017130  042040  053517  020116  DLLAB:  .ASCII  / DOWN LINE LOAD ABORTED/
 2982  017136  044514  042516  046040
 2983  017144  040517  020104  041101
 2984  017152  051117  042524     104
 2985  017157     015  020012  020040          .ASCIZ  <15><12>/   RXBUF    TXBUF /
 2986  017164  054122  052502  020106
 2987  017172  020040  052040  041130
 2988  017200  043125  000040
 2989
 2990  017204  051120  041517  042105  PROEM:  .ASCIZ  /PROCEDURE ERROR/
 2991  017212  051125  020105  051105
 2992  017220  047522  000122
 2993  017224  047516  020116  054105  NXMM:   .ASCIZ  /NON EXIST MEM/
 2994  017232  051511  020124  042515
 2995  017240  000115
 2996  017242  042104  046503  020120  DDCSRM: .ASCIZ  /DDCMP START REC/
 2997  017250  052123  051101  020124
 2998  017256  042522  000103
```

```
 2999  017262  044504  041523  047117  DISCOM: .ASCIZ  /DISCONNECT/
 3000  017270  042516  052103     000
 3001  017275     114  051517  020124  LOSDAM: .ASCIZ  /LOST DATA/
 3002  017302  040504  040524     000
 3003  017307     104  041504  050115  DDCMRM: .ASCIZ  /DDCMP MAINT REC/
 3004  017314  046440  044501  052116
 3005  017322  051040  041505     000
 3006  017327     124  046511  020105  TIMOM:  .ASCIZ  /TIME OUT/
 3007  017334  052517  000124
 3008  017340  040504  040524  041440  DATCKM: .ASCIZ  /DATA CHECK/
 3009  017346  042510  045503     000
 3010
 3011          017354                          .EVEN
 3012
```

```
3013
3014                                    ;THIS SECTION IS USED BY A M9301-YJ BOOT ROM FOR DOING DOWN-LINE-LOAD ?????
3015                                    ;MUST BE IN THE AREA OF '017370 + 256. BYTES'' + A FEW
3016
3017            017370                          .=17370
3018  017370   000400          BASE:   .BLKB   256.            ;BASE TABLE ADDRESS
3019
3020            020000                          .=20000
```

```
3021  020000  052522  020116  042523  RUNSBM: .ASCIZ  /RUN SET ILLEAGLLY/
3022  020006  020124  046111  042514
3023  020014  043501  046114  000131
3024  020022  054122  044440  046104  RXIDM:  .ASCIZ  /RX IDLE/
3025  020030  000105
3026  020032  042103  043440  044514  CDGLM:  .ASCIZ  /CD GLITCHED/
3027  020040  041524  042510  000104
3028  020046  052103  020123  040506  CTSFM:  .ASCIZ  /CTS FALILED/
3029  020054  044514  042514  000104
3030  020062  054124  047040  052117  TXNC:   .ASCIZ  /TX NOT COMPLETE/
3031  020070  041440  046517  046120
3032  020076  052105  000105
3033  020102  054122  047040  052117  RXNC:   .ASCIZ  /RX NOT COMPLETE/
3034  020110  041440  046517  046120
3035  020116  052105  000105
3036  020122  042523  020103  042522  RXM1:   .ASCIZ  /SEC REQ ERR WORD 1/
3037  020130  020121  051105  020122
3038  020136  047527  042122  030440
3039  020144     000
3040  020145     123  041505  051040  RXM2:   .ASCIZ  /SEC REQ ERR WORD 2/
3041  020152  050505  042440  051122
3042  020160  053440  051117  020104
3043  020166  000062
3044                                  .EVEN
3045
3046
3047
3048
3049
3050
3051
```

```
                        .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.
                        ;--

020170                  BGNMSG  ERR1                                            ERR1::
020170                  PRINTB  #EVTF5A,OFSET,<B,GOOD>,<B,BAD>  ;INDIVIDUAL DATA COMPARE ERROR
020170  005046                                                          CLR     -(SP)
020172  153716  007211                                                  BISB    BAD,(SP)
020176  005046                                                          CLR     -(SP)
020200  153716  007210                                                  BISB    GOOD,(SP)
020204  013746  007170                                                  MOV     OFSET,-(SP)
020210  012746  015600                                                  MOV     #EVTF5A,-(SP)
020214  012746  000004                                                  MOV     #4,-(SP)
020220  010600                                                          MOV     SP,R0
020222  104414                                                          TRAP    C$PNTB
020224  062706  000012                                                  ADD     #12,SP
020230                  ENDMSG                                        L10001:
020230  104423                                                          TRAP    C$MSG

020232                  BGNMSG  ERR2                                    ERR2::
020232                  PRINTB  #EFM2,TEMP4                     ;TOTAL DATA COMPARE FAILS ERROR
020232  013746  007202                                                  MOV     TEMP4,-(SP)
020236  012746  014256                                                  MOV     #EFM2,-(SP)
020242  012746  000002                                                  MOV     #2,-(SP)
020246  010600                                                          MOV     SP,R0
020250  104414                                                          TRAP    C$PNTB
020252  062706  000006                                                  ADD     #6,SP
020256                  ENDMSG                                        L10002:
020256  104423                                                          TRAP    C$MSG

020260                  BGNMSG  ERR10                                   ERR10::
020260                  PRINTB  #EFM11,R4,TEMP3
020260  013746  007200                                                  MOV     TEMP3,-(SP)
020264  010446                                                          MOV     R4,-(SP)
020266  012746  014353                                                  MOV     #EFM11,-(SP)
020272  012746  000003                                                  MOV     #3,-(SP)
020276  010600                                                          MOV     SP,R0
020300  104414                                                          TRAP    C$PNTB
020302  062706  000010                                                  ADD     #10,SP
020306                  ENDMSG                                        L10003:
020306  104423                                                          TRAP    C$MSG
```

```
3108  020310                          BGNMSG  ERR8
3109  020310
3110  020310                          PRINTB  #EVTF3D,TEMP3,TEMP4,CONOTM
3111  020310  013746  007204                                          ERR8::
3112  020314  013746  007202                                  MOV     CONOTM,-(SP)
3113  020320  013746  007200                                  MOV     TEMP4,-(SP)
3114  020324  012746  015277                                  MOV     TEMP3,-(SP)
3115  020330  012746  000004                                  MOV     #EVTF3D,-(SP)
3116  020334  010600                                          MOV     #4,-(SP)
3117  020336  104414                                          MOV     SP,R0
3118  020340  062706  000012                                  TRAP    C$PNTB
3119  020344                          PRINTB  #PCPM,PCADD     ADD     #12,SP
3120  020344  013746  007214
3121  020350  012746  014321                                  MOV     PCADD,-(SP)
3122  020354  012746  000002                                  MOV     #PCPM,-(SP)
3123  020360  010600                                          MOV     #2,-(SP)
3124  020362  104414                                          MOV     SP,R0
3125  020364  062706  000006                                  TRAP    C$PNTB
3126  020370                          ENDMSG                  ADD     #6,SP
3127  020370                                          L10004:
3128  020370  104423                                         TRAP    C$MSG
3129
3130  020372                          BGNMSG  ERR9
3131  020372                                          ERR9::
3132  020372                          PRINTB  #EVTF3C,TEMP3,TEMP4
3133  020372  013746  007202                                  MOV     TEMP4,-(SP)
3134  020376  013746  007200                                  MOV     TEMP3,-(SP)
3135  020402  012746  015262                                  MOV     #EVTF3C,-(SP)
3136  020406  012746  000003                                  MOV     #3,-(SP)
3137  020412  010600                                          MOV     SP,R0
3138  020414  104414                                          TRAP    C$PNTB
3139  020416  062706  000010                                  ADD     #10,SP
3140  020422                          PRINTB  #PCPM,PCADD
3141  020422  013746  007214                                  MOV     PCADD,-(SP)
3142  020426  012746  014321                                  MOV     #PCPM,-(SP)
3143  020432  012746  000002                                  MOV     #2,-(SP)
3144  020436  010600                                          MOV     SP,R0
3145  020440  104414                                          TRAP    C$PNTB
3146  020442  062706  000006                                  ADD     #6,SP
3147  020446                          ENDMSG
3148  020446                                          L10005:
3149  020446  104423                                         TRAP    C$MSG
3150
3151  020450                          BGNMSG  ERR13
3152  020450                                          ERR13::
3153  020450                          PRINTB  #EVTF3C,TEMP3,TEMP4
3154  020450  013746  007202                                  MOV     TEMP4,-(SP)
3155  020454  013746  007200                                  MOV     TEMP3,-(SP)
3156  020460  012746  015262                                  MOV     #EVTF3C,-(SP)
3157  020464  012746  000003                                  MOV     #3,-(SP)
3158  020470  010600                                          MOV     SP,R0
3159  020472  104414                                          TRAP    C$PNTB
3160  020474  062706  000010                                  ADD     #10,SP
3161  020500                          ENDMSG
3162  020500                                          L10006:
3163  020500  104423                                         TRAP    C$MSG
```

```

020502                          BGNMSG  ERR14
020502                                                  ERR14::
020502                          PRINTB  #EVTF3D,TEMP3,TEMP4,CONOTM
020502  013746  007204                                          MOV     CONOTM,-(SP)
020506  013746  007202                                          MOV     TEMP4,-(SP)
020512  013746  007200                                          MOV     TEMP3,-(SP)
020516  012746  015277                                          MOV     #EVTF3D,-(SP)
020522  012746  000004                                          MOV     #4,-(SP)
020526  010600                                                  MOV     SP,R0
020530  104414                                                  TRAP    C$PNTB
020532  062706  000012                                          ADD     #12,SP
020536                          ENDMSG
020536                                                  L10007:
020536  104423                                                  TRAP    C$MSG

020540                          EXIT    MSG
020540  000167                                                  .WORD   J$JMP
020542  177772                                                  .WORD   L10007-2-.


```

```
                        .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
                        ;--

 020544                 CLKSET:
 020544  012122                 MOV     (R1)+,(R2)+             ;LOAD CLOCK'S CSR ADDR. INTO ''CLKCSR''
 020546  012112                 MOV     (R1)+,(R2)              ;LOAD CLOCK'S INT. LEVEL INTO ''CLKBR''
 020550  006312                 ASL     (R2)                    ;ADJUST THE INT. LEVEL FOR LOADING INTO
 020552  006312                 ASL     (R2)                    ;   THE PSW WITH A ''SETVEC'' CALL
 020554  006312                 ASL     (R2)
 020556  006312                 ASL     (R2)
 020560  006322                 ASL     (R2)+
 020562  012122                 MOV     (R1)+,(R2)+             ;LOAD CLOCK'S INT. VECTOR INTO ''CLKVEC''
 020564  012122                 MOV     (R1)+,(R2)+             ;LOAD CLOCK'S HERTZ RATE INTO ''CLKHZ''
 020566  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.
                        ;--
                        ;
020570                          BGNSRV  CLKINT
020570                                                          CLKINT::
                        ;
020570  005077  166456          CLR     @CLKCSR         ;DISABLE THE CLOCK FORM INTERRUPTING
020574  005337  007270          DEC     TIMTCK          ;DECREMENT THE # OF TICKS/SEC.
020600  001015                  BNE     1$              ;GO CHECK TIMERS (1&2-TICKS, 3-SECONDS)
020602  013737  007260  007270  MOV     CLKHZ,TIMTCK    ;RESET THE # OF TICKS/SEC.
020610  005237  007266          INC     TIMSEC          ;INC # OF SECS-SINCE-START
020614  022737  000074  007266  CMP     #60.,TIMSEC     ;SEE IF WE'VE COUNTED 60 SECS. YET
020622  001004                  BNE     1$              ;IF NOT, GO CHECK TIMERS
020624  005237  007264          INC     TIMMIN          ; ELSE INC MINUTES-SINCE-START
020630  005037  007266          CLR     TIMSEC          ; AND RESTART SECOND COUNTER
                        ;
020634  005737  007272  1$:     TST     TIMER1          ;SEE IF TIMER #1, TIMING ANYTHING
020640  001402                  BEQ     2$              ; IF=0, NOTHING BEING TIMED CHECK NEXT TIMER
020642  005337  007272          DEC     TIMER1          ; ELSE DECREMENT THE TIMER VALUE (BY 1 TICK)
020646  005737  007274  2$:     TST     TIMER2          ;SEE IF TIMER #2, TIMING ANYTHING
020652  001402                  BEQ     3$              ; IF=0, NOTHING BEING TIMED CHECK NEXT TIMER
020654  005337  007274          DEC     TIMER2          ; ELSE DECREMENT THE TIMER VALUE (BY 1 TICK)
020660  005737  007276  3$:     TST     TIMERS          ;SEE IF TIMER #3, TIMING ANYTHING
020664  001406                  BEQ     4$              ; IF=0, NOTHING BEING TIMED, LEAVE
020666  023737  007260  007270  CMP     CLKHZ,TIMTCK    ;SEE IF A SECOND HAS BEEN COUNTED OFF
020674  001002                  BNE     4$              ; BR IF NO
020676  005337  007276          DEC     TIMERS          ; ELSE DECREMENT THE TIMER VALUE (BY 1 SEC.)
```

```
3288  020702  013777  007262  166342  4$:     MOV     CLKEN,@CLKCSR   ;REENABLE THE CLOCK TO INTERRUPT
3289  020710                                  ENDSRV
3290  020710                                                                  L10010:
3291  020710  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
                        ;--
020712                  LOGTXQ:
020712  012737  016045  007174          MOV     #STXQ,TEMP1     ;SET UP MSG. TO PRINT
020720  012737  000000  007172          MOV     #TXQ,TEMP       ;SET UP EVENT TYPE
020726  000510                          BR      LOGS1           ;GO LOG EVENT AND TIME

020730                  LOGTXC:
020730  012737  016056  007174          MOV     #STXC,TEMP1     ;SET UP MSG. TO PRINT
020736  012737  000002  007172          MOV     #TXC,TEMP       ;SET UP EVENT TYPE
020744  000501                          BR      LOGS1           ;GO LOG EVENT AND TIME

020746                  LOGRXQ:
020746  012737  016067  007174          MOV     #SRXQ,TEMP1     ;SET UP MSG. TO PRINT
020754  012737  000004  007172          MOV     #RXQ,TEMP       ;SET UP EVENT TYPE
020762  000472                          BR      LOGS1           ;GO LOG EVENT AND TIME

020764                  LOGRXC:
020764  012737  000006  007172          MOV     #RXC,TEMP       ;SET UP EVENT TYPE
020772  000466                          BR      LOGS1           ;GO LOG EVENT AND TIME
020774                  LGDVE:
```

```
3348  020774  012737  016100  007174          MOV     #SDVE,TEMP1     ;SET UP MSG. TO PRINT
3349  021002  012737  000010  007172          MOV     #DER,TEMP       ;SET UP EVENT TYPE
3350  021010  000474                          BR      LOGS3           ;GO LOG EVENT AND TIME
3351
3352  021012                          LOGDVI:
3353  021012  012737  016122  007174          MOV     #SDVI,TEMP1     ;SET UP MSG. TO PRINT
3354  021020  012737  000012  007172          MOV     #DVI,TEMP       ;SET UP EVENT TYPE
3355  021026  113737  007220  007176          MOVB    MODTYP,TEMP2
3356  021034  113737  007222  007177          MOVB    MLTYP,TEMP2+1
3357  021042  013737  007230  007200          MOV     RPASS,TEMP3
3358  021050  013737  007226  007202          MOV     PARAM,TEMP4     ;SET UP EVNT ENTRIES
3359  021056  000451                          BR      LOGS3           ;GO LOG EVENT AND TIME
3360
3361  021060                          LOGCMP:
3362  021060  012737  016111  007174          MOV     #SCM,TEMP1      ;SET UP MSG. TO PRINT
3363  021066  012737  000014  007172          MOV     #DCK,TEMP       ;SET UP EVENT TYPE
3364  021074  000442                          BR      LOGS3
3365  021076                          LOGCML:
3366  021076  012737  016133  007174          MOV     #SCML,TEMP1
3367  021104  012737  000020  007172          MOV     #DLE,TEMP       ;SET UP MSG. AND TYPE
3368  021112  000433                          BR      LOGS3           ;GO LOG EVENT AND TIME
3369  021114                          LOGCMD:
3370  021114  012737  016144  007174          MOV     #SCMD,TEMP1
3371  021122  012737  000022  007172          MOV     #DDE,TEMP
3372  021130  000424                          BR      LOGS3           ;GO LOG MSG TYPE AND TIME
3373  021132                          LOGEOP:
3374  021132  012737  016155  007174          MOV     #SEOP,TEMP1
3375  021140  012737  000024  007172          MOV     #EOP,TEMP
3376  021146  000415                          BR      LOGS3           ;GO LOG MSG TYPE AND TIME
3377
3378  021150  013746  007144          LOGS1:  MOV     ERRCNT,-(SP)    ;SAVE CURRENT ERROR COUNT
3379  021154  004737  034064                  JSR     PC,DVMODS       ; GO GET MODEM STATUS
3380  021160  012604                          MOV     (SP)+,R4        ;GET SAVED ERRCNT VALUE
3381  021162  020437  007144                  CMP     R4,ERRCNT       ;WHERE ANY ERRORS FOUND
3382  021166  001402                          BEQ     1$              ; BR IF NONE
3383  021170  000137  021404                  JMP     LOGEX           ; ELSE, LEAVE WITHOUT .OGGING ANYTHING
3384                                                                  ;   BUT THE DEVICE ERRVR FROM 'DVMODS'
3385  021174  013737  010206  007202  1$:     MOV     MODS,TEMP4      ;AND PUT IT IN TEMP4
3386
3387  021202                          LOGS3:
3388  021202  022737  000006  007172          CMP     #RXC,TEMP
3389  021210  001434                          BEQ     LOGS5           ;IF RXC DONT PRINT
3390  021212  032737  000001  007226          BIT     #STATB,PARAM
3391  021220  001430                          BEQ     LOGS5           ;IF NO STATUS SELECTED
3392                                                                  ;GO TO 5
3393
3394  021222  022737  000010  007136          CMP     #10,LNCNT       ;HAVE WE DONE 10?
3395  021230  001012                          BNE     LOGS4           ;IF NOT GO TO 4
3396  021232  005037  007136                  CLR     LNCNT           ;ESLE CLEAR IT
3397
3398  021236                                  PRINTF  #CR             ;ELSE PRINT CR
3399  021236  012746  016042                                                  MOV     #CR,-(SP)
3400  021242  012746  000001                                                  MOV     #1,-(SP)
3401  021246  010600                                                          MOV     SP,R0
3402  021250  104417                                                          TRAP    C$PNTF
3403  021252  062706  000004                                                  ADD     #4,SP
```

```
3404  021256
3405  021256  005237  007136                LOGS4:
3406  021262                                      INC     LNCNT           ;INC COUNTER OF # OF AWAKE MSGS
3407  021262  013746  007174                      PRINTF  TEMP1           ;PRINT OPERATOR AWAKE MSG.
3408  021266  012746  000001                                                      MOV     TEMP1,-(SP)
3409  021272  010600                                                             MOV     #1,-(SP)
3410  021274  104417                                                             MOV     SP,R0
3411  021276  062706  000004                                                     TRAP    C$PNTF
3412  021302  010346                                                             ADD     #4,SP
3413  021304  013703  007300                LOGS5:  MOV     R3,-(SP)        ;SAVE R3 ON THE STACK
3414  021310  113723  007172                        MOV     EVTPTR,R3
3415  021314  013737  007260  007172              MOVB    TEMP,(R3)+      ;LOG EVENT
3416  021322  163737  007270  007172              MOV     CLKHZ,TEMP
3417  021330  113723  007172                      SUB     TIMTCK,TEMP
3418  021334  113723  007266                      MOVB    TEMP,(R3)+      ;LOG TIME SINCE START
3419  021340  113723  007264                      MOVB    TIMSEC,(R3)+
3420  021344  013723  007176                      MOVB    TIMMIN,(R3)+    ;TICKS,SECS AND MINS.
3421  021350  013723  007200                      MOV     TEMP2,(R3)+     ;LOG EVNT ENTRY 3
3422  021354  013723  007202                      MOV     TEMP3,(R3)+     ;LOG EVNT ENTRY 4
3423  021360  020327  010204                      MOV     TEMP4,(R3)+     ;LOG EVNT ENTRY 5
3424  021364  103404                            CMP     R3,#EVTEND
3425                                            BLO     LOGS2           ;IF EVENT LOG FULL GO
3426  021366  012713  177777                                              ;CONTINUE;ELSE GO TO 2
3427  021372  012703  007302                      MOV     #-1,(R3)        ;LOG A TABLE END
3428  021376  010337  007300                      MOV     #EVTLOG,R3      ;PUT R3 TO START OF TABLE
3429  021402  012603                LOGS2:  MOV     R3,EVTPTR       ;RESTORE POINTER
3430  021404  000207                        MOV     (SP)+,R3        ;RESTORE R3
3431                                  LOGEX:  RTS     PC
3432
```

```
                                .SBTTL          DUMP EVENT LOG AND BASE TABLE

021406  010246          REPORT: MOV     R2,-(SP)        ;SAVE R2,R3,R4 ON THE STACK
021410  010346                  MOV     R3,-(SP)
021412  010446                  MOV     R4,-(SP)
021414  005037  007172          CLR     TEMP
021420                          GMANIL #BASM1A,TEMP,1,YES
021420  104443                                                          TRAP    C$GMAN
021422  000404                                                          BR      10000$
021424  007172                                                          .WORD   TEMP
021426  000130                                                          .WORD   T$CODE
021430  014755                                                          .WORD   #BASM1A
021432  000001                                                          .WORD   1
021434                                                          10000$:
021434  005737  007172                  TST     TEMP
021440  001413                  BEQ     BASN1           ;IF NO BASE PRINT GO TO 1

021442  012737  017370  007146        MOV     #BASE,STADD
021450  012737  017767  007150        MOV     #BASE+255.,ENADD
021456  012737  000001  007152        MOV     #1,BYTBIT
021464  004737  022442                JSR     PC,DUMPSR       ;GO DUMP BASE TABLE
021470  013702  007300          BASN1: MOV     EVTPTR,R2       ;MAKE R2 A POINTER TO EVENT TABLE
021474  023727  007302  177777        CMP     EVTLOG,#-1      ;SEE IF EVENT TABLE IS EMPTY
021502  001034                  BNE     RPT0            ;BR IF NO
021504                          PRINTS  #NULEVT         ;IF EMPTY TELL OPRERATOR.
021504  012746  015016                                                  MOV     #NULEVT,-(SP)
021510  012746  000001                                                  MOV     #1,-(SP)
021514  010600                                                          MOV     SP,R0
021516  104416                                                          TRAP    C$PNTS
021520  062706  000004                                                  ADD     #4,SP
021524  000137  022320                JMP     ENDEVT          ;AND END

021530  162702  000012          RPT:  SUB     #12,R2          ;NOW POINT BACK TO TOP OF ENTRY U
                                                              ;JUST PRINTED

021534  020227  007302                CMP     R2,#EVTLOG      ;POINTING TO TOP OF EVNT LOG QUEUE?
021540  001010                  BNE     RPT1            ; BR IF NO
021542  012702  010204                MOV     #EVTEND,R2      ;SET R2 TO POINT TO BOTTOM OF LOG
021546  026227  177776  177777        CMP     -2(R2),#-1
021554  001007                  BNE     RPT0            ;IF END OF LOG IS NOT EMPTY
021556  000137  022320                JMP     ENDEVT          ;CONTINUE...ELSE EXIT

021562  020237  007300          RPT1: CMP     R2,EVTPTR       ;ARE WE BACK TO POINTER?
021566  001002                  BNE     RPT0            ;IF NOT CONTINUE
021570  000137  022320                JMP     ENDEVT          ;IF SO EXIT....

021574  162702  000012          RPT0: SUB     #12,R2          ;POINT R2 TO START OF ENTRY
021600                          RPTAA: PRINTS #EVTF0          ;PRINT EVENT ENTRY HEADER
021600  012746  015051                                                  MOV     #EVTF0,-(SP)
021604  012746  000001                                                  MOV     #1,-(SP)
021610  010600                                                          MOV     SP,R0
021612  104416                                                          TRAP    C$PNTS
021614  062706  000004                                                  ADD     #4,SP
021620  112203                  MOVB    (R2)+,R3        ;PUT EVENT TYPE INTO R3
021622  112237  010276                MOVB    (R2)+,EVTTCK
```

```
3489  021626  112237  010272                  MOVB    (R2)+,EVTSEC    ;PUT EVENT TIME (TICKS,SECS,MINS IN TEMP LOC.S)
3490  021632  112237  010274                  MOVB    (R2)+,EVTMIN
3491  021636                                  PRINTS  #EVTF1,EVTMIN,EVTSEC,EVTTCK,EVTLST(R3)  ;PRINT EVENT TIME AND DESCRIPT.
3492  021636  016346  010244                                                                  MOV     EVTLST(R3),-(SP)
3493  021642  013746  010276                                                                  MOV     EVTTCK,-(SP)
3494  021646  013746  010272                                                                  MOV     EVTSEC,-(SP)
3495  021652  013746  010274                                                                  MOV     EVTMIN,-(SP)
3496  021656  012746  015147                                                                  MOV     #EVTF1,-(SP)
3497  021662  012746  000005                                                                  MOV     #5,-(SP)
3498  021666  010600                                                                         MOV     SP,R0
3499  021670  104416                                                                         TRAP    C$PNTS
3500  021672  062706  000014                                                                 ADD     #14,SP
3501  021676  000173  010306                  JMP     @RPTDSP(R3)     ;DISPATCH TO DECODING SECTION FOR SPECIFIC TYPE
3502
3503  021702  012237  010300          RPTTXQ: MOV     (R2)+,EVTADD    ;STORE MESSAGE ADDRESS FOR PRINTING
3504  021706  012237  010302                  MOV     (R2)+,EVTBCT    ;STORE BYTE COUNT FOR PRINTING
3505  021712  012203                          MOV     (R2)+,R3        ;STORE MODEM STATUS FOR PRINTING
3506  021714                                  PRINTS  #EVTF2,EVTADD,EVTBCT    ;PRINT ADDR,BYTE CNT
3507  021714  013746  010302                                                                  MOV     EVTBCT,-(SP)
3508  021720  013746  010300                                                                  MOV     EVTADD,-(SP)
3509  021724  012746  015176                                                                  MOV     #EVTF2,-(SP)
3510  021730  012746  000003                                                                  MOV     #3,-(SP)
3511  021734  010600                                                                         MOV     SP,R0
3512  021736  104416                                                                         TRAP    C$PNTS
3513  021740  062706  000010                                                                 ADD     #10,SP
3514  021744  004737  022330                  JSR     PC,RPTMSB       ;GO PRINT MODEM STATUS
3515  021750  000137  021530                  JMP     RPT             ;GO BACK FOR NEXT EVENT ENTRY
3516
3517  021754  012237  010304          RPTDER: MOV     (R2)+,EVTTMP    ;GET ADDRESS OF DEVICE INFO MESSAGE
3518  021760  012237  010334                  MOV     (R2)+,DEV1      ;STORE DEVICE REG CONTENTS FOR PRINTING
3519  021764  012237  010336                  MOV     (R2)+,DEV2
3520  021770                                  PRINTS  #EVTF3,EVTTMP   ;PRINT DEVICE REG CONTENTS.
3521  021770  013746  010304                                                                  MOV     EVTTMP,-(SP)
3522  021774  012746  015250                                                                  MOV     #EVTF3,-(SP)
3523  022000  012746  000002                                                                  MOV     #2,-(SP)
3524  022004  010600                                                                         MOV     SP,R0
3525  022006  104416                                                                         TRAP    C$PNTS
3526  022010  062706  000006                                                                 ADD     #6,SP
3527  022014                                  PRINTS  #EVTF3C,DEV1,DEV2
3528  022014  013746  010336                                                                  MOV     DEV2,-(SP)
3529  022020  013746  010334                                                                  MOV     DEV1,-(SP)
3530  022024  012746  015262                                                                  MOV     #EVTF3C,-(SP)
3531  022030  012746  000003                                                                  MOV     #3,-(SP)
3532  022034  010600                                                                         MOV     SP,R0
3533  022036  104416                                                                         TRAP    C$PNTS
3534  022040  062706  000010                                                                 ADD     #10,SP
3535  022044  000137  021530                  JMP     RPT             ;GO BACK FOR NEXT EVENT ENTRY
3536
3537  022050  005037  010334          RPTDVI: CLR     DEV1
3538  022054  005037  010336                  CLR     DEV2            ;CLEAR UPPER BYTES OF DEV1 & DEV2 BEFORE USE
3539  022060  112237  010334                  MOVB    (R2)+,DEV1      ;STORE SETUP OPERATION PARAMETERS FOR PRINTING
3540  022064  112237  010336                  MOVB    (R2)+,DEV2
3541  022070  012237  010340                  MOV     (R2)+,DEV3
3542  022074  012237  010342                  MOV     (R2)+,DEV4
3543  022100  010246                          MOV     R2,-(SP)        ;SAVE R2 ON THE STACK
3544  022102  004737  023022                  JSR     PC,SHWOP        ;GO PRINT MODE, MAINT-LOOP TYPE, PARAMTERS.
```

```
3545  022106  012602                  MOV     (SP)+,R2        ;RESTORE R2
3546  022110  000137  021530          JMP     RPT             ;GO BACK FOR NEXT EVENT ENTPY
3547  022114  012237  010300  RPTEOP: MOV     (R2)+,EVTADD
3548  022120  012237  010302          MOV     (R2)+,EVTBCT
3549  022124  012237  010304          MOV     (R2)+,EVTTMP
3550  022130                          PRINTS  #EVTF4B,EVTADD,EVTBCT,EVTTMP    ;PRINT ADDR,RXBYTES,CMPBYTES.
3551  022130  013746  010304                                                          MOV     EVTTMP,-(SP)
3552  022134  013746  010302                                                          MOV     EVTBCT,-(SP)
3553  022140  013746  010300                                                          MOV     EVTADD,-(SP)
3554  022144  012746  015521                                                          MOV     #EVTF4B,-(SP)
3555  022150  012746  000004                                                          MOV     #4,-(SP)
3556  022154  010600                                                                  MOV     SP,R0
3557  022156  104416                                                                  TRAP    C$PNTS
3558  022160  062706  000012                                                          ADD     #12,SP
3559
3560  022164  000137  021530          JMP     RPT             ;THEN GO GET NEXT EVENT ENTRY
3561
3562
3563  022170  012237  010300  RPTDDE: MOV     (R2)+,EVTADD    ;STORE MESSAGE ADDRESS FOR PRINTING
3564  022174  012237  010302          MOV     (R2)+,EVTBCT    ;STORE BYTE COUNT FOR PRINTING
3565  022200  012237  010304          MOV     (R2)+,EVTTMP    ;STORE TOTAL # OF CMP ERRORS
3566  022204                          PRINTS  #EVTF4,EVTADD,EVTBCT,EVTTMP     ;PRINT ADDR, BYTE CNT, # CMP ERRS
3567  022204  013746  010304                                                          MOV     EVTTMP,-(SP)
3568  022210  013746  010302                                                          MOV     EVTBCT,-(SP)
3569  022214  013746  010300                                                          MOV     EVTADD,-(SP)
3570  022220  012746  015321                                                          MOV     #EVTF4,-(SP)
3571  022224  012746  000004                                                          MOV     #4,-(SP)
3572  022230  010600                                                                  MOV     SP,R0
3573  022232  104416                                                                  TRAP    C$PNTS
3574  022234  062706  000012                                                          ADD     #12,SP
3575  022240  000137  021530          JMP     RPT             ;THEN GO GET NEXT EVENT ENTRY
3576
3577  022244          RPTDLE:
3578  022244  012237  010300  RPTDCK: MOV     (R2)+,EVTADD    ;STORE MSG ADDR FOR PRINT
3579  022250  012237  010302          MOV     (R2)+,EVTBCT    ;STORE BYTE COUNT
3580  022254  012237  010304          MOV     (R2)+,EVTTMP    ;STORE BYTE COUNT COMP
3581  022260                          PRINTS  #EVTF4A,EVTADD,EVTBCT,EVTTMP    ;PRINT ADDR,RXBYTES,CMPBYTES.
3582  022260  013746  010304                                                          MOV     EVTTMP,-(SP)
3583  022264  013746  010302                                                          MOV     EVTBCT,-(SP)
3584  022270  013746  010300                                                          MOV     EVTADD,-(SP)
3585  022274  012746  015423                                                          MOV     #EVTF4A,-(SP)
3586  022300  012746  000004                                                          MOV     #4,-(SP)
3587  022304  010600                                                                  MOV     SP,R0
3588  022306  104416                                                                  TRAP    C$PNTS
3589  022310  062706  000012                                                          ADD     #12,SP
3590
3591  022314  000137  021530          JMP     RPT             ;THEN GO GET NEXT EVENT ENTRY
3592
3593  022320  012604  ENDEVT: MOV     (SP)+,R4        ;RESTORE R4,R3,R2
3594  022322  012603          MOV     (SP)+,R3
3595  022324  012602          MOV     (SP)+,R2
3596  022326  000207          RTS     PC              ;RETURN TO CALLING ROUTINE
3597
3598
3599                          ;REPORT MODEM STATUS SUBROUTINE
3600                          ;       PART OF STATISICAL REPORTING (DUMPING EVENT LOG)
```

```
3601
3602  022330                          RPTMSB: PRINTS  #EVMOHD                 ;PRINT MODEM STATUS HEADER
3603  022330  012746  015707                                                          MOV     #EVMOHD,-(SP)
3604  022334  012746  000001                                                          MOV     #1,-(SP)
3605  022340  010600                                                                 MOV     SP,R0
3606  022342  104416                                                                 TRAP    C$PNTS
3607  022344  062706  000004                                                         ADD     #4,SP
3608  022350  012704  010210                  MOV     #MOBITS,R4      ;MAKE R4 A POINTER TO MODEM SIG. BIT DEF. TABLE
3609  022354  012705  010226                  MOV     #MOMSGS,R5      ;MAKE R5 A POINTER TO MODEM MSG. POSITION TABLE
3610  022360  005714                  6$:     TST     (R4)            ;SEE IF BIT AVAIABLE FROM DEVICE
3611  022362  001004                          BNE     7$              ;BR IF THAT MODEM SIG. AVAIABLE
3612  022364  112735  000130                  MOVB    #'X,@(R5)+      ;ELSE PUT 'X' IN REPORT IF SIGNAL NOT AVAILABLE
3613  022370  005724                          TST     (R4)+           ;BUMP R4 TO POINT TO NEXT BIT DEFINITION
3614  022372  000407                          BR      9$              ;GO SEE IF CHECKED ALL MODEM SIGNALS
3615  022374  032403                  7$:     BIT     (R4)+,R3        ;IF THERE, SEE IF THAT BIT IN DEVICE'S ENTRY=1
3616  022376  001403                          BEQ     8$              ;BR IF BIT (SIGNAL) VALUE =0
3617  022400  112735  000061                  MOVB    #'1,@(R5)+      ;IF=1, PUT '1' IN REPORT MESSAGE
3618  022404  000402                          BR      9$              ;GO SEE IF ALL MODEM SIGNALS CHECKED
3619  022406  112735  000060          8$:     MOVB    #'0,@(R5)+      ;IF BIT(SIGNAL)=0, PUT '0' IN REPORT MESSAGE
3620  022412  020427  010226          9$:     CMP     R4,#MOBITE      ;SEE IF ALL BITS(SIGNALS) CHECKED
3621  022416  002760                          BLT     6$              ;LOOP UNTIL ALL SIGNALS(BITS) CHECKED
3622  022420                                  PRINTS  #EVMOST         ;THEN PRINT MODEM SIGNAL VALUE MESSAGE
3623  022420  012746  015767                                                          MOV     #EVMOST,-(SP)
3624  022424  012746  000001                                                          MOV     #1,-(SP)
3625  022430  010600                                                                 MOV     SP,R0
3626  022432  104416                                                                 TRAP    C$PNTS
3627  022434  062706  000004                                                         ADD     #4,SP
3628  022440  000207                          RTS     PC              ;RETURN TO EVENT DECODING
3629
3630
```

```
                                .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
                                ;
                                ;--
022442  013702  007146  DUMPSR: MOV     STADD,R2        ;SET R2 UP TO STARTING ADDR.
022446  005003          DUM4:   CLR     R3              ;CLEAR R3
022450                          PRINTF  #BASM1,R2       ;PRINT ADDRESS
022450  010246                                                  MOV     R2,-(SP)
022452  012746  015010                                          MOV     #BASM1,-(SP)
022456  012746  000002                                          MOV     #2,-(SP)
022462  010600                                                  MOV     SP,R0
022464  104417                                                  TRAP    C$PNTF
022466  062706  000006                                          ADD     #6,SP
022472  005737  007152  DUM3:   TST     BYTBIT          ;IS THIS BYTE OR WORD
022476  001416          BEQ     DUM1            ;BR IF WORD
022500  112237  007172  MOVB    (R2)+,TEMP      ;MOV BYTE TO TEMP
022504                  PRINTF  #BASM3,<B,TEMP> ;PRINT BYTE
022504  005046                                                  CLR     -(SP)
022506  153716  007172                                          BISB    TEMP,(SP)
022512  012746  014772                                          MOV     #BASM3,-(SP)
022516  012746  000002                                          MOV     #2,-(SP)
022522  010600                                                  MOV     SP,R0
022524  104417                                                  TRAP    C$PNTF
022526  062706  000006                                          ADD     #6,SP
022532  000411          BR      DUM2
022534          DUM1:   PRINTF  #BASM2,(R2)+    ;PRINT WORD
022534  012246                                                  MOV     (R2)+,-(SP)
022536  012746  015001                                          MOV     #BASM2,-(SP)
022542  012746  000002                                          MOV     #2,-(SP)
022546  010600                                                  MOV     SP,R0
022550  104417                                                  TRAP    C$PNTF
022552  062706  000006                                          ADD     #6,SP
022556  020237  007150  DUM2:   CMP     R2,ENADD        ;COMPARE FOR LAST ADD
```

```
3687  022562  003005                    BGT     DUMEX           ;IF DONE EXIT
3688  022564  005203                    INC     R3              ;ELSE BUMP R3
3689  022566  022703  000010            CMP     #8.,R3          ;HAVE WE PRINTED 8 ACCROSS
3690  022572  001725                    BEQ     DUM4            ;IF SO GO BACK TO 4
3691  022574  000736                    BR      DUM3            ;ELSE GO BACK AND PRINT ANOTHER
3692                                                            ;BYTE OR WORD
3693  022576  000207            DUMEX:  RTS     PC              ;RETURN TO CALLER
3694
```

```
                                .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 OCCURED.
                                ;
                                ; 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,ADCC         ;UPDATED TOTAL CHAR. COUNT
                                ;--

022600  063737  007156  007166 ADDCC:  ADD     CURCC,TOTCC     ;ADD CURRENT TO TOTAL
022606  022737  001000  007166         CMP     #BUFLIM,TOTCC   ; COMPARE TO 'BUFLIM''
022614  103027                       BHIS    ADDC1           ;IF NOT MORE THEN 'BUFLIM'' EXIT

                                        ; PRINT MESSAGE AND TRUNCATE COUNT

022616                                  PRINTF  #MSGTRU
022616  012746  014102                                                  MOV     #MSGTRU,-(SP)
022622  012746  000001                                                  MOV     #1,-(SP)
022626  010600                                                          MOV     SP,R0
022630  104417                                                          TRAP    C$PNTF
022632  062706  000004                                                  ADD     #4,SP
022636  163737  007156  007166         SUB     CURCC,TOTCC     ;SUB CURRENT FROM TOTAL
022644  012737  001000  007172         MOV     #BUFLIM,TEMP    ;MOV 'BUFLIM' TO TEMP
022652  163737  007166  007172         SUB     TOTCC,TEMP      ;SUB TOTAL FROM 'BUFLIM'
022660  013737  007172  007156         MOV     TEMP,CURCC      ;AND ESTABLISH NEW CURRENT
022666  063737  007156  007166         ADD     CURCC,TOTCC     ;ADD ''ADJUSTED CURRENT'' TO TOTAL CHAR. CNT.
022674  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   ^ ADD PTRS.
                                ;--

022676                          BLDBUF:
022676  010246                          MOV     R2,-(SP)        ;SAVE R2 AND R3 ON THE STACK
022700  010346                          MOV     R3,-(SP)
022702  013702  007162                  MOV     CPTR,R2

022706  013722  007164          BLDB1:  MOV     CURADD,(R2)+    ;PUT CURRENT ADD ON POINTER TAB
022712  013722  007156                  MOV     CURCC,(R2)+     ;PUT CURRENT CC ON POINTER TAB
022716  010237  007162                  MOV     R2,CPTR         ;PUT UPDATED R2 BACK TO CURRENT POINT
022722  013702  007154                  MOV     MSGTYP,R2       ;GET MESSAGE TYPE TO USE AS INDEX
022726  006302                          ASL     R2              ;DOUBLE FOR WORD INDEX
022730  013737  007164  007172          MOV     CURADD,TEMP     ;MOVE CURRENT ADD TO TEMP
022736  063737  007156  007172          ADD     CURCC,TEMP      ;ADD CHAR COUNT TO IT TO GET END
022744  013703  007164                  MOV     CURADD,R3       ;SET R3 TO CURRENT START ADD
022750  016237  002150  007176  BLDB2:  MOV     DMSGCT(R2),TEMP2        ;GET BYTE COUNT
022756  016204  002176                  MOV     DMSGAD(R2),R4   ;PUT STARTING FROM ADD IN R4
022762  060437  007176                  ADD     R4,TEMP2        ;ADD IT TO TEMP2 TO GET END OF FROM
022766  112423                  BLDB3:  MOVB    (R4)+,(R3)+     ;MOV BYTE FROM PATTERN TO BUFFER
022770  020337  007172                  CMP     R3,TEMP         ;ALL DONE?
022774  001404                          BEQ     BLDBEX          ;IF SO EXIT
022776  020437  007176                  CMP     R4,TEMP2        ;IS PATTERN COUNT EXPIRED
023002  001762                          BEQ     BLDB2           ;IF SO GO START AGAIN
023004  000770                          BR      BLDB3           ;IF NOT GET ANOTHER BYTE
023006  063737  007156  007164  BLDBEX: ADD     CURCC,CURADD    ;BUMP CURADD
023014  012603                          MOV     (SP)+,R3        ;RESTORE R3 AND R2
023016  012602                          MOV     (SP)+,R2
023020  000207                          RTS     PC              ;RETURN TO CALLER
```

```
                                        .SBTTL          SHOW MODE OF OPERATION, LOOP TYPE AND QUALIFIERS

                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:
                                        ;       SHWOP - SHOW MODE OF OPERATION, LOOP, QULAIFIERS
                                        ;               PRINTED ON THE OPERATOR'S CONSOLE.
                                        ;
                                        ; INPUTS:
                                        ;       DEV1=   MODE TYPE (MODTYP)
                                        ;       DEV2=   MAINT LOOP TYPE (MLTYP)
                                        ;       DEV3=   'RUN PASS'' COUNT (RPASS) - COUNT DOWN
                                        ;       DEV4=   PARAMTERS WORD (PARAM)
                                        ;
                                        ; IMPLICIT INPUTS:
                                        ;       MODES= TABLE OF ADDRESSES OF MODE NAME STRINGS
                                        ;       LOOPS= TABLE OF ADDRESSES OF LOOP TYPE NAMES
                                        ;
                                        ; CALLING SEQUENCE:
                                        ;       JSR PC,SHWOP
                                        ;--
023022  013702  010334          SHWOP:  MOV     DEV1,R2         ;GET THE MODE TYPE IN R2
023026  006302                          ASL     R2              ;MAKE IT A WORD TABLE OFFSET
023030  016237  003260  007172          MOV     MODES(R2),TEMP  ;GET ADDRESS OF MODE-IN-ASCII
023036  013702  010336                  MOV     DEV2,R2         ;GET MAINTENANCE LOOP TYPE
023042  006302                          ASL     R2
023044  012737  013457  007200          MOV     #LP00,TEMP3     ;LOAD TEMP3 TO POINT TO ''/LOOP=''
023052  005702                          TST     R2              ;SEE IF /LOOP=XXXXX OR NONE
023054  001003                          BNE     10$             ; BR IF /LOOP= OF SOME KIND
023056  012737  013456  007200          MOV     #LP0,TEMP3      ;IF NO LOOP THEN DON'T PRINT ''/LOOP=''
023064  016237  003276  007174  10$:    MOV     LOOPS(R2),TEMP1 ;GET ADDRESS OF LOOP-IN-ASCII
023072  013737  010340  007176          MOV     DEV3,TEMP2      ;GET NUMBER OF PASSES
023100                                  PRINTS  #SHF0,TEMP,TEMP3,TEMP1,TEMP2
023100  013746  007176                                                  MOV     TEMP2,-(SP)
023104  013746  007174                                                  MOV     TEMP1,-(SP)
023110  013746  007200                                                  MOV     TEMP3,-(SP)
023114  013746  007172                                                  MOV     TEMP,-(SP)
023120  012746  014165                                                  MOV     #SHF0,-(SP)
023124  012746  000005                                                  MOV     #5,-(SP)
023130  010600                                                          MOV     SP,R0
023132  104416                                                          TRAP    C$PNTS
023134  062706  000014                                                  ADD     #14,SP

023140  005002                          CLR     R2              ;NOW SET UP FOR QUALIFIERS IN ASCII
023142  012737  013536  007172          MOV     #PST,TEMP
023150  032737  000001  010342          BIT     #STATB,DEV4     ;SEE IF /STATUS OR /NOSTATUS
023156  001003                          BNE     1$              ;BR IF /STATUS
023160  012737  013534  007172          MOV     #PNST,TEMP
023166  012737  013547  007174  1$:     MOV     #PCK,TEMP1
023174  032737  000002  010342          BIT     #DATCKB,DEV4    ;SEE IF /CHECK OR /NOCHECK
023202  001003                          BNE     2$              ;BR IF /CHECK
023204  012737  013545  007174          MOV     #PNCK,TEMP1
023212  012737  013557  007176  2$:     MOV     #PEC,TEMP2
023220  032737  000004  010342          BIT     #ECHOB,DEV4     ;SEE IF /ECHO OR /NOECHO
023226  001003                          BNE     5$              ;BR IF /ECHO
023230  012737  013555  007176          MOV     #PNEC,TEMP2
```

```
3845
3846
3847  023236                          5$:     PRINTS  #SHF1,TEMP,TEMP1,TEMP2          ;,TEMP3,TEMP4 **;SEE NOTE ABOVE
3848  023236  013746  007176                                                                  MOV     TEMP2,-(SP)
3849  023242  013746  007174                                                                  MOV     TEMP1,-(SP)
3850  023246  013746  007172                                                                  MOV     TEMP,-(SP)
3851  023252  012746  014223                                                                  MOV     #SHF1,-(SP)
3852  023256  012746  000004                                                                  MOV     #4,-(SP)
3853  023262  010600                                                                          MOV     SP,R0
3854  023264  104416                                                                          TRAP    C$PNTS
3855  023266  062706  000012                                                                  ADD     #12,SP
3856  023272  000207                          RTS     PC              ;RETURN
3857
3858
```

```
                                .SBTTL          TRAVERSE COMMAND LINE SUBROUTINES

                                ;++
                                ;       P$TRV SUBROUITNE
                                ;
                                ;PARSE THE COMMAND LINE SUBROUTINE
                                ;TAKE ACTIONS (VIA ACTION TREE) AS PARSING LINE
                                ;PARSING DIRECTIONS FROM ''CLI PARSING NODES''
                                ;   REGS USED:
                                ;
                                ;       R1,R5=SCRATCH                           P$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
                                ;--

023274                          P$TRV:
023274  013704  003310                  MOV     P$BUFA,R4
023300  013703  003312                  MOV     P$TREE,R3
023304  105714                P$TR5:    TSTB    (R4)            ;SEE IF ANY CHARS LEFT IN INPUT STRING
023306  001441                          BEQ     P$EXIT          ;BR IF NO
023310  121327  000013                  CMPB    (R3),#11.       ;SEE IF SPECIAL CLI CHAR CODE OR ASCII
023314  003023                          BGT     20$             ;BR IF REGULAR ASCII CHAR.
023316  111305                          MOVB    (R3),R5         ;GET SPECIAL CHAR CODE INTO R5
023320  006305                          ASL     R5
023322  016505  023336                  MOV     10$(R5),R5      ;BUILD TRAVERSE ROUTINE ADDRESS
023326  062705  023336                  ADD     #10$,R5
023332  004715                          JSR     PC,(R5)         ;JSR TO SPECIAL CLI TRAVERSE ROUTINE
023334  000763                          BR      P$TR5           ;GO SEE IF MORE OF STRING LEFT

023336  000114                10$:      .WORD   TRVERR-10$      ;TRAVERSE TABLE FOR ''CLI FUNTIONS''
023340  000134                          .WORD   TRVEXI-10$      ;1
023342  000152                          .WORD   TRVBR-10$       ;2
023344  000162                          .WORD   TRVBIF-10$      ;3
023346  000204                          .WORD   TRVSPA-10$      ;4
023350  000270                          .WORD   TRVNUM-10$      ;5
023352  000604                          .WORD   TRVALP-10$      ;6
023354  000650                          .WORD   TRVALN-10$      ;7
023356  000270                          .WORD   TRVOCT-10$      ;8
023360  000256                          .WORD   TRVDEC-10$      ;9
023362  000736                          .WORD   TRVSTR-10$      ;10

                                ;NOT A SPECIAL CODE

023364  121314                20$:      CMPB    (R3),(R4)       ;SEE IF FIRST CHAR OF STRING IS A MATCH
023366  001403                          BEQ     22$             ;BR IF A MATCH
023370  004737  023434                  JSR     PC,TRVBRC       ;IF NOT A MATCH, GO TAKE MISS BRANCH
023374  000743                          BR      P$TR5           ; THEN GO BACK PT'G TO MISS NODE
023376  004737  023414        22$:      JSR     PC,TRVACT       ;IF A MATCH, GO DO ACTION DEFINED BY
023402  062703  000004                  ADD     #4,R3           ; ACTION CODE IN CLI NODE, THEN
                                                                ; ADJUST PTR TO NEXT CLI NODE
023406  005204                          INC     R4              ;ADJUST BUF PTR TO NEXT CHAR IF MATCH
023410  000735                          BR      P$TR5
```

```
3915
3916  023412  000207                  P$EXIT: RTS     PC                      ;RETURN FROM PARSER
3917
3918                                  ;-----------------------------------------------------------------------
3919
3920                                  ;GOTO USER ACTION ROUTINE
3921  023414  116302  000001          TRVACT: MOVB    1(R3),R2                ;GET ACTION CODE FROM CLI NODE
3922  023420  042702  177400                  BIC     #177400,R2              ;CLEAR ANY SIGN EXTENSION
3923  023424  013705  003314                  MOV     P$ACT,R5                ;GET ADDRESS OF CLI ACTION ROUTINE
3924  023430  004715                          JSR     PC,(R5)                 ;GO DO ACTION DEFINED BY CODE
3925  023432  000207                          RTS     PC                      ;RETURN TO CALLING CODE
3926
3927                                  ;TAKE BRANCH IN TREE
3928  023434  016305  000002          TRVBRC: MOV     2(R3),R5                ;GET BRANCH DISPLACEMENT FROM TREE
3929  023440  060503                          ADD     R5,R3                   ; AND POINT R3 TO THE 'MISS' NODE
3930  023442  000207                          RTS     PC                      ; RETURN TO P$TRV
3931
3932                                  ;NO BRANCH TAKEN
3933  023444  062703  000004          TRVNOB: ADD     #4,R3                   ;THINGS OK, UPDATE R3 TO POINT TO NEXT
3934  023450  000207                          RTS     PC                      ; NODE AND RETURN TO P$TRV
3935
3936                                  ;-----------------------------------------------------------------------
3937  023452  004737  023414          TRVERR: JSR     PC,TRVACT               ;TAKE ERROR ACTION
3938  023456  112737  177777  003325          MOVB    #-1,P$GDBD              ;SET ERROR RETURN FLAG
3939  023464  005726                          TST     (SP)+                   ;GET RID OF "JSR PUSH TO TRVERR"
3940  023466  000137  023412                  JMP     P$EXIT                  ;RETURN DIRECT TO EXIT OF P$TRV ROUTINE
3941
3942  023472  004737  023414          TRVEXI: JSR     PC,TRVACT               ;TAKE EXIT ACTION
3943  023476  105037  003325                  CLRB    P$GDBD                  ;SET GOOD/BAD FLAG TO 'SUCCESS (0)"
3944  023502  005726                          TST     (SP)+                   ;GET RID OF "JSR PUSH TO TRVEXI"
3945  023504  000137  023412                  JMP     P$EXIT                  ;RETURN DIRECT TO EXIT OF P$TRV ROUTINE
3946
3947  023510  004737  023414          TRVBR:  JSR     PC,TRVACT               ;GO TAKE BRANCH ACTION
3948  023514  000137  023434                  JMP     TRVBRC
3949
3950  023520  004737  023414          TRVBIF: JSR     PC,TRVACT
3951  023524  105737  003325                  TSTB    P$GDBD                  ;SEE IF P$GDBD SET OR CLEARED BY ACTION
3952  023530  001402                          BEQ     1$                      ;IF CLEAR FALL THRU TO NEXT NODE
3953  023532  000137  023434                  JMP     TRVBRC                  ;ELSE TAKE THE 'MISS" BRANCH
3954  023536  000137  023444          1$:     JMP     TRVNOB                  ;JUST UPDATE TO NEXT NODE IF THINGS OK
3955
3956  023542  005005          TRVSPA: CLR     R5                      ;CLEAR 'SPACE OR TAB FOUND" FLAG
3957  023544  121427  000011  1$:     CMPB    (R4),#11                ;SEE IF CHAR. IN CMD LINE= TAB
3958  023550  001003                  BNE     2$                      ;BR IF NO, NOT A TAB
3959  023552  005204                  INC     R4                      ;INC INPUT STRING POINTER
3960  023554  005205                  INC     R5                      ;INDICATE A TAB FOUND
3961  023556  000772                  BR      1$                      ;GO CHECK NEXT CHAR
3962
3963  023560  121427  000040  2$:     CMPB    (R4),#40                ;SEE IF CHAR. IN CMD LINE= SPACE
3964  023564  001003                  BNE     10$                     ;BR IF NO, NON-SPACE OR NON-TAB CHAR.
3965  023566  005204                  INC     R4                      ;INC INPUT STRING POINTER
3966  023570  005205                  INC     R5                      ;INDICATE A SPACE FOUND
3967  023572  000764                  BR      1$                      ;GO CHECK NEXT CHAR
3968  023574  005705          10$:    TST     R5                      ;SEE IF ANY SPACES OR TABS FOUND
3969  023576  001404                  BEQ     15$                     ;BR IF NO, TAKE NO ACTION
3970  023600  004737  023414          JSR     PC,TRVACT               ;GO TAKE ACTION IF ANY FOUND
```

```
 3971  023604  000137  023444            JMP     TRVNOB                  ;JUST GO UPDATE R3 TO NEXT NODE IF OK
 3972  023610  000137  023434     15$:   JMP     TRVBRC                  ;TAKE BRANCH (MISS) IF NONE FOUND
 3973
 3974
 3975  023614  012737  000012  003322 TRVDEC: MOV     #10.,P$RADX             ;USE DECIMAL AS RADIX AND ASSUME +
 3976  023622  000137  023634            JMP     TRVNMA
 3977  023626                         TRVOCT: ;(SAME AS TRVNUM SINCE DEFAULT RADIX IS OCTAL)
 3978  023626  012737  000010  003322 TRVNUM: MOV     #8.,P$RADX              ;USE OCTAL AS RADIX AND ASSUME +
 3979  023634  005005                 TRVNMA: CLR     R5                      ;CLEAR DIGIT COUNTER
 3980  023636  121427  000053            CMPB    (R4),#'+                ;SEE IF THERE'S A + SIGN THERE
 3981  023642  001001                    BNE     10$                     ; BR IF NO
 3982  023644  000406                    BR      11$                     ; ELSE P$RADX ALREADY SAYS +, JUST BR
 3983  023646  121427  000055     10$:   CMPB    (R4),#'-                ;SEE IF THERE'S A - SIGN THERE
 3984  023652  001004                    BNE     1$                      ; BR IF NO
 3985  023654  112737  177777  003323    MOVB    #-1,P$RADX+1            ;SET 'MINUS FLAG' (HI BYTE OF P$RADX)
 3986  023662  005204     11$:           INC     R4                      ;BUMP R4 TO POINT TO FIRST CHAR
 3987
 3988  023664  121427  000060     1$:    CMPB    (R4),#60                ;SEE IF CHAR. LESS THAN A '0'
 3989  023670  002434                    BLT     2$                      ;BR IF YES (NOT NUMERIC)
 3990  023672  121427  000067            CMPB    (R4),#67                ;SEE IF CHAR. GREATER THAN A '7'
 3991  023676  003426                    BLE     13$                     ; BR IF YES
 3992  023700  123727  003322  000012    CMPB    P$RADX,#10.             ;SEE IF IN DECIMAL MODE
 3993  023706  001417                    BEQ     12$                     ; BR IF YES (CAN USE HIGHER LIMIT)
 3994  023710  121427  000071            CMPB    (R4),#71                ;SEE IF DIGIT WAS A 8 OR 9
 3995  023714  003022                    BGT     2$                      ;BR IF NON-NUMERIC
 3996  023716                            PRINTF  #CLIBRX                 ;ELSE WAS A 8 OR 9 WHEN IN OCTAL RADIX
 3997  023716  012746  012217                                                    MOV     #CLIBRX,-(SP)
 3998  023722  012746  000001                                                    MOV     #1,-(SP)
 3999  023726  010600                                                            MOV     SP,R0
 4000  023730  104417                                                            TRAP    C$PNTF
 4001  023732  062706  000004                                                    ADD     #4,SP
 4002  023736  112737  177777  003325    MOVB    #-1,P$GDBD              ;SET ERROR RETURN FLAG
 4003  023744  000474                    BR      5$                      ; PRINT ERROR AND TAKE MISS
 4004
 4005  023746  121427  000071     12$:   CMPB    (R4),#71                ;SEE IF CHAR. GREATER THAN A '9'
 4006  023752  003003                    BGT     2$                      ;BR IF YES (NOT NUMERIC)
 4007  023754  005204     13$:           INC     R4                      ;UPDATE CMD LINE PTR TO NEXT CHAR.
 4008  023756  005205                    INC     R5                      ;INDICATE A NUMERIC FOUND
 4009  023760  000741                    BR      1$                      ;GO LOOK AT NEXT CHAR.
 4010
 4011  023762  005705     2$:    TST     R5                      ;SEE IF FOUND ANY NUMERICS
 4012  023764  001464                    BEQ     5$                      ;BR IF NO, TAKE 'MISS' BRANCH
 4013  023766  010401                    MOV     R4,R1                   ;GET POINTER TO START OF NUMERIC STRING
 4014  023770  160501                    SUB     R5,R1
 4015  023772  005037  003320            CLR     P$NUM                   ;CLEAR LOC. WHERE VALUE WILL BE STORED
 4016  023776  112102     3$:    MOVB    (R1)+,R2                ;GET ASCII CHAR AND CONVERT IT TO A #
 4017  024000  162702  000060            SUB     #60,R2
 4018  024004  006337  003320            ASL     P$NUM                   ;SHIFT CURRENT VALUE TO MAKE ROOM
 4019  024010  103437                    BCS     7$                      ;ERROR IF NUMBER TOO BIG
 4020  024012  013737  003320  003316    MOV     P$NUM,P$CNT             ;SAVE FOR LATER IN CASE DECIMAL RADIX
 4021  024020  006337  003320            ASL     P$NUM
 4022  024024  103431                    BCS     7$                      ;ERROR IF NUMBER TOO BIG
 4023  024026  006337  003320            ASL     P$NUM
 4024  024032  103426                    BCS     7$                      ;ERROR IF NUMBER TOO BIG
 4025  024034  123727  003322  000012    CMPB    P$RADX,#10.             ;SEE IF DECIMAL RADIX
 4026  024042  001004                    BNE     4$                      ;BR IF NOT EQUAL
```

```
 4027  024044  063737  003316  003320          ADD     P$CNT,P$NUM
 4028  024052  103416                          BCS     7$                      ;ERROR IF NUMBER TOO BIG
 4029  024054  060237  003320          4$:     ADD     R2,P$NUM
 4030  024060  103413                          BCS     7$                      ;ERROR IF NUMBER TOO BIG
 4031  024062  005305                          DEC     R5
 4032  024064  001344                          BNE     3$
 4033  024066  105737  003323                  TSTB    P$RADX+1                ;SEE IF NUM WAS PRECEDED BY A - SIGN
 4034  024072  001402                          BEQ     15$                     ; BR IF NO
 4035  024074  005437  003320                  NEG     P$NUM                   ; ELSE NEGATE THE NUMBER BEFORE LEAVING
 4036  024100  004737  023414          15$:    JSR     PC,TRVACT               ;SINCE NUMERIC FOUND, GO TAKE ACTION
 4037  024104  000137  023444                  JMP     TRVNOB                  ;GO POINT R3 TO NEXT NODE
 4038
 4039  024110                          7$:     PRINTF  #CLINBG                 ;PRINT NUMBER TOO BIG ERROR
 4040  024110  012746  012175                                                          MOV     #CLINBG,-(SP)
 4041  024114  012746  000001                                                          MOV     #1,-(SP)
 4042  024120  010600                                                                  MOV     SP,R0
 4043  024122  104417                                                                  TRAP    C$PNTF
 4044  024124  062706  000004                                                          ADD     #4,SP
 4045  024130  112737  177777  003325          MOVB    #-1,P$GDBD              ;SET ERROR RETURN FLAG
 4046  024136  000137  023434          5$:     JMP     TRVBRC                  ;TAKE 'MISS'' BRANCH
 4047
 4048
 4049  024142  005005                  TRVALP: CLR     R5                      ;CLEAR ALPHA FOUND FLAG
 4050  024144  121427  000101          1$:     CMPB    (R4),#101               ;SEE IF CHAR. LESS THAN A ''A''
 4051  024150  002406                          BLT     2$                      ;BR IF YES (NOT ALPHA)
 4052  024152  121427  000132                  CMPB    (R4),#132               ;SEE IF CHAR. GREATER THAN A ''Z''
 4053  024156  003003                          BGT     2$                      ;BR IF YES (NOT ALPHA)
 4054  024160  005204                          INC     R4                      ;UPDATE CMD LINE PTR TO NEXT CHAR
 4055  024162  005205                          INC     R5                      ;INDICATE AN ALPHA WAS FOUND
 4056  024164  000767                          BR      1$                      ;GO LOOK AT NEXT CHAR.
 4057  024166  005705                  2$:     TST     R5                      ;SEE IF ANY ALPHA'S WERE FOUND
 4058  024170  001404                          BEQ     3$                      ;BR IF NO
 4059  024172  004737  023414                  JSR     PC,TRVACT               ;IF ANY FOUND TAKE ACTION
 4060  024176  000137  023444                  JMP     TRVNOB                  ;THEN UPDATE R3 TO NEXT NODE -NO BRANCH
 4061  024202  000137  023434          3$:     JMP     TRVBRC                  ;NONE FOUND, TAKE MISS BRANCH
 4062
 4063  024206  005005                  TRVALN: CLR     R5                      ;CLEAR ALPHANUM FOUND FLAG
 4064  024210  121427  000060          10$:    CMPB    (R4),#60                ;SEE IF CHAR. LESS THAN A ''0''
 4065  024214  002417                          BLT     2$                      ;BR IF YES (NOT NUMERIC OR ALPHA)
 4066  024216  121427  000072                  CMPB    (R4),#72                ;SEE IF CHAR. GREATER THAN A ''9''
 4067  024222  003003                          BGT     1$                      ;BR IF YES (NOT NUMERIC)
 4068  024224  005204                          INC     R4                      ;UPDATE CMD LINE PTR TO NEXT CHAR.
 4069  024226  005205                          INC     R5                      ;INDICATE A NUMERIC FOUND
 4070  024230  000767                          BR      10$                     ;GO LOOK AT NEXT CHAR.
 4071  024232  121427  000101          1$:     CMPB    (R4),#101               ;SEE IF CHAR. LESS THAN A ''A''
 4072  024236  002406                          BLT     2$                      ;BR IF YES (NOT ALPHA)
 4073  024240  121427  000132                  CMPB    (R4),#132               ;SEE IF CHAR. GREATER THAN A ''Z''
 4074  024244  003003                          BGT     2$                      ;BR IF YES (NOT ALPHA)
 4075  024246  005204                          INC     R4                      ;UPDATE CMD LINE PTR TO NEXT CHAR
 4076  024250  005205                          INC     R5                      ;INDICATE AN ALPHA FOUND
 4077  024252  000756                          BR      10$                     ;GO LOOK AT NEXT CHAR.
 4078  024254  005705                  2$:     TST     R5                      ;SEE IF ANY ALPHANUM'S WERE FOUND
 4079  024256  001404                          BEQ     3$                      ;BR IF NO
 4080  024260  004737  023414                  JSR     PC,TRVACT               ;IF ANY FOUND TAKE ACTION
 4081  024264  000137  023444                  JMP     TRVNOB                  ;THEN UPDATE R3 TO NEXT NODE -NO BRANCH
 4082  024270  000137  023434          3$:     JMP     TRVBRC                  ;NONE FOUND, TAKE MISS BRANCH
```

```
4083
4084
4085
4086  024274  010401           TRVSTR: MOV     R4,R1           ;POINT R1 TO CMD STRING
4087  024276  010305                   MOV     R3,R5
4088  024300  062705  000006           ADD     #6,R5           ;POUNT R5 TO MATCH STRING FROM CLI NODE
4089  024304  005037  003316           CLR     P$CNT           ;CLEAR CHAR MATCH COUNT
4090  024310  105715           2$:     TSTB    (R5)            ;SEE IF END OF MATCH STRING YET
4091  024312  001411                   BEQ     10$             ;BR IF YES
4092  024314  105711                   TSTB    (R1)            ;SEE IF END OF CMD LINE YET
4093  024316  001407                   BEQ     10$             ;BR IF YES
4094  024320  121115                   CMPB    (R1),(R5)       ;SEE IF CHARACTERS MATCH
4095  024322  001005                   BNE     10$             ;BR IF NO
4096  024324  005237  003316           INC     P$CNT           ;MATCH -INCREMENT MATCH COUNT
4097  024330  005201                   INC     R1              ;UPDATE STRING POINTERS
4098  024332  005205                   INC     R5
4099  024334  000765                   BR      2$              ;BR TO CONTINUE CHECKING CHARS.
4100
4101  024336  005737  003316     10$:  TST     P$CNT           ;WHEN DONE SEE IF ANY MATCHES FOUND
4102  024342  001406                   BEQ     15$             ;BR IF NO, GO TAKE THE MISS BRANCH
4103  024344  010104                   MOV     R1,R4           ;POINT CMD POINTER TO END OF STRING &
4104  024346  004737  023414           JSR     PC,TRVACT       ;IF A MATCH FOUND, GO DO MATCH ACTION
4105  024352  066303  000004           ADD     4(R3),R3        ;UPDATE R3 TO NEXT NODE (NO BRANCH)
4106  024356  000207                   RTS     PC              ;  (NO RETURN THRU TRVNOB SINCE DIFFERNT
4107                                                           ;   DISPLACEMENT DUE TO MATCH STRING)
4108  024360  000137  023434     15$:  JMP     TRVBRC          ; GO TAKE BRANCH
4109
4110                                                           ; (PARSED OK), -1 IF ILL CMD.....
4111                             ;-------------------------------------------------------------
4112
```

```
                                .SBTTL  REPORT CODING SECTION


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

024364                                  BGNRPT
024364                                                                  L$RPT::


024364  004737  021406                  JSR     PC,REPORT               ;CALL SUBROUTINE TO DUMP EVENT LOG
                                                                        ; AND BASE TABLE


024370                                  ENDRPT
024370                                                                  L10011:
024370  104425                                                                  TRAP    C$RPT
```

```
 4134                                   .SBTTL  PROTECTION TABLE
 4135
 4136                                   ;++
 4137                                   ; THIS TABLE IS USED BY THE RUNTIME SERVICES
 4138                                   ; TO PROTECT THE LOAD MEDIA.
 4139                                   ;--
 4140
 4141  024372                                   BGNPROT
 4142  024372                                                                    L$PROT::
 4143
 4144  024372  177777                          -1              ;OFFSET INTO P-TABLE FOR CSR ADDRESS
 4145  024374  177777                          -1              ;OFFSET INTO P-TABLE FOR MASSBUS ADDRESS
 4146  024376  177777                          -1              ;OFFSET INTO P-TABLE FOR DRIVE NUMBER
 4147
 4148  024400                                   ENDPROT
 4149
```

```
                                .SBTTL  INITIALIZE SECTION

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

024400                                  BGNINIT
024400                                                                  L$INIT::

024400 012737 177777 007216             MOV     #-1,RESFLG              ;SET RESTART FLAG
024406                                  READEF  #EF.START               ;IF HERE CAUSE OF START,DO SOME INIT
024406 012700 000040                                                            MOV     #EF.START,R0
024412 104447                                                                   TRAP    C$REFG
024414                                  BCOMPLETE       START
024414 103417                                                                   BCS     START
024416                                  READEF  #EF.RESTART             ;IF HERE CAUSE OF RESTART, DO SOME INIT
024416 012700 000037                                                            MOV     #EF.RESTART,R0
024422 104447                                                                   TRAP    C$REFG
024424                                  BCOMPLETE       RESTRT
024424 103515                                                                   BCS     RESTRT
024426                                  READEF  #EF.CONTINUE            ;SEE IF WE'RE HERE CAUSE OF A CONTINUE
024426 012700 000036                                                            MOV     #EF.CONTINUE,R0
024432 104447                                                                   TRAP    C$REFG
024434                                  BNCOMPLETE      S1              ;BR IF NOT HERE CAUSE OF CONITNUE
024434 103002                                                                   BCC     S1
024436 000137 025146                    JMP     ENDIT                   ;JMP IF HERE CAUSE OF A CONTINUE
024442                          S1:     READEF  #EF.NEW                 ;SEE IF THIS IS A 'NEW PASS'
024442 012700 000035                                                            MOV     #EF.NEW,R0
024446 104447                                                                   TRAP    C$REFG
024450                                  BCOMPLETE       NEW             ;IF YES, BR AROUND LOGUNIT # SETUP
024450 103523                                                                   BCS     NEW
024452 000525                           BR      GETPRM
024454                          START:
024454 005037 007216                    CLR     RESFLG                  ;CLEAR RESTART FLAG SINCE HERE ON START
024460 005037 007256                    CLR     CLKVEC                  ;CLEAR CLK VECTOR PTR. AS A FLAG IN
                                                                        ; NO CLOCK IS FOUND.
024464 012702 007252                    MOV     #CLKCSR,R2              ;SETUP R2 AS A PTR. TO CLOCK INFO BLOCK
024470                                  CLOCK   L,R1                    ;LOOK FOR A LINE CLOCK
024470 012700 000114                                                            MOV     #'L,R0
024474 104462                                                                   TRAP    C$CLCK
024476 010001                                                                   MOV     R0,R1
024500                                  BNCOMPLETE      S2              ; IF NONE THERE GO LOOK FOR A P-CLOCK
024500 103006                                                                   BCC     S2
024502 004737 020544                    JSR     PC,CLKSET               ; GO SET UP CLOCK INFO TABLE & CLK VEC.
024506 012737 000100 007262             MOV     #LCLKEN,CLKEN           ;SETUP THE ENABLE LINE CLOCK DATA
024514 000461                           BR      RESTRT
024516                          S2:     CLOCK   P,R1                    ;LOOK FOR A P-CLOCK SINCE NO LINE CLOCK
024516 012700 000120                                                            MOV     #'P,R0
024522 104462                                                                   TRAP    C$CLCK
024524 010001                                                                   MOV     R0,R1
024526                                  BNCOMPLETE      S3              ; IF NONE THERE GO SEE IF THIS IS LSI
024526 103017                                                                   BCC     S3
024530 004737 020544                    JSR     PC,CLKSET               ; ELSE GO SET UP CLOCK INFO & VECTOR
```

```
4206  024534  062737  000002  007252          ADD     #2,CLKCSR               ;POINT CLKCSR TO P-CLK COUNT SET REG.
4207  024542  012777  001600  162502          MOV     #PCLKCT,@CLKCSR         ;LOAD CLK SET REG. WITH COUNT VALUE
4208  024550  162737  000002  007252          SUB     #2,CLKCSR               ;POINT CLKCSR BAC TO P-CLK CSR
4209  024556  012737  000111  007262          MOV     #PCLKEN,CLKEN           ;SETUP THE ENABLE THE P-CLK DATA
4210  024564  000435                          BR      RESTRT
4211
4212  024566                          S3:     READBUS                         ;READ BUS TYPE TO SEE IF ON AN LSI
4213  024566  104407                                                                  TRAP    C$RDBU
4214  024570                                  BNCOMPLETE      S4              ;BR IF NOT, NO CHANCE OF A CLOCK
4215  024570  103021                                                                  BCC     S4
4216  024572  012737  000100  007256          MOV     #100,CLKVEC             ;LOAD 100 AS CLK VECTOR
4217  024600  005037  007254                  CLR     CLKBR                   ;LOAD 0 AS CLK INT. LEVEL
4218  024604  012737  007262  007252          MOV     #CLKEN,CLKCSR           ;KLUDGE UP THE CSR & ENABLE DATA LOCS
4219  024612                                  GMANID  L5060,CLKHZ,D,377,50.,60.,YES
4220  024612  104443                                                                  TRAP    C$GMAN
4221  024614  000406                                                                  BR      10000$
4222  024616  007260                                                                  .WORD   CLKHZ
4223  024620  000052                                                                  .WORD   T$CODE
4224  024622  013602                                                                  .WORD   L5060
4225  024624  000377                                                                  .WORD   377
4226  024626  000062                                                                  .WORD   T$LOLIM
4227  024630  000074                                                                  .WORD   T$HILIM
4228  024632                                                                  10000$:
4229  024632  000412                          BR      RESTRT
4230
4231  024634                          S4:     PRINTF  #NOCLK                  ;INFORM OPR. NO CLOCK, & EXIT INIT
4232  024634  012746  013712                                                          MOV     #NOCLK,-(SP)
4233  024640  012746  000001                                                          MOV     #1,-(SP)
4234  024644  010600                                                                  MOV     SP,R0
4235  024646  104417                                                                  TRAP    C$PNTF
4236  024650  062706  000004                                                          ADD     #4,SP
4237  024654                                  EXIT    INIT
4238  024654  104432                                                                  TRAP    C$EXIT
4239  024656  000404                                                                  .WORD   L10013-.
4240
4241  024660  005037  007264          RESTRT: CLR     TIMMIN                  ;CLEAR TIME SINCE START LOCATIONS
4242  024664  005037  007266                  CLR     TIMSEC
4243  024670  013737  007260  007270          MOV     CLKHZ,TIMTCK            ;LOAD TICKS/SEC
4244  024676  012702  007302                  MOV     #EVTLOG,R2              ;INIT EVENT TABLE TO ALL 1'S AFTER EACH
4245  024702  010237  007300                  MOV     R2,EVTPTR               ; START OR RES AND INIT TABLE POINTER
4246  024706  012722  177777          1$:     MOV     #-1,(R2)+
4247  024712  020227  010204                  CMP     R2,#EVTEND              ;SEE IF REACHED END OF TABLE
4248  024716  001373                          BNE     1$                      ;LOOP UNTIL DONE
4249
4250  024720  012737  177777  007212  NEW:    MOV     #-1,LOGUNT              ;INITIALIZE LOGICAL UNIT #
4251
4252  024726  005237  007212          GETPRM: INC     LOGUNT                  ;POINT TO NEXT LOGICAL UNIT
4253  024732  023737  007212  002012          CMP     LOGUNT,L$UNIT           ;SEE IF PAST MAX. LOG. UNIT #
4254  024740  002367                          BGE     NEW                     ;BR IF YES, AND START OVER
4255
4256  024742                                  GPHARD  LOGUNT,R1               ;GET THE P-TABLE FOR THIS LOG. UNIT
4257  024742  013700  007212                                                          MOV     LOGUNT,R0
4258  024746  104442                                                                  TRAP    C$GPHRD
4259  024750  010001                                                                  MOV     R0,R1
4260  024752                                  BNCOMPLETE      GETPRM          ;IF NO P-TABLE AVAIL., GO GET NEXT ONE
4261  024752  103365                                                                  BCC     GETPRM
```

```
                                ;DEVICE DEPENDENT PART OF GETTING INFO FROM P-TABLE

024760 016137 000002 011776     MOV     2(R1),SEL0              ;STORE AWAY CSR ADDRESSES
024766 016137 000002 012000     MOV     2(R1),BSEL1
024774 005237 012000            INC     BSEL1
025000 016137 000002 012002     MOV     2(R1),SEL2
025006 062737 000002 012002     ADD     #2,SEL2
025014 016137 000002 012004     MOV     2(R1),BSEL3
025022 062737 000003 012004     ADD     #3,BSEL3
025030 016137 000002 012006     MOV     2(R1),SEL4
025036 062737 000004 012006     ADD     #4,SEL4
025044 016137 000002 012010     MOV     2(R1),BSEL5
025052 062737 000005 012010     ADD     #5,BSEL5
025060 016137 000002 012012     MOV     2(R1),SEL6
025066 062737 000006 012012     ADD     #6,SEL6
025074 016137 000002 012014     MOV     2(R1),BSEL7
025102 062737 000007 012014     ADD     #7,BSEL7

025110 016137 000004 012016     MOV     4(R1),INVEC             ;STORE AWAY INPUT INTERRUPT VECTOR
025116 016137 000004 012020     MOV     4(R1),OUTVEC
025124 062737 000004 012020     ADD     #4,OUTVEC               ;BUILD OUTPUT INTERRUPT VECTOR
025132 016137 000006 012022     MOV     6(R1),INTPRI            ;STORE AWAY INTERRUPT PRIORITY
025140 016137 000012 012024     MOV     12(R1),OPTYP            ;STORE AWAY DEVICE OPTION TYPE

025146                  ENDIT:
025146                          SETVEC  CLKVEC,#CLKINT,#340     ;SETUP CLOCK VECTOR
025146 012746 000340                            MOV     #340,-(SP)
025152 012746 020570                            MOV     #CLKINT,-(SP)
025156 013746 007256                            MOV     CLKVEC,-(SP)
025162 012746 000003                            MOV     #3,-(SP)
025166 104437                                   TRAP    C$SVEC
025170 062706 000010                            ADD     #10,SP

                                ;DEVICE DEPENDENT VECTOR SETUP

025174                          SETVEC  INVEC,#DVINS,INTPRI     ;SETUP INPUT INTERRUPT VECTOR
025174 013746 012022                            MOV     INTPRI,-(SP)
025200 012746 034700                            MOV     #DVINS,-(SP)
025204 013746 012016                            MOV     INVEC,-(SP)
025210 012746 000003                            MOV     #3,-(SP)
025214 104437                                   TRAP    C$SVEC
025216 062706 000010                            ADD     #10,SP
025222                          SETVEC  OUTVEC,#DVOUTS,INTPRI   ;SETUP OUTPUT INTERRUPT VECTOR
025222 013746 012022                            MOV     INTPRI,-(SP)
025226 012746 034710                            MOV     #DVOUTS,-(SP)
025232 013746 012020                            MOV     OUTVEC,-(SP)
025236 012746 000003                            MOV     #3,-(SP)
025242 104437                                   TRAP    C$SVEC
025244 062706 000010                            ADD     #10,SP

025250                          SETPRI  #PRI00                  ;SET THE 'RUN' PRIORITY TO 0
025250 012700 000000                            MOV     #PRI00,R0
```

```
 4318  025254  104441                                                    TRAP    C$SPRI
 4319  025256                          EXIT    INIT
 4320  025256  104432                                                    TRAP    C$EXIT
 4321  025260  000002                                                    .WORD   L10013-.
 4322
 4323
 4324                                  .EVEN
 4325
 4326  025262                          ENDINIT
 4327  025262                                                  L10013:
 4328  025262  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.
                                ;--

025264                                  BGNAUTO
025264                                                                  L$AUTO::

025264                                  ENDAUTO
025264                                                                  L10014:
025264  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$CLEAN::
                                        CLR     @CLKCSR         ;DISABLE CLOCK
                                        SETPRI  #PRI07          ;SET PROCESSOR PRIORITY BACK TO 7
                                                                                MOV     #PRI07,R0
                                                                                TRAP    C$SPRI
                                        BRESET                  ;CLEAR ALL BEFORE END
                                                                                TRAP    C$RESET

                                        EXIT    CLN
                                                                                TRAP    C$EXIT
                                                                                .WORD   L10015-.

                                        .EVEN

                                        ENDCLN
                                                                                L10015:
                                                                                TRAP    C$CLEAN
```

```
                                .SBTTL  DROP UNIT SECTION

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

025310                                  BGNDU
025310                                                                  L$DU::

025310                                  EXIT    DU
025310  000167                                                                  .WORD   J$JMP
025312  000000                                                                  .WORD   L10016-2-.

                                .EVEN

025314                                  ENDDU
025314                                                                  L10016:
025314  104453                                                                  TRAP    C$DU
```

```
                                .SBTTL  ADD UNIT SECTION

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

025316                                  BGNAU
025316                                                                  L$AU::

025316                                  EXIT    AU
025316  000167                                                                .WORD   J$JMP
025320  000000                                                                .WORD   L10017-2-.

                                .EVEN

025322                                  ENDAU
025322                                                                  L10017:
025322  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.
                                        ;--


025324                                          BGNTST
025324                                                                                  T1::

                                        .SBTTL          PROGRAM SETUP SECTION

025324  013777  007262  161720          MOV     CLKEN,@CLKCSR   ;ENABLE THE CLOCK

025332                                  GTXRXB:
025332  005001                          GTRA2:  CLR     R1
025334  012737  000001  007272                  MOV     #1,TIMER1       ;SET TIMER TO COUNT 1 TICK
025342  005737  007272                  1$:     TST     TIMER1          ;CHECK FOR IT TO BE COUNTED OFF
025346  001412                          BEQ     GTRA3           ;BRANCH IF CLOCK EXISTS (COUNTED A TICK)
025350  005301                          DEC     R1
025352  001373                          BNE     1$              ;KEEP CHECKING UNTIL R1 DOES FULL COUNTDWN
025354                                  PRINTF  #NOCLK          ;PRINT BAD CLK MSG AND WARN OF HANG IF TIMEOUT
025354  012746  013712                                                  MOV     #NOCLK,-(SP)
025360  012746  000001                                                  MOV     #1,-(SP)
025364  010600                                                          MOV     SP,R0
025366  104417                                                          TRAP    C$PNTF
025370  062706  000004                                                  ADD     #4,SP

025374  005737  007216          GTRA3:  TST     RESFLG          ;SEE IF HERE AFTER A RESTART.
025400  001117                          BNE     GTRA5           ;BR IF HERE CAUSE OF A RESTART

                                        ; CLEAR COUNTS AND SET UP DEFAULTS

025402  005037  007166          GTRA4:  CLR     TOTCC           ;CLEAR TOTAL CHAR. COUNT TEMP. LOC.
025406  005037  007122                  CLR     TTOTCC          ; CLEAR TOTAL CHAR. COUNT FOR TX BUFF
025412  005037  007106                  CLR     CTOTCC          ; CLEAR TOTAL CHAR. COUNT FOR CMP BUFF
025416  012701  006326                  MOV     #PTRTAB,R1      ;INIT TRANSMIT MESSAGE POINTER
025422  010137  007100                  MOV     R1,TXPTR
025426  005037  007076                  CLR     RXPTR           ; ZERO RX POINTER
025432  012702  000017                  MOV     #MSGLIM,R2
025436  006302                          ASL     R2
025440  006302                          ASL     R2
025442  010137  007102                  MOV     R1,CMPPTR
025446  060237  007102                  ADD     R2,CMPPTR       ;INIT COMPARE MESSAGE POINTER

025452  012737  000005  007154          MOV     #5,MSGTYP       ;SET UP DEFAULT MSG TYPE (QUICK FOX - ITEP MSG)
025460  013737  002162  007156          MOV     MSGSC,CURCC     ;SET UP DEFAULT CHAR COUNT
025466  012737  003326  007124          MOV     #TXBUF,TCURAD   ;SET UP CURRENT ADD TO START OF TX BUFFER
025474  012737  005326  007110          MOV     #CMPBUF,CCURAD  ;SET UP CURRENT ADD TO START OF CMP BUFFER

025502  013737  007124  007164          MOV     TCURAD,CURADD   ;SETUP CURRENT ADDR TO START OF TXBUF
```

```
 4473  025510  013737  007100  007162          MOV     TXPTR,CPTR      ;SETUP CURRENT POINTER TABLE POINTER FOR TXBUF
 4474  025516  004737  022676                  JSR     PC,BLDBUF       ; GO BUILD POINTER TABLE AND BUFFER
 4475  025522  012737  000001  007120          MOV     #1,TXMTOT       ;BUMP TOTAL MESSAGE COUNT
 4476
 4477  025530  013737  007102  007162          MOV     CMPPTR,CPTR     ;SET UP START OF COMPARE POINTER TABLE
 4478  025536  013737  007110  007164          MOV     CCURAD,CURADD   ;SET UP CURRENT ADDR. TO START OF CMPBUF
 4479  025544  012737  000005  007154          MOV     #5,MSGTYP
 4480  025552  013737  002162  007156          MOV     MSG5C,CURCC
 4481  025560  004737  022676                  JSR     PC,BLDBUF       ;PUT DEFAULT MESSAGE INTO CMPBUF
 4482  025564  012737  000001  007104          MOV     #1,CMPTOT       ;BUMP THE COMP MESG COUNT
 4483  025572  012737  000003  007220          MOV     #ACT,MODTYP     ;SET DEFAULT MODE= ACTIVE
 4484  025600  005037  007222                  CLR     MLTYP           ;SET DEFAULT MAINTENANCE LOOP MODE =NONE
 4485  025604  012737  000001  007230          MOV     #1,RPASS        ;SET UP DEFAULT 'RUN PASS'' COUNT TO 1
 4486  025612  012737  000002  007226          MOV     #2,PARAM        ;SET UP PROG. PARAMETERS - DATACHECKING ENABLED
 4487                                                                  ;                  OPERATOR STATUS MSGS. PRINT OFF
 4488  025620                                  PRINTF  #HLP0
 4489  025620  012746  012442                                                  MOV     #HLP0,-(SP)
 4490  025624  012746  000001                                                  MOV     #1,-(SP)
 4491  025630  010600                                                          MOV     SP,R0
 4492  025632  104417                                                          TRAP    C$PNTF
 4493  025634  062706  000004                                                  ADD     #4,SP
 4494  025640  013737  007220  010334  GTRA5:  MOV     MODTYP,DEV1
 4495  025646  013737  007222  010336          MOV     MLTYP,DEV2
 4496  025654  013737  007230  010340          MOV     RPASS,DEV3
 4497  025662  013737  007226  010342          MOV     PARAM,DEV4
 4498  025670  004737  023022                  JSR     PC,SHWOP        ;PRINT TO OPERATOR THE CURRENT MODE.....
 4499
 4500  025674                                  MANUAL                  ;SEE IF MANUAL INTERVENTION ALLOWED
 4501  025674  104450                                                          TRAP    C$MANI
 4502  025676                                  BCOMPLETE       GETCL   ;  BR IF YES (UAM=0 AND NOT CHAINED)
 4503  025676  103412                                                          BCS     GETCL
 4504  025700  005737  007230                  TST     RPASS           ;SEE IF THIS IS FIRST 'DCLT PASS''
 4505  025704  001002                          BNE     1$              ; BR IF NOT COMPLETED 1 PASS
 4506  025706                                  EXIT    TST             ; IF DONE 1 PASS IN UNATTENDED MODE - EXIT
 4507  025706  104432                                                          TRAP    C$EXIT
 4508  025710  010050                                                          .WORD   L10020-.
 4509  025712  012737  000001  007222  1$:     MOV     #TTL,MLTYP      ;SET UP DEFAULT FOR UNATTENDED MODE
 4510  025720  000137  030634                  JMP     GTR9            ;  'R M=ACT/LO=I/PAS=1/NOST/CH'' AND RUN
 4511
 4512                                  .SBTTL          COMMAND LINE FETCH & INTERPRETATION SECTION
 4513
 4514  025724  105037  003325          GETCL:  CLRB    P$GDBD          ;CLEAR CMD LINE PARSING ERROR FLAGS
 4515  025730  105037  003324                  CLRB    P$NNUF
 4516  025734                                  GMANID  CLI$PM,CMDBUF,A,0,1,72.,NO      ;GET A COMMAND LINE FROM OPR.
 4517  025734  104443                                                          TRAP    C$GMAN
 4518  025736  000406                                                          BR      10000$
 4519  025740  003062                                                          .WORD   CMDBUF
 4520  025742  000142                                                          .WORD   T$CODE
 4521  025744  012114                                                          .WORD   CLI$PM
 4522  025746  000000                                                          .WORD   0
 4523  025750  000001                                                          .WORD   T$LOLIM
 4524  025752  000110                                                          .WORD   T$HILIM
 4525  025754                                                          10000$:
 4526  025754  012737  003062  003310          MOV     #CMDBUF,P$BUFA
 4527  025762  012737  010344  003312          MOV     #CLITRE,P$TREE
 4528  025770  012737  026664  003314          MOV     #CLIACT,P$ACT
```

```
 4529  025776  005037  003206                    CLR     QUALFG                  ;CLEAR QUALIFIER FLAG LOCATION
 4530  026002  004737  023274                    JSR     PC,P$TRV                ;GO PARSE COMMAND LINE
 4531  026006  105737  003325                    TSTB    P$GDBD                  ;SEE IF PARSED OK OR AN ERROR
 4532  026012  001412                            BEQ     1$
 4533  026014                                    PRINTF  #CLIERM
 4534  026014  012746  012122                                                    MOV     #CLIERM,-(SP)
 4535  026020  012746  000001                                                    MOV     #1,-(SP)
 4536  026024  010600                                                          MOV     SP,R0
 4537  026026  104417                                                          TRAP    C$PNTF
 4538  026030  062706  000004                                                    ADD     #4,SP
 4539  026034  000137  025724                    JMP     GETCL
 4540  026040  105737  003324          1$:       TSTB    P$NNUF                  ;SEE IF INCOMPLETE COMMAND TYPED
 4541  026044  001412                            BEQ     10$
 4542  026046                                    PRINTF  #CLINUF
 4543  026046  012746  012152                                                    MOV     #CLINUF,-(SP)
 4544  026052  012746  000001                                                    MOV     #1,-(SP)
 4545  026056  010600                                                          MOV     SP,R0
 4546  026060  104417                                                          TRAP    C$PNTF
 4547  026062  062706  000004                                                    ADD     #4,SP
 4548  026066  000137  025724                    JMP     GETCL
 4549
 4550  026072  023727  003204  000005  10$:     CMP     KEYWD1,#HLP             ;SEE IF HELP WAS TYPED
 4551  026100  001711                            BEQ     GETCI                   ;GO GET CMD AGAIN IF YES
 4552  026102  023727  003204  000055            CMP     KEYWD1,#PRNT            ;SEE IF PRINT WAS TYPED
 4553  026110  001705                            BEQ     GETCL                   ; GO GET CMD AGAIN IF YES
 4554  026112  023727  003204  000004            CMP     KEYWD1,#RUN             ;SEE IF RUN WAS TYPED
 4555  026120  001002                            BNE     11$                     ; BR IF NO
 4556  026122  000137  030634                    JMP     GTR9                    ; START EXEC. IF YES
 4557  026126  023727  003204  000052  11$:     CMP     KEYWD1,#DMPS            ;SEE IF DUMP WAS TYPED
 4558  026134  001004                            BNE     12$                     ; BR IF NO
 4559  026136  004737  022442                    JSR     PC,DUMPSR               ; ELSE, DUMP PART OF MEMORY
 4560  026142  000137  025724                    JMP     GETCL                   ; THEN RETURN TO GET ANOTHER CMD.
 4561  026146  023727  003204  000001  12$:     CMP     KEYWD1,#CLEAR           ;SEE IF CLEAR WAS TYPED
 4562  026154  001663                            BEQ     GETCL                   ; IF YES, BACK TO GET ANOTHER CMD.
 4563  026156  023727  003204  000002            CMP     KEYWD1,#SHOW            ;SEE IF SHOW WAS TYPED
 4564  026164  001657                            BEQ     GETCL                   ; IF YES, BACK TO GET ANOTHER CMD.
 4565  026166  023727  003204  000010  4$:      CMP     KEYWD1,#SETEXP          ;SEE IF SET EXPECTED
 4566  026174  001512                            BEQ     2$                      ; BR IF YES (A SETEXP WAS TYPED)
 4567  026176  013737  007122  007166  5$:      MOV     TTOTCC,TOTCC
 4' 8  026204  023727  007166  001000            CMP     TOTCC,#BUFLIM           ;SEE IF BUFFER ALREADY FULL
 4569  026212  002414                            BLT     15$                     ; BR IF NOT FULL (BUFLIM # OF CHARS.)
 4570  026214                                    PRINTF  #MSGTRN,#BUFEX          ; ELSE TELL OPR. AND DON'T BUILD MSG.
 4571  026214  012746  014033                                                    MOV     #BUFEX,-(SP)
 4572  026220  012746  014051                                                    MOV     #MSGTRN,-(SP)
 4573  026224  012746  000002                                                    MOV     #2,-(SP)
 4574  026230  010600                                                          MOV     SP,R0
 4575  026232  104417                                                          TRAP    C$PNTF
 4576  026234  062706  000006                                                    ADD     #6,SP
 4577  026240  000137  025724                    JMP     GETCL                   ; THEN GO GET A NEW COMMAND
 4578  026244  005737  007122          15$:      TST     TTOTCC                  ;IF FIRST "SET" THEN GET RID OF DEFAULT
 4579  026250  001002                            BNE     6$
 4580  026252  005037  007120                    CLR     TXMTOT
 4581  026256  012737  006326  007100  6$:      MOV     #PTRTAB,TXPTR           ;GET POSITION OF END OF TX LIST
 4582  026264  013701  007120                    MOV     TXMTOT,R1
 4583  026270  020127  000017                    CMP     R1,#MSGLIM              ;SEE IF MSG COUNT EXCEEDED.
 4584  026274  002414                            BLT     17$                     ; BR IF NO
```

```
4585  026276                                        PRINTF  #MSGTRN,#TABEX          ; ELSE TELL OPR. AND DON'T BUILD MSG.
4586  026276  012746  013773                                                              MOV     #TABEX,-(SP)
4587  026302  012746  014051                                                              MOV     #MSGTRN,-(SP)
4588  026306  012746  000002                                                              MOV     #2,-(SP)
4589  026312  010600                                                                      MOV     SP,R0
4590  026314  104417                                                                      TRAP    C$PNTF
4591  026316  062706  000006                                                              ADD     #6,SP
4592  026322  000137  025724                        JMP     GETCL           ; THEN GO GET A NEW COMMAND.
4593  026326  006301                        17$:    ASL     R1              ;# OF MSGS *4 = NEXT FREE PTR BLOCK
4594  026330  006301                                ASL     R1
4595  026332  060137  007100                        ADD     R1,TXPTR
4596  026336  013737  007100  007162              MOV     TXPTR,CPTR      ;SETUP CHAR. COUNT, CURRENT ADDR, & PTR
4597  026344  013737  007124  007164              MOV     TCURAD,CURADD
4598  026352  004737  022600                      JSR     PC,ADDCC        ;ADD IN CHAR. COUNT AND CHECK TOTAL
4599  026356  004737  022676                      JSR     PC,BLDBUF       ;GO BUILD MESSAGE IN BUFFER AND PTRS.
4600  026362  013737  007162  007100              MOV     CPTR,TXPTR
4601  026370  013737  007166  007122              MOV     TOTCC,TTOTCC    ;UPDATE CHAR. COUNT, CURR ADDR, & PTR
4602  026376  013737  007164  007124              MOV     CURADD,TCURAD
4603  026404  005237  007120                      INC     TXMTOT
4604  026410  005337  003210                      DEC     QUALVL          ;DEC THE COPY COUNT
4605  026414  001270                              BNE     5$
4606  026416  000137  025724                      JMP     GETCL
4607
4608  026422  013737  007106  007166  2$:     MOV     CTOTCC,TOTCC    ;SETUP CHAR. COUNT, CURR. ADDR. & PTR
4609  026430  023727  007166  001000              CMP     TOTCC,#BUFLIM   ;SEE IF BUFFER ALREADY FULL
4610  026436  002414                              BLT     16$             ; BR IF NOT FULL (BUFLIM # OF CHARS.)
4611  026440                                        PRINTF  #MSGTRN,#BUFEX          ; ELSE TELL OPR. AND DON'T BUILD MSG.
4612  026440  012746  014033                                                              MOV     #BUFEX,-(SP)
4613  026444  012746  014051                                                              MOV     #MSGTRN,-(SP)
4614  026450  012746  000002                                                              MOV     #2,-(SP)
4615  026454  010600                                                                      MOV     SP,R0
4616  026456  104417                                                                      TRAP    C$PNTF
4617  026460  062706  000006                                                              ADD     #6,SP
4618  026464  000137  025724                        JMP     GETCL           ; THEN GO GET A NEW COMMAND
4619  026470  005737  007106          16$:    TST     CTOTCC          ;IF FIRST 'SET' THEN GET RID OF DEFAULT
4620  026474  001002                              BNE     7$
4621  026476  005037  007104                      CLR     CMPTOT
4622  026502  012701  006326          7$:     MOV     #PTRTAB,R1
4623  026506  012702  000017                      MOV     #MSGLIM,R2
4624  026512  006302                              ASL     R2
4625  026514  006302                              ASL     R2
4626  026516  010137  007102                      MOV     R1,CMPPTR
4627  026522  060237  007102                      ADD     R2,CMPPTR       ;INIT COMPARE MESSAGE POINTER
4628  026526  013701  007104                      MOV     CMPTOT,R1
4629  026532  020127  000017                      CMP     R1,#MSGLIM      ;SEE IF MSG COUNT EXCEEDED.
4630  026536  002414                              BLT     18$             ; BR IF NO
4631  026540                                        PRINTF  #MSGTRN,#TABEX          ; ELSE TELL OPR. AND DON'T BUILD MSG.
4632  026540  012746  013773                                                              MOV     #TABEX,-(SP)
4633  026544  012746  014051                                                              MOV     #MSGTRN,-(SP)
4634  026550  012746  000002                                                              MOV     #2,-(SP)
4635  026554  010600                                                                      MOV     SP,R0
4636  026556  104417                                                                      TRAP    C$PNTF
4637  026560  062706  000006                                                              ADD     #6,SP
4638  026564  000137  025724                        JMP     GETCL           ; THEN GO GET A NEW COMMAND.
4639  026570  006301                        18$:    ASL     R1              ;# OF MSGS *4 = NEXT FREE PTR BLOCK
4640  026572  006301                                ASL     R1
```

```
 4641  026574  060137  007102              ADD     R1,CMPPTR
 4642  026600  013737  007102  007162      MOV     CMPPTR,CPTR
 4643  026606  013737  007110  007164      MOV     CCURAD,CURADD
 4644  026614  004737  022600              JSR     PC,ADDCC                ;ADD IN XHAR. COUNT AND CHECK TOTAL
 4645  026620  004737  022676              JSR     PC,BLDBUF
 4646  026624  013737  007162  007102      MOV     CPTR,CMPPTR
 4647  026632  005237  007104              INC     CMPTOT
 4648  026636  013737  007164  007110      MOV     CURADD,CCURAD           ;UPDATE CHAR. COUNT, CURR ADDRR. & PTR
 4649  026644  013737  007166  007106      MOV     TOTCC,CTOTCC
 4650  026652  005337  003210              DEC     QUALVL                  ;IF COPY WAS GIVEN, PUT MSG IN BUFF
 4651  026656  001261                      BNE     2$                      ; AGAIN
 4652  026660  000137  025724              JMP     GETCL                   ;GO BACK UNTIL GET A 'RUN'
 4653
 4654
 4655
 4656
 4657
```

```
                                        .SBTTL          ACTION TABLE AND ROUTINES
                                        ;       USER MUST CLEAR/SET P$GDBD IF USE "CLIBIF" IN CONNECTION WITH ACTION
                                        ;       R2 WILL HOLD ACTION CODE FROM PARSING (CLI) NODE
026664                                  CLIACT:
026664  006302                                  ASL     R2
026666  016202  026702                          MOV     10$(R2),R2      ;FORM ADDRESS OF ACTION ROUTINE
026672  062702  026702                          ADD     #10$,R2
026676  004712                                  JSR     PC,(R2)
026700  000207                                  RTS     PC

026702  000142                          10$:    .WORD   ACTNUL-10$
026704  000144                                  .WORD   ACTCLR-10$
026706  000154                                  .WORD   ACTSHO-10$
026710  001530                                  .WORD   ACTCHK-10$
026712  000244                                  .WORD   ACTRUN-10$
026714  000164                                  .WORD   ACTHLP-10$
026716  000270                                  .WORD   ACTCSE-10$
026720  000416                                  .WORD   ACTCST-10$
026722  000740                                  .WORD   ACTSTE-10$
026724  000750                                  .WORD   ACTSTT-10$
026726  000766                                  .WORD   ACTSZE-10$
026730  000776                                  .WORD   ACTCOP-10$
026732  001006                                  .WORD   ACTNUM-10$
026734  001100                                  .WORD   ACTOPM-10$
026736  001536                                  .WORD   ACTSTS-10$
026740  001120                                  .WORD   ACTEQO-10$
026742  001200                                  .WORD   ACTMS0-10$
026744  001206                                  .WORD   ACTMS1-10$
026746  001216                                  .WORD   ACTMS2-10$
026750  001226                                  .WORD   ACTMS3-10$
026752  001236                                  .WORD   ACTMS4-10$
026754  001246                                  .WORD   ACTMS5-10$
026756  001264                                  .WORD   ACTMS6-10$
026760  001314                                  .WORD   ACTATV-10$
026762  001324                                  .WORD   ACTPAS-10$
026764  001344                                  .WORD   ACTREC-10$
026766  001352                                  .WORD   ACTLIS-10$
026770  001362                                  .WORD   ACTDLL-10$
026772  001372                                  .WORD   ACTTRA-10$
026774  001402                                  .WORD   ACTTAL-10$
026776  001430                                  .WORD   ACTNO-10$
027000  001440                                  .WORD   ACTECH-10$
027002  001544                                  .WORD   ACTCRC-10$
027004  001552                                  .WORD   ACTPRO-10$
027006  001604                                  .WORD   ACTRPS-10$
027010  001614                                  .WORD   ACTMOP-10$
027012  001624                                  .WORD   ACTTLP-10$
027014  001634                                  .WORD   ACTCLP-10$
027016  001644                                  .WORD   ACTLLP-10$
027020  001654                                  .WORD   ACTRLP-10$
027022  000134                                  .WORD   ACTNUF-10$
027024  001156                                  .WORD   ACTBCR-10$
027026  000674                                  .WORD   ACTDMS-10$
027030  000724                                  .WORD   ACTDME-10$
027032  000716                                  .WORD   ACTDMO-10$
```

```
 714  027034  000230                 .WORD   ACTPRT-10$
  15
4716
```

```
 4717
 4718  027036  112737  177777  003324  ACTNUF: MOVB    #-1,P$NNUF      ;SET FLAG TO SAY NEED MORE OF COMMAND
 4719  027044  000207                  ACTNUL: RTS     PC              ;RETURN TO PARSER
 4720
 4721  027046  012737  000001  003204  ACTCLR: MOV     #CLEAR,KEYWD1   ;SET LOC TO SAY A CLEAR WAS TYPED
 4722  027054  000207                          RTS     PC
 4723
 4724  027056  012737  000002  003204  ACTSHO: MOV     #SHOW,KEYWD1    ;SET LOC. TO SAY A SHOW WAS TYPED
 4725  027064  000207                          RTS     PC
 4726
 4727  027066  012702  003212          ACTHLP: MOV     #HLPTAB,R2      ;SETUP R2 AS A POINTER TO HELP MSG TABLE
 4728  027072                          1$:     PRINTF  #HLPF,(R2)+     ;PRINT HELP INFORMATION MESSAGES
 4729  027072  012246                                                          MOV     (R2)+,-(SP)
 4730  027074  012746  012520                                                  MOV     #HLPF,-(SP)
 4731  027100  012746  000002                                                  MOV     #2,-(SP)
 4732  027104  010600                                                          MOV     SP,R0
 4733  027106  104417                                                          TRAP    C$PNTF
 4734  027110  062706  000006                                                  ADD     #6,SP
 4735  027114  020227  003230                  CMP     R2,#HLPEND      ;SEE IF ALL INFO PRINTED YET
 4736  027120  001364                          BNE     1$              ;IF NO KEEP PRINTING
 4737  027122  012737  000005  003204          MOV     #HLP,KEYWD1     ;SET LOC. TO SAY A HELP WAS TYPED
 4738  027130  000207                          RTS     PC
 4739
 4740  027132  012737  000055  003204  ACTPRT: MOV     #PRNT,KEYWD1    ;SET LOC. TO SAY A HELP WAS TYPED
 4741  027140  004737  021406                  JSR     PC,REPORT       ;CALL ROUTINE TO PRINT EVENT LOG AND BASE TABLE
 4742  027144  000207                          RTS     PC
 4743
 4744  027146  012737  000004  003204  ACTRUN: MOV     #RUN,KEYWD1     ;SET RUN FLAG
 4745  027154  112737  177777  003324          MOVB    #-1,P$NNUF      ;SET FLAG TO SAY NEED MORE OF COMMAND
 4746  027162  012737  000001  007230          MOV     #1,RPASS        ;SET DEFAULT RUN 'PASS'' TO 1
 4747  027170  000207                          RTS     PC
 4748
 4749  027172  012701  006326          ACTCSE: MOV     #PTRTAB,R1
 4750  027176  012702  000017                  MOV     #MSGLIM,R2
 4751  027202  006302                          ASL     R2
 4752  027204  006302                          ASL     R2
 4753  027206  010137  007102                  MOV     R1,CMPPTR
 4754  027212  060237  007102                  ADD     R2,CMPPTR       ;INIT COMPARE MESSAGE POINTER
 4755  027216  013701  007102                  MOV     CMPPTR,R1
 4756
 4757  027222  013702  007104                  MOV     CMPTOT,R2
 4758  027226  105037  003324                  CLRB    P$NNUF          ;FLAG THAT HAVE VALID COMMAND AT THIS PT.
 4759  027232  023727  003204  000002          CMP     KEYWD1,#SHOW    ;SEE IF A CLEAR OR SHOW WAS TYPED
 4760  027240  001500                          BEQ     ACTSHW          ;BR IF A SHOW WAS TYPED
 4761  027242  012737  000001  007104          MOV     #1,CMPTOT       ;CLEAR COMPARE MESSAGE COUNT, CHAR. COUNT
 4762  027250  005037  007106                  CLR     CTOTCC          ; AND RESET POINTER
 4763
 4764  027254  012701  006326                  MOV     #PTRTAB,R1
 4765  027260  012702  000017                  MOV     #MSGLIM,R2
 4766  027264  006302                          ASL     R2
 4767  027266  006302                          ASL     R2
 4768  027270  010137  007102                  MOV     R1,CMPPTR
 4769  027274  060237  007102                  ADD     R2,CMPPTR       ;INIT COMPARE MESSAGE POINTER
 4770  027300  013737  007102  007162          MOV     CMPPTR,CPTR     ;SET UP TO FILL IN DEFAULT MESSAGE
 4771  027306  012701  005326                  MOV     #CMPBUF,R1
 4772  027312  010137  007110                  MOV     R1,CCURAD
```

```
 4773  027316  000431                          BR      ACTCLB
 4774
 4775  027320  012701  006326          ACTCST: MOV     #PTRTAB,R1
 4776  027324  013702  007120                  MOV     TXMTOT,R2
 4777  027330  105037  003324                  CLRB    P$NNUF          ;FLAG THAT HAVE VALID COMMAND AT THIS PT.
 4778  027334  023727  003204  000002          CMP     KEYWD1,#SHOW    ;SEE IF A CLEAR OR SHOW WAS TYPED
 4779  027342  001437                          BEQ     ACTSHW          ;BR IF A SHOW WAS TYPED
 4780  027344  012737  000001  007120          MOV     #1,TXMTOT       ;CLEAR TRANSMIT MESSAGE COUNT, CHAR. COUNT
 4781  027352  005037  007122                  CLR     TTOTCC          ; AND RESET POINTER
 4782  027356  012737  006326  007100          MOV     #PTRTAB,TXPTR
 4783  027364  013737  007100  007162          MOV     TXPTR,CPTR
 4784  027372  012701  003326                  MOV     #TXBUF,R1
 4785  027376  010137  007124                  MOV     R1,TCURAD
 4786
 4787  027402  012702  001000          ACTCLB: MOV     #BUFLIM,R2
 4788  027406  010137  007164                  MOV     R1,CURADD       ;SET UP TO PUT DEFAULT MSG IN LIST AFTER 033'S
 4789  027412  012737  000005  007154          MOV     #5,MSGTYP
 4790  027420  013737  002162  007156          MOV     MSG5C,CURCC
 4791  027426  105021                  1$:     CLRB    (R1)+           ;FILL EXPT OR TRAN BUFFER WITH 0'S IF A CLEAR
 4792  027430  005302                          DEC     R2              ;DO 'BUFLIM' NUMBER OF BYTE LOCATIONS
 4793  027432  001375                          BNE     1$
 4794  027434  004737  022676                  JSR     PC,BLDBUF       ;''CLEAR'' REALLY MEANS TO PUT DEFAULT MSG IN
 4795  027440  000207                          RTS     PC              ;WHEN DONE, RETURN TO PARSER
 4796
 4797
 4798  027442  012705  003250          ACTSHW: MOV     #SHTAB,R5
 4799  027446  122571  000000          5$:     CMPB    (R5)+,@(R1)     ;LOOK AT FIRST BYTE OF MSG TO DECIPHER TYPE
 4800  027452  001404                          BEQ     6$
 4801  027454  020527  003257                  CMP     R5,#SHTEND      ;SEE IF LOOKED AT ALL OF DEFAULTS YET
 4802  027460  001372                          BNE     5$
 4803  027462  005205                          INC     R5              ;MUST BE OPR. SPEC'D THEN
 4804  027464  162705  003251          6$:     SUB     #SHTAB+1,R5
 4805  027470  006305                          ASL     R5
 4806  027472  016137  000002  007172          MOV     2(R1),TEMP
 4807  027500                                  PRINTF  #SHMSG,SHTYTB(R5),TEMP  ;PRINT MSG SIZE & TYPE
 4808  027500  013746  007172                                                          MOV     TEMP,-(SP)
 4809  027504  016546  003230                                                          MOV     SHTYTB(R5),-(SP)
 4810  027510  012746  013251                                                          MOV     #SHMSG,-(SP)
 4811  027514  012746  000003                                                          MOV     #3,-(SP)
 4812  027520  010600                                                                  MOV     SP,R0
 4813  027522  104417                                                                  TRAP    C$PNTF
 4814  027524  062706  000010                                                          ADD     #10,SP
 4815  027530  062701  000004                  ADD     #4,R1           ;BUMP R1 TO NEXT SET OF POINTERS
 4816  027534  005302                          DEC     R2
 4817  027536  001341                          BNE     ACTSHW
 4818  027540  013737  007220  010334          MOV     MODTYP,DEV1
 4819  027546  013737  007222  010336          MOV     MLTYP,DEV2
 4820  027554  013737  007230  010340          MOV     RPASS,DEV3
 4821  027562  013737  007226  010342          MOV     PARAM,DEV4
 4822  027570  004737  023022                  JSR     PC,SHWOP        ;SHOW THE OPERATOR THE CURRENT MODE..... ALSO
 4823  027574  000207                          RTS     PC
 4824
 4825  027576  013737  003320  007146  ACTDMS: MOV     P$NUM,STADD     ;SETUP STARTING ADDRESS FOR DUMP
 4826  027604  005037  007152                  CLR     BYTBIT          ;SET DEFAULT OF WORD DUMP
 4827  027610  012737  000052  003204          MOV     #DMPS,KEYWD1    ;FLAG THAT A DUMP WAS TYPED
 4828  027616  000403                          BR      ACTDME
```

```
 4829
 4830  027620  012737  177777  007152  ACTDMQ: MOV     #-1,BYTBIT        ;SET DUMP FLAG TO 'DUMP-WORD''
 4831  027626  013737  003320  007150  ACTDME: MOV     P$NUM,ENADD       ;SETUP END ADDRESS FOR DUMP (=START IF NO 'EEE''
 4832  027634  105037  003324          ACTDMX: CLRB    P$NNUF            ;CLEAR NOT-ENOUGH FLAG, 'DUMP N-N/B'' IS VALID
 4833  027640  000207                          RTS     PC
 4834
```

```
027642  012737  000010  003204  ACTSTE: MOV     #SETEXP,KEYWD1
027650  000403                          BR      ACTSTX
027652  012737  000011  003204  ACTSTT: MOV     #SETTPN,KEYWD1
027660  012737  000001  003210  ACTSTX: MOV     #1,QUALVL         ;SET UP DEFAULT COPY TO 1 (/COPY=0)
027666  000207                          RTS     PC
027670  012737  000012  003206  ACTSZE: MOV     #SIZE,QUALFG
027676  000207                          RTS     PC
027700  012737  000013  003206  ACTCOP: MOV     #QCOPY,QUALFG
027706  000207                          RTS     PC
027710  023727  003206  000012  ACTNUM: CMP     QUALFG,#SIZE      ;SEE IF A SIZE OR COPY TYPED
027716  001023                          BNE     1$                ;BR IF IT WAS A COPY
027720  005737  003320                  TST     P$NUM             ;CHECK TO BE SURE DIDN'T TRY SIZE=0
027724  001014                          BNE     3$                ; BR IF NO
027726                                  PRINTF  #CLISEO
027726  012746  012411                                                                    MOV     #CLISEO,-(SP)
027732  012746  000001                                                                    MOV     #1,-(SP)
027736  010600                                                                            MOV     SP,R0
027740  104417                                                                            TRAP    C$PNTF
027742  062706  000004                                                                    ADD     #4,SP
027746  112737  177777  003325          MOVB    #-1,P$GDBD        ;SEE ERROR-IN-CMD FLAG
027754  000411                          BR      2$
027756  013737  003320  007156  3$:     MOV     P$NUM,CURCC       ;IF A SIZE LOAD CURCC WITH BYTE COUNT
027764  000405                          BR      2$
027766  013737  003320  003210  1$:     MOV     P$NUM,QUALVL      ;IF A COPY, LOAD COPY COUNT
027774  005237  003210                  INC     QUALVL            ;INCREMENT SO FIRST DEC MAKES IT REAL #
030000  000503                  2$:     BR      ACTMEX
030002  012737  000007  007154  ACTOPM: MOV     #7,MSGTYP
030010  010437  007172                  MOV     R4,TEMP           ;KEEP TRACK OF START OF QUOTED TEXT
030014  005237  007172                  INC     TEMP              ; SO CAN CALC OPCNT AT END OF QUOTES
030020  000207                          RTS     PC
030022  010402                  ACTEQO: MOV     R4,R2
030024  163702  007172                  SUB     TEMP,R2
030030  010237  007156                  MOV     R2,CURCC          ;CALC BYTE COUNT FOR QUOTED TEXT
030034  010237  002166                  MOV     R2,OPCNT
030040  013701  007172                  MOV     TEMP,R1
030044  012705  002524                  MOV     #OPBUF,R5
030050  112125                  1$:     MOVB    (R1)+,(R5)+       ;COPY QUOTED TEXT TO OPBUF
030052  005302                          DEC     R2
030054  001375                          BNE     1$
030056  000454                          BR      ACTMEX
030060                          ACTBCR: PRINTF  #CLIBCR           ;BAD CHAR. IN OPR. QUOTED STRING
030060  012746  012344                                                                    MOV     #CLIBCR,-(SP)
030064  012746  000001                                                                    MOV     #1,-(SP)
030070  010600                                                                            MOV     SP,R0
030072  104417                                                                            TRAP    C$PNTF
030074  062706  000004                                                                    ADD     #4,SP
030100  000207                          RTS     PC
```

```
 4891
 4892  030102  005037  007154          ACTMS0: CLR     MSGTYP
 4893  030106  000435                  BR      ACTME1
 4894  030110  012737  000001  007154  ACTMS1: MOV     #1,MSGTYP
 4895  030116  000431                  BR      ACTME1
 4896  030120  012737  000002  007154  ACTMS2: MOV     #2,MSGTYP
 4897  030126  000425                  BR      ACTME1
 4898  030130  012737  000003  007154  ACTMS3: MOV     #3,MSGTYP
 4899  030136  000421                  BR      ACTME1
 4900  030140  012737  000004  007154  ACTMS4: MOV     #4,MSGTYP
 4901  030146  000415                  BR      ACTME1
 4902  030150  012737  000005  007154  ACTMS5: MOV     #5,MSGTYP
 4903  030156  013737  002162  007156          MOV     MSG5C,CURCC             ;SETUP DEFAULT SIZE FOR THIS TYPE
 4904  030164  000411                  BR      ACTMEX
 4905  030166  012737  000006  007154  ACTMS6: MOV     #6,MSGTYP
 4906  030174  013737  002164  007156          MOV     MSG6C,CURCC             ;SETUP DEFAULT SIZE FOR THIS TYPE
 4907
 4908  030202  012737  000100  007156  ACTME1: MOV     #64.,CURCC              ;SETUP DEFAULT SIZE FOR MSG0-4
 4909  030210  105037  003324          ACTMEX: CLRB    P$NNUF                  ;CLEAR NOT-ENOUGH FLAG
 4910  030214  000207                          RTS     PC
 4911
```

```
 4912  030216  012737  000003  007220  ACTATV: MOV     #ACT,MODTYP
 4913  030224  000432                  BR      ACTM2X
 4914
 4915  030226  012737  000002  007220  ACTPAS: MOV     #PAS,MODTYP
 4916  030234  105037  003324                  CLRB    P$NNUF          ;CLEAR NOT-ENOUGH FLAG
 4917  030240  005037  007222                  CLR     MLTYP           ;CLEAR MAINT LOOP TYPE
 4918  030244  000207                  RTS     PC
 4919
 4920  030246  005037  007220          ACTREC: CLR     MODTYP
 4921  030252  000417                  BR      ACTM2X
 4922
 4923  030254  012737  000006  007220  ACTLIS: MOV     #LIS,MODTYP
 4924  030262  000413                  BR      ACTM2X
 4925
 4926  030264  012737  000004  007220  ACTDLL: MOV     #DDW,MODTYP
 4927  030272  000407                  BR      ACTM2X
 4928
 4929  030274  012737  000001  007220  ACTTRA: MOV     #TRA,MODTYP
 4930  030302  000403                  BR      ACTM2X
 4931
 4932  030304  012737  000005  007220  ACTTAL: MOV     #TAL,MODTYP
 4933
 4934  030312  042737  000004  007226  ACTM2X: BIC     #ECHOB,PARAM    ;DISABLE /ECHO (ALL BUT PASSIVE MODE)
 4935  030320  105037  003324                  CLRB    P$NNUF          ;CLEAR NOT-ENOUGH FLAG
 4936  030324  005037  007222                  CLR     MLTYP           ;CLEAR MAINT LOOP TYPE
 4937  030330  000207                  RTS     PC
 4938
```

```
 4939  030332  012737  000036  003206  ACTNO:  MOV     #NO,QUALFG
 4940  030340  000207                          RTS     PC
 4941
 4942  030342  022737  000036  003206  ACTECH: CMP     #NO,QUALFG
 4943  030350  001422                          BEQ     1$
 4944  030352  052737  000004  007226          BIS     #ECHOB,PARAM
 4945  030360  022737  000002  007220          CMP     #PAS,MODTYP             ;BE SURE IN PASSIVE MODE IF
 4946  030366  001416                          BEQ     2$                      ;IF TRYING TO SET /ECHO
 4947  030370                                  PRINTF  #CLINPS
 4948  030370  012746  012301                                                          MOV     #CLINPS,-(SP)
 4949  030374  012746  000001                                                          MOV     #1,-(SP)
 4950  030400  010600                                                                  MOV     SP,R0
 4951  030402  104417                                                                  TRAP    C$PNTF
 4952  030404  062706  000004                                                          ADD     #4,SP
 4953  030410  112737  177777  003325          MOVB    #-1,P$GDBD
 4954  030416  042737  000004  007226  1$:     BIC     #ECHOB,PARAM
 4955  030424  005037  003206          2$:     CLR     QUALFG                  ;CLEAR 'NO' OUT OF QUALIFIER FLAG
 4956  030430  000476                          BR      ACTLXX
 4957
 4958  030432  012701  000002          ACTCHK: MOV     #DATCKB,R1              ;SET DATA CHECK BIT
 4959  030436  000410                          BR      ACTQFG
 4960
 4961  030440  012701  000001          ACTSTS: MOV     #STATB,R1       ;SET THE STATUS BIT
 4962  030444  000405                          BR      ACTQFG
 4963
 4964  030446  012701  000020          ACTCRC: MOV     #CRCB,R1        ;SET THE CRC BIT
 4965  030452  000402                          BR      ACTQFG
 4966
 4967  030454  012701  000040          ACTPRO: MOV     #PROTOB,R1      ;SET THE PROTOCOL BIT
 4968
 4969  030460  050137  007226          ACTQFG: BIS     R1,PARAM
 4970  030464  022737  000036  003206          CMP     #NO,QUALFG
 4971  030472  001002                          BNE     1$
 4972  030474  040137  007226                  BIC     R1,PARAM
 4973  030500  005037  003206          1$:     CLR     QUALFG                  ;CLEAR 'NO' OUT OF QUALIFIER FLAG
 4974  030504  000450                          BR      ACTLXX
 4975
 4976  030506  013737  003320  007230  ACTRPS: MOV     PSNUM,RPASS             ;GET NUMBER OF 'RUN PASSES'
 4977  030514  000444                          BR      ACTLXX
 4978
 4979  030516  012737  000005  007222  ACTMOP: MOV     #5,MLTYP
 4980  030524  000417                          BR      ACTLPX
 4981  030526  012737  000001  007222  ACTTLP: MOV     #1,MLTYP
 4982  030534  000413                          BR      ACTLPX
 4983  030536  012737  000002  007222  ACTCLP: MOV     #2,MLTYP
 4984  030544  000407                          BR      ACTLPX
 4985  030546  012737  000003  007222  ACTLLP: MOV     #3,MLTYP
 4986  030554  000403                          BR      ACTLPX
 4987  030556  012737  000004  007222  ACTRLP: MOV     #4,MLTYP
 4988
 4989  030564  022737  000003  007220  ACTLPX: CMP     #ACT,MODTYP     ;BE SURE IN ACTIVE IF TRYING TO SET LOOP
 4990  030572  001415                          BEQ     ACTLXX          ; BR IF IN ACTIVE
 4991  030574  112737  177777  003325          MOVB    #-1,P$GDBD
 4992  030602  005037  007222                  CLR     MLTYP           ;CLEAR ANY LOOP TYPE THAT MAY HAVE GOT SET
 4993  030606                                  PRINTF  #CLIBDL
 4994  030606  012746  012237                                                          MOV     #CLIBDL,-(SP)
```

```
 4995  030612  012746  000001                                                  MOV     #1,-(SP)
 4996  030616  010600                                                          MOV     SP,R0
 4997  030620  104417                                                          TRAP    C$PNTF
 4998  030622  062706  000004                                                  ADD     #4,SP
 4999  030626  105037  003324          ACTLXX: CLRB    P$NNUF          ;CLEAR NOT-ENOUGH FLAG
 5000  030632  000207                          RTS     PC
 5001
```

```
5002
5003                                        ; RX ALLOCATE CODE
5004  030634  012701  006326          GTR9: MOV     #PTRTAB,R1        ;INIT TRANSMIT MESSAGE POINTER
5005  030640  010137  007100                MOV     R1,TXPTR
5006  030644  012702  000017                MOV     #MSGLIM,R2
5007  030650  006302                        ASL     R2
5008  030652  006302                        ASL     R2
5009  030654  010137  007102                MOV     R1,CMPPTR
5010  030660  060237  007102                ADD     R2,CMPPTR         ;INIT COMPARE MESSAGE POINTER
5011  030664  013701  007102                MOV     CMPPTR,R1
5012  030670  012702  000017                MOV     #MSGLIM,R2
5013  030674  006302                        ASL     R2
5014  030676  006302                        ASL     R2
5015  030700  010137  007076                MOV     R1,RXPTR
5016  030704  060237  007076                ADD     R2,RXPTR          ;INIT RECEIVE MESSAGE POINTER
5017
5018  030710  013737  007104  007134        MOV     CMPTOT,RXMTOT     ;MAKE COMPARE AND RX MESSAGE COUNTS EQUAL
5019
5020
5021  030716  005037  007232          GTREX: CLR     FLAG              ;CLEAR FLAG
5022  030722  005037  007140                CLR     NOBUF             ;CLEAR NO BUFFER COUNTER
5023  030726  005037  007142                CLR     PSCNT             ;CLEAR PASS COUNT
5024  030732  005037  007144                CLR     ERRCNT            ;CLEAR ERROR COUNT
5025
5026  030736  004737  021012                JSR     PC,LOGDVI         ;LOG ABOUT TO INIT DEVICE
5027  030742  004737  033400                JSR     PC,DVINIT         ;INIT DEVICE
5028
5029  030746  012737  001000  007156  GTRX2: MOV     #BUFLIM,CURCC     ;SET CHAR COUNT TO 'BUFLIM' NO. OF BYTES
5030  030754  012737  004326  007164        MOV     #RXBUF,CURADD     ;SET UP RX BUFFER AS CURRRENT ADD.
5031  030762  013737  007076  007162        MOV     RXPTR,CPTR
5032  030770  012737  000010  007154        MOV     #10,MSGTYP        ;SET UP FOR 33 TO FILL RX BUFFERS
5033  030776  004737  022676                JSR     PC,BLDBUF         ;CLEAR RX BUFFER
5034  031002  013702  007220                MOV     MODTYP,R2
5035  031006  006302                        ASL     R2
5036  031010  000172  007234                JMP     @MODE(R2)         ;MODE DISPATCH
5037
```

```
 5038                                   .SBTTL          RECEIVE MODE SECTION
 5039                                   ;++
 5040                                   ; FUNCTIONAL DESCRIPTION:
 5041                                   ;       RECEIVE-ONLY (OR ONE-WAY-IN) ROUTINE
 5042                                   ;       IN THIS MODE OF TESTING THE DEVICE'S RECEIVER IS ENABLED IN EXPECTATION
 5043                                   ;       OF RECEIVING A MESSAGE.  AFTER RECEIVING AN 'EXPECTED' NUMBER OF
 5044                                   ;       MESSAGES, THE DATA RECEIVED CAN BE COMPARED AGAINST A LIST OF 'EXPECT
 5045                                   ;       TO RECEIVE' MESSAGES IF DATA-CHECKING IS ENABLED.
 5046                                   ;
 5047                                   ; SUBORDINATE ROUTINES USED:
 5048                                   ;               'ALLTR'
 5049                                   ;
 5050                                   ; CALLING SEQUENCE:
 5051                                   ;       JMP     @MODE(R2)       ;DISPATCH TO MODE BASED ON MODE TYPE IN R2
 5052                                   ;--
 5053
 5054  031014                           RXONLY:
 5055  031014  013737  007076  007160   RXON2:  MOV     RXPTR,CPTRR
 5056  031022  013737  007134  007132           MOV     RXMTOT,DVRCT    ;SET UP MESSAGE COUNT
 5057  031030  052737  000104  007232           BIS     #QRX+#ERX,FLAG  ;SET UP RX QUE
 5058  031036  005037  007162                   CLR     CPTR            ;CLEAR THE TX POINTER
 5059  031042  000137  031200                   JMP     ALLTR           ;GO RX.
 5060
```

```
                                .SBTTL          TRANSMIT MODE SECTION

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

031046  042737  000002  007226  TXONLY: BIC     #DATCKB,PARAM   ;SET NOCHECK
031054  013737  007100  007162  TXON2:  MOV     TXPTR,CPTR
031062  013737  007120  007116          MOV     TXMTOT,DVTCT    ;COPY COUNTER FOR THIS PASS
031070  052737  000210  007232          BIS     #QTX+#ETX,FLAG  ;SET THE QUE TX FLAG
031076  005037  007160                  CLR     CPTRR           ;CLEAR RX POINTER
031102  000137  031200                  JMP     ALLTR           ;GO TX.
```

```
                                .SBTTL          PASSIVE MODE SECTION

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

031106                          PLCK:
031106  013737  007120  007116  PLCK2:  MOV     TXMTOT,DVTCT    ;SET UP  THE TRANSMIT COUNT
031114  013737  007100  007162          MOV     TXPTR,CPTR      ;SET UP CPTR TO TRANSMIT POINTER
031122  013737  007076  007160  PLCK3:  MOV     RXPTR,CPTRR     ;SET UP CPTRR TO REC POINTER
031130  052737  000104  007232          BIS     #QRX+#ERX,FLAG  ;SET UP Q AND EXPECT RX
031136  000137  031200                  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
                                ;--

031142  013737  007120  007116  ALCK:   MOV     TXMTOT,DVTCT
031150  013737  007100  007162          MOV     TXPTR,CPTR      ;SET UP TX COUNTS
031156  013737  007134  007132          MOV     RXMTOT,DVRCT    ;SET UP COUNTS
031164  013737  007076  007160          MOV     RXPTR,CPTRR
031172  052737  000314  007232          BIS     #QRX+#QTX+#ETX+#ERX,FLAG
```

```
                                .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 RECIEVE 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
                                ;--

031200                          ALLTR:
031200  032737  000004  007232  ALCK5:  BIT     #QRX,FLAG
031206  001420                 BEQ     ALCK1           ;IF NOT RX GO TO TX'S
031210  013702  007160          MOV     CPTRR,R2
031214  011237  007176          MOV     (R2),TEMP2
031220  012237  007126          MOV     (R2)+,DVRXA
031224  011237  007200          MOV     (R2),TEMP3
031230  011237  007130          MOV     (R2),DVRCC
031234  010237  007160          MOV     R2,CPTRR
031240  004737  034120          JSR     PC,DVRXQ        ;GO QUE DEVICE
031244  004737  020746          JSR     PC,LOGRXQ       ;LOG REC QUED
031250  032737  000010  007232  ALCK1:  BIT     #QTX,FLAG
```

```
5192  031256  001416                        BEQ     ALCK2           ;IF NO TX'S GO TO 2
5193  031260  013702  007162                MOV     CPTR,R2
5194  031264  011237  007176                MOV     (R2),TEMP2
5195  031270  012237  007112                MOV     (R2)+,DVTXA
5196  031274  011237  007200                MOV     (R2),TEMP3
5197  031300  012237  007114                MOV     (R2)+,DVTCC
5198  031304  010237  007162                MOV     R2,CPTR
5199  031310  004737  020712                JSR     PC,LOGTXQ
5200
5201  031314  004737  034200        ALCK2:  JSR     PC,DVTXRX       ;GO TO TX AND RX SUB ROUT.
5202
5203  031320  032737  000004  007232        BIT     #QRX,FLAG       ;CHECK FOR REC. MSG.
5204  031326  001514                        BEQ     ALCK3
5205  031330  013737  007126  007176        MOV     DVRXA,TEMP2
5206  031336  013737  007130  007200        MOV     DVRCC,TEMP3
5207  031344  004737  020764                JSR     PC,LOGRXC       ;LOG REC COMPLETE
5208  031350  032737  000004  007226  UPTABL: BIT     #ECHOB,PARAM    ;IS THIS ECHO MODE(PASSIVE)
5209  031356  001406                        BEQ     UPTA4           ;IF NOT GO TO 4
5210  031360  013702  007162                MOV     CPTR,R2         ;ELSE SET R2 TO PRESENT TX TABL
5211  031364  013722  007176                MOV     TEMP2,(R2)+     ;STORE OFF RX ADD
5212  031370  013712  007200                MOV     TEMP3,(R2)      ;AND CC
5213  031374  032737  000002  007226  UPTA4:  BIT     #DATCKB,PARAM   ;IS DATA CHECKING ASKED FOR
5214  031402  001015                        BNE     UPTA1           ;IF SO GO TO 1
5215  031404  012737  000001  007132        MOV     #01,DVRCT       ;ELSE SET DVRCT TO A 1
5216  031412  013737  007076  007160        MOV     RXPTR,CPTRR     ;RESET POINTER
5217  031420  022737  000003  007220        CMP     #ACT,MODTYP     ;IS THIS ACTIVE
5218  031426  001002                        BNE     UPTA3
5219  031430  005237  007132                INC     DVRCT           ;IF YES BUMP COUNT
5220  031434  000424                UPTA3:  BR      UPTEX
5221  031436  013702  007160        UPTA1:  MOV     CPTRR,R2
5222  031442  011237  007172                MOV     (R2),TEMP       ;LOAD TEMP WITH PREV. COUNT
5223  031446  163737  007200  007172        SUB     TEMP3,TEMP      ;LOAD TEMP WITH PREV.COUNT-CURRENT
5224  031454  013722  007200                MOV     TEMP3,(R2)+
5225  031460  063737  007200  007176        ADD     TEMP3,TEMP2
5226  031466  013722  007176                MOV     TEMP2,(R2)+     ;STORE OF NEW ADD
5227  031472  013712  007172                MOV     TEMP,(R2)       ;AND NEW CC
5228  031476  162702  000002                SUB     #2,R2           ;PUT POINTER BACK TO ADDR.
5229  031502  010237  007160                MOV     R2,CPTRR        ;AND RESTORE IT.
5230  031506                          UPTEX:
5231  031506  022737  000002  007220        CMP     #PAS,MODTYP
5232  031514  001007                        BNE     ALCK2A          ;IF NOT PASSIVE LOOP THEN GO TO 2A
5233  031516  042737  000104  007232        BIC     #QRX+#ERX,FLAG  ;CLEAR BOTH EXPECTED AND COMPLETED FLAGS
5234  031524  052737  000210  007232        BIS     #QTX+#ETX,FLAG  ;SET THE TX FLAGS
5235  031532  000646                        BR      ALCK1
5236
5237  031534  005337  007132        ALCK2A: DEC     DVRCT           ;DEC REC COUNT
5238  031540  005737  007132                TST     DVRCT           ;IS IT ALL DONE
5239  031544  001005                        BNE     ALCK3           ;NO. GO CHECK TX
5240  031546  042737  000004  007232        BIC     #QRX,FLAG       ;CLEAR THE RX FLAG
5241  031554  005037  007160                CLR     CPTRR           ;YES. CLEAR POINTER
5242  031560  032737  000010  007232  ALCK3:  BIT     #QTX,FLAG       ;IS IT TX
5243  031566  001447                        BEQ     ALCK4           ;IF NOT TX THEN GO BACK
5244  031570  013737  007112  007176        MOV     DVTXA,TEMP2
5245  031576  013737  007114  007200        MOV     DVTCC,TEMP3     ;LOG TX COMPLETED
5246  031604  004737  020730                JSR     PC,LOGTXC
5247  031610  005337  007116                DEC     DVTCT           ;DEC TX COUNT
```

```
 5248  031614  022737  000002  007220          CMP     #PAS,MODTYP
 5249  031622  001013                          BNE     ALCK3A          ;IF NOT PASSIVE MODE GO TO 3A
 5250  031624  042737  000210  007232          BIC     #QTX+ETX,FLAG   ;CLEAR THE TX FLAGS
 5251  031632  052737  000104  007232          BIS     #QRX+ERX,FLAG   ;AND SET THE RX FLAGS
 5252  031640  005737  007116                  TST     DVTCT
 5253  031644  001005                          BNE     ALCK3C          ;IF MORE RX'S DO IT
 5254  031646  000137  031726                  JMP     CMPSR           ; ELSE COMPARE
 5255  031652  005737  007116          ALCK3A: TST     DVTCT           ;IS IT ALL DONE
 5256  031656  001402                          BEQ     ALCK3B          ;IF NOT GO BACK TO 5
 5257  031660  000137  031200          ALCK3C: JMP     ALCK5
 5258  031664  005037  007162          ALCK3B: CLR     CPTR            ;IF SO CLEAR POINTER
 5259  031670  042737  000010  007232          BIC     #QTX,FLAG       ;CLEAR TX FLAG
 5260  031676  032737  000002  007226          BIT     #DATCKB,PARAM   ;IS IT DAT CK
 5261  031704  001403                          BEQ     ALCK4A          ;IF NOT THEN END WO CKING RX.
 5262  031706  005737  007160          ALCK4:  TST     CPTRR
 5263
 5264  031712  001362                          BNE     ALCK3C          ;IF SOME RX'S LEFT GO BACK
 5265  031714  005737  007162          ALCK4A: TST     CPTR
 5266  031720  001402                          BEQ     ALCK4B          ;BRANCH IF ANY TX'S LEFT
 5267  031722  000137  031314                  JMP     ALCK2
 5268  031726                          ALCK4B:
 5269
 5270
 5271
```

```
                                .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
                                ;--

031726  032737  000002  007226  CMPSR:  BIT     #DATCKB,PARAM   ;IS DATA CHECKING TO BE DONE
031734  001522                        BEQ     CMPSEX          ;IF NOT THEN EXIT
031736  013737  007076  007162        MOV     RXPTR,CPTR      ;PUT START OF RX POINTERS TO CPTR
031744  013737  007102  007160        MOV     CMPPTR,CPTRR    ; AND START OF COMPARE POINTS TO CPTRR
031752  013737  007134  007132        MOV     RXMTOT,DVRCT

031760                          CMPS3:
031760  013702  007162                MOV     CPTR,R2         ;MOVE CURRET RX PT.TO R2
031764  011237  007176                MOV     (R2),TEMP2      ;MOVE RX ADD TO EVENT LOG
031770  012201                        MOV     (R2)+,R1        ;SET R1 TO START ADD OF RX
031772  012237  007200                MOV     (R2)+,TEMP3     ;SET CHAR  COUNT TO EVENT LOG
031776  010237  007162                MOV     R2,CPTR         ;RESTORE RX POINT

032002  013702  007160                MOV     CPTRR,R2        ;PUT R2 AT COMPARE TABLE
032006  012203                        MOV     (R2)+,R3        ;SET R3 TO COMPARE ADD
032010  012204                        MOV     (R2)+,R4        ;SET R4 TO COMP CC
032012  010237  007160                MOV     R2,CPTRR        ;RESTORE POINTER
032016  010437  007202                MOV     R4,TEMP4
032022  004737  021060                JSR     PC,LOGCMP       ;LOG COMPARE START.

032026  020437  007200                CMP     R4,TEMP3        ;IS COMPARE COUNT = TO RX COUNT
032032  001410                        BEQ     CMPS7           ;IF SO GO TO 7
032034  005237  007144                INC     ERRCNT
032040                                ERRSOFT 1,EDDLE,ERR10   ;PRINT ERROR
```

```
5328  032040  104457                                                          TRAP    C$ERSOFT
5329  032042  000001                                                          .WORD   1
5330  032044  014651                                                          .WORD   EDDLE
5331  032046  020260                                                          .WORD   ERR10
5332  032050  004737  021076                JSR     PC,LOGCML       ;LOG LENGTH ERROR
5333
5334  032054  005037  007202        CMPS7:  CLR     TEMP4           ;CLEAR BAD BYTE COUNTER
5335  032060  012737  000001  007170        MOV     #1,OFSET        ;SET OFSET BYTE COUNT TO 1
5336  032066  122123                CMPS1:  CMPB    (R1)+,(R3)+     ;COMPARE RX WITH EXPETED
5337  032070  001422                        BEQ     CMPS6           ;IF EQUAL THEN GO TO 6
5338
5339  032072  005237  007202        CMPS2:  INC     TEMP4           ;INC BAD COUNT
5340  032076  023727  007202  000005        CMP     TEMP4,#5        ;IS IT MORE THEN 5
5341  032104  101014                        BHI     CMPS6           ;IF SO GO  FOR MORE
5342  032106  114337  007210                MOVB    -(R3),GOOD      ;STORE GOOD BYTE FOR ERROR
5343  032112  114137  007211                MOVB    -(R1),BAD       ;STORE BAD BYTE FOR ERROR
5344  032116  005237  007144                INC     ERRCNT
5345  032122                                ERRSOFT 2,EDDDE,ERR1    ;REPORT COMPARISON FAILURE TO OPR.
5346  032122  104457                                                          TRAP    C$ERSOFT
5347  032124  000002                                                          .WORD   2
5348  032126  014706                                                          .WORD   EDDDE
5349  032130  020170                                                          .WORD   ERR1
5350  032132  005201                        INC     R1
5351  032134  005203                        INC     R3
5352  032136  005237  007170        CMPS6:  INC     OFSET           ;INC OFFSET
5353  032142  005304                        DEC     R4              ;ELSE DEC CHAR COUNT AND SEE IF 0
5354  032144  001350                        BNE     CMPS1           ;IF NOT GO BACK
5355  032146  005737  007202                TST     TEMP4           ;SEE IF ANY CMP ERRS FOR THIS MSG
5356  032152  001410                        BEQ     CMPS5A          ;BR IF NONE
5357  032154  005237  007144                INC     ERRCNT
5358  032160                                ERRSOFT 3,EDDDE,ERR2    ;REPORT # OF MISMATCHES FOR MESSAGE
5359  032160  104457                                                          TRAP    C$ERSOFT
5360  032162  000003                                                          .WORD   3
5361  032164  014706                                                          .WORD   EDDDE
5362  032166  020232                                                          .WORD   ERR2
5363  032170  004737  021114        CMPS5:  JSR     PC,LOGCMD       ;LOG DATA ERROR IN COMPARE
5364  032174                        CMPS5A:
5365  032174  005337  007132                DEC     DVRCT
5366  032200  001267                        BNE     CMPS3           ;IF NOT ALL DONE GO BACK
5367
```

```
5368                                    .SBTTL          INTERNAL END OF PASS CODE
5369
5370
5371                                    ;++
5372                                    ; FUNCTIONAL DESCRIPTION:
5373                                    ;       THIS CODE INCREMENTS THE PASS COUNT FOR THE
5374                                    ;       EVENT LOG. LOGS THE END OF PASS EVENT
5375                                    ;       IF 'RPASS'' IS A MINUS ONE RETURN TO MODE
5376                                    ;       DISPATCHER. IF NOT -1 THEN DECREMENT RPASS
5377                                    ;       AND IF 'RPASS'' IS THEN = TO 0 GO TO DCLT PROMT
5378                                    ;       IN NOT = TO 0 THEN GO BACK TO MODE DISPATCHER
5379                                    ;
5380                                    ; SUBORDINATE ROUTINES USED:
5381                                    ;
5382                                    ;               'LOGEOP'' - LOG END OF PASS TO EVENT LOG
5383                                    ;------
5384
5385  032202  005237  007142           CMPSEX: INC     PSCNT           ;BUMP PASS COUNT
5386
5387  032206  013737  007140  007202           MOV     NOBUF,TEMP4
5388  032214  013737  007142  007176           MOV     PSCNT,TEMP2
5389  032222  013737  007144  007200           MOV     ERRCNT,TEMP3
5390  032230  004737  021132                   JSR     PC,LOGEOP       ;LOG END OF PASS
5391
5392  032234  022737  177777  007230           CMP     #-1,RPASS       ;SEE IF RPASS=-1
5393  032242  001403                           BEQ     1$              ;IF IT IS DON'T DECRMNT, LOOP FOREVER
5394  032244  005337  007230                   DEC     RPASS           ;DEC PASS COUNT
5395  032250  001402                           BEQ     2$              ;IF DONE EXIT TEST
5396  032252  000137  030746           1$:     JMP     GTRX2           ;ELSE GO BACK AND DISPATCH
5397  032256  000137  025640           2$:     JMP     GTRA5           ;WHEN RPASS=0 GO BACK TO 'DCLT>''
5398
```

```
5399                                    .SBTTL          DOWN-LINE-LOAD SECTION
5400
5401                                    ;++
5402                                    ; FUNCTIONAL DESCRIPTION:
5403                                    ;       DOWN-LINE-LOAD SECTION
5404                                    ;       IN THIS MODE OF TESTING THE 'HOST' OR ORIGINATING STATION
5405                                    ;       REQUESTS THE 'SATELLITE' OR BOOT STATION TO ENTER MOP MODE.
5406                                    ;       THE BOOT STATION THEN SENDS A  'REQUEST PROGRAM MESSAGE'.
5407                                    ;       THE 'HOST' THEN SENDS A 'MEMORY LOAD WITH TRANSFER ADDRESS'
5408                                    ;       THAT CONTAINS IMAGE DATA TO BE LOADED BY THE BOOT STATION'S
5409                                    ;       M9312 STARTING AT LOC. 0.  THIS IMAGE DATA WILL CONTAIN A
5410                                    ;       PROGRAM THAT WILL PRINT A MSG THAT DOWN-LINE-LOAD WAS SUCESSFUL.
5411                                    ;
5412                                    ; SUBORDINATE ROUTINES USED:
5413                                    ;
5414                                    ;               'DLTXRX' - SPECIAL TX RX ROUTINE FOR DLL
5415                                    ;               'DVRXQ'  - QUE RX BUFFER SPACE TO DEVICE
5416                                    ;               'LOGRXQ' - LOG RX SPACE QUED TO EVENT LOG
5417                                    ;               'LOGTXQ' - LOG TX BUFFER QUED TO EVENT LOG
5418                                    ;               'DVTXRX' - QUE TX BUFFER AND WAIT FOR RX OR TX TO COMPLETE
5419                                    ;               'LOGTXC' - LOG TX COMPLETED TO EVENT LOG
5420                                    ;               'LOGRXC' - LOG RX COMPLETED TO EVENT LOG
5421                                    ;
 422                                    ; CALLING SEQUENCE:
5423                                    ;       JMP     @MODE(R2)       ;DISPATCH TO MODE BASED ON MODE TYPE IN R2
5424                                    ;--
5425
5426  032262  052737  000100  007232  DLL:    BIS     #ERX,FLAG       ;SET EXPECTED TO RX
5427  032270  042737  000002  007226          BIC     #DATCKB,PARAM   ;CLEAR NOCHECK
5428  032276  012737  002647  007164          MOV     #DLLM1,CURADD   ;SET THE DOWN LINE LOAD MSG TO #1
5429  032304  013737  002172  007156          MOV     DLLM1C,CURCC    ;SET THE CC
5430  032312  004737  032404                  JSR     PC,DLTXRX       ;GO TO THE DOWN LINE TX RX ROUTINE
5431
5432                                          ;RETURN WHEN TX AND RX ARE COMPLETED
5433
5434  032316  012737  002654  007164          MOV     #DLLM2,CURADD   ;SET THE DOWN LINE LOAD MSG TO #2
5435  032324  013737  002174  007156          MOV     DLLM2C,CURCC    ;SET CC
5436  032332  042737  000400  007232          BIC     #DLLGA,FLAG     ;CLEAR THE GO AHEAD FLAG
5437  032340  004737  032404                  JSR     PC,DLTXRX       ;GO TO THE DOWN LINE TX RX ROUTINE
5438
5439                                          ; RETURN WHEN TX AND RX ARE COMPLETED
5440  032344                          DLLPRI:
5441  032344                                  PRINTF  #DLLCM
5442  032344  012746  013640                                                  MOV     #DLLCM,-(SP)
5443  032350  012746  000001                                                  MOV     #1,-(SP)
5444  032354  010600                                                          MOV     SP,R0
5445  032356  104417                                                          TRAP    C$PNTF
5446  032360  062706  000004                                                  ADD     #4,SP
5447  032364  000137  025640                  JMP     GTRA5
5448
5449  032370                          DLLEA:
5450  032370                                  ERRHRD  20,DLLAB,ERR14
5451  032370  104456                                                          TRAP    C$ERHRD
5452  032372  000024                                                          .WORD   20
5453  032374  017130                                                          .WORD   DLLAB
5454  032376  020502                                                          .WORD   ERR14
```

```
 5455
 5456  032400  000137  025640                  JMP     GTRA5           ;PRINT ABORT AND EXIT
 5457
 5458
 5459
 5460  032404                          DLTXRX:
 5461  032404  052737  000004  007232          BIS     #QRX,FLAG       ;SET THE QUE RX FLAG
 5462  032412  012737  004326  007126          MOV     #RXBUF,DVRXA    ;SET THE DEVICE RX BUFFER TO RXBUF
 5463  032420  012737  004326  007176          MOV     #RXBUF,TEMP2    ;SET UP FOR LOG
 5464  032426  012737  000400  007130          MOV     #256.,DVRCC     ;SET UP FOR CC OF 256
 5465  032434  012737  000400  007200          MOV     #256.,TEMP3     ;SET UP FOR LOG
 5466  032442  004737  034120                  JSR     PC,DVRXQ        ; GO QUE RX
 5467  032446  004737  020746                  JSR     PC,LOGRXQ       ;AND LOG IT...
 5468
 5469  032452  013737  007164  007112          MOV     CURADD,DVTXA    ;SET UP FOR TX
 5470  032460  013737  007164  007176          MOV     CURADD,TEMP2    ;AND LOG
 5471  032466  013737  007156  007114          MOV     CURCC,DVTCC     ;SE UP FOR TX COUNT
 5472  032474  013737  007156  007200          MOV     CURCC,TEMP3     ;AND LOG IT
 5473  032502  004737  020712                  JSR     PC,LOGTXQ       ;LOG THE TX QUEUED
 5474  032506  052737  000210  007232          BIS     #QTX+#ETX,FLAG  ;SET UP TO QUE AND EXPECTED
 5475  032514  004737  034200          DLLE2:  JSR     PC,DVTXRX       ;GO TO DEVICE ROUTINE
 5476  032520  032737  000400  007232          BIT     #DLLGA,FLAG     ;TEST FOR GO AHEAD BIT
 5477  032526  001047                          BNE     DLLE1           ;IF SET GO TO ONE
 5478  032530  032737  000010  007232          BIT     #QTX,FLAG       ;ELSE CHECK FOR TX DONE
 5479  032536  001020                          BNE     DLLE6           ;IF DONE THEN BRANCH
 5480                                                                  ;ELSE ERROR
 5481  032540  012737  020062  007204          MOV     #TXNC,CONOTM
 5482  032546  013737  004326  007200  DLLE7:  MOV     RXBUF,TEMP3
 5483  032554  013737  003326  007202          MOV     TXBUF,TEMP4
 5484  032562  012737  017130  007176          MOV     #DLLAB,TEMP2
 5485  032570  004737  020774                  JSR     PC,LGDVE        ;LOG ERROR
 5486  032574  000137  032370                  JMP     DLLEA           ;ABORT TEST
 5487
 5488  032600  013737  007112  007176  DLLE6:  MOV     DVTXA,TEMP2
 5489  032606  013737  007114  007200          MOV     DVTCC,TEMP3
 5490  032614  004737  020730                  JSR     PC,LOGTXC       ;LOG TX DONE
 5491  032620  042737  000210  007232          BIC     #QTX+#ETX,FLAG  ;CLEAR QUE AND EXPECTED
 5492  032626  052737  000400  007232          BIS     #DLLGA,FLAG     ;SET THE GO AHEAD BIT
 5493  032634  023737  002174  007114          CMP     DLLM2C,DVTCC
 5494  032642  001441                          BEQ     DLLE5           ;EXIT IF SECOND MSG.
 5495  032644  000723                          BR      DLLE2           ;AND GO BACK TO 2
 5496  032646  032737  000004  007232  DLLE1:  BIT     #QRX,FLAG       ;IS THE A RX COMPLETED
 5497  032654  001004                          BNE     DLLE8           ;IF SO GO TO 8
 5498  032656  012737  020102  007204          MOV     #RXNC,CONOTM    ;ELSE SET UP ERROR AND ABORT.
 5499  032664  000730                          BR      DLLE7
 5500  032666  013737  007126  007176  DLLE8:  MOV     DVRXA,TEMP2
 5501  032674  013737  007130  007200          MOV     DVRCC,TEMP3
 5502  032702  004737  020764                  JSR     PC,LOGRXC       ;LOG RECEIVE COMPLETE
 5503  032706  022737  006010  004326          CMP     #6010,RXBUF     ;CHECK FOR FIRST WORD OF RX
 5504                                                                  ;SEC BOOT MSG.
 5505  032714  001404                          BEQ     DLLE3
 5506  032716  012737  020122  007204  DLLE4:  MOV     #RXM1,CONOTM    ;SET UP MESG AND ABORT
 5507  032724  000710                          BR      DLLE7           ;ABORT TEST
 5508
 5509  032726  022737  000001  004330  DLLE3:  CMP     #1,RXBUF+2      ;IS SECOND WORD 1
 5510  032734  001404                          BEQ     DLLE5           ;IF OK RETURN
```

```
 5511  032736  012737  020145  007204          MOV     #RXM2,CONOTM
 5512  032744  000700                          BR      DLLE7           ;SET UP MESSAGE AND ABORT
 5513
 5514  032746  000207                  DLLE5:  RTS     PC              ;RETURN TO CALLER
 5515
 5516
 5517
```

```
                                        .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
                                        ;--

032750                                  TALCK:
032750  042737  000002  007226                  BIC     #DATCKB,PARAM   ;SET NOCHECK
032756  012702  002524                          MOV     #OPBUF,R2
032762  012722  177777          1$:     MOV     #-1,(R2)+       ;CLEAR OUT OPBUFFER FIRST
032766  022702  002646                          CMP     #OPEND,R2
032772  001373                                  BNE     1$
032774                                  GMANID  OPRMM,OPBUF,A,0,1,72.,NO        ;GET TALK MESSAGE
032774  104443                                                          TRAP    C$GMAN
032776  000406                                                          BR      10001$
033000  002524                                                          .WORD   OPBUF
033002  000142                                                          .WORD   T$CODE
033004  013575                                                          .WORD   OPRMM
033006  000000                                                          .WORD   0
033010  000001                                                          .WORD   T$LOLIM
033012  000110                                                          .WORD   T$HILIM
033014                                                                  10001$:
033014  005002                                  CLR     R2              ;NOW GET CHAR COUNT
033016  122762  000377  002524          2$:     CMPB    #377,OPBUF(R2)
033024  001402                                  BEQ     3$
033026  005202                                  INC     R2
033030  000772                                  BR      2$
033032  010237  002166          3$:     MOV     R2,OPCNT
033036  012737  002524  007112                  MOV     #OPBUF,DVTXA    ;SET UP TX ADDR.
033044  012737  002524  007176                  MOV     #OPBUF,TEMP2
033052  013737  002166  007200                  MOV     OPCNT,TEMP3
033060  013737  002166  007114                  MOV     OPCNT,DVTCC     ;SET UP TX CC
033066  004737  020712                          JSR     PC,LOGTXQ
033072  052737  000210  007232                  BIS     #QTX+#ETX,FLAG  ;SET UP FLAGS
033100  005037  007160                          CLR     CPTRR           ;CLEAR RX POINTER
033104  004737  034200                          JSR     PC,DVTXRX
033110  013737  007112  007176                  MOV     DVTXA,TEMP2
033116  013737  007114  007200                  MOV     DVTCC,TEMP3
033124  004737  020730                          JSR     PC,LOGTXC
033130  022737  054105  002524                  CMP     #'EX,OPBUF      ;CHECK FOR EXIT
```

```
 5574  033136  001304                    BNE     TALCK
 5575  033140  022737  052111  002526    CMP     #''IT,OPBUF+2
 5576  033146  001300                    BNE     TALCK
 5577  033150  042737  000210  007232    BIC     #QTX+#ETX,FLAG  ;CLEAR THE TX BITS
 5578  033156  012737  000006  007220    MOV     #LIS,MODTYP     ;CHANGE TO LISTEN MODE
 5579  033164  000137  030746            JMP     CTRX2           ;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
                                ;--
033170  042737  000002  007226  LISCK:  BIC     #DATCKB,PARAM   ;CLEAR CHECK BIT
033176                          LISCK:  PRINTF  #LISP           ;PRINT PROMPT FOR OPR.
033176  012746  013564                                                  MOV     #LISP,-(SP)
033202  012746  000001                                                  MOV     #1,-(SP)
033206  010600                                                          MOV     SP,R0
033210  104417                                                          TRAP    C$PNTF
033212  062706  000004                                                  ADD     #4,SP
033216  012737  002524  007126  LISCKA: MOV     #OPBUF,DVRXA    ;SET DEVICE UP TO REC AT OPBUF
033224  012737  002524  007176          MOV     #OPBUF,TEMP2
033232  012737  000122  007130          MOV     #82.,DVRCC      ;SET UP CHAR COUNT TO 82.
033240  012737  000122  007200          MOV     #82.,TEMP3
033246  052737  000104  007232          BIS     #URX+#ERX,FLAG  ;SET UP FLAG
033254  005037  007162                  CLR     CPTR            ;CLEAR THE TX.
033260  004737  034120                  JSR     PC,DVRXQ        ;QUE RX
033264  004737  020746                  JSR     PC,LOGRXQ
033270  004737  034200                  JSR     PC,DVTXRX       ;GO TO DEVICE RX. SUBROUTINE
033274  013737  007126  007176          MOV     DVRXA,TEMP2
033302  013737  007130  007200          MOV     DVRCC,TEMP3     ;SET UP ADDR.AND CC.
033310  004737  020764                  JSR     PC,LOGRXC       ;LOG COMPLETED
033314  063737  007126  007130          ADD     DVRXA,DVRCC
033322  105077  153602                  CLRB    @DVRCC
033326                          PRINTF  #OPBFPT
033326  012746  002520                                                  MOV     #OPBFPT,-(SP)
033332  012746  000001                                                  MOV     #1,-(SP)
033336  010600                                                          MOV     SP,R0
033340  104417                                                          TRAP    C$PNTF
033342  062706  000004                                                  ADD     #4,SP
033346  022737  054105  002524          CMP     #'EX,OPBUF      ;COMPARE FOR EX OF 'EXIT'
033354  001320                          BNE     LISCKA          ;IF NOT EXIT THEN GO BACK
033356  022737  052111  002526          CMP     #'IT,OPBUF+2    ;IF FIRST HALF OK CHECK NEXT PART
033364  001314                          BNE     LISCKA          ;IF NOT EXIT THE GO BACK
033366  012737  000005  007220          MOV     #TAL,MODTYP     ;CHANGE MODE TO TALK
033374  000137  030746                  JMP     GTRX2           ;RETURN TO DISPATCHER
```

```
5636
5637
```

```
                                .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. (I.E. FULL/HALF DUPLEX BAUD RATE, MAINT MODE.)
                                ;
                                ; 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
                                ;              'TOORIO' - TIME OUT OR INPUT INTERRUPT OR OUTPUT INTERRUPT
                                ;               'CLRAW' - CLEAR RQI AND WAIT FOR RDI TO GO AWAY
                                ;
                                ; CALLING SEQUENCE:
                                ;               JSR     PC,DVINIT
                                ;--

033400                          DVINIT:
                                        ;MASTER CLEAR DEVICE

033400  012737  000100  007272          MOV     #100,TIMER1     ;SET UP TIMER 1 FOR 100(OCTAL) TICKS
033406  005077  156400                  CLR     @SEL6
033412  005077  156370                  CLR     @SEL4
033416  012777  040000  156352          MOV     #MCLR,@SEL0     ;DO A MASTER CLEAR

033424  022737  000004  012024          CMP     #DMRC6,OPTYP    ;IS THIS A 8206
033432  001003                          BNE     DVIN6           ;IF NOT GO TO 6
033434  112777  000200  156336          MOVB    #200,@BSEL1     ;SET RUN FOR 8206
033442  022737  000006  012024  DVIN6:  CMP     #DMR6,OPTYP     ;IS THIS AN 8206 DMR
033450  001003                          BNE     DVIN2           ;IF NOT GO TO 2
033452  112777  000200  156320          MOVB    #200,@BSEL1     ;SET RUN BIT FOR 8206

033460  005777  156312  DVIN2:  TST     @SEL0           ;IS RUN BIT SET
033464  100426                  BMI     DVIN1           ;IF YES GO TO 1 ELSE...
033466                          BREAK
033466  104422                                                          TRAP    C$BRK
033470  005737  007272                  TST     TIMER1          ;SEE IF TIME HAS EXPIRED
033474  001371                          BNE     DVIN2           ;IF NOT GO BACK AND CHECK
                                                                ;AGAIN ELSE...PRINT ERROR
033476  012737  016340  007176          MOV     #DVEM3,TEMP2
033504  017737  156266  007200          MOV     @SEL0,TEMP3
033512  017737  156264  007202          MOV     @SEL2,TEMP4     ;LOAD UP ERRM. AND REG OUTPUTS
033520  004737  020774                  JSR     PC,LGDVE        ;LOG TIME OUT WAITING FOR RUN
033524  005237  007144                  INC     ERRCNT
033530                                  ERRSOFT 11,DVEM3,ERR13
```

```
 5694  033530  104457                                                          TRAP    C$ERSOFT
 5695  033532  000013                                                          .WORD   11
 5696  033534  016340                                                          .WORD   DVEM3
 5697  033536  020450                                                          .WORD   ERR13
 5698
 5699  033540  000717                  BR DVINIT              ;GO BACK AND TRY MSTR CLR AGAIN IF ERROR
 5700
 5701  033542                  DVIN1:
 5702
 5703                                  ; DO BASE IN COMMAND
 5704
 5705  033542  042737  000003  007232  BIC     #3,FLAG        ;CLEAR INPUT AND OUTPUT INT FLAGS
 5706  033550  112777  000143  156220  MOVB    #143,@BSEL0    ;SET UP BASE IN INT EN
 5707  033556  004737  035026          JSR     PC,TOORIO      ;GO WAIT FOR INTERRUPT OR TIME OUT
 5708  033562  012777  017370  156216  MOV     #BASE,@SEL4
 5709
 5710  033570  012777  000000  156214  MOV     #0,@SEL6       ;SET UP SEL 6
 5711  033576  023727  012024  000006  CMP     OPTYP,#6       ;IS THIS DMR MODE
 5712  033604  002403                  BLT     DVIN7          ;IF NOT GO TO 7
 5713  033606  012777  000522  156176  MOV     #522,@SEL6     ;SET DMR MODE
 5714  033614  052777  000100  156160  DVIN7:  BIS     #IEO,@SEL2     ;SET IEO
 5715  033622  042777  004000  156146  BIC     #LULOOP,@SEL0  ;CLEAR LU LOOP
 5716  033630  022737  000001  007222  CMP     #TTL,MLTYP     ;IS TTL SELECTED
 5717  033636  001003                  BNE     DVIN3          ; IF NOT GO TO 3
 5718  033640  052777  004000  156130  BIS     #LULOOP,@SEL0  ;ELSE SET LU LOOP
 5719  033646  004737  034720          DVIN3:  JSR     PC,CLRAW
 5720
 5721                                  ; DO WRITE MODEM IF DMR MODE
 5722
 5723  033652  023727  012024  000006  CMP     OPTYP,#6       ;IS THIS DMR MODE
 5724  033660  002437                  BLT     DVIN8          ;IF NOT GO TO 8
 5725  033662  112777  000145  156106  MOVB    #145,@BSEL0    ;SET UP WRITE MODEM
 5726  033670  004737  035026          JSR     PC,TOORIO      ;GO TO  WAIT FOR INT
 5727  033674  042777  000014  156110  BIC     #BIT2+#BIT3,@SEL6              ;CLEAR BSEL6 AND 7
 5728  033702  022737  000004  007222  CMP     #MODREM,MLTYP  ;IS THIS REMOTE LOOP
 5729  033710  001003                  BNE     DVIN9          ;IF NOT GO TO 9
 5730  033712  052777  000004  156072  BIS     #BIT2,@BSEL6   ;SET THE BIT
 5731  033720  022737  000003  007222  DVIN9:  CMP     #MODLOC,MLTYP  ;IS IT MODEM LOCAL
 5732  033726  001003                  BNE     DVIN10         ;IF NOT EXIT
 5733  033730  052777  000010  156054  BIS     #BIT3,@BSEL6   ;SET MODEM LOCAL
 5734  033736  004737  034720          DVIN10: JSR     PC,CLRAW       ·CLEAR RDI AND WAIT
 5735
 5736                                  ; ENABLE EXTENDED ERRuR IF DMR MODE
 5737
 5738
 5739  033742  112777  000146  156026  MOVB    #146,@BSEL0    ;SET UP FOR ENABLE
 5740  033750  004737  035026          JSR     PC,TOORIO
 5741  033754  004737  034720          JSR     PC,CLRAW       ;CLEAR RDI AND WAIT
 5742
 5743                                  ; DO CONTROL IN COMMAND
 5744
 5745  033760  112777  000141  156010  DVIN8:  MOVB    #141,@BSEL0    ;SET UP CONTROL IN
 5746  033766  004737  035026          JSR     PC,TOORIO      ;WAIT FOR INT OR TIME OUT
 5747  033772  005077  156014          CLR     @SEL6          ;CLEAR HALF/DUP
 5748  033776  022737  000004  007220  CMP     #DOW,MODTYP    ;IS THIS DOWN LINE LOAD?
 5749  034004  001004                  BNE     DVIN5          ; BR IF NOT
```

```
5750  034006  052777  002400  155776          BIS     #MAINTB+HALFDB,@SEL6    ;IF SO SET MAINT MODE  BIT
5751  034014  000406                          BR      DVIN4                   ; AND FORCE HALF DUPLEX
5752
5753  034016  005737  007224          DVIN5:  TST     FHDPLX                  ;IS THIS A HALF/DUP
5754  034022  001003                          BNE     DVIN4                   ;IF NOT GO TO 4
5755  034024  052777  002000  155760          BIS     #HALFDB,@SEL6           ;ELSE SET HALF/DUP
5756
5757  034032  017737  155754  007206  DVIN4:  MOV     @SEL6,CONTIN            ;SET UP CONTROL IN FOR MODS
5758  034040  004737  034720                  JSR     PC,CLRAW                ;GO CLEAR RQI AND WAIT
5759                                                                          ;FOR RDI TO GO AWAY.
5760  034044  023727  012024  000006          CMP     OPTYP,#6                ;IS THIS DMR
5761  034052  002403                          BLT     DVINEX                  ;IF NOT EXIT
5762  034054  052737  001000  007232          BIS     #DMRRUN,FLAG            ;SET RUN OUTPUT EXPECTED BIT
5763
5764  034062  000207                  DVINEX: RTS     PC                      ;RETURN TO CALLER
5765
5766
5767
5768
5769
```

```
5770                                    .SBTTL                  DEVICE GET MODEM STATUS SUBROUTINE
5771
5772
5773
5774                                    ;++
5775                                    ; FUNCTIONAL DESCRIPTION:
5776                                    ;       'DVMODS''   GET MODEM STATUS
5777                                    ;
5778                                    ; IMPLICIT INPUTS:
5779                                    ;       THE BIT POSITION AND AVAIABLITY OF THE MODEM SIGNALS CTS,DSR,...RI,.
5780                                    ;       IN THE DEPENDENT PORITION OF THE GLOBAL EQUATES SECTION.
5781                                    ;
5782                                    ; OUTPUTS:
5783                                    ;       CURRENT MODEM SIGNAL VALUES IN 'MODS''
5784                                    ;
5785                                    ; SUBORDINATE ROUTINES USED:
5786                                    ;
5787                                    ;               'TOORIO'' - TIME OUT OR INPUT INTERRUPT OR OUTPUT INTERRUPT
5788                                    ;                ''CLRAW'' - CLEAR RQI AND WAIT FOR RDI TO CLEAR
5789                                    ;
5790                                    ;
5791                                    ; CALLING SEQUENCE:
5792                                    ;       JSR     PC,DVMODS
5793                                    ;--
5794
5795  034064  112777  000141  155704  DVMODS: MOVB    #141,@BSEL0     ;SET UP CONTORL IN
5796  034072  004737  035026                  JSR     PC,TOORIO       ;GO TIME OUT CHECK
5797  034076  017737  155704  010206          MOV     @SEL4,MODS      ;SET UP MODEM STATUS
5798  034104  013777  007206  155700          MOV     CONTIN,@SEL6    ;SET UP OLD CONTORL IN
5799  034112  004737  034720                  JSR     PC,CLRAW
5800  034116  000207                          RTS     PC              ;RETURN TO CALLER
5801
5802
```

```
                                .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:
                                ;
                                ;               "TOORIO" - TIME OUT OR OUTPUT INTERRUPT OR INTPUT INTERRUPT
                                ;               "CLRAW"  - CLEAR RQI AND WAIT FOR RDI TO CLEAR
                                ;
                                ; CALLING SEQUENCE:
                                ;       JSR     PC,DVRXQ
                                ;--

034120                          DVRXQ:
034120  032737  000004  007232          BIT     #QRX,FLAG
034126  001423                         BEQ     DVREX           ;IF NOT RX THEN EXIT
                                                                ;ELSE QUE RX
034130  042737  000004  007232          BIC     #QRX,FLAG       ;CLEAR FLAG FOR RX
034136  112777  000144  155632          MOVB    #144,@BSEL0
034144  004737  035026                  JSR     PC,TOORIO       ;GO CHECK FOR IN OR OUT
034150  017737  155632  010206          MOV     @SEL4,MODS      ;SET UP NEW MOD STATUS
034156  013777  007126  155622          MOV     DVRXA,@SEL4
034164  013777  007130  155620          MOV     DVRCC,@SEL6     ;LOAD CC AND ADDR
034172  004737  034720                  JSR     PC,CLRAW        ;CLEAR AND WAIT
034176  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 COMPLE,
                        ;       RX COMPLETE OR BOTH. THE CODE REPORTS A TIME OUT
                        ;       ERROR IF NO BACC OUTPUT INTERRUPT IS RECIEVED BEFORE
                        ;       60 SECONDS. AFTER REPORTING ERROR TIMER IS RE STARTED
                        ;       AND DEVICE WILL CONTINUE TO WAIT FOR INTERRUPT. CODE
                        ;       ALSO REPORTS ERROR IF INPUT INTERRUPT OCCURS WHEN
                        ;       EXPECTING OUTPUT INTERRUPT;WHEN RX BACC OCCURS WHEN
                        ;       EXPECTING TX,AND WHEN TX INT. OCCURS WHEN EXPECTING
                        ;       RECIEVE.
                        ;
                        ;INPUTS:
                        ;       'DVTXA'' = ADDRESS OF TRANSMIT MSG.
                        ;       'DVTCC'' = BYTE COUNT OF TRANSMIT MSG.
                        ;    'QTX'' BIT  = SET IF TRANSMIT REQUESTED
                        ;    'ETX'' BIT  = SET IF TRNASMIT EXPECTED
                        ;    'ERX'' BIT  = SET IF RECIEVE 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:
                        ;
                        ;               'TOORIO'' - TIME OUT OR OUTPUT INTERRUPT OR INTPUT INTERRUPT
                        ;               'CLRAW''  - CLEAR RQI AND WAIT FOR RDI TO CLEAR
                        ;               'LGDVE''  - LOG DEVICE ERROR TO EVENT LOG
                        ;               'OUTHDL'' - OUTPUT INTERRUPT HANDLER CODE
                        ;
                        ; CALLING SEQUENCE:
                        ;       JSR     PC,DVTXRX
                        ;--
                        ;
5886  034200  032737  000010  007232  DVTXRX: BIT     #QTX,FLAG       ;ANY TX TO QUE
5887  034206  001423                  BEQ     DVTR3           ;IF NOT GO WAIT FOR OUPUT
5888  034210  042737  000010  007232          BIC     #QTX,FLAG       ;CLEAR FLAG
5889  034216  112777  000140  155552          MOVB    #140,@SEL0
5890  034224  004737  035026                  JSR     PC,TOORIO       ;GO CHECK FOR IN OR OUT
5891  034230  017737  155552  010206          MOV     @SEL4,MODS      ;PUT IN NEW MOD STAT
5892  034236  013777  007112  155542          MOV     DVTXA,@SEL4
5893  034244  013777  007114  155540          MOV     DVTCC,@SEL6
5894  034252  004737  034720                  JSR     PC,CLRAW        ;CLEAR RQUI ANDWAIT
5895  034256                          DVTR3:
5896  034256  012737  000074  007276          MOV     #60.,TIMERS     ;SET TIMER FOR 60 SECS
5897  034264  032737  000060  007232  TOINOT: BIT     #CRX+#CTX,FLAG  ;IS IT TX OR RX COMP ALREADY?
```

```
5898  034272  001071                          BNE     DVTR4           ;IS SO EXIT
5899
5900  034274  005737  007276                  TST     TIMERS          ;IS TIMER EXPIRED
5901  034300  001022                          BNE     TOIN1
5902  034302  012737  016424  007176          MOV     #DVEM4,TEMP2
5903  034310  017737  155462  007200          MOV     @SEL0,TEMP3
5904  034316  017737  155460  007202          MOV     @SEL2,TEMP4
5905  034324  004737  020774                  JSR     PC,LGDVE
5906  034330  005237  007144                  INC     ERRCNT
5907  034334                                  ERRSOFT 12,DVEM4,ERR13
5908  034334  104457                                                          TRAP    C$ERSOFT
5909  034336  000014                                                          .WORD   12
5910  034340  016424                                                          .WORD   DVEM4
5911  034342  020450                                                          .WORD   ERR13
5912  034344  000744                          BR      DVTR3           ;RETURN TO CHECK TIMER
5913
5914
5915  034346                          TOIN1:  BREAK
5916  034346  104422                                                          TRAP    C$BRK
5917  034350  032737  000001  007232          BIT     #ININT,FLAG     ;IS IT INPUT INTERRUPT
5918  034356  001425                          BEQ     TOIN2           ;IF SO LOG ERROR
5919
5920  034360  012737  016516  007176          MOV     #DVEM5,TEMP2
5921  034366  017737  155404  007200          MOV     @SEL0,TEMP3
5922  034374  017737  155402  007202          MOV     @SEL2,TEMP4
5923  034402  004737  020774                  JSR     PC,LGDVE
5924  034406  042737  000001  007232          BIC     #ININT,FLAG     ;CLEAR BIT
5925  034414  005237  007144                  INC     ERRCNT
5926  034420                                  ERRSOFT 13,DVEM5,ERR13
5927  034420  104457                                                          TRAP    C$ERSOFT
5928  034422  000015                                                          .WORD   13
5929  034424  016516                                                          .WORD   DVEM5
5930  034426  020450                                                          .WORD   ERR13
5931  034430  000715                          BR      TOINOT
5932
5933  034432  032737  000002  007232  TOIN2:  BIT     #OTINT,FLAG
5934  034440  001711                          BEQ     TOINOT          ;IF NOT OUTPUT GO BACK AND
5935                                                                  ;CHECK TIMER AGAIN
5936  034442  004737  035150                  JSR     PC,OUTHDL       ;ELSE HANDLE OUTPUT AND RETURN
5937  034446  032737  000060  007232          BIT     #CTX+#CRX,FLAG  ;IS IT TX OR RX
5938  034454  001703                          BEQ     TOINOT          ;IF NOT GO BACK AND TRY AGAIN
5939  034456  032737  000020  007232  DVTR4:  BIT     #CTX,FLAG       ;IS IT TX
5940  034464  001440                          BEQ     DVTR5           ;IF NOT TRY RX
5941  034466  032737  000200  007232          BIT     #ETX,FLAG       ;IF SO SHOULD IT BE
5942  034474  001020                          BNE     DVTR4A          ;IF IT SHOULD GO TO 4A
5943  034476  012737  017041  007176          MOV     #DVEM9,TEMP2    ;ELSE LOG ERROR
5944  034504  013737  035746  007200          MOV     TSEL4,TEMP3
5945  034512  013737  035750  007202          MOV     TSEL6,TEMP4
5946  034520  004737  020774                  JSR     PC,LGDVE        ;
5947  034524                                  ERRSOFT 14,DVEM9,ERR13  ;REPORT ERROR
5948  034524  104457                                                          TRAP    C$ERSOFT
5949  034526  000016                                                          .WORD   14
5950  034530  017041                                                          .WORD   DVEM9
5951  034532  020450                                                          .WORD   ERR13
5952
5953  034534  000411                          BR      DVTR4B          ;THEN CLEAR COMPL.FLAG
```

```
 5954  034536  013737  035746  007112  DVTR4A: MOV     TSEL4,DVTXA
 5955  034544  013737  035750  007114          MOV     TSEL6,DVTCC
 5956  034552  052737  000010  007232          BIS     #QTX,FLAG       ;AND SET TX COMPL FLAG
 5957  034560  042737  000020  007232  DVTR4B: BIC     #CTX,FLAG       ;ELSE CLEAR FLAG
 5958  034566  032737  000040  007232  DVTR5:  BIT     #CRX,FLAG       ;IS IT RX TOO?
 5959  034574  001440                          BEQ     DVTREX          ;IF NOT THEN EXIT.
 5960  034576  032737  000100  007232          BIT     #ERX,FLAG       ;TEST IS THIS SUPPOSED TO BE RX
 5961  034604  001020                          BNE     DVTR5A          ;IF YES PROCESS AS SUCH
 5962  034606  012737  016752  007176          MOV     #DVEM8,TEMP2
 5963  034614  013737  035752  007200          MOV     RSEL4,TEMP3
 5964  034622  013737  035754  007202          MOV     RSEL6,TEMP4     ;ELSE
 5965  034630  004737  020774                  JSR     PC,LGDVE        ;LOG ERROR
 5966  034634                                  ERRSOFT 15,DVEM8,ERR13
 5967  034634  104457                                                  TRAP    C$ERSOFT
 5968  034636  000017                                                  .WORD   15
 5969  034640  016752                                                  .WORD   DVEM8
 5970  034642  020450                                                  .WORD   ERR13
 5971
 5972  034644  000411                          BR      DVTRX1          ;AND EXIT
 5973  034646  013737  035752  007126  DVTR5A: MOV     RSEL4,DVRXA
 5974  034654  013737  035754  007130          MOV     RSEL6,DVRCC
 5975  034662  052737  000004  007232          BIS     #QRX,FLAG
 5976  034670  042737  000040  007232  DVTRX1: BIC     #CRX,FLAG       ;CLEAR FLAG FOR RX DONE
 5977  034676  000207                  DVTREX: RTS     PC              ;AND EXIT
 5978
```

```
                                        ; DEVICE DEPENDENT SUBROUTINES


                                        .SBTTL                  DEVICE INTERRUPT SERVICE ROUTINES


034700                                          BGNSRV  DVINS
034700                                                                                  DVINS::
034700  052737  000001  007232                  BIS     #ININT,FLAG
034706                                          ENDSRV
034706                                                                                  L10021:
034706  000002                                                                                  RTI

034710                                          BGNSRV  DVOUTS
034710                                                                                  DVOUTS::
034710  052737  000002  007232                  BIS     #OTINT,FLAG
034716                                          ENDSRV
034716                                                                                  L10022:
034716  000002                                                                                  RTI


                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:
                                        ;       CLRAW - CLEAR RQI AND WAIT FOR RDI TO GO AWAY
                                        ;       THIS CODE CLEARS THE INPUT REQEST BIT(RQI) SETS A
                                        ;       TIMER UP TO TIME 50(OCTAL) TICKS AND MAKES SURE
                                        ;       RDI CLEARS BEFORE TIMER EXPIRES. IF TIMER EXPIRERS
                                        ;       CODE REPORTS ERROR AND SETS UP TIMER AND WAITS AGAIN.
                                        ;
                                        ; SUBORDINATE ROUTINES USED:
                                        ;               'LGDVE' - LOG DEVICE ERROR (TIME OUT)
                                        ;
                                        ; CALLING SEQUENCE:
                                        ;       JSR     PC,CLRAW
                                        ;--

034720  011637  007214          CLRAW:  MOV     (SP),PCADD      ;SAVE PC OF CALLING ROUTINE
034724  042777  000040  155044          BIC     #RQI,@SEL0
034732  012737  000050  007272  CLRA3:  MOV     #50,TIMER1      ;SET UP TIMER FOR 50(OCTAL) TICKS
034740  005737  007272          CLRA1:  TST     TIMER1
034744  001406                          BEQ     CLRA2           ;IF TIMER EXPIRED ERROR
034746                                  BREAK
034746  104422                                                                  TRAP    C$BRK
034750  032777  000200  155020          BIT     #RDI,@SEL0      ;IS RDI CLEAR
034756  001370                          BNE     CLRA1           ;IF NOT GO CHECK TIMER
                                                                ; ELSE
034760  000207                          RTS     PC              ;RETURN TO CALLER
034762  012737  016166  007176  CLRA2:  MOV     #DVEM0,TEMP2
034770  017737  155002  007200          MOV     @SEL0,TEMP3
034776  017737  155000  007202          MOV     @SEL2,TEMP4
035004  004737  020774                  JSR     PC,LGDVE        ;LOG DEVEICE EVENT 0
035010  005237  007144                  INC     ERRCNT
```

```
6035  035014                ERRSOFT 16,DVEM0,ERR9   ;WHILE WAITING FOR RDI
6036  035014  104457                                          TRAP    C$ERSOFT
6037  035016  000020                                          .WORD   16
6038  035020  016166                                          .WORD   DVEM0
6039  035022  020372                                          .WORD   ERR9
6040  035024  000742                BR      CLRA3           ;RESET TIMER AND CONTINUE
```

```
                                .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
                                ;--
035026  011637  007214          TOORIO: MOV     (SP),PCADD      ;SAVE ADDR. OF CALLING ROUTINE
035032  012737  000100  007272          MOV     #100,TIMER1     ;SET UP TIMER
035040  005737  007272          TOOR3:  TST     TIMER1          ;IS TIME EXPIRED
035044  001022                  BNE     TOOR1           ;IF NOT CONTINUE
                                                        ;IF YES ERROR
035046  012737  016254  007176          MOV     #DVEM1,TEMP2
035054  017737  154722  007202          MOV     @SEL2,TEMP4
035062  017737  154710  007200          MOV     @SEL0,TEMP3
035070  004737  020774                  JSR     PC,LGDVE
035074  005237  007144                  INC     ERRCNT
035100                                  ERRSOFT 17,DVEM1,ERR9
035100  104457                                                          TRAP    C$ERSOFT
035102  000021                                                          .WORD   17
035104  016254                                                          .WORD   DVEM1
035106  020372                                                          .WORD   ERR9
035110  000746                  BR      TOORIO
035112                          TOOR1:  BREAK
035112  104422                                                          TRAP    C$BRK
035114  032737  000002  007232          BIT     #OTINT,FLAG     ;IS THERE AN OUTPUT
                                                        ;PENDING
035122  001402                  BEQ     TOOR2           ;IF NOT GO TO 2
                                                        ;ELSE GO HANDL IT
035124  004737  035150                  JSR     PC,OUTHDL       ;
035130  032737  000001  007232  TOOR2:  BIT     #ININT,FLAG     ;IS THERE AN INPUT PENDING
035136  001740                  BEQ     TOOR3           ;IF NOT GO BACK TO TIMER CK.
035140  042737  000001  007232          BIC     #ININT,FLAG     ;ELSE CLEAR THE INPUT PEND FLAG
035146  000207                  RTS     PC              ;AND RETURN TO CALLER
```

```
                                .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 CTX 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 RECIEVE COMPLETED
                                ;
                                ; SUBORDINATE ROUTINES USED:
                                ;
                                ;               "LGDVE" -LOG DEVICE ERRORS TO EVENT LOG
                                ;
                                ; CALLING SEQUENCE
                                ;               JSR     PC,OUTHDL
                                ;
                                ;--

035150  011637  007214          OUTHDL: MOV     (SP),PCADD      ;SAVE ADDR. OF CALLING ROUTINE
035154  042737  000002  007232          BIC     #OTINT,FLAG
035162  032777  000200  154612          BIT     #RDO,@SEL2      ;CLEAR PEND FLAG AND CHK FOR RDO
035170  001023                          BNE     OUTH1           ;IF RDO OK ...ELSE LOG ERROR
035172  012737  016610  007176          MOV     #DVEM6,TEMP2
035200  017737  154576  007200          MOV     @SEL2,TEMP3
035206  017737  154600  007202          MOV     @SEL6,TEMP4
035214  004737  020774                  JSR     PC,LGDVE        ;GO LOG ERROR
035220  005237  007144                  INC     ERRCNT
035224                                  ERRSOFT 18,DVEM6,ERR9
035224  104457                                                          TRAP    C$ERSOFT
035226  000022                                                          .WORD   18
035230  016610                                                          .WORD   DVEM6
035232  020372                                                          .WORD   ERR9

                                ;EXIT TEST IF ERROR

035234                          ESCAPE  TST
035234  104410                                                          TRAP    C$ESCAPE
035236  000522                                                          .WORD   L10020-.

035240  032777  000001  154534  OUTH1:  BIT     #BACC,@SEL2     ;IS THE OUTPUT BACC
035246  001002                          BNE     1$              ; BR IF NO
035250  000137  035660                  JMP     OUTH2           ;IF SO GO TO 2
```

```
                                                        ;ELSE LOG ERROR AND PRINT IT
035254  017737  154532  007202  1$:     MOV     @SEL6,TEMP4
                                        ; IF NO BUFFER OUTPUT JUST COUNT THEM

035262  032737  000004  007202          BIT     #BIT2,TEMP4
035270  001404                          BEQ     OUTH6           ;IF NO BUFF INC COUNT AND EXIT
                                                                ;ELSE GO TO 6
035272  005237  007140                  INC     NOBUF
035276  000137  035736                  JMP     OUTHEX

035302  023727  012024  000006  OUTH6:  CMP     OPTYP,#6
035310  002420                          BLT     51$             ;IF NOT DMR MODE SKIP TO 51
035312  032737  000040  007202          BIT     #BIT5,TEMP4     ;IS IT RUN STATE
035320  001414                          BEQ     51$             ;IF NOT BRANCH
035322  032737  001000  007232          BIT     #DMRRUN,FLAG    ;IS RUN EXPECTED
035330  001405                          BEQ     52$             ;IF NOT BRANCH
035332  042737  001000  007232          BIC     #DMRRUN,FLAG    ;IF SO THEN CLEAR EXPECTED
035340  000137  035736                  JMP     OUTHEX          ;AND EXIT
035344  012737  020000  007204  52$:    MOV     #RUNSBM,CONOTM
035352  012737  016665  007176  51$:    MOV     #DVEM7,TEMP2
035360  017737  154416  007200          MOV     @SEL2,TEMP3

035366  004737  020774                  JSR     PC,LGDVE
035372  012737  013456  007204          MOV     #LP0,CONOTM     ;LOAD 'NULL STRING'' TO INIT CONOTM
035400  032737  000001  007202          BIT     #BIT0,TEMP4     ;IS THIS DATA CHECK
035406  001403                          BEQ     1$
035410  012737  017340  007204          MOV     #DATCKM,CONOTM
035416  032737  000002  007202  1$:     BIT     #BIT1,TEMP4     ;IS THIS TIMEOUT
035424  001403                          BEQ     2$
035426  012737  017327  007204          MOV     #TIMOM,CONOTM
035434  032737  000010  007202  2$:     BIT     #BIT3,TEMP4     ;IS THIS DDCMP MAINT RECVD
035442  001403                          BEQ     4$
035444  012737  017307  007204          MOV     #DDCMRM,CONOTM
035452  032737  000020  007202  4$:     BIT     #BIT4,TEMP4     ;IS THIS LOST DATA
035460  001403                          BEQ     5$
035462  012737  017275  007204          MOV     #LOSDAM,CONOTM
035470  032737  000100  007202  5$:     BIT     #BIT6,TEMP4     ;IS THIS DISCONNECT
035476  001403                          BEQ     6$
035500  012737  017262  007204          MOV     #DISCOM,CONOTM
035506  032737  000200  007202  6$:     BIT     #BIT7,TEMP4     ;IS THIS DDCMP START RECVD
035514  001403                          BEQ     7$
035516  012737  017242  007204          MOV     #DDCSRM,CONOTM
035524  032737  000400  007202  7$:     BIT     #BIT8,TEMP4     ;IS THIS NON-EXSISTENT MEMORY
035532  001403                          BEQ     8$
035534  012737  017224  007204          MOV     #NXMM,CONOTM
035542  032737  001000  007202  8$:     BIT     #BIT9,TEMP4     ;IS THIS PROCEDURE ERROR
035550  001403                          BEQ     9$
035552  012737  017204  007204          MOV     #PROEM,CONOTM
035560  023727  012024  000006  9$:     CMP     OPTYP,#6        ;IS THIS DMR MODE
035566  002416                          BLT     11$             ;IF NOT BRANCH
035570  032737  002000  007202          BIT     #BIT10,TEMP4    ;IS THIS A RX IDLE
035576  001403                          BEQ     10$             ;IF NOT BRANCH
035600  012737  020022  007204          MOV     #RXIDM,CONOTM   ;IF SO SET UP MESSAGE
035606  032737  004000  007202  10$:    BIT     #BIT11,TEMP4    ;IS THIS CTS FAILED
035614  001403                          BEQ     11$             ;IF NOT BRANCH
035616  012737  020046  007204          MOV     #CTSFM,CONOTM   ;IF SO SET UP MESSAGE
```

```
6208  035624  032737  010000  007202  11$:    BIT     #BIT12,TEMP4    ;IS THIS CD GLITCHED
6209  035632  001403                          BEQ     12$             ;BR IF NO
6210  035634  012737  020032  007204          MOV     #CDGLM,CONOTM   ;IF SO SET UP MESSAGE
6211
6212  035642  005237  007144          12$:    INC     ERRCNT
6213  035646                                  ERRSOFT 19,DVEM7,ERR8
6214  035646  104457                                                                  TRAP    C$ERSOFT
6215  035650  000023                                                                  .WORD   19
6216  035652  016665                                                                  .WORD   DVEM7
6217  035654  020310                                                                  .WORD   ERR8
6218  035656  000427                          BR      OUTHEX          ;CLEAR RDO AND RETURN TO  \LLER
6219
6220  035660                          OUTH2:
6221  035660  032777  000004  154114          BIT     #RXBIT,@SEL2    ;IS THIS RX BACC OUT
6222  035666  001012                          BNE     OUTH3           ;IF NOT THEN IT MUST BE TX.
6223  035670  052737  000020  007232          BIS     #CTX,FLAG
6224  035676  017737  154104  035746          MOV     @SEL4,TSEL4
6225  035704  017737  154102  035750          MOV     @SEL6,TSEL6
6226  035712  000411                          BR      OUTHEX
6227
6228  035714  052737  000040  007232  OUTH3:  BIS     #CRX,FLAG       ;SET RX COMPL
6229  035722  017737  154060  035752  OUTH4:  MOV     @SEL4,RSEL4     ;THEN MOVE TO TEMP
6230  035730  017737  154056  035754          MOV     @SEL6,RSEL6     ;AND SEL6 TO TEMP
6231  035736  042777  000200  154036  OUTHEX: BIC     #RDO,@SEL2      ;CLEAR RDO
6232  035744  000207                          RTS     PC              ;RETURN TO CALLER
6233  035746  000000                  TSEL4:  .WORD   0
6234  035750  000000                  TSEL6:  .WORD   0
6235  035752  000000                  RSEL4:  .WORD   0
6236  035754  000000                  RSEL6:  .WORD   0
6237
6238  035756  000207                          RTS     PC
6239
6240
```

```
6241
6242                                    .EVEN
6243
6244  035760                            ENDTST
6245  035760
6246  035760  104401                                      L10020:
6247                                                              TRAP    C$ETST
```

```
 6248
 6249
```

```
                        .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.
                        ;--

035762                          BGNHRD
035762  000025                                                  .WORD L10023-L$HARD/2
035764                                                  L$HARD::


                        .SBTTL          DEVICE INDEPENDENT SECTION

035764                          GPRML   DPLX,0,1,YES
035764  000130                                                  .WORD   T$CODE
035766  036036                                                  .WORD   DPLX
035770  000001                                                  .WORD   1


                        .SBTTL          DEVICE DEPENDENT SECTION

035772                          GPRMA   CSRADR,2,0,160000,177776,YES
035772  001031                                                  .WORD   T$CODE
035774  036067                                                  .WORD   CSRADR
035776  160000                                                  .WORD   T$LOLIM
036000  177776                                                  .WORD   T$HILIM
036002                          GPRMA   VECTOR,4,0,300,776,YES
036002  002031                                                  .WORD   T$CODE
036004  036115                                                  .WORD   VECTOR
036006  000300                                                  .WORD   T$LOLIM
036010  000776                                                  .WORD   T$HILIM
036012                          GPRMD   PRIOR,6,0,340,4,7,YES
036012  003032                                                  .WORD   T$CODE
036014  036150                                                  .WORD   PRIOR
036016  000340                                                  .WORD   340
036020  000004                                                  .WORD   T$LOLIM
036022  000007                                                  .WORD   T$HILIM
                        ;       GPRMD   DEVPRM,10,D,17,0,15.,YES

036024                          GPRMD   OPTN,12,0,7,0,7,YES
036024  005032                                                  .WORD   T$CODE
036026  036176                                                  .WORD   OPTN
036030  000007                                                  .WORD   7
036032  000000                                                  .WORD   T$LOLIM
036034  000007                                                  .WORD   T$HILIM
                        ;       GPRMD   BAUD,14,0,7,0,7,YES
                        ;       GPRMD   LININ,16,0,7,0,7,YES
```

```
 6306  036036                                  ENDHRD
 6307
 6308  036036                                                                  .EVEN
 6309                                                                    L10023:
 6310                                  .NLIST  BEX

                                       ;DEVICE INDEPENDENT QUESTIONS

       036036  052506  046114  042040  DPLX:   .ASCIZ  /FULL DUPLEX OPERATION : /


                                       ;DEVICE DEPENDENT QUESTION

       036067     104  053105  041511  CSRADR: .ASCIZ  /DEVICE CSR ADDRESS : /
       036115     111  052116  051105  VECTOR: .ASCIZ  /INTERRUPT VECTOR ADDRESS: /
       036150  047111  042524  051122  PRIOR:  .ASCIZ  /INTERRUPT PRIORITY : /
       036176  042504  044526  042503  OPTN:   .ASCIZ  /DEVICE OPTION TYPE : (0=DMC,5=DMR-DMC MODE ,7=DMR)/

                                       ;DEVPRM:        .ASCIZ  /DEVICE PARMETER WORD (ENABLE CRC,STRIP SYNC,...) : /
                                       ;BAUD:  .ASCII  /BAUD RATE TO USE ('0' FOR 2.4K, '1' FOR 4.8K;/
                                       ;       .ASCII  <15><12>/   '2' FOR 9.6K, '3' FOR 19.2K, '4' FOR 56K;/
                                       ;       .ASCIZ  <15><12>/   '5' FOR 250K, '6' FOR 500K, '7' FOR 1 MEG : /
                                       ;LININ: .ASCIZ  /LINE INTERFACE (0=423,1=...)/

                                       .LIST   BEX
 6311          036262                          .EVEN
 6312
 6313
```

```
                                ;.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
                                ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
036262                          SPATCH:
036262  000030                          .BLKW   30


036342                          LASTAD
                                                                        .EVEN
036342  000000                                                          .WORD   0
036344  000000                                                          .WORD   0
036346                          LSLAST::
036346                          ENDMOD

000001                          .END
```

ACT =	000003	1660#	4483	4912	4989	5217	
ACTATV	030216	4692	4912#				
ACTBCR	030060	4710	4884#				
ACTCHK	030432	4672	4958#				
ACTCLB	027402	4773	4787#				
ACTCLP	030536	4706	4983#				
ACTCLR	027046	4670	4721#				
ACTCOP	027700	4680	4847#				
ACTCRC	030446	4701	4964#				
ACTCSE	027172	4675	4749#				
ACTCST	027320	4676	4775#				
ACTDLL	030264	4696	4926#				
ACTDME	027626	4712	4828	4831#			
ACTDMQ	027620	4713	4830#				
ACTDMS	027576	4711	4825#				
ACTDMX	027634	4832#					
ACTECH	030342	4700	4942#				
ACTEQO	030022	4684	4873#				
ACTHLP	027066	4674	4727#				
ACTLIS	030254	4695	4923#				
ACTLLP	030546	4707	4985#				
ACTLPX	030564	4980	4982	4984	4986	4989#	
ACTLXX	030626	4956	4974	4977	4990	4999#	
ACTMEX	030210	4866	4882	4904	4909#		
ACTME1	030202	4893	4895	4897	4899	4901	4908#
ACTMOP	030516	4704	4979#				
ACTMS0	030102	4685	4892#				
ACTMS1	030110	4686	4894#				
ACTMS2	030120	4687	4896#				
ACTMS3	030130	4688	4898#				
ACTMS4	030140	4689	4900#				
ACTMS5	030150	4690	4902#				
ACTMS6	030166	4691	4905#				
ACTM2X	030312	4913	4921	4924	4927	4930	4934#
ACTNO	030332	4699	4939#				
ACTNUF	027036	4709	4718#				
ACTNUL	027044	4669	4719#				
ACTNUM	027710	4681	4850#				
ACTOPM	030002	4682	4868#				
ACTPAS	030226	4693	4915#				
ACTPRO	030454	4702	4967#				
ACTPRT	027132	4714	4740#				
ACTQFG	030460	4959	4962	4965	4969#		
ACTREC	030246	4694	4920#				
ACTRLP	030556	4708	4987#				
ACTRPS	030506	4703	4976#				
ACTRUN	027146	4673	4744#				
ACTSHO	027056	4671	4724#				
ACTSHW	027442	4760	4779	4798#	4817		
ACTSTE	027642	4677	4837#				
ACTSTS	030440	4683	4961#				
ACTSTT	027652	4678	4840#				
ACTSTX	027660	4838	4841#				
ACTSZE	027670	4679	4844#				
ACTTAL	030304	4698	4932#				
ACTTLP	030526	4705	4981#				

```
ACTTRA  030274            4697    4929#
ADDCC   022600            3718#   4598    4644
ADDC1   022674            3720    3735#
ADR   = 000020 G          1633#
ALCK    031142            2100    5127#
ALCK1   031250            5182    5191#   5235
ALCK2   031314            5192    5201#   5267
ALCK2A  031534            5232    5237#
ALCK3   031560            5204    5239    5242#
ALCK3A  031652            5249    5255#
ALCK3B  031664            5256    5258#
ALCK3C  031660            5253    5257#   5264
ALCK4   031706            5243    5262#
ALCK4A  031714            5261    5265#
ALCK4B  031726            5266    5268#
ALCK5   031200            5181#   5257
ALLTR   031200            5059    5082    5106    5180#
ASSEMB= 000010            1403
ATVMOD= 000027            1759#   2239
BACC  = 000001            1803#   6149
BAD     007211            2071#   3068    5343*
BADCHR= 000051            1777#   2331
BASE    017370            3018#   3451    3452    5708
BASM1   015010            2746#   3662
BASM1A  014755            2738#   3445
BASM2   015001            2744#   3681
BASM3   014772            2742#   3673
BASN1   021470            3449    3455#
BIT0  = 000001 G          1606#   1680    1791    1803    6176
BIT00 = 000001 G          1595#   1606
BIT01 = 000002 G          1594#   1605
BIT02 = 000004 G          1593#   1604
BIT03 = 000010 G          1592#   1603
BIT04 = 000020 G          1591#   1602
BIT05 = 000040 G          1590#   1601
BIT06 = 000100 G          1589#   1600
BIT07 = 000200 G          1588#   1599
BIT08 = 000400 G          1587#   1598
BIT09 = 001000 G          1586#   1597
BIT1  = 000002 G          1605#   1681    6179
BIT10 = 002000 G          1585#   1807    6202
BIT11 = 004000 G          1584#   1805    6205
BIT12 = 010000 G          1583#   6208
BIT13 = 020000 G          1582#
BIT14 = 040000 G          1581#   1794    1804
BIT15 = 100000 G          1580#
BIT2  = 000004 G          1604#   1682    1789    1808    5727    5730    6156
BIT3  = 000010 G          1603#   1790    5727    5733    6182
BIT4  = 000020 G          1602#   1683    6185
BIT5  = 000040 G          1601#   1684    1792    1800    6164
BIT6  = 000100 G          1600#   1809    6188
BIT7  = 000200 G          1599#   1793    1801    1802    6191
BIT8  = 000400 G          1598#   1806    6194
BIT9  = 001000 G          1597#   1795    6197
BLDBEX  023006            3779    3783#
BLDBUF  022676            3761#   4474    4481    4599    4645    4794    5033
```

```
BLDB1   022706          3766#
BLDB2   022750          3774#   3781
BLDB3   022766          3777#   3782
BOE   = 000400 G        1637#
BSEL0   011776          2374#   5706*   5725*   5739*   5745*   5795*   5834*   5889*
BSEL1   012000          2375#   4269*   4270*   5676*   5679*
BSEL2   012002          2377#
BSEL3   012004          2378#   4273*   4274*
BSEL4   012006          2380#
BSEL5   012010          2381#   4277*   4278*
BSEL6   012012          2383#   5730*   5733*
BSEL7   012014          2384#   4281*   4282*
BUFEX   014033          2638#   4571    4612
BUFLIM= 001000          1648#   2020    2021    2022    3719    3731    4568    4609    4787    5029
BYTBIT  007152          2051#   3453*   3667    4826*   4830*
CABLE = 000002          1667#
CBLLOP= 000045          1773#   2352
CCURAD  007110          2031#   4470*   4478    4643    4648*   4772*
CDGLM   020032          3026#   6210
CHECK = 000003          1739#   2287
CLEAR = 000001          1737#   2225    4561    4721
CLIACT  026664          4528    4662#
CLIALN= 000007          1730#   2329
CLIALP= 000006          1729#   2273    2283    2334
CLIBCR  012344          2466#   4885
CLIBDL  012237          2454#   4994
CLIBIF= 000003          1726#
CLIBR = 000002          1725#   2222    2224    2226    2229    2231    2240    2242    2244    2246    2248    2251    2253
                        2268    2270    2280    2288    2295    2297    2301    2303    2310    2312    2314    2316    2318
                        2320    2322    2327    2330    2337    2339    2344    2351    2353    2355    2357    2362
CLIBRX  012217          2451#   3997
CLIDEC= 000011          1732#   2343    2361
CLIERM  012122          2439#   4534
CLIERR= 000000          1723#   2232    2331
CLIEXI= 000001          1724#   2216    2218    2220    2259    2261    2367
CLINBG  012175          2447#   4040
CLINPS  012301          2460#   4948
CLINUF  012152          2443#   4543
CLINUM= 000005          1728#
CLIOCT= 000010          1731#   2275    2277
CLISE0  012411          2473#   4855
CLISPA= 000004          1727#   2214    2236    2257    2266    2274    2328
CLISTR= 000012          1733#   2217    2219    2221    2223    2225    2228    2230    2237    2239    2241    2243    2245
                        2247    2250    2252    2258    2260    2267    2269    2285    2287    2294    2296    2300    2302
                        2309    2311    2313    2315    2317    2319    2321    2336    2338    2350    2352    2354    2356
CLITRE  010344          2210#   4527
CLISPM  012114          2438#   4521
CLKBR   007254          2108#   4217*
CLKCSR  007252          2107#   3267*   3288*   4188    4206*   4207*   4208*   4218*   4355*   4434*
CLKEN   007262          2111#   3288    4196*   4209*   4218    4434
CLKHZ   007260          2110#   3270    3285    3415    4222    4243
CLKINT  020570 G        3265#   4293
CLKSET  020544          3220#   4195    4205
CLKVEC  007256          2109#   4186*   4216*   4294
CLRAW   034720          5719    5734    5741    5758    5799    5839    5894    6019#
CLRA1   034740          6022#   6027
```

```
CLRA2   034762          6023    6030#
CLRA3   034732          6021#   6040
CMDBUF  003062          1967#   4519    4526
CMPBUF  005326          2022#   4470    4771
CMPPTR  007102          2028#   4464*   4465*   4477    4626*   4627*   4641*   4642    4646*   4753*   4754*   4755    4768*
                        4769*   4770    5009*   5010*   5011    5307
CMPSEX  032202          5305    5385#
CMPSR   031726          5254    5304#
CMPS1   032066          5336#   5354
CMPS2   032072          5339#
CMPS3   031760          5310#   5366
CMPS5   032170          5363#
CMPS5A  032174          5356    5364#
CMPS6   032136          5337    5341    5352#
CMPS7   032054          5325    5334#
CMPTOT  007104          2029#   4482*   4621*   4628    4647*   4757    4761*   5018
CMSG0 = 000020          1752#   2311
CMSG1 = 000021          1753#   2309
CMSG2 = 000022          1754#   2313
CMSG3 = 000023          1755#   2315
CMSG4 = 000024          1756#   2319
CMSG5 = 000025          1757#   2317
CMSG6 = 000026          1758#   2321
CONOTM  007204          2068#   3111    3168    5481*   5498*   5506*   5511*   6170*   6175*   6178*   6181*   6184*   6187*
                        6190*   6193*   6196*   6199*   6204*   6207*   6210*
CONTIN  007206          2069#   5757*   5798
CPTR    007162          2059#   3764    3768*   4473*   4477*   4596*   4600    4642*   4646    4770*   4783*   5031*   5058*
                        5078*   5103*   5128*   5193    5198*   5210    5258*   5265    5306*   5311    5315*   5612*
CPTRR   007160          2058#   5055*   5081*   5104*   5130*   5183    5188*   5216*   5221    5229*   5241*   5262    5307*
                        5317    5320*   5566*
CR      016042          2866#   3399
CRC   = 000040          1768#
CRCB  = 000020          1683#   4964
CRX   = 000040          1715#   5897    5937    5958    5976    6228
CSHEXP= 000006          1742#   2258
CSHTRN= 000007          1743#   2260
CSRADR  036067          6281    6310#
CTOTCC  007106          2030#   4457*   4608    4619    4649*   4762*
CTS   = 000004          1789#   2132
CTSFM   020046          3028#   6207
CTX   = 000020          1714#   5897    5937    5939    5957    6223
CURADD  007164          2060#   3766    3771    3773    3783*   4472*   4478*   4597*   4602    4643*   4648    4788*   5030*
                        5428*   5434*   5469    5470
CURCC   007156          2057#   3718    3730    3733*   3734    3767    3772    3783    4468*   4480*   4790*   4862*   4875*
                        4903*   4906*   4908*   5029*   5429*   5435*   5471    5472
C$AU  = 000052          1403#   4414
C$AUTO= 000061          1403#   4344
C$BRK = 000022          1403#   5684    5916    6025    6085
C$BSEG= 000004          1403#
C$BSUB= 000002          1403#
C$CEFG= 000045          1403#
C$CLCK= 000062          1403#   4191    4201
C$CLEA= 000012          1403#   4371
C$CLOS= 000035          1403#
C$CLP1= 000006          1403#
C$CVEC= 000036          1403#
```

```
C$DCLN= 000044  1403#
C$DODU= 000051  1403#
C$DRPT= 000024  1403#
C$DU  = 000053  1403#  4392
C$EDIT= 000003  1403#  1465
C$ERDF= 000055  1403#
C$ERHR= 000056  1403#  5451
C$ERRO= 000060  1403#
C$ERSF= 000054  1403#
C$ERSO= 000057  1403#  5328  5346  5359  5694  5908  5927  5948  5967  6036  6078  6138  6214
C$ESCA= 000010  1403#  6146
C$ESEG= 000005  1403#
C$ESUB= 000003  1403#
C$ETST= 000001  1403#  6246
C$EXIT= 000032  1403#  4238  4320  4363  4507
C$GETB= 000026  1403#
C$GETW= 000027  1403#
C$GMAN= 000043  1403#  3441  4220  4517  5544
C$GPHR= 000042  1403#  4258
C$GPLO= 000030  1403#
C$GPRI= 000040  1403#
C$INIT= 000011  1403#  4328
C$INLP= 000020  1403#
C$MANI= 000050  1403#  4501
C$MEM = 000031  1403#
C$MSG = 000023  1403#  3079  3092  3106  3128  3149  3163  3178
C$OPEN= 000034  1403#
C$PNTB= 000014  1403#  3075  3088  3102  3117  3124  3138  3145  3159  3174
C$PNTF= 000017  1403#  3402  3410  3665  3676  3684  3728  4000  4043  4235  4447  4492  4537
                4546  4575  4590  4616  4636  4733  4813  4858  4888  4951  4997  5445  5605
                5628
C$PNTS= 000016  1403#  3462  3485  3499  3512  3525  3533  3557  3573  3588  3606  3626  3829
                3854
C$PNTX= 000015  1403#
C$QIO = 000377  1403#
C$RDBU= 000007  1403#  4213
C$REFG= 000047  1403#  4164  4169  4174  4180
C$RESE= 000033  1403#  4360
C$REVI= 000003  1403#  1464
C$RFLA= 000021  1403#
C$RPT = 000025  1403#  4133
C$SEFG= 000046  1403#
C$SPRI= 000041  1403#  4318  4358
C$SVEC= 000037  1403#  4296  4306  4313
C$TPRI= 000013  1403#
DATCKB= 000002  1681#  3838  4958  5077  5213  5260  5304  5427  5538  5600
DATCKM  017340  3008#  6178
DCD   = 000001  1791#  2134
DCK   = 000014  1702#  3363
DDCMRM  017307  3003#  6184
DDCSRM  017242  2996#  6193
DDE   = 000022  1705#  3371
DER   = 000010  1700#  3349
DEV1    010334  2190#  3518*  3529  3537*  3539*  3810  4494*  4818*
DEV2    010336  2191#  3519*  3528  3538*  3540*  3813  4495*  4819*
DEV3    010340  2192#  3541*  3820  4496*  4820*
```

```
DEV4    010342            2193#   3542*   3834    3838    3842    4497*   4821*
DFPTBL  002130 G          1531#
DIAGMC= 000000            1403
DISCOM  017262            2999#   6190
DLE   = 000020            1704#   3367
DLL     032262            2101    5426#
DLLAB   017130            2981#   5453    5484
DLLCM   013640            2616#   5442
DLLEA   032370            5449#   5486
DLLE1   032646            5477    5496#
DLLE2   032514            5475#   5495
DLLE3   032726            5505    5509#
DLLE4   032716            5506#
DLLE5   032746            5494    5510    5514#
DLLE6   032600            5479    5488#
DLLE7   032546            5482#   5499    5507    5512
DLLE8   032666            5497    5500#
DLLGA = 000400            1718#   5436    5476    5492
DLLMOD= 000033            1763#   2247
DLLM1   002647            1831    1914#   5428
DLLM1C  002172            1831#   5429
DLLM1E  002654            1831    1919#
DLLM2   002654            1832    1920#   5434
DLLM2C  002174            1832#   5435    5493
DLLM2E  003062            1832    1961#
DLLPRI  032344            5440#
DLTXRX  032404            5430    5437    5460#
DMC   = 000000            1688#
DMPE  = 000053            1779#   2277
DMPQ  = 000054            1780#   2279
DMPS  = 000052            1778#   2275    4557    4827
DMRC6 = 000004            1689#   5674
DMRC7 = 000005            1690#
DMRRUN= 001000            1719#   5762    6166    6168
DMR6  = 000006            1691#   5677
DMR7  = 000007            1692#
DMSGAD  002176            1836#   3775
DMSGCT  002150            1821#   3774
DOW   = 000004            1661#   4926    5748
DPLX    036036            6271    6310#
DSR   = 000010            1790#   2133
DUMEX   022576            3687    3693#
DUMPSR  022442            3454    3658#   4559
DUM1    022534            3668    3679#
DUM2    022556            3678    3686#
DUM3    022472            3667#   3691
DUM4    022446            3659#   3690
DVEM0   016166            2890#   6030    6038
DVEM1   016254            2900#   6072    6080
DVEM3   016340            2910#   5688    5696
DVEM4   016424            2920#   5902    5910
DVEM5   016516            2931#   5920    5929
DVEM6   016610            2942#   6132    6140
DVEM7   016665            2950#   6171    6216
DVEM8   016752            2961#   5962    5969
DVEM9   017041            2971#   5943    5950
```

```
DVI    = 000012            1701#  3354
DVINEX  034062             5761   5764#
DVINIT  033400             5027   5666#  5699
DVINS   034700 G           4303   5986#
DVIN1   033542             5682   5701#
DVIN10  033736             5732   5734#
DVIN2   033460             5678   5681#  5686
DVIN3   033646             5717   5719#
DVIN4   034032             5751   5754   5757#
DVIN5   034016             5749   5753#
DVIN6   033442             5675   5677#
DVIN7   033614             5712   5714#
DVIN8   033760             5724   5745#
DVIN9   033720             5729   5731#
DVMODS  034064             3379   5795#
DVOUTS  034710 G           4310   5993#
DVRCC   007130             2041#  5187*  5206  5464*  5501  5609*  5620  5622*  5623*  5838  5974*
DVRCT   007132             2042#  5056*  5129*  5215*  5219*  5237*  5238  5308*  5365*
DVREX   034176             5831   5840#
DVRXA   007126             2040#  5185*  5205  5462*  5500  5607*  5619  5622  5837  5973*
DVRXQ   034120             5189   5466   5614  5829#
DVTCC   007114             2034#  5197*  5245  5471*  5489  5493  5563*  5571  5893  5955*
DVTCT   007116             2035#  5079*  5102*  5127*  5247*  5252  5255
DVTREX  034676             5959   5977#
DVTRX1  034670             5972   5976#
DVTR3   034256             5887   5895#  5912
DVTR4   034456             5898   5939#
DVTR4A  034536             5942   5954#
DVTR4B  034560             5953   5957#
DVTR5   034566             5940   5958#
DVTR5A  034646             5961   5973#
DVTXA   007112             2033#  5195*  5244  5469*  5488  5560*  5570  5892  5954*
DVTXRX  034200             5201   5475   5568  5617   5886#
ECHO   = 000037            1767#  2296
ECHOB  = 000004            1682#  3842   4934  4944   4954  5208
EDDCK   014573             2160   2711#
EDDDE   014706             2163   2725#  5348  5361
EDDER   014556             2158   2708#
EDDLE   014651             2162   2720#  5330
EDDVI   014623             2159   2716#
EDEOP   014741             2164   2730#
EDRXC   014530             2157   2704#
EDRXQ   014503             2156   2700#
EDTXC   014454             2155   2696#
EDTXQ   014430             2154   2692#
EFM11   014353             2680#  3099
EFM2    014256             2669#  3085
EF.CON= 000036 G           1613#  4173
EF.NEW= 000035 G           1614#  4179
EF.PWR= 000034 G           1615#
EF.RES= 000037 G           1612#  4168
EF.STA= 000040 G           1611#  4163
EMSG0   002221             1822   1848#
EMSG1   002222             1823   1850#
EMSG2   002223             1824   1852#
EMSG3   002224             1825   1854#
```

```
EMSG4   002324            1826    1868#
EMSG5   002416            1827    1882#
EMSG6   002517            1828    1896#
EMSG8   002647            1830    1910#
ENADD   007150            2050#   3452*   3686    4831*
ENDEVT  022320            3464    3474    3478    3593#
ENDIT   025146            4177    4290#
ENDQQ = 000017            1751#   2326
EOP   = 000024            1706#   3375
ERRCNT  007144            2048#   3378    3381    5024*   5326*   5344*   5357*   5389    5692*   5906*   5925*   6034*   6076*
                          6136*   6212*
ERR1    020170 G          3065#   5349
ERR10   020260 G          3095#   5331
ERR13   020450 G          3152#   5697    5911    5930    5951    5970
ERR14   020502 G          3166#   5454
ERR2    020232 G          3082#   5362
ERR8    020310 G          3109#   6217
ERR9    020372 G          3131#   6039    6081    6141
ERX   = 000100            1716#   5057    5105    5131    5233    5251    5426    5611    5960
ETX   = 000200            1717#   5080    5131    5234    5250    5474    5491    5565    5577    5941
EVL   = 000004 G          1631#
EVMCTS  016004            2143    2848#
EVMDCD  016014            2145    2852#
EVMDSR  016010            2144    2850#
EVMOCG  015664            2828#
EVMOHD  015707            2836#   3603
EVMOST  015767            2845#   3623
EVMRI   016024            2147    2856#
EVMRTS  016020            2146    2854#
EVMSQD  016030            2148    2858#
EVMTM   016034            2149    2860#
EVTADD  010300            2171#   3503*   3508    3547*   3553    3563*   3569    3578*   3584
EVTBCT  010302            2172#   3504*   3507    3548*   3552    3564*   3568    3579*   3583
EVTEND  010204            2124#   3423    3471    4247
EVTF0   015051            2756#   3482
EVTF1   015147            2767#   3496
EVTF2   015176            2771#   3509
EVTF3   015250            2778#   3522
EVTF3C  015262            2780#   3135    3156    3530
EVTF3D  015277            2783#   3114    3171
EVTF4   015321            2787#   3570
EVTF4A  015423            2799#   3585
EVTF4B  015521            2810#   3554
EVTF5A  015600            2818#   3072
EVTLOG  007302            2122    2123#   3427    3456    3469    4244
EVTLST  010244            2154#   3492
EVTMIN  010274            2169#   3490*   3495
EVTPTR  007300            2122#   3413    3428*   3455    3476    4245*
EVTSEC  010272            2168#   3489*   3494
EVTTCK  010276            2170#   3488*   3493
EVTTMP  010304            2173#   3517*   3521    3549*   3551    3565*   3567    3580*   3582
ESEND = 002100            1403#
ESLOAD= 000035            1403#   1488
FHDPLX  007224            2084#   4263*   5753
FLAG    007232            2094#   5021*   5057*   5080*   5105*   5131*   5181    5191    5203    5233*   5234*   5240*   5242
                          5250*   5251*   5259*   5426*   5436*   5461*   5474*   5476    5478    5491*   5492*   5496    5565*
```

```
                    5577* 5611* 5705* 5762* 5830  5833* 5886  5888* 5897  5917  5924* 5933  5937
                    5939  5941  5956* 5957* 5958  5960  5975* 5976* 5987* 5994* 6086  6091  6093*
                    6129* 6166  6168* 6223* 6228*
F$AU  = 000015       1403# 4402  4413
F$AUTO= 000020       1403# 4339  4343
F$BGN = 000040       1403# 1405  3065  3082  3095  3109  3131  3152  3166  3183  3265  4122  4142
                     4158  4238  4320  4339  4353  4363  4380  4386  4402  4408  4429  4507  5986
                     5993  6146  6245  6263  6347
F$CLEA= 000007       1403# 4353  4370
F$DU  = 000016       1403# 4380  4391
F$END = 000041       1403# 1405  3080  3093  3107  3129  3150  3164  3179  3181  3292  4134  4238
                     4320  4329  4345  4363  4372  4384  4393  4406  4415  4429  4507  5991  5998
                     6146  6245  6247  6309  6347
F$HARD= 000004       1403# 6263  6307
F$HW  = 000013       1403# 1529  1560
F$INIT= 000006       1403# 4158  4327
F$JMP = 000050       1403# 3181  4238  4320  4363  4384  4406  4507
F$MCD = 000000       1403# 1405  6347
F$MSG = 000011       1403# 3065  3078  3082  3091  3095  3105  3109  3127  3131  3148  3152  3162
                     3166  3177
F$PROT= 000021       1403# 4142  4149
F$PWR = 000017       1403#
F$RPT = 000012       1403# 4122  4132
F$SEG = 000003       1403#
F$SOFT= 000005       1403#
F$SRV = 000010       1403# 3265  3290  5986  5989  5993  5996
F$SUB = 000002       1403#
F$SW  = 000014       1403#
F$TEST= 000001       1403# 4430  6245
GETCL   025724       4503  4514# 4539  4548  4551  4553  4560  4562  4564  4577  4592  4606  4618
                     4638  4652
GETPRM  024726       4183  4252# 4261
GOOD    007210       2070# 3070  5342*
GTRA2   025332       4437#
GTRA3   025374       4440  4450#
GTRA4   025402       4455#
GTRA5   025640       4451  4494# 5397  5447  5456
GTREX   030716       5021#
GTRX2   030746       5029# 5396  5579  5635
GTR9    030634       4510  4556  5004#
GTXRXB  025332       4436#
G$CNTO= 000200       1403#
G$DELM= 000372       1403#
G$DISP= 000003       1403#
G$EXCP= 000400       1403#
G$HILI= 000002       1403#
G$LOLI= 000001       1403#
G$NO  = 000000       1403# 4520  5547
G$OFFS= 000400       1403# 3444  4223  4520  5547  6270  6280  6285  6290  6298
G$OFSI= 000376       1403# 3444  4223  4520  5547  6270  6280  6285  6290  6298
G$PRMA= 000001       1403# 6280  6285
G$PRMD= 000002       1403# 4223  4520  5547  6290  6298
G$PRML= 000000       1403# 3444  6270
G$RADA= 000140       1403# 4520  5547
G$RADB= 000000       1403#
G$RADD= 000040       1403# 4223
```

```
G$RADL= 000120          1403#   3444    6270
G$RADO= 000020          1403#   6280    6285    6290    6298
G$XFER= 000004          1403#
G$YES = 000010          1403#   3444    4223    6270    6280    6285    6290    6298
HALFDB= 002000          1807#   5750    5755
HELP  = 000000             1#   1403    1417    1507    1519    1533    1564    1568    1575    2394    2415    2432    3046
                        3048    3063    3192    4124    4128    4130    4150    4160    4323    4341    4355    4366    4382
                        4387    4404    4409    4426    4427    4431    6241    6248    6266    6313    6327    6332    6340
HELPDC= 000000             1#      3    1506    1542    1563    1783    1797    2368    2395    2416    2887    3108    4265
                        4301    5640    5645    5772    5804    5844    5981    5984    5992    6275    6310
HLP   = 000005          1741#   2215    2217    4550    4737
HLPEND  003230          1979#   4735
HLPF    012520          2486#   4730
HLPTAB  003212          1972#   4727
HLP0    012442          2478#   4489
HLP1    012525          1972    2487#
HLP2    012540          1973    2489#
HLP3    012646          1974    2502#
HLP4    012733          1975    2511#
HLP4A   013012          1976    2519#
HLP5    013070          1977    2527#
HLP6    013152          1978    2536#
HOE   = 100000 G        1644#
IBE   = 010000 G        1641#
IDU   = 000040 G        1634#
IEO   = 000100          1809#   5714
IER   = 020000 G        1642#
ININT = 000001          1710#   5917    5924    5987    6091    6093
INTPRI  012022          2389#   4287*   4302    4309
INVEC   012016          2387#   4284*   4304
ISR   = 000100 G        1635#
IXE   = 004000 G        1640#
I$AU  = 000041          1403#   4402#   4415#
I$AUTO= 000041          1403#   4339#   4345#
I$CLN = 000041          1403#   4353#   4363    4372#
I$DU  = 000041          1403#   4380#   4393#
I$HRD = 000041          6263#   6309#
I$INIT= 000041          1403#   4158#   4238    4320    4329#
I$MOD = 000041          1403#   1405#   6347#
I$MSG = 000041          1403#   3065#   3080#   3082#   3093#   3095#   3107#   3109#   3129#   3131#   3150#   3152#   3164#
                        3166#   3179#
I$PROT= 000040          1403#   4142#
I$PTAB= 000041          1403#
I$PWR = 000041          1403#
I$RPT = 000041          1403#   4122#   4134#
I$SEG = 000041          1403#   4429
I$SETU= 000041          1403#
I$SRV = 000041          1403#   3265#   3292#   5986#   5991#   5993#   5998#
I$SUB = 000041          1403#   4429
I$TST = 000041          1403#   4429#   4507    6146    6245#   6247#
JSJMP = 000167          1403#   3181    4384    4406
KEYWD1  003204          1968#   4550    4552    4554    4557    4561    4563    4565    4721*   4724*   4737*   4740*   4744*
                        4759    4778    4827*   4837*   4840*
LCLKEN= 000100          1674#   4196
LGDVE   020774          3347#   5485    5691    5905    5923    5946    5965    6033    6075    6135    6174
LIS   = 000006          1663#   4923    5578
```

```
LISCK   033170            2103    5600#
LISCKA  033216            5607#   5631    5633
LISMOD= 000032            1762#   2245
LISP    013564            2600#   5602
LMDLOP= 000046            1774#   2354
LNCNT   007136            2045#   3394    3396*   3405*
LOE   = 040000 G          1643#
LOGCMD  021114            3369#   5363
LOGCML  021076            3365#   5332
LOGCMP  021060            3361#   5322
LOGDVI  021012            3352#   5026
LOGEOP  021132            3373#   5390
LOGEX   021404            3383    3430#
LOGRXC  020764            3344#   5207    5502    5621
LOGRXQ  020746            3339#   5190    5467    5615
LOGS1   021150            3332    3337    3342    3346    3378#
LOGS2   021376            3424    3428#
LOGS3   021202            3350    3359    3364    3368    3372    3376    3387#
LOGS4   021256            3395    3404#
LOGS5   021302            3389    3391    3412#
LOGTXC  020730            3334#   5246    5490    5572
LOGTXQ  020712            3329#   5199    5473    5564
LOGUNT  007212            2075#   4250*   4252*   4253    4257
LOOPS   003276            2001#   3819
LOSDAM  017275            3001#   6187
LOT   = 000010 G          1632#
LP0     013456            2001    2161    2579#   3818    6175
LP00    013457            2580#   3815
LP1     013466            2002    2582#
LP2     013477            2003    2584#
LP3     013505            2004    2586#
LP4     013520            2005    2588#
LULOOP= 004000            1805#   5715    5718
LSACP   002110 G          1495#
LSAPT   002036 G          1453#
LSAU    025316 G          1480    4402#
LSAUT   002070 G          1479#
LSAUTO  025264 G          1496    4339#
LSCCP   002106 G          1493#
LSCLEA  025266 G          1494    4353#
LSCO    002032 G          1449#
LSDEPO  002011 G          1431#
LSDESC  012042 G          1486    2421#
LSDESP  002076 G          1485#
LSDEVP  002060 G          1471#
LSDISP  002124 G          1456    1516#
LSDLY   002116 G          1501#
LSDTP   002040 G          1455#
LSDTYP  002034 G          1451#
LSDU    025310 G          1482    4380#
LSDUT   002072 G          1481#
LSDVTY  012026 G          1472    2410#
LSEF    002052 G          1466#
LSENVI  002044 G          1459#
LSETP   002102 G          1489#
LSEXP1  002046 G          1461#
```

```
LSEXP4  002064 G        1475#
LSEXP5  002066 G        1477#
LSHARD  035764 G        1438    6263    6264#
LSHIME  002120 G        1503#
LSHPCP  002016 G        1437#
LSHPTP  002022 G        1441#
LSHW    002130 G        1442    1529    1530#
LSICP   002104 G        1491#
LSINIT  024400 G        1492    4158#
LSLADP  002026 G        1445#
LSLAST  036346 G        1446    6345#
LSLOAD  002100 G        1487#
LSLUN   002074 G        1483#
LSMREV  002050 G        1463#
LSNAME  002000 G        1420#
LSPRIO  002042 G        1457#
LSPROT  024372 G        1498    4142#
LSPRT   002112 G        1497#
LSREPP  002062 G        1473#
LSREV   002010 G        1429#
LSRPT   024364 G        1474    4122#
LSSPC   002056 G        1469#
LSSPCP  002020 G        1439#
LSSPTP  002024 G        1443#
LSSTA   002030 G        1447#
LSTEST  002114 G        1499#
LSTIML  002014 G        1435#
LSUNIT  002012 G        1433#   4253
L10000  002150          1529    1560#
L10001  020230          3078#
L10002  020256          3091#
L10003  020306          3105#
L10004  020370          3127#
L10005  020446          3148#
L10006  020500          3162#
L10007  020536          3177#   3182
L10010  020710          3290#
L10011  024370          4132#
L10013  025262          4239    4321    4327#
L10014  025264          4343#
L10015  025306          4364    4370#
L10016  025314          4385    4391#
L10017  025322          4407    4413#
L10020  035760          4508    6147    6245#
L10021  034706          5989#
L10022  034716          5996#
L10023  036036          6263    6308#
L5060   013602          2603#   4224
MAINTB= 000400          1806#   5750
MCLR  = 040000          1804#   5672
MLTYP   007222          2081#   3356    4484*   4495    4509*   4819    4917*   4936*   4979*   4981*   4983*   4985*   4987*
                        4992*   5716    5728    5731
MOBITE  010226          2139#   3620
MOBITS  010210          2132#   3608
MODE    007234          2097#   5036
MODES   003260          1993#   3812
```

```
MODLOC= 000003          1668#   5731
MODREM= 000004          1669#   5728
MODS    010206          2128#   3385    5797*   5836*   5891*
MODTYP  007220          2078#   3355    4483*   4494    4818    4912*   4915*   4920*   4923*   4926*   4929*   4932*   4945
                        4989    5034    5217    5231    5248    5578*   5634*   5748
MOMSGS  010226          2143#   3609
MOP   = 000043          1670#   1771#
MO0     013365          1993    2565#
MO1     013375          1994    2567#
MO2     013406          1995    2569#
MO3     013416          1996    2571#
MO4     013425          1997    2573#
MO5     013442          1998    2576#
MO6     013447          1999    2577#
MSG     002736          1934    1942#
MSGLIM= 000017          1650#   4461    4583    4623    4629    4750    4765    5006    5012
MSGTRN  014051          2641#   4572    4587    4613    4633
MSGTRU  014102          2646#   3725
MSGTYP  007154          2055#   3769    4467*   4479*   4789*   4868*   4892*   4894*   4896*   4898*   4900*   4902*   4905*
                        5032*
MSG0    002220          1822    1837    1847#
MSG0C   002150          1822#
MSG1    002221          1823    1838    1849#
MSG1C   002152          1823#
MSG2    002222          1824    1839    1851#
MSG2C   002154          1824#
MSG3    002223          1825    1840    1853#
MSG3C   002156          1825#
MSG4    002224          1826    1841    1855#
MSG4C   002160          1826#
MSG5    002324          1827    1842    1869#
MSG5C   002162          1827#   4468    4480    4790    4903
MSG6    002416          1828    1843    1883#
MSG6C   002164          1828#   4906
MSG8    002646          1830    1845    1909#
MSG8C   002170          1830#
NEW     024720          4182    4250#   4254
NO    = 000036          1766#   2285    4939    4942    4970
NOBUF   007140          2046#   5022*   5387    6159*
NOCLK   013712          2623#   4232    4444
NOD0    010344          2214#
NOD1    010350          2215#
NOD10   010424          2222#
NOD100  011262          2297#
NOD101  011266          2300#
NOD102  011302          2301#
NOD103  011306          2302#
NOD104  011322          2303#
NOD105  011326          2306#
NOD106  011332          2309#
NOD107  011346          2310#
NOD11   010430          2223#
NOD110  011352          2311#
NOD111  011370          2312#
NOD112  011374          2313#
NOD113  011410          2314#
```

NOD114	011414	2315#
NOD115	011430	2316#
NOD116	011434	2317#
NOD117	011450	2318#
NOD12	010444	2224#
NOD120	011454	2319#
NOD121	011470	2320#
NOD122	011474	2321#
NOD123	011510	2322#
NOD124	011514	2325#
NOD125	011520	2326#
NOD126	011524	2327#
NOD127	011530	2328#
NOD13	010450	2225#
NOD130	011534	2329#
NOD131	011540	2330#
NOD132	011544	2331#
NOD133	011546	2334#
NOD134	011552	2335#
NOD135	011556	2336#
NOD136	011572	2337#
NOD137	011576	2338#
NOD14	010464	2226#
NOD140	011612	2339#
NOD141	011616	2342#
NOD142	011622	2343#
NOD143	011626	2344#
NOD144	011632	2347#
NOD145	011636	2350#
NOD146	011660	2351#
NOD147	011664	2352#
NOD15	010470	2227#
NOD150	011700	2353#
NOD151	011704	2354#
NOD152	011726	2355#
NOD153	011732	2356#
NOD154	011754	2357#
NOD155	011760	2360#
NOD156	011764	2361#
NOD157	011770	2362#
NOD16	010474	2228#
NOD160	011774	2367#
NOD17	010506	2229#
NOD2	010354	2216#
NOD20	010512	2230#
NOD21	010524	2231#
NOD22	010530	2232#
NOD23	010532	2236#
NOD24	010536	2237#
NOD25	010552	2238#
NOD26	010556	2239#
NOD27	010574	2240#
NOD3	010356	2217#
NOD30	010600	2241#
NOD31	010616	2242#
NOD32	010622	2243#

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NOD33   010640            2244#
NOD34   010644            2245#
NOD35   010662            2246#
NOD36   010666            2247#
NOD37   010712            2248#
NOD4    010372            2218#
NOD40   010716            2249#
NOD41   010722            2250#
NOD42   010740            2251#
NOD43   010744            2252#
NOD44   010756            2253#
NOD45   010762            2257#
NOD46   010766            2258#
NOD47   011010            2259#
NOD5    010374            2219#
NOD50   011012            2260#
NOD51   011036            2261#
NOD52   011040            2266#
NOD53   011044            2267#
NOD54   011064            2268#
NOD55   011070            2269#
NOD56   011112            2270#
NOD57   011116            2273#
NOD6    010410            2220#
NOD60   011122            2274#
NOD61   011126            2275#
NOD62   011132            2276#
NOD63   011136            2277#
NOD64   011142            2278#
NOD65   011146            2279#
NOD66   011152            2280#
NOD67   011156            2283#
NOD7    010412            2221#
NOD70   011162            2284#
NOD71   011166            2285#
NOD72   011200            2286#
NOD73   011204            2287#
NOD74   011220            2288#
NOD75   011224            2294#
NOD76   011242            2295#
NOD77   011246            2296#
NONE  = 000000            1665#
NOTNUF= 000050            1776#   2223    2226    2227    2237    2276    2278    2284    2335
NULEVT  015016            2751#   3459
NULL  = 000000            1736#
NUM   = 000014            1748#   2343
NXMM    017224            2993#   6196
N10$    010350            2214#
N100$   010762            2226    2229    2256#
N102$   010766            2257#
N104$   011012            2258    2259#
N110$   011040            2231    2265#
N111$   011044            2266#
N112$   011070            2267    2268#
N114$   011162            2283#
N115$   011156            2240    2242    2244    2246    2248    2251    2253    2282#   2288    2295    2297    2351    2353
```

```
                    2355    2357    2362
N116$   011200      2285#
N117$   011224      2286    2287    2293#
N118$   011246      2294    2295#
N120$   011326      2268    2270    2305#
N121$   011546      2310    2312    2314    2316    2318    2320    2322    2327    2333#   2344
N122$   011576      2336    2337#
N123$   011552      2334#
N125$   011774      2276    2278    2280    2284    2335    2366#
N126$   011616      2337    2339    2341#
N130$   011266      2296    2299#
N131$   011306      2300    2301#
N140$   011632      2303    2346#
N141$   011636      2349#
N142$   011664      2350    2351#
N143$   011704      2352    2353#
N144$   011732      2354    2355#
N150$   011760      2301    2359#
N20$    010470      2225    2226#
N25$    010512      2228    2229#
N30$    010530      2227    2230    2231#   2236    2237    2238    2249    2252    2257    2260    2266    2269    2275
                    2277    2279    2302    2306    2325    2338    2342    2343    2347    2356    2360    2361
N40$    010450      2223    2224#
N42$    010356      2215    2216#
N43$    010374      2217    2218#
N45$    010412      2219    2220#
N46$    010430      2221    2222#
N50$    011116      2224    2272#
N51$    011122      2273#
N52$    011126      2274#
N60$    011332      2308#
N61$    011352      2309    2310#
N62$    011374      2311    2312#
N63$    011414      2313    2314#
N64$    011434      2315    2316#
N65$    011454      2317    2318#
N66$    011474      2319    2320#
N67$    011514      2321    2324#
N70$    011520      2325#   2330
N71$    011530      2326    2327#
N72$    011534      2328#
N73$    011544      2329    2330#
N80$    010532      2222    2235#
N81$    010536      2236#
N82$    010600      2239    2240#
N83$    010622      2241    2242#
N84$    010644      2243    2244#
N85$    010666      2245    2246#
N86$    010716      2247    2248#
N87$    010744      2250    2251#
OFSET   007170      2062#   3071    5335*   5352*
OPBFPT  002520      1902#   5625
OPBUF   002524      1844    1903#   4878    5539    5546    5554    5560    5561    5573    5575    5607    5608    5630
                    5632
OPCNT   002166      1829#   4876*   5558*   5562    5563
OPEND   002646      1904#   5541
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OPRMM   013575          2602#   5548
OPRMSG= 000015          1749#   2325
OPTN    036176          6299    6310#
OPTYP   012024          2390#   4288*   5674    5677    5711    5723    5760    6162    6200
OTINT = 000002          1711#   5933    5994    6086    6129
OUTHDL  035150          5936    6090    6128#
OUTHEX  035736          6160    6169    6218    6226    6231#
OUTH1   035240          6131    6149#
OUTH2   035660          6151    6220#
OUTH3   035714          6222    6228#
OUTH4   035722          6229#
OUTH6   035302          6157    6162#
OUTVEC  012020          2388#   4285*   4286*   4311
O$APTS= 000000          1403#   1447
O$AU  = 000001          1403#   1416#   1479
O$BGNR= 000001          1403#   1416#   1473
O$BGNS= 000000          1403#   1439
O$DU  = 000001          1403#   1416#   1481
O$ERRT= 000000          1403#   1489
O$GNSW= 000000          1403#   1443
O$POIN= 000001          1403#   1416#   1505
O$SETU= 000000          1403#   1433    6343
PARAM   007226          2085#   3358    3390    4486*   4497    4821    4934*   4944*   4954*   4969*   4972*   5077*   5208
                        5213    5260    5304    5427*   5538*   5600*
PAS   = 000002          1659#   4915    4945    5231    5248
PASC  = 000042          1770#   2361
PASMOD= 000030          1760#   2241
PCADD   007214          2076#   3120    3141    6019*   6067*   6128*
PCK     013547          2594#   3837
PCLKCT= 001600          1676#   4207
PCLKEN= 000111          1675#   4209
PCPM    014321          2675#   3121    3142
PEC     013557          2597#   3841
PLCK    031106          2099    5101#
PLCK2   031106          5102#
PLCK3   031122          5104#
PNCK    013545          2593#   3840
PNEC    013555          2596#   3844
PNST    013534          2590#   3836
PNT   = 001000 G        1638#
PRI   = 002000 G        1639#
PRIOR   036150          6291    6310#
PRI00 = 000000 G        1627#   4317
PRI01 = 000040 G        1626#
PRI02 = 000100 G        1625#
PRI03 = 000140 G        1624#
PRI04 = 000200 G        1623#
PRI05 = 000240 G        1622#
PRI06 = 000300 G        1621#
PRI07 = 000340 G        1620#   4357
PRNT  = 000055          1781#   2219    4552    4740
PROEM   017204          2990#   6199
PROTO = 000041          1769#
PROTOB= 000040          1684#   4967
PSCNT   007142          2047#   5023*   5385*   5388
PST     013536          2591#   3833
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PTREND  007076            2024#
PTRTAB  006326            2023#  4458   4581   4622   4749   4764   4775   4782   5004
P$ACT   003314            2011#  3923   4528*
P$BUFA  003310            2009#  3878   4526*
P$CNT   003316            2012#  4020*  4027   4089*  4096*  4101
P$EXIT  023412            3881   3916#  3940   3945
P$GDBD  003325            2016#  3938*  3943*  3951   4002*  4045*  4514*  4531   4860*  4953*  4991*
P$NNUF  003324            2015#  4515*  4540   4718*  4745*  4758*  4777*  4832*  4909*  4916*  4935*  4999*
P$NUM   003320            2013#  4015*  4018*  4020   4021*  4023*  4027*  4029*  4035*  4825   4831   4852   4862
                          4864   4976
P$RADX  003322            2014#  3975*  3978*  3985*  3992   4025   4033
P$TREE  005312            2010#  3879   4527*
P$TRV   023274            3877#  4530
P$TR5   023304            3880#  3889   3909   3914
QCOPY = 000013            1747#  2338   4847
QRX   = 000004            1712#  5057   5105   5131   5181   5203   5233   5240   5251   5461   5496   5611   5830
                          5833   5975
QTX   = 000010            1713#  5080   5131   5191   5234   5242   5250   5259   5474   5478   5491   5565   5577
                          5886   5888   5956
QUALFG  003206            1970#  4529*  4844*  4847*  4850   4939*  4942   4955*  4970   4973*
QUALVL  003210            1971#  4604*  4650*  4841*  4864*  4865*
RDI   = 000200            1801#  6026
RDO   = 000200            1802#  6130   6231
REC   = 000000            1657#
RECMOD= 000031            1761#  2243
REPORT  021406            3436#  4125   4741
RESFLG  007216            2077#  4161*  4185*  4450
RESTRT  024660            4171   4197   4210   4229   4241#
RI    = 000200            1793#  2136
RMDLOP= 000047            1775#  2356
RPASS   007230            2093#  3357   4485*  4496   4504   4746*  4820   4976*  5392   5394*
RPT     021530            2184   3466#  3515   3535   3546   3560   3575   3591
RPTAA   021600            3481#
RPTDCK  022244            2183   3578#
RPTDDE  022170            2186   3563#
RPTDER  021754            2181   3517#
RPTDLE  022244            2185   3577#
RPTDSP  010306            2177#  3501
RPTDVI  022050            2182   3537#
RPTEOP  022114            2187   3547#
RPTMSB  022330            3514   3602#
RPTTXQ  021702            2177   2178   2179   2180   3503#
RPT0    021574            3457   3473   3477   3480#
RPT1    021562            3470   3476#
RQI   = 000040            1800#  6020
RSEL4   035752            5963   5973   6229*  6235#
RSEL6   035754            5964   5974   6230*  6236#
RTS   = 000040            1792#  2135
RUN   = 000004            1740#  2221   4554   4744
RUNSBM  020000            3021#  6170
RXBIT = 000004            1808#  6221
RXBUF   004326            2021#  5030   5462   5463   5482   5503   5509
RXC   = 000006            1699#  3345   3388
RXIDM   020022            3024#  6204
RXMTOT  007134            2043#  5018*  5056   5129   5308
RXM1    020122            3036#  5506
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RXM2    020145          3040#   5511
RXNC    020102          3033#   5498
RXOP    031014          2097    5054#
RXON2   031014          5055#
RXPTR   007076          2026#   4460*   5015*   5016*   5031    5055    5104    5130    5216    5306
RXQ   = 000004          1698#   3341
SCM     016111          2875#   3362
SCMD    016144          2881#   3370
SCML    016133          2879#   3366
SDVE    016100          2873#   3348
SDVI    016122          2877#   3353
SEL0    011776          2373#   4268*   5672*   5681    5689    5715*   5718*   5903    5921    6020*   6026    6031    6074
SEL2    012002          2376#   4271*   4272*   5690    5714*   5904    5922    6032    6073    6130    6133    6149    6172
                        6221    6231*
SEL4    012006          2379#   4275*   4276*   5671*   5708*   5797    5836    5837*   5891    5892*   6224    6229
SEL6    012012          2382#   4279*   4280*   5670*   5710*   5713*   5727*   5747*   5750*   5755*   5757    5798*   5838*
                        5893*   6134    6153    6225    6230
SEOP    016155          2883#   3374
SETEXP= 000010          1744#   2267    4565    4837
SETTRN= 000011          1745#   2269    4840
SHF0    014165          2655#   3826
SHF1    014223          2663#   3851
SHMSG   013251          2549#   4810
SHOW  = 000002          1738#   2228    4563    4724    4759    4778
SHTAB   003250          1987#   4798    4804
SHTEND  003257          1990#   4801
SHTYP0  013305          1980    2554#
SHTYP1  013314          1980    2556#
SHTYP2  013321          1980    2557#
SHTYP3  013326          1980    2558#
SHTYP4  013333          1980    2559#
SHTYP5  013341          1980    2561#
SHTYP6  013346          1980    2562#
SHTYP7  013354          1980    2563#
SHTYTB  003230          1980#   4809
SHWOP   023022          3544    3810#   4498    4822
SIZE  = 000012          1746#   2336    4844    4850
SQD   = 040000          1794#   2137
SRXQ    016067          2871#   3340
STADD   007146          2049#   3451*   3658    4825*
START   024454          4166    4185#
STATB = 000001          1680#   3390    3834    4961
STATUS= 000016          1750#   2294
STXC    016056          2869#   3335
STXQ    016045          2867#   3330
SVCGBL= 000000          1403#   1420    1429    1431    1433    1435    1437    1439    1441    1443    1445    1447    1449
                        1451    1453    1455    1457    1459    1461    1463    1466    1469    1471    1473    1475    1477
                        1479    1481    1483    1485    1487    1489    1491    1493    1495    1497    1499    1501    1503
                        1516    1530    1531    2410    2421    3065    3082    3095    3109    3131    3152    3166    3265
                        4122    4142    4158    4339    4353    4380    4402    5986    5993    6264    6345#   6346
SVCINS- 000001          1403#   1421    1422    1423    1424    1425    1426    1427    1428    1430    1432    1434    1436
                        1438    1440    1442    1444    1446    1448    1450    1452    1454    1456    1458    1460    1462
                        1464    1465    1467    1468    1470    1472    1474    1476    1478    1480    1482    1484    1486
                        1488    1490    1492    1494    1496    1498    1500    1502    1504    1515    1517    1529    2411
                        2413    2422    2429    3067    3068    3069    3070    3071    3072    3073    3074    3075    3076
                        3079    3084    3085    3086    3087    3088    3089    3092    3097    3098    3099    3100    3101
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		3122	3123	3124	3125	3128	3133	3134	3135	3136	3137	3138	3139	3141
		3142	3143	3144	3145	3146	3149	3154	3155	3156	3157	3158	3159	3160
		3163	3168	3169	3170	3171	3172	3173	3174	3175	3178	3181	3182	3291
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		3492	3493	3494	3495	3496	3497	3498	3499	3500	3507	3508	3509	3510
		3511	3512	3513	3521	3522	3523	3524	3525	3526	3528	3529	3530	3531
		3532	3533	3534	3551	3552	3553	3554	3555	3556	3557	3558	3567	3568
		3569	3570	3571	3572	3573	3574	3582	3583	3584	3585	3586	3587	3588
		3589	3603	3604	3605	3606	3607	3623	3624	3625	3626	3627	3661	3662
		3663	3664	3665	3666	3671	3672	3673	3674	3675	3676	3677	3680	3681
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		3826	3827	3828	3829	3830	3848	3849	3850	3851	3852	3853	3854	3855
		3997	3998	3999	4000	4001	4040	4041	4042	4043	4044	4133	4163	4164
		4166	4168	4169	4171	4173	4174	4176	4179	4180	4182	4190	4191	4192
		4194	4200	4201	4202	4204	4213	4215	4220	4221	4222	4223	4224	4225
		4226	4227	4232	4233	4234	4235	4236	4238	4239	4257	4258	4259	4261
		4292	4293	4294	4295	4296	4297	4302	4303	4304	4305	4306	4307	4309
		4310	4311	4312	4313	4314	4317	4318	4320	4321	4328	4344	4357	4358
		4360	4363	4364	4371	4384	4385	4392	4406	4407	4414	4444	4445	4446
		4447	4448	4489	4490	4491	4492	4493	4501	4503	4507	4508	4517	4518
		4519	4520	4521	4522	4523	4524	4534	4535	4536	4537	4538	4543	4544
		4545	4546	4547	4571	4572	4573	4574	4575	4576	4586	4587	4588	4589
		4590	4591	4612	4613	4614	4615	4616	4617	4632	4633	4634	4635	4636
		4637	4729	4730	4731	4732	4733	4734	4808	4809	4810	4811	4812	4813
		4814	4855	4856	4857	4858	4859	4885	4886	4887	4888	4889	4948	4949
		4950	4951	4952	4994	4995	4996	4997	4998	5328	5329	5330	5331	5346
		5347	5348	5349	5359	5360	5361	5362	5442	5443	5444	5445	5446	5451
		5452	5453	5454	5544	5545	5546	5547	5548	5549	5550	5551	5602	5603
		5604	5605	5606	5625	5626	5627	5628	5629	5684	5694	5695	5696	5697
		5908	5909	5910	5911	5916	5927	5928	5929	5930	5948	5949	5950	5951
		5967	5968	5969	5970	5990	5997	6025	6036	6037	6038	6039	6078	6079
		6080	6081	6085	6138	6139	6140	6141	6146	6147	6214	6215	6216	6217
		6246	6263	6270	6271	6272	6280	6281	6282	6283	6285	6286	6287	6288
		6290	6291	6292	6293	6294	6298	6299	6300	6301	6302	6307	6342	6343
		6344												
SVCSUB=	000001	1403#												
SVCTAG=	000001	1403#	1560	3078	3091	3105	3127	3148	3162	3177	3290	3447	4132	4228
		4327	4343	4370	4391	4413	4525	5552	5989	5996	6245	6308		
SVCTST=	000001	1403#	4429											
S$LSYM=	010000	1403#	1561#	3079#	3092#	3106#	3128#	3149#	3163#	3178#	3291#	3442	3447	3448#
		4133#	4221	4228	4229#	4328#	4344#	4371#	4392#	4414#	4518	4525	4526#	5545
		5552	5553#	5990#	5997#	6246#	6309#							
S1	024442	4176	4178#											
S2	024516	4194	4199#											
S3	024566	4204	4212#											
S4	024634	4215	4231#											
TABEX	013773	2632#	4586	4632										
TAL =	000005	1662#	4932	5634										
TALCK	032750	2102	5537#	5574	5576									
TALMOD=	000035	1765#	2252											
TCURAD	007124	2038#	4469*	4472	4597	4602*	4785*							
TEMP	007172	2063#	3331*	3336*	3341*	3345*	3349*	3354*	3363*	3367*	3371*	3375*	3388	3414
		3415*	3416*	3417	3439*	3443	3448	3669*	3672	3731*	3732*	3733	3771*	3772*
		3778	3812*	3825	3833*	3836*	3850	4806*	4808	4869*	4870*	4874	4877	5222*

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                    5223*  5227
TEMP1   007174      2064#  3330*  3335*  3340*  3348*  3353*  3362*  3366*  3370*  3374*  3407   3819*  3823
                    3837*  3840*  3849
TEMP2   007176      2065#  3355*  3356*  3420   3774*  3776*  3780   3820*  3822   3841*  3844*  3848   5184*
                    5194*  5205*  5211   5225*  5226   5244*  5312*  5388*  5463*  5470*  5484*  5488*  5500*
                    5561*  5570*  5608*  5619*  5688*  5902*  5920*  5943*  5962*  6030*  6072*  6132*  6171*
TEMP3   007200      2066#  3097   3113   3134   3155   3170   3357*  3421   3815*  3818*  3824   5186*  5196*
                    5206*  5212   5223   5224   5225   5245*  5314*  5324   5389*  5465*  5472*  5482*  5489*
                    5501*  5562*  5571*  5610*  5620*  5689*  5903*  5921*  5944*  5963*  6031*  6074*  6133*
                    6172*
TEMP4   007202      2067#  3084   3112   3133   3154   3169   3358*  3385*  3422   5321*  5334*  5339*  5340
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                    6164   6176   6179   6182   6185   6188   6191   6194   6197   6202   6205   6208
TIMERS  007276      2119#  3283   3287*  5896*  5900
TIMER1  007272      2117#  3277   3279*  4438*  4439   5669*  5685   6021*  6022   6068*  6069
TIMER2  007274      2118#  3280   3282*
TIMMIN  007264      2113#  3274*  3419   4241*
TIMOM   017327      3006#  6181
TIMSEC  007266      2114#  3271*  3272   3275*  3418   4242*
TIMTCK  007270      2115#  3268*  3270*  3285   3416   4243*
TM      = 001000    1795#  2138
TOINOT  034264      5897#  5931   5934   5938
TOIN1   034346      5901   5915#
TOIN2   034432      5918   5933#
TOORIO  035026      5707   5726   5740   5746   5796   5835   5890   6067#  6082
TOOR1   035112      6070   6084#
TOOR2   035130      6088   6091#
TOOR3   035040      6069#  6092
TOTCC   007166      2061#  3718*  3719   3730*  3732   3734*  4455*  4567*  4568   4601   4608*  4609   4649
TRA     = 000001    1658#  4929
TRAMOD= 000034      1764#  2250
TRVACT  023414      3910   3921#  3937   3942   3947   3950   3970   4036   4059   4080   4104
TRVALN  024206      3899   4063#
TRVALP  024142      3898   4049#
TRVBIF  023520      3895   3950#
TRVBR   023510      3894   3947#
TRVBRC  023434      3908   3928#  3948   3953   3972   4046   4061   4082   4108
TRVDEC  023614      3901   3975#
TRVERR  023452      3892   3937#
TRVEXI  023472      3893   3942#
TRVNMA  023634      3976   3979#
TRVNOB  023444      3933#  3954   3971   4037   4060   4081
TRVNUM  023626      3897   3978#
TRVOCT  023626      3900   3977#
TRVSPA  023542      3896   3956#
TRVSTR  024274      3902   4086#
TSEL4   035746      5944   5954   6224*  6233#
TSEL6   035750      5945   5955   6225*  6234#
TTL     = 000001    1666#  4509   5716
TTLLOP= 000044      1772#  2350
TTOTCC  007122      2037#  4456*  4567   4578   4601*  4781*
TXBUF   003326      2020#  4469   4784   5483
TXC     = 000002    1697#  3336
TXMTOT  007120      2036#  4475*  4580*  4582   4603*  4776   4780*  5079   5102   5127
TXNC    020062      3030#  5481
TXONLY  031046      2098   5077#
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TXON2   031054  5078#
TXPTR   007100  2027#  4459*  4473   4581*  4595*  4596   4600*  4782*  4783   5005*  5078   5103   5128
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                3118   3120#  3125   3133#  3139   3141#  3146   3154#  3160   3168#  3175   3399#  3403
                3407#  3411   3459#  3463   3482#  3486   3492#  3500   3507#  3513   3521#  3526   3528#
                3534   3551#  3558   3567#  3574   3582#  3589   3603#  3607   3623#  3627   3661#  3666
                3671#  3677   3680#  3685   3725#  3729   3822#  3830   3848#  3855   3997#  4001   4040#
                4044   4232#  4236   4444#  4448   4489#  4493   4534#  4538   4543#  4547   4571#  4576
                4586#  4591   4612#  4617   4632#  4637   4729#  4734   4808#  4814   4855#  4859   4885#
                4889   4948#  4952   4994#  4998   5442#  5446   5602#  5606   5625#  5629
T$CODE= 005032  3444#  4223#  4520#  5547#  6270#  6280#  6285#  6290#  6298#
T$ERRN= 000023  1403#  5329#  5347#  5360#  5452#  5695#  5909#  5928#  5949#  5968#  6037#  6079#  6139#
                6215#
T$EXCP= 000000  4223#  4228   4520#  4525   5547#  5552   6280#  6284   6285#  6289   6290#  6295   6298#
                6303
T$FLAG= 000040  3181#  3183   4238#  4320#  4363#  4384#  4386   4406#  4408   4507#  6146#
T$GMAN= 000000  1403#  4220#  4229#  4517#  4520   4526#  5544#  5547   5553#
T$HILI= 000007  4223#  4227   4520#  4524   5547#  5551   6280#  6283   6285#  6288   6290#  6294   6298#
                6302
T$LAST= 000001  1403#  6343#
T$LOLI= 000000  4223#  4226   4520#  4523   5547#  5550   6280#  6282   6285#  6287   6290#  6293   6298#
                6301
T$LSYM= 010000  1403#  1561   3079   3092   3106   3128   3149   3163   3178   3291   4133   4328   4344
                4371   4392   4414   5990   5997   6246   6309
T$LTNO= 000001  6346#
T$NEST= 177777  1403#  1405#  1529#  1560#  3065#  3078#  3082#  3091#  3095#  3105#  3109#  3127#  3131#
                3148#  3152#  3162#  3166#  3177#  3265#  3290#  4122#  4132#  4142#  4149#  4158#  4327#
                4339#  4343#  4353#  4370#  4380#  4391#  4402#  4413#  4430#  5986#  5989#  5993#  5996#
                6245#  6263#  6307#  6347#
T$NS0 = 000000  1405#  6347
T$NS1 = 000004  1529#  1560   3065#  3078   3082#  3091   3095#  3105   3109#  3127   3131#  3148   3152#
                3162   3166#  3177   3265#  3290   4122#  4132   4142#  4149   4158#  4327   4339#  4343
                4353#  4370   4380#  4391   4402#  4413   4430#  6245   6263#  6307
T$NS2 = 000010  5986#  5989   5993#  5996
T$PTNU= 000000  1403#
T$SAVL= 177777  1403#
T$SEGL= 177777  1403#
T$SUBN= 000000  1403#  4429#
T$TAGL= 177777  1403#
T$TAGN= 010024  1403#  1529#  3065#  3082#  3095#  3109#  3131#  3152#  3166#  3265#  4122#  4142#  4158#
                4339#  4353#  4380#  4402#  4430#  5986#  5993#  6263#
T$TEMP= 000000  1517#  1518#  1560#  3078#  3091#  3105#  3127#  3148#  3162#  3177#  3181#  3182   3290#
                3444#  4132#  4149#  4223#  4238#  4239   4320#  4321   4327#  4343#  4363#  4364   4370#
                4384#  4385   4391#  4406#  4407   4413#  4507#  4508   4520#  5547#  5989#  5996#  6146#
                6147   6245#  6270#  6280#  6285#  6290#  6298#  6307#  6347#
T$TEST= 000001  1403#  4429#  6346
T$TSTM= 177777  1403#  3075   3079   3088   3092   3102   3106   3117   3124   3128   3138   3145   3149
                3159   3163   3174   3178   3402   3410   3441   3462   3485   3499   3512   3525   3533
                3557   3573   3588   3606   3626   3665   3676   3684   3728   3829   3854   4000   4043
                4133   4164   4169   4174   4180   4191   4201   4213   4220   4235   4238   4258   4296
                4306   4313   4318   4320   4328   4344   4358   4360   4363   4371   4392   4414   4447
                4492   4501   4507   4517   4537   4546   4575   4590   4616   4636   4733   4813   4858
                4888   4951   4997   5328   5346   5359   5445   5451   5544   5605   5628   5684   5694
                5908   5916   5927   5948   5967   6025   6036   6078   6085   6138   6146   6214   6246
T$TSTS= 000001  1403#  4430#
```

```
T$$AU = 010017          4402#  4406  4413
T$$AUT= 010014          4339#  4343
T$$CLE= 010015          4353#  4363  4370
T$$DU = 010016          4380#  4384  4391
T$$HAR= 010023          6263#  6308
T$$HW = 010000          1529#  1560
T$$INI= 010013          4158#  4238  4320  4327
T$$MSG= 010007          3065#  3078  3082#  3091  3095#  3105  3109#  3127  3131#  3148  3152#  3162  3166#
                        3177   3181
T$$PRO= 010012          4142#
T$$RPT= 010011          4122#  4132
T$$SRV= 010022          3265#  3290  5986#  5989  5993#  5996
T$$TES= 010020          4430#  4507  6146  6245
T1      025324 G        1517   4429#
UAM   = 000200 G        1636#
UPTABL  031350          5208#
UPTA1   031436          5214   5221#
UPTA3   031434          5218   5220#
UPTA4   031374          5209   5213#
UPTEX   031506          5220   5230#
VECTOR  036115          6286   6310#
X$    = 000161          1406#  2214#  2215#  2216#  2217#  2218#  2219#  2220#  2221#  2222#  2223#  2224#  2225#
                        2226#  2227#  2228#  2229#  2230#  2231#  2232#  2236#  2237#  2238#  2239#  2240#  2241#
                        2242#  2243#  2244#  2245#  2246#  2247#  2248#  2249#  2250#  2251#  2252#  2253#  2257#
                        2258#  2259#  2260#  2261#  2266#  2267#  2268#  2269#  2270#  2273#  2274#  2275#  2276#
                        2277#  2278#  2279#  2280#  2283#  2284#  2285#  2286#  2287#  2288#  2294#  2295#  2296#
                        2297#  2300#  2301#  2302#  2303#  2306#  2309#  2310#  2311#  2312#  2313#  2314#  2315#
                        2316#  2317#  2318#  2319#  2320#  2321#  2322#  2325#  2326#  2327#  2328#  2329#  2330#
                        2331#  2334#  2335#  2336#  2337#  2338#  2339#  2342#  2343#  2344#  2347#  2350#  2351#
                        2352#  2353#  2354#  2355#  2356#  2357#  2360#  2361#  2362#  2367#
X$ALWA= 000000          1403#
X$FALS= 000040          1403#
X$OFFS= 000400          1403#
X$TRUE= 000020          1403#
$PATCH  036262          6337#
.     = 036346          1403#  1897#  1903#  1934   1941   1967#  1991#  2020#  2021#  2022#  2023#  2123#  2124#
                        2217#  2223#  2230#  2237#  2239#  2245#  2247#  2258#  2260#  2285#  2287#  2294#  2296#
                        2300#  2302#  2309#  2311#  2313#  2315#  2317#  2336#  2338#  2354#  2413#  2429#  2863#
                        3011#  3017#  3018#  3020#  3182   4239   4321   4364   4385   4407   4508   6147   6311#
                        6338#
```

```
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BERROR      1#  1403#
BGNAU       1#  1403#  4401
BGNAUT      1#  1403#  4338
BGNCLN      1#  1403#  4352
BGNDU       1#  1403#  4379
BGNHRD      1#  1403#  6262
BGNHW       1#  1403#  1528
BGNINI      1#  1403#  4157
BGNMOD      1#  1403#  1404
BGNMSG      1#  1403#  3064  3081  3094  3108  3130  3151  3165
BGNPRO      1#  1403#  4141
BGNPTA      1#  1403#
BGNRPT      1#  1403#  4121
BGNSEG      1#  1403#
BGNSET      1#  1403#
BGNSFT      1#  1403#
BGNSRV      1#  1403#  3264  5985  5992
BGNSUB      1#  1403#
BGNSW       1#  1403#
BGNTST      1#  1403#  4428
BNCOMP      1#  1403#  4175  4193  4203  4214  4260
BNERRO      1#  1403#
BREAK       1#  1403#  5683  5915  6024  6084
BRESET      1#  1403#  4359
CKLOOP      1#  1403#
CLI      1407#  2213  2214  2215  2216  2217  2218  2219  2220  2221  2222  2223  2224  2225  2226
         2227   2228  2229  2230  2231  2235  2236  2237  2238  2239  2240  2241  2242  2243  2244
         2245   2246  2247  2248  2249  2250  2251  2252  2256  2257  2258  2259  2260  2265  2266
         2267   2268  2269  2272  2273  2274  2275  2276  2277  2278  2279  2282  2283  2284  2285
         2286   2287  2293  2294  2295  2296  2299  2300  2301  2302  2305  2308  2309  2310  2311
         2312   2313  2314  2315  2316  2317  2318  2319  2320  2321  2324  2325  2326  2327  2328
         2329   2330  2333  2334  2335  2336  2337  2338  2341  2342  2343  2346  2349  2350  2351
         2352   2353  2354  2355  2356  2359  2360  2361  2366
CLOCK       1#  1403#  4189  4199
CLOSE       1#  1403#
CLRVEC      1#  1403#
COMMEN      1#  1403#
DELAY       1#  1403#
DESCRI      1#  1403#  2420
DEVTYP      1#  1403#  2409
DISPAT      1#  1403#  1514
DISPLA      1#  1403#
DOCLN       1#  1403#
DODU        1#  1403#
DORPT       1#  1403#
ENDAU       1#  1403#  4412
ENDAUT      1#  1403#  4342
ENDCLN      1#  1403#  4369
ENDCOM      1#  1403#
ENDDU       1#  1403#  4390
ENDHRD      1#  1403#  6306
ENDHW       1#  1403#  1559
ENDINI      1#  1403#  4326
ENDMOD      1#  1403#  6346
ENDMSG      1#  1403#  3077  3090  3104  3126  3147  3161  3176
```

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ENDPRO      1#    1403#   4148
ENDPTA      1#    1403#
ENDRPT      1#    1403#   4131
ENDSEG      1#    1403#
ENDSET      1#    1403#
ENDSFT      1#    1403#
ENDSRV      1#    1403#   3289    5988    5995
ENDSUB      1#    1403#
ENDSW       1#    1403#
ENDTST      1#    1403#   6244
EQUALS      1#    1403#   1576
ERRDF       1#    1403#
ERRHRD      1#    1403#   5450
ERROR       1#    1403#
ERRSF       1#    1403#
ERRSOF      1#    1403#   5327    5345    5358    5693    5907    5926    5947    5966    6035    6077    6137    6213
ERRTBL      1#    1403#
ESCAPE      1#    1403#   6145
EXIT        1#    1403#   3180    4237    4319    4362    4383    4405    4506
FEQUAL      1#    1403#
GETBYT      1#    1403#
GETPRI      1#    1403#
GETWOR      1#    1403#
GMANIA      1#    1403#
GMANID      1#    1403#   4219    4516    5543
GMANIL      1#    1403#   3440
GPHARD      1#    1403#   4256
GPRMA       1#    1403#   6279    6284
GPRMD       1#    1403#   4220#   4223    4517#   4520    5544#   5547    6289    6297
GPRML       1#    1403#   3441#   3444    6269
HEADER      1#    1403#   1419
INLOOP      1#    1403#
IOSETU      1#    1403#
IOSTAR      1#    1403#
KT11        1#    1403#
LASTAD      1#    1403#   6341
MANUAL      1#    1403#   4500
MEMORY      1#    1403#
MSBYTE      1#    1403#   1420#   1426    1427    1428
MSCHEC      1#    1403#   3181#   4238#   4320#   4363#   4384#   4406#   4507#
MSCNTO      1#    1403#   3444#   4223#   4520#   5547#   6270#   6280#   6285#   6290#   6298#
MSCOUN      1#    1403#   3067#   3084#   3097#   3111#   3120#   3133#   3141#   3154#   3168#   3399#   3407#   3459#   3482#
            3492# 3507#   3521#   3528#   3551#   3567#   3582#   3603#   3623#   3661#   3671#   3680#   3725#   3822#   3848#
            3997# 4040#   4232#   4444#   4489#   4534#   4543#   4571#   4586#   4612#   4632#   4729#   4808#   4855#   4885#
            4948# 4994#   5442#   5602#   5625#
MSDATA      1#    1403#   1420#   1429    1431    1433    1435    1437    1439    1441    1443    1445    1447    1449    1451
            1453  1455    1457    1459#   1461    1463    1466    1469    1471    1473    1475    1477    1479    1481    1483
            1485  1487    1489    1491    1493    1495    1497    1499    1501    1503    2410#   2421#
MSDECR      1#    1403#   1560#   3078#   3091#   3105#   3127#   3148#   3162#   3177#   3290#   4132#   4149#   4327#   4343#
            4370# 4391#   4413#   5989#   5996#   6245#   6307#   6347#
MSDEFA      1#    1403#   3444#   4223#   4520#   5547#   6270#   6280#   6285#   6290#   6298#
MSENDE      1#    1403#   1560#   3078#   3091#   3105#   3127#   3148#   3162#   3177#   3290#   4132#   4327#   4343#   4370#
            4391# 4413#   5989#   5996#   6245#   6307#   6347#
MSERRI      1#    1403#   5328#   5346#   5359#   5451#   5694#   5908#   5927#   5948#   5967#   6036#   6078#   6138#   6214#
MSESCA      1#    1403#   6146#   6147
MSESCS      1#    1403#   6146#
```

```
MSEXCP      1#  1403#  4223#  4520#  5547#  6280#  6285#  6290#  6298#
MSEXIT      1#  1403#  3181#  4238#  4239   4320#  4321   4363#  4364   4384#  4406#  4507#  4508
MSEXSE      1#  1403#  3181#  4238#  4320#  4363#  4384#  4406#  4507#
MSEXTJ      1#  1403#  3181#  3182   4238#  4320#  4363#  4384#  4385   4406#  4407   4507#
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         4402#  4413#  4429#  4525#  5552#  5986#  5989#  5993#  5996#  6245#  6264#  6308#  6345#
MSGENB      1#  1403#  3441#  3442   4220#  4221   4517#  4518   5544#  5545
MSGETS      1#  1403#  1560#  3078#  3091#  3105#  3127#  3148#  3162#  3177#  3290#  4132#  4149#  4327#  4343#
         4370#  4391#  4413#  5989#  5996#  6245#  6307#  6347#
MSGETT      1#  1403#  3181#  4238#  4320#  4363#  4384#  4406#  4507#  6146#
MSGNGB      1#  1403#  1405#  1420#  1429#  1431#  1433#  1435#  1437#  1439#  1441#  1443#  1445#  1447#  1449#
         1451#  1453#  1455#  1457#  1459#  1461#  1463#  1466#  1469#  1471#  1473#  1475#  1477#  1479#  1481#
         1483#  1485#  1487#  1489#  1491#  1493#  1495#  1497#  1499#  1501#  1503#  1515#  1516   1529#  1530
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MSGNIN      1#  1403#  1420#  1421   1422   1423   1424   1425   1426#  1427#  1428#  1429#  1430   1431#  1432
         1433#  1434   1435#  1436   1437#  1438   1439#  1440   1441#  1442   1443#  1444   1445#  1446   1447#
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         1493#  1494   1495#  1496   1497#  1498   1499#  1500   1501#  1502   1503#  1504   1515#  1517#  1529#
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         3125   3128#  3133#  3134#  3135#  3136#  3137   3138#  3139   3141#  3142#  3143#  3144   3145#  3146
         3149#  3154#  3155#  3156#  3157#  3158   3159#  3160   3163#  3168#  3169#  3170#  3171#  3172#  3173
         3174#  3175   3178#  3181#  3182#  3290#  3291   3399#  3400#  3401   3402#  3403   3407#  3408#  3409
         3410#  3411   3441#  3442#  3443#  3444#  3445   3446   3459#  3460#  3461   3462#  3463   3482#  3483#
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         3854#  3855   3997#  3998#  3999   4000#  4001   4040#  4041#  4042   4043#  4044   4133#  4163#  4164#
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         4886#  4887   4888#  4889   4948#  4949#  4950   4951#  4952   4994#  4995#  4996   4997#  4998   5328#
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         5446   5451#  5452#  5453#  5454#  5544#  5545#  5546#  5547#  5548   5549   5550   5551   5602#  5603#
         5604   5605#  5606   5625#  5626#  5627   5628#  5629   5684#  5694#  5695#  5696#  5697#  5908#  5909#
         5910#  5911#  5916#  5927#  5928#  5929#  5930#  5948#  5949#  5950#  5951#  5967#  5968#  5969#  5970#
         5989#  5990   5996#  5997   6025#  6036#  6037#  6038#  6039#  6078#  6079#  6080#  6081#  6085#  6138#
```

	6139#	6140#	6141#	6146#	6147#	6214#	6215#	6216#	6217#	6246#	6263#	6270#	6271	6272	6280#
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	6301	6302	6307#	6342#	6343#	6344#									
MSGNLS	1#	1403#	3441#	3447	4220#	4228	4517#	4525	5544#	5552					
MSGNSU	1#	1403#													
MSGNTA	1#	1403#	1560#	3078#	3091#	3105#	3127#	3148#	3162#	3177#	3290#	4132#	4327#	4343#	4370#
	4391#	4413#	5989#	5996#	6245#	6307#	6308								
MSGNTE	1#	1403#	4429#												
MSHAPT	1#	1403#	1420#												
MSHNAP	1#	1403#	1420#	1459											
MSINCR	1#	1403#	1405#	1529#	3065#	3075#	3079#	3082#	3088#	3092#	3095#	3102#	3106#	3109#	3117#
	3124#	3128#	3131#	3138#	3145#	3149#	3152#	3159#	3163#	3166#	3174#	3178#	3265#	3402#	3410#
	3441#	3448	3462#	3485#	3499#	3512#	3525#	3533#	3557#	3573#	3588#	3606#	3626#	3665#	3676#
	3684#	3728#	3829#	3854#	4000#	4043#	4122#	4133#	4142#	4158#	4164#	4169#	4174#	4180#	4191#
	4201#	4213#	4220#	4229	4235#	4238#	4258#	4296#	4306#	4313#	4318#	4320#	4328#	4339#	4344#
	4353#	4358#	4360#	4363#	4371#	4380#	4392#	4402#	4414#	4429#	4430#	4447#	4492#	4501#	4507#
	4517#	4526	4537#	4546#	4575#	4590#	4616#	4636#	4733#	4813#	4858#	4888#	4951#	4997#	5328#
	5346#	5359#	5445#	5451#	5544#	5553	5605#	5628#	5684#	5694#	5908#	5916#	5927#	5948#	5967#
	5986#	5993#	6025#	6036#	6078#	6085#	6138#	6146#	6214#	6246#	6263#				
MSIOSE	1#	1403#													
MSLDR0	1#	1403#	4163#	4168#	4173#	4179#	4190#	4200#	4257#	4317#	4357#				
MSMASK	1#	1403#													
MSMCHI	1#	1403#													
MSMCLO	1#	1403#													
MSMSK1	1#	1403#													
MSPOP	1#	1403#	1560#	3078#	3091#	3105#	3127#	3148#	3162#	3177#	3290#	4132#	4149#	4327#	4343#
	4370#	4391#	4413#	5989#	5996#	6245#	6307#	6347#							
MSPRIN	1#	1403#	3067#	3084#	3097#	3111#	3120#	3133#	3141#	3154#	3168#	3399#	3407#	3459#	3482#
	3492#	3507#	3521#	3528#	3551#	3567#	3582#	3603#	3623#	3661#	3671#	3680#	3725#	3822#	3848#
	3997#	4040#	4232#	4444#	4489#	4534#	4543#	4571#	4586#	4612#	4632#	4729#	4808#	4855#	4885#
	4948#	4994#	5442#	5602#	5625#										
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	4339#	4353#	4380#	4402#	4429#	4430	5986#	5993#	6263#						
MSPUT	1#	1403#	3067#	3084#	3097#	3111#	3120#	3133#	3141#	3154#	3168#	3399#	3407#	3459#	3482#
	3492#	3507#	3521#	3528#	3551#	3567#	3582#	3603#	3623#	3661#	3671#	3680#	3725#	3822#	3848#
	3997#	4040#	4232#	4292#	4302#	4309#	4444#	4489#	4534#	4543#	4571#	4586#	4612#	4632#	4729#
	4808#	4855#	4885#	4948#	4994#	5442#	5602#	5625#							
MSPUT1	1#	1403#	3067#	3069	3071	3072	3073	3084#	3085	3086	3097#	3098	3099	3100	3111#
	3112	3113	3114	3115	3120#	3121	3122	3133#	3134	3135	3136	3141#	3142	3143	3154#
	3155	3156	3157	3168#	3169	3170	3171	3172	3399#	3400	3407#	3408	3459#	3460	3482#
	3483	3492#	3493	3494	3495	3496	3497	3507#	3508	3509	3510	3521#	3522	3523	3528#
	3529	3530	3531	3551#	3552	3553	3554	3555	3567#	3568	3569	3570	3571	3582#	3583
	3584	3585	3586	3603#	3604	3623#	3624	3661#	3662	3663	3671#	3673	3674	3680#	3681
	3682	3725#	3726	3822#	3823	3824	3825	3826	3827	3848#	3849	3850	3851	3852	3997#
	3998	4040#	4041	4232#	4233	4292#	4293	4294	4295	4302#	4303	4304	4305	4309#	4310
	4311	4312	4444#	4445	4489#	4490	4534#	4535	4543#	4544	4571#	4572	4573	4586#	4587
	4588	4612#	4613	4614	4632#	4633	4634	4729#	4730	4731	4808#	4809	4810	4811	4855#
	4856	4885#	4886	4948	4949	4994#	4995	5442#	5443	5602#	5603	5625#	5626		
MSRADI	1#	1403#	3444#	4223	4520#	5547#	6270#	6280#	6285#	6290#	6298#				
MSRBR0	1#	1403#													
MSRNR0	1#	1403#	4190#	4192	4200#	4202	4257#	4259							
MSSETS	1#	1403#	1405#	1529#	3065#	3082#	3095#	3109#	3131#	3152#	3166#	3265#	4122#	4142#	4158#
	4339#	4353#	4380#	4402#	4430#	5986#	5993#	6263#							
MSSTAR	1#	1403#													
MSSVC	1#	1403#	3067#	3075	3078#	3079	3084#	3088	3091#	3092	3097#	3102	3105#	3106	3111#
	3117	3120#	3124	3127#	3128	3133#	3138	3141#	3145	3148#	3149	3154#	3159	3162#	3163

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            3499   3507#  3512   3521#  3525   3528#  3533   3551#  3557   3567#  3573   3582#  3588   3603#  3606
            3623#  3626   3661#  3665   3671#  3676   3680#  3684   3725#  3728   3822#  3829   3848#  3854   3997#
            4000   4040#  4043   4132#  4133   4163#  4164   4168#  4169   4173#  4174   4179#  4180   4190#  4191
            4200#  4201   4213#  4220#  4232#  4235   4238#  4257#  4258   4292#  4296   4302#  4306   4309#  4313
            4317#  4318   4320#  4327#  4328   4343#  4344   4357#  4358   4360#  4363#  4370#  4371   4384#  4391#
            4392   4406#  4413#  4414   4444#  4447   4489#  4492   4501#  4507#  4517#  4534#  4537   4543#  4546
            4571#  4575   4586#  4590   4612#  4616   4632#  4636   4729#  4733   4808#  4813   4855#  4858   4885#
            4888   4948#  4951   4994#  4997   5328   5346   5359   5442#  5445   5451   5544#  5602#  5605   5625#
            5628   5684#  5694   5908   5916#  5927   5948   5967   6025#  6036   6078   6085#  6138   6146#  6214
            6245#  6246
MSTLAB        1#   1403#  3075#  3079#  3088#  3092#  3102#  3106#  3117#  3124#  3128#  3138#  3145#  3149#  3159#
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            3606#  3626#  3665#  3676#  3684#  3728#  3829#  3854#  4000#  4043#  4133#  4164#  4169#  4174#  4180#
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            4360#  4363#  4371#  4392#  4414#  4447#  4492#  4501#  4507#  4517#  4537#  4546#  4575#  4590#  4616#
            4636#  4733#  4813#  4858#  4888#  4951#  4997#  5328#  5346#  5359#  5445#  5451#  5544#  5605#  5628#
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MSWORD        1#   1403#  1459#  1468   1515#  1517   3181#  3441#  3443   3444#  4220#  4222   4223#  4238#  4320#
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            5359#  5360   5361   5362   5451#  5452   5453   5454   5544#  5546   5547#  5694#  5695   5696   5697
            5908#  5909   5910   5911   5927#  5928   5929   5930   5948#  5949   5950   5951   5967#  5968   5969
            5970   6036#  6037   6038   6039   6078#  6079   6080   6081   6138#  6139   6140   6141   6214#  6215
            6216   6217   6270#  6280#  6285#  6290#  6298#  6343   6344
MSXFER        1#   1403#
NODCL      1409#   2214   2215   2216   2217   2218   2219   2220   2221   2222   2223   2224   2225   2226   2227
            2228   2229   2230   2231   2232   2236   2237   2238   2239   2240   2241   2242   2243   2244   2245
            2246   2247   2248   2249   2250   2251   2252   2253   2257   2258   2259   2260   2261   2266   2267
            2268   2269   2270   2273   2274   2275   2276   2277   2278   2279   2280   2283   2284   2285   2286
            2287   2288   2294   2295   2296   2297   2300   2301   2302   2303   2306   2309   2310   2311   2312
            2313   2314   2315   2316   2317   2318   2319   2320   2321   2322   2325   2326   2327   2328   2329
            2330   2331   2334   2335   2336   2337   2338   2339   2342   2343   2344   2347   2350   2351   2352
            2353   2354   2355   2356   2357   2360   2361   2362   2367
OPEN          1#   1403#
POINTE        1#   1403#  1415
PRINTB        1#   1403#  3066   3083   3096   3110   3119   3132   3140   3153   3167
PRINTF        1#   1403#  3398   3406   3660   3670   3679   3724   3996   4039   4231   4443   4488   4533   4542
            4570   4585   4611   4631   4728   4807   4854   4884   4947   4993   5441   5601   5624
PRINTS        1#   1403#  3458   3481   3491   3506   3520   3527   3550   3566   3581   3602   3622   3821   3847
PRINTX        1#   1403#
READBU        1#   1403#  4212
READEF        1#   1403#  4162   4167   4172   4178
RFLAGS        1#   1403#
SETPRI        1#   1403#  4316   4356
SETVEC        1#   1403#  4291   4301   4308
SLASH         1#   1403#
STARS         1#   1403#
SVC           1#   1403#
XFER          1#   1403#  3181#  4238#  4320#  4363#  4384#  4406#  4507#
```

```
XFERF        1#   1403#
XFERT        1#   1403#


. ABS.  036346     000


 ERRORS DETECTED:  0

 CZCLKA/I,CZCLKA.SEQ/CRF/SOL=SVC34R.MLB,CZCLKA.P11
 RUN-TIME: 21 27 3 SECONDS
 RUN-TIME RATIO: 68/52=1.3
 CORE USED:  19K  (37 PAGES)
```