

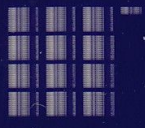
DLV-11

DLV-11E OFFLINE TEST
CVDVADO

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This block contains a dense grid of technical data, likely a test log or diagnostic report. The data is organized into approximately 12 columns and 15 rows of small, repetitive sections. Each section appears to contain a mix of text, numerical values, and possibly small diagrams or flowcharts. The overall appearance is that of a highly structured and detailed technical document. The text is very small and difficult to read in detail, but the layout is consistent across the grid.



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IDENTIFICATION
.....

PRODUCT CODE: AC-B1500-MC
PRODUCT TITLE: CVDVADO DLV11-E OFFLINE TEST
PRODUCT DATE: AUGUST 1984
AUTHOR: OBES CHOATE
MAINTAINER: DIAGNOSTIC ENGINEERING GROUP

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 119
 120 DIAGNOSTIC ENGINEERING STANDARDS AND CONVENTIONS 175 003-009 02
 121 APT MD-11 DZZMA
 122 ACT AUTOCAT 11-QZAUB
 123 SYSMAC MD-11-DZQAC
 124
 125
 126 1.4 DIAGNOSTIC HIERARCHY PREREQUISITES.
 127 NO SPECIAL DIAGNOSTICS ARE REQUIRED TO RUN BEFORE THIS, BUT
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 132 1.5 ASSUMPTIONS.
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 134 THIS DIAGNOSTIC ASSUMES THAT THE OPERATOR HAS INITIALIZED
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 144 2.1 LOADING AND STARTING PROCEDURES.
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 146 USE STANDARD PROCEDURE FOR PDP-11 ABSOLUTE BINARY FORMATTED
 147 MEDIA.
 148
 149 THIS DIAGNOSTIC HAS ONLY ONE (1) STARTING ADDRESS. 200 FOR
 150 START AND RESTART.
 151
 152 THE USER CAN SELECT A SPECIFIC TEST TO BE EXECUTED BY SETTING
 153 SWITCH 8 IN THE SWITCH REGISTER AND THE TEST NUMBER (IN OCTAL)
 154 IN THE LOWER BYTE. (NOTE: ALL TESTS PREVIOUS TO THE SELECTED
 155 ONE ARE EXECUTED WITHOUT ITERATIONS.)
 156
 157
 158 2.2 SPECIAL ENVIRONMENTS.
 159
 160 THIS DIAGNOSTIC FOLLOWS THE STANDARD PROCEDURE FOR RUNNING
 161 UDER APT,ACT,XXDP MONITORS, AS DESCRIBED IN THEIR RESPECTIVE
 162 PROCEDURES MANUAL AND SYSMAC PACKAGE.
 163

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2.3 OPERATIONAL SWITCH SETTINGS

IF THE DIAGNOSTIC IS RUN ON A CPU WITHOUT A SWITCH REGISTER THEN A SOFTWARE SWITCH REGISTER IS USED WHICH ALLOWS THE USER THE SAME SWITCH OPTIONS AS THE HARDWARE SWITCH REGISTER. IF THE HARDWARE SWITCH REGISTER DOES NOT EXIST OR IF ONE DOES AND IT CONTAINS ALL ONES (177777) THEN THE SOFTWARE SWITCH REGISTER (LOC. 176) IS USED.

CONTROL:

THIS PROGRAM ALSO SUPPORTS THE DYNAMIC LOADING OF THE SOFTWARE SWITCH REGISTER (LOC. 176) FROM THE TTY. THIS CAN BE ACCOMPLISHED BY DOING THE FOLLOWING:

- 1) TYPE CONTROL G <?G>; THIS WILL ALLOW THE TTY TO ENTER DATA INTO LOC. 176 AT SELECTED POINTS WITHIN THE PROGRAM.
- 2) THE MACHINE WILL THEN TYPE: ' SWR=XXXXXX NEW=' (XXXXXX IS THE OCTAL CONTENTS OF THE SOFTWARE SWITCH REGISTER.)
- 3) AFTER THE 'NEW=' HAS BEEN TYPED THEN THE OPERATOR CAN DO ONE OF THE FOLLOWING AT THE TTY:
 - A) TYPE A NUMBER TO BE LOADED INTO LOC. 176 FOLLOWED BY A <CR>. (ONLY NUMBERS BETWEEN 0 7 WILL BE ACCEPTED). LEADING ZEROS NEED NOT BE TYPED, AND IF MORE THAN 6 DIGITS ARE TYPED THE LAST 6 WILL BE USED. IF A <CR> IS THE FIRST KEY DEPRESSED THE SOFTWARE SWITCH REGISTER CONTENTS WILL NOT BE CHANGED.
 - B) IF A CONTROL U <?U> IS DEPRESSED THEN THE PROGRAM WILL SEND YOU BACK TO STEP 3.
 - C) IF THE INPUT CHARACTER IS NOT ONE OF THE CHARACTERS MENTIONED ABOVE THEN A QUESTION MARK (?) WILL BE TYPED FOLLOWED BY A CARRAGE RETURN AND A LINE FEED THEN PROCEED FROM STEP 3 (ERASING ALL PREVIOUS INPUT.)

DYNAMIC SWITCH REGISTER

.....

- BIT 15 - HALT ON ERROR
14 - LOOP ON TEST
13 - INHIBIT ERROR TYPEOUTS
12 - (UNUSED)
11 - INHIBIT ITERATIONS
10 - BELL ON ERROR
9 - LOOP ON ERROR
8 - LOOP ON TEST IN SWR<7:0>
7:0 - TEST NUMBER TO LOOP ON (USED WITH BIT 8)

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2.4 PROGRAM OPTIONS.

THIS PROGRAM WILL SUPPORT TESTING OF MULTIPLE DLV11-E'S. IT
REQUIRES THE ADDRESS OF THE FIRST RCSR (STORED AT '%BASE') AND
ITS INTERRUPT VECTOR (STORED AT '%VECT1'); AND WILL BE ABLE
TO ADDRESS ANY DLV11-E STARTING AT THE SPECIFIED BASE ADDRESS
UP TO 16 CONSECUTIVE DEVICES.

EXAMPLES: %BASE: 175610
 %VECT1: 300

THE PROGRAM WILL BE ABLE TO TEST ANY DLV11 E WITHIN THE
ADDRESS RANGE 175610 --> 176000

%BASE AND %VECT1 DEFAULT TO 175610 AND 300 RESPECTIVELY.
THE PROGRAM ASSOCIATES UNIT NUMBERS AS FOLLOWS: (NUMBERS IN
PARENTHESES ARE OCTAL)

UNIT#0 -- BASE ADDRESS STORED AT '%BASE'
 ASSOCIATED BASE VECTOR STORED AT '%VECT1'
UNIT#1 -- BASE ADDRESS * (10)
 BASE VECTOR * (10)
 :
 :
 UP TO
UNIT#15 -- BASE ADDRESS * (170)
 BASE VECTOR * (170)

LOCATION '%DEVN' IS USED AS A BIT MAP TO INDICATE WHICH UNIT
NUMBERS ARE PRESENT AND WILL BE TESTED.

| BIT 15 | BIT 1 | BIT 0 |
|--------|--------|--------|
| !UNIT! | !UNIT! | UNIT! |
| ! 15 ! | ! #1 ! | ! #0 ! |

A BIT MAP CAN BE ENTERED AT '%DEVN' PRIOR TO STARTING THE
PROGRAM.

EXAMPLE:
 %BASE: 175610
 %VECTOR: 300
 %DEVN: 13

THE PROGRAM WILL TEST-

UNIT#0 175610 300
UNIT#1 175620 310
UNIT#3 175640 330

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OPTIONS

 LOCATION \$USWR CONTAINS ALL THE USER SELECTABLE OPTIONS. THE VALUES IN THIS WORD MUST CONFORM TO THE ACTUAL BOARD CONFIGURATION. THE DEFAULT VALUE OF \$USWR IS AS FOLLOWS:

| BIT POSITION | DEFINITION | DEFAULT VALUE |
|--------------|--|------------------|
| ----- | ----- | ----- |
| 0 3 | #OF DATA BITS | 10(8) = 8 |
| 4 | PARITY ENABLED | 0 = NO |
| 5 | EVEN ODD PARITY | 0 = ODD |
| 6 | COMMON SPEED | 1 = YES |
| 7 | PROGRAMMABLE BAUD RATE | 0 = NO |
| 8-11 | BAUD RATE OFFSET (SEE FOLLOWING NOTE) | 05(8) = 110 BAUD |
| 12 | BREAK GENERATION ENABLED | 1 = YES |
| 13 | CABLE TERMINATED (H315) | 1 = YES |
| 14 | (-FR) AND (-FD) JUMPERS IN | 1 = YES |
| 15 | (NOT DEFINED) | |

NOTE

THIS DIAGNOSTIC DOES NOT TEST THE PARITY LOGIC.

WHEN THE PROGRAMMABLE BAUD RATE OPTION IS ENABLED THE PROGRAMMABLE BAUD RATE TEST WILL EXIT WITH THE BAUD RATE SET TO THE SELECTED VALUE. TO CHANGE THE DEFAULT VALUE OF 110 BAUD REPLACE BITS <11:8> WITH THE OFFSET INDICATED IN THE TABLE AT THE END OF THE PBR TEST.

DLV11-E INDIVIDUAL TEST REQUIREMENTS

| | TESTS NOT EXECUTED | IF BIT = |
|---|---|----------|
| | ----- | ----- |
| APT TEST (BIT 1 OF \$ENV) | T25, T37 | 1 |
| PROGRAMMABLE BAUD RATE (BIT 7 OF \$USWR) | T32 | 1 |
| BREAK GENERATION CIRCUIT (BIT 12 OF \$USWR) | T2, T40 | 0 |
| CABLE TERMINATED (BIT 13 OF \$USWR) | T15, T16, T17, T20, T21 T22, T23, PARTS OF T34, T36 | 1 |
| (-FR) & (-FD) JUMPERS IN (BIT 14 OF \$USWR) | T5, T6, T16, T17, T20, T22, T23 | 1 |

ALL OTHER TESTS WILL RUN REGARDLESS OF ANY BIT SETTINGS.

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2.5 EXECUTION TIMES.

EXECUTION TIMES ARE FOR AN LSI-11 PROCESSOR WITH ALL OPTIONS
ENABLED ON THE DLV11-E (EXCEPT FOR PROGRAMMABLE BAUD RATE), AT
110 BAUC.

FIRST PASS- 90 SECONDS
ADDITIONAL PASSES 95 SECONDS
ADDITIONAL DEVICES 95 SECONDS

THE TEST TIME IS BAUD RATE DEPENDANT; HIGHER BAUD GIVES
SHORTER PASS TIMES.

338 3.0 ERROR INFORMATION.
 339 -----
 340
 341 3.1 ERROR REPORTING PROCEDURE.
 342 -----
 343
 344 SINCE THIS DIAGNOSTIC WAS DESIGNED TO FIT IN 4-K OF MEMORY THE
 345 ERROR TYPEOUT IS VERY BRIEF. THE FORMAT OF THE ERROR TYPEOUT
 346 IS AS FOLLOWS:
 347
 348 TEST#_____,ERROR#_____,PC=_____,ADDRESS=_____,VECTOR=_____
 349
 350 WHERE ALL VALUES TYPED ARE OCTAL.
 351 THE ADDRESS AND VECTOR REFER TO THE FAILING DLV11-E.
 352 FOR FURTHER INFORMATION THE LISTING MUST BE CONSULTED.
 353 BITS 15,13,10 AND 9 OF THE SWITCH REGISTER CONTROL THE
 354 SEQUENCE OF EVENTS AFTER AN ERROR IS CAUGHT.
 355
 356
 357 BIT 15 - CAUSES THE PROGRAM TO HALT IN THE ERROR
 358 ROUTINE. CONTINUEING THE PROGRAM CAUSES IT TO
 359 PROCEED.
 360
 361 BIT 13 - DISABLES THE PRINTING OF THE ERROR MESSAGE.
 362
 363 BIT 10 - CAUSES THE BELL TO RING ON ERROR.
 364
 365 BIT 9 - CAUSES THE DIAGNOSTIC TO LOOP FROM BEGINNING
 366 OF TEST TO ERROR.
 367
 368 THE ERROR ROUTINE SUPPORTS THE CONTROL G FUNCTION.
 369
 370 3.2 ERROR HALTS.
 371 -----
 372
 373 THE ONLY HALT IN THIS DIAGNOSTIC IS IN THE ERROR ROUTINE, AND
 374 IS EXECUTED ONLY IF BIT 15 OF THE SWITCH REGISTER IS A ONE
 375 WHEN AN ERROR OCCURS.
 376
 377 4.0 PERFORMANCE AND PROGRESS REPORTS.
 378 -----
 379
 380 4.1 PERFORMANCE REPORTS.
 381
 382 AS EACH DEVICE COMPLETES ONE PASS OF THE DIAGNOSTIC THE
 383 FOLLOWING WILL BE TYPED:
 384 CSR: _____.VECTOR:_____.ERRORS:_____
 385

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WHERE 'CSR:-----' IS THE DEVICE CSR UNDER TEST
'VECTOR:---' IS THE ASSOCIATED VECTOR
AND 'ERRORS:--' IS THE TOTAL NUMBER OF ERRORS ON THIS DEVICE
ON THIS PASS.

NOTE
THIS IS TYPED AFTER THE DEVICE HAS COMPLETED ITS PASS.
AFTER ALL DEVICES HAVE BEEN EXERCISED AN END PASS STATEMENT IS
TYPED. "ENDPASS@-----"

5.0 DEVICE INFORMATION TABLES.

| | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|-------|-------------------|------|--------|-----|------|-----|---|---|------|------|------|---|------|------|------|---|
| RCSR: | DATA | RING | CLR | CAR | RCVR | REC | | | RCVR | RCVR | DATA | | SEC | REQ | DTR | |
| | INT | | SEND | DET | ACT | REC | | | DONE | IE | IE | | XMIT | SEND | | |
| RBUF: | ERRO | OR | FR | P | | | | | | | | | | | | |
| | R | ERR | ERR | ERR | | | | | | | | | | | | |
| TCSR: | PROGRAMMABLE BAUD | | | | PBR | | | | XMIT | XMIT | | | | MAIN | BREA | |
| | | RATE | SELECT | | ENAB | | | | RDY | IE | | | | T | K | |
| TBUF: | | | | | | | | | | | | | | | | |

NOTE

BLANK BOXES INDICATE UNUSED AND RESERVED BIT POSITIONS. SEE THE LISTING FOR AN EXPLANATION OF THE BITS.

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6.0 SUMMARY OF TESTS AND SPECIAL SUBROUTINES.

TEST 1 ADDRESSABILITY

THIS TEST VERIFIES THAT THE ADDRESS AS PLACED IN THE
HARDWARE P-TABLE TO BE CORRECT AND THE DLV11-E
RESPONDS TO THAT ADDRESS SPACE.

THE FOLLOWING 8 TESTS TEST ALL 'READ WRITE' BITS

TEST 2 BREAK - TCSR0 SET, CLEAR, RESET

TEST 3 MAINT - TCSR2 SET, CLEAR, RESET

TEST 4 XMITIE - TCSR6 SET, CLEAR, RESET

TEST 5 DTR - RCSR1 SET, CLEAR

NOTE

RESET DOES NOT CLEAR THIS BIT. WE CANNOT TEST
FOR AN INITIAL CONDITION AS THIS BIT IS
UNDEFINED UPON POWER UP AND INIT DOESN'T
AFFECT IT.

TEST 6 REQSEND - RCSR2 SET, CLEAR, RESET

THIS TEST ASSUMES THAT JUMPER FR IS IN.

| | |
|-----|--|
| 472 | TEST 7 SECXMIT - RCSR3 SET, CLEAR, RESET |
| 473 | ----- |
| 474 | |
| 475 | |
| 476 | TEST 10 DATAIE - RCSR5 SET, CLEAR, RESET |
| 477 | ----- |
| 478 | |
| 479 | |
| 480 | TEST 11 RCVRIE - RCSR6 SET, CLEAR, RESET |
| 481 | ----- |
| 482 | |

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THE FOLLOWING 4 TESTS VERIFY THAT RESET (INIT) INITIALIZES
READ ONLY BITS.

TEST 12 RCVRDONE RCSR 7 - IS CLEARED BY INIT
..

TEST 13 XMITROY - TCSR 7 - IS SET BY INIT
..

TEST 14 DATAINT - RCSR 15 - IS CLEARED BY INIT.
..

TEST 15 RCVRACT - RCSR 11 - IS CLEARED BY INIT
..

THE FOLLOWING 4 TESTS VERIFY THAT THE EIA SIGNALS CAN BE
TRANSMITTED AND RECEIVED THROUGH THE CABLE.

TEST 16 CARDET SETS AND CLEARS AS DTR SETS AND CLEARS
..

TEST 17 CLRSEND SETS AND CLEARS AS DTR SETS AND CLEARS

TEST 20 RING SETS AND CLEARS AS REQSEND SETS AND CLEARS
..

TEST 21 SECREC SETS AND CLEARS AS SECXMIT SETS AND CLEARS
..

TEST 22 DATAINT (RCSR-15) SETS WHEN DTR CHANGES STATE AND THAT
DATAINT IS CLEARED AFTER READING RCSR

NOTE

DTR IS TIED TO BOTH CARDET AND CLRSEND BY THE
M315.

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TEST 23 DATAINT SETS WHEN RING SETS AND THAT DATAINT
.....
DOES NOT SET WHEN RING CLEARS

TEST 24 DATAINT SETS WHEN SECREC CHANGES STA*
.....

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541 TEST 25 XMIT RDY - TCSR 7 - CLEARS WHEN TBUF IS LOADED
542 ----
543 WITH A CHARACTER AND THAT IT SETS WITHIN A
544 REASONABLE AMOUNT OF TIME.
545
546
547 TEST 26 OUTPUTTING A CHR FROM TBUF (WITH MAINT SET)
548 ----
549 RESULTS IN RCVRDONE SETTING WITHIN A
550 REASONABLE AMOUNT OF TIME AND THAT RESET
551 CLEARS THE BIT.
552
553
554 TEST 27 RCVRDONE IS CLEARED BY READING RBUF
555 ----
556
557 TEST 30 RCVRACT - RCSR 11 - SETS WHEN A START BIT IS
558 ----
559 RECEIVED AND CLEARS WHEN RCVRDONE - RCSR 7 -
560 SETS
561
562
563 TEST 31 OVERRUN BIT RBUF 14
564 ----
565
566
567 TEST 32 PROGRAMMABLE BAUD RATE TEST TEST AT ALL SPEEDS
568 ----
569 AVAILABLE A COMPARISON WILL BE MADE TO SEE IF
570 NEW TIME IS LESS THAN PREVIOUS.
571
572
573 TEST 33 TRANSMITTER INTERRUPT LOGIC TEST
574 ----
575 LOGICALLY THIS IS 4 SEPARATE TESTS
576 A) DOES TRANSMITTER INTERRUPT LOGIC WORK
577 B) AT PRIORITY OF 0
578 C) AND ONLY ONCE
579 D) BUT NOT WITH INTERRUPT ENABLE CLEAR
580
581
582 TEST 34 RECEIVER INTERRUPT LOGIC TEST THIS TEST COVERS ALL
583 ----
584 OF THE RECEIVER SIDE OF THE INTERRUPT LOGIC, BOTH
585 DATASET AND CHARACTER MODES.
586
587
588 TEST 35 TEST ACTUAL DATA TRANSFERED NON INTERRUPT
589 ----
590 MAINTENANCE BIT SET
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TEST 36 TEST DATA THROUGH CABLE

TEST 37 FULL DATA TRANSFER WITH INTERRUPTS AND MAINTENANCE

 MODE.

TEST 40 TEST BREAK GENERATION LOGIC TRANSMIT KNOWN CHAR

 WITH BREAK SET AND COMPARE RECEIVED WITH 0.

TEST 41 NOT A TEST - SEND BACK TO LOOP

NOTE

FOR ALL OF THE FOLLOWING ROUTINES THE USE
 OF (R5) IS PART OF THE LINKAGE MECHANISM
 BETWEEN THE CALLER AND THE CALLED.

ROUTINE:TIMER

THIS ROUTINE IS USED TO TEST THE STATUS OF
 ANY BIT IN ANY REGISTER.

INPUTS:

HOWLONG THE MAXIMUM AMOUNT OF TIME TO
 SPEND IN THIS ROUTINE.
 WHICHBIT A MASK WITH THE BIT(S) SET THAT
 ARE TO BE CHECKED
 REG A POINTER TO THE REGISTER TO BE
 CHECKED
 SFTCLR THE DESIRED RESULTS -- EITHER SET
 OR CLEAR

OUTPUT:

THE 'C' BIT IS SET TO INDICATE AN ERROR BUT IT
 IS TESTED BY THE IF.ERROR STATEMENT.

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ROUTINE:DATLNG

THIS ROUTINE SETS UP A MASK FOR DATA, WITH
INPUT: NOTHING IS PASSED TO THIS ROUTINE BUT GLOBAL
INFORMATION IS ASSUMED TO EXIST:
\$USWR-- THE WORD FOR SOFTWARE PARAMETERS
DATA-- A MASK FOR THE LOCATION OF THE OCTAL
NUMBER OF DATA BITS
OUTPUT-----
MASK-- A MASK OF BINARY ZEROS RIGHT-JUSTIFIED
THE NUMBER OF WHICH IS DEFINED IN \$USWR WORD.

ROUTINE:WAIT

THIS ROUTINE IS USED TO DELAY EXECUTION OF THE
MAIN PROGRAM FOR A SPECIFIED AMOUNT OF TIME.
THIS IS ACCOMPLISHED BY INCREMENTING A
REGISTER UP TO A LIMIT. THE INNER LOOP IS SET
TO APPROXIMATE 1 MILLI SEC.

SERVICE ROUTINE: INTSRV

THIS GLOBAL ROUTINE DOES NOTHING BUT INCREMENT
'INTFLAG' EACH TIME IT IS CALLED. IT ASSUMES
THAT THE MAIN CALLING ROUTINE WILL KNOW WHAT
TO LOOK FOR.

ROUTINE:CYCLE

THIS ROUTINE CAUSES ADRS TO POINT TO THE
ADDRESS OF DLV11-E UNDER TEST, ADRS +2 TO
POINT TO THE VECTOR OF THE DLV11-E UNDER TEST.
IT KEEPS TRACK OF THE CURRENT DEVICE AND BIT
MASKS.

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678      B
679      .TITLE MAINDEC-ZZ-CVDVA-D
680      ;*COPYRIGHT (C) 1977
681      ;*DIGITAL EQUIPMENT CORP.
682      ;*MAYNARD, MASS. 01754
683      ;*
684      ;*PROGRAM BY ODES CHOATE
685      ;*
686      ;*THIS PROGRAM WAS ASSEMBLED USING THE PDP-11 MAINDEC SYSMAC
687      ;*PACKAGE (MAINDEC-11-DZQAC-C3), JAN 19, 1977.
688      ;*
689      .SBTTL OPERATIONAL SWITCH SETTINGS
690      ;*
691      ;*      SWITCH          USE
692      ;*      -----
693      ;*      15          HALT ON ERROR
694      ;*      14          LOOP ON TEST
695      ;*      13          INHIBIT ERROR TYPEOUTS
696      ;*      11          INHIBIT ITERATIONS
697      ;*      10          BELL ON ERRGR
698      ;*      9          LOOP ON ERROR
699      ;*      8          LOOP ON TEST IN SWR<7:0>
700
701      .SBTTL BASIC DEFINITIONS
702
703      ;*INITIAL ADDRESS OF THE STACK POINTER *** 1100 ***
704      001100  STACK= 1100
705      .EQUIV EMT,ERROR      ;;BASIC DEFINITION OF ERROR CALL
706      .EQUIV IOT,SCOPE     ;;BASIC DEFINITION OF SCOPE CALL
707
708      ;*MISCELLANEOUS DEFINITIONS
709      000011  HT= 11          ;;CODE FOR HORIZONTAL TAB
710      000012  LF= 12          ;;CODE FOR LINE FEED
711      000015  CR= 15          ;;CODE FOR CARRIAGE RETURN
712      000200  CRLF= 200      ;;CODE FOR CARRIAGE RETURN-LINE FEED
713      177776  PS= 177776     ;;PROCESSOR STATUS WORD
714      .EQUIV PS,PSW
715      177774  STKLM= 177774  ;;STACK LIMIT REGISTER
716      177772  PIRQ= 177772  ;;PROGRAM INTERRUPT REQUEST REGISTER
717      177570  DSWR= 177570  ;;HARDWARE SWITCH REGISTER
718      177570  DDISP= 177570 ;;HARDWARE DISPLAY REGISTER
719
720      ;*GENERAL PURPOSE REGISTER DEFINITIONS
721      000000  R0= #0          ;;GENERAL REGISTER
722      000001  R1= #1          ;;GENERAL REGISTER
723      000002  R2= #2          ;;GENERAL REGISTER
724      000003  R3= #3          ;;GENERAL REGISTER
725      000004  R4= #4          ;;GENERAL REGISTER
726      000005  R5= #5          ;;GENERAL REGISTER
727      000006  R6= #6          ;;GENERAL REGISTER
728      000007  R7= #7          ;;GENERAL REGISTER
729      000006  SP= #6         ;;STACK POINTER
730      000007  PC= #7         ;;PROGRAM COUNTER
731
732      ;*PRIORITY LEVEL DEFINITIONS
733      000000  PRO= 0         ;;PRIORITY LEVEL 0

```


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| | | | | | |
|-----|--------|------|-----|----|------------------|
| 734 | 000040 | PR1= | 40 | :: | PRIORITY LEVEL 1 |
| 735 | 000100 | PR2= | 100 | :: | PRIORITY LEVEL 2 |
| 736 | 000140 | PR3= | 140 | :: | PRIORITY LEVEL 3 |
| 737 | 000200 | PR4= | 200 | :: | PRIORITY LEVEL 4 |
| 738 | 000240 | PR5= | 240 | :: | PRIORITY LEVEL 5 |
| 739 | 000300 | PR6= | 300 | :: | PRIORITY LEVEL 6 |
| 740 | 000340 | PR7= | 340 | :: | PRIORITY LEVEL 7 |

741
 742 ;* "SWITCH REGISTER" SWITCH DEFINITIONS

| | | | |
|-----|--------|--------|-----------|
| 743 | :00000 | SW15= | 100000 |
| 744 | 040000 | SW14= | 40000 |
| 745 | 020000 | SW13= | 20000 |
| 746 | 010000 | SW12= | 10000 |
| 747 | 004000 | SW11= | 4000 |
| 748 | 002000 | SW10= | 2000 |
| 749 | 001000 | SW09= | 1000 |
| 750 | 000400 | SW08= | 400 |
| 751 | 000200 | SW07= | 200 |
| 752 | 000100 | SW06= | 100 |
| 753 | 000040 | SW05= | 40 |
| 754 | 000020 | SW04= | 20 |
| 755 | 000010 | SW03= | 10 |
| 756 | 000004 | SW02= | 4 |
| 757 | 000002 | SW01= | 2 |
| 758 | 000001 | SW00= | 1 |
| 759 | | .EQUIV | SW09, SW9 |
| 760 | | .EQUIV | SW08, SW8 |
| 761 | | .EQUIV | SW07, SW7 |
| 762 | | .EQUIV | SW06, SW6 |
| 763 | | .EQUIV | SW05, SW5 |
| 764 | | .EQUIV | SW04, SW4 |
| 765 | | .EQUIV | SW03, SW3 |
| 766 | | .EQUIV | SW02, SW2 |
| 767 | | .EQUIV | SW01, SW1 |
| 768 | | .EQUIV | SW00, SW0 |

769
 770 ;* DATA BIT DEFINITIONS (BIT00 TO BIT15)

| | | | |
|-----|--------|--------|-------------|
| 771 | 100000 | BIT15= | 100000 |
| 772 | 040000 | BIT14= | 40000 |
| 773 | 020000 | BIT13= | 20000 |
| 774 | 010000 | BIT12= | 10000 |
| 775 | 004000 | BIT11= | 4000 |
| 776 | 002000 | BIT10= | 2000 |
| 777 | 001000 | BIT09= | 1000 |
| 778 | 000400 | BIT08= | 400 |
| 779 | 000200 | BIT07= | 200 |
| 780 | 000100 | BIT06= | 100 |
| 781 | 000040 | BIT05= | 40 |
| 782 | 000020 | BIT04= | 20 |
| 783 | 000010 | BIT03= | 10 |
| 784 | 000004 | BIT02= | 4 |
| 785 | 000002 | BIT01= | 2 |
| 786 | 000001 | BIT00= | 1 |
| 787 | | .EQUIV | BIT09, BIT9 |
| 788 | | .EQUIV | BIT08, BIT8 |
| 789 | | .EQUIV | BIT07, BIT7 |

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```

790 .EQUIV BIT06,BIT6
791 .EQUIV BIT05,BIT5
792 .EQUIV BIT04,BIT4
793 .EQUIV BIT03,BIT3
794 .EQUIV BIT02,BIT2
795 .EQUIV BIT01,BIT1
796 .EQUIV BIT00,BIT0
    
```

```

797 ;*BASIC "CPU" TRAP VECTOR ADDRESSES
798 ERRVEC= 4 ; TIME OUT AND OTHER ERRORS
799 000004 ;
800 RESVEC= 10 ; RESERVED AND ILLEGAL INSTRUCTIONS
801 000010 ;
802 TBITVEC= 14 ; "T" BIT
803 000014 ; TRACE TRAP
804 TRTVEC= 14 ; TRACE TRAP
805 BPTVEC= 14 ; BREAKPOINT TRAP (BPT)
806 000014 ;
807 IOTVEC= 20 ; INPUT/OUTPUT TRAP (IOT) **SCOPE**
808 000020 ;
809 PMRVEC= 24 ; POWER FAIL
810 000024 ;
811 EMTVEC= 30 ; EMULATOR TRAP (EMT) **ERROR**
812 000030 ;
813 TRAPVEC= 34 ; "TRAP" TRAP
814 000034 ;
815 TKVEC= 60 ; TTY KEYBOARD VECTOR
816 000060 ;
817 TPVEC= 64 ; TTY PRINTER VECTOR
818 000064 ;
819 PIRQVEC= 240 ; PROGRAM INTERRUPT REQUEST VECTOR
820 000240 ;
    
```

```

811 ILLMEM= 4
812 ADRS= P1
813 GOOD= R2
814 BAD= R3
815 REGISTER=R1
816 BIT= R2
817 FUNCT= R3
818 LEAD= R2
819 FOLLOW= R4
820 DLADDR= 175610
    
```

```

822 ; THE FOLLOWING DEFINITIONS APPLY TO THE GLOBAL SUBS
823 SET= -1
824 CLR= 0
    
```

```

827 ;*****
828 ; RCSR REGISTER BIT NAMES
829 ;*****
830 100000 DATAINT= BIT15 ; DATASET INTERRUPT
831 040000 RING= BIT14 ; RINGING SIGNAL INDICATOR
832 020000 CLRSEND= BIT13 ; CLEAR TO SEND FROM DATASET
833 010000 CARDET= BIT12 ; CARRIER DETECT
834 004000 RCVRACT= BIT11 ; RECEIVER ACTIVE INDICATOR
835 002000 SECREC= BIT10 ; SECONDARY RECEIVE
836 ; UNUSED BIT09
837 ; UNUSED BIT08
838 000200 RCVRDONE= BIT07 ; RECEIVER DONE
839 000100 RCVRIE= BIT06 ; RECEIVER INTERRUPT ENABLE
840 000040 DATAIE= BIT05 ; DATASET INTERRUPT ENABLE
841 ; UNUSED BIT04
842 000010 SECXMIT= BIT03 ; SECONDARY TRANSMIT DATA
843 000004 REQSEND= BIT02 ; REQUEST TO SEND
844 000002 DTR= BIT01 ; DATA TERMINAL READY
845 ; UNUSED BIT00
    
```

```

846
847 ;:*****
848 ; RBUF REGISTER BIT NAMES
849 ;:*****
850 100000 ERROR- BIT15 ; ERROR INDICATOR
851 040000 ORERR- BIT14 ; OVERRUN ERROR
852 020000 FRERR- BIT13 ; FRAMING ERROR
853 010000 PERR- BIT12 ; PARITY ERROR
854 ; UNUSED BIT11
855 ; UNUSED BIT10
856 ; UNUSED BIT09
857 ; UNUSED BIT08
858 000200 RDATA7- BIT07 ; \
859 000100 RDATA6- BIT06 ; |
860 000040 RDATA5- BIT05 ; |
861 000020 RDATA4- BIT04 ; | \ RECEIVED DATA BITS
862 000010 RDATA3- BIT03 ; | /
863 000004 RDATA2- BIT02 ; |
864 000002 RDATA1- BIT01 ; |
865 000001 RDATA0- BIT00 ; /
866
867 ;:*****
868 ; TCSR REGISTER BIT NAMES
869 ;:*****
870 100000 PBAUD3- BIT15 ; \
871 040000 PBAUD2- BIT14 ; | \ PROGRAMMABLE BAUD
872 020000 PBAUD1- BIT13 ; | / RATE BITS
873 010000 PBAUD0- BIT12 ; |
874 004000 PBAUDSET- BIT11 ; /
875 ; ENABLE SETTING OF
876 ; PROGRAMMABLE BAUDE RATE
877 ; UNUSED BIT10
878 ; UNUSED BIT09
879 ; UNUSED BIT08
880 000200 XMITRDY- BIT07 ; TRANSMITTER READY
881 000100 XMITIE- BIT06 ; TRANSMITTER INTERRUPT ENABLE
882 ; UNUSED BIT05
883 ; UNUSED BIT04
884 000004 MAINT- BIT02 ; MAINTENANCE SET BIT
885 ; UNUSED BIT01
886 000001 BREAK- BIT00 ; SEND BREAK (CONTINUOUS SPACE)
887
888
889 ;:*****
890 ; TBUF REGISTER BIT NAMES
891 ;:*****
892 ; UNUSED BIT15

```

```

893 ; UNUSED BIT14
894 ; UNUSED BIT13
895 ; UNUSED BIT12
896 ; UNUSED BIT11
897 ; UNUSED BIT10
898 ; UNUSED BIT09
899 ; UNUSED BIT08
900 000200 TDATA7= BIT07 ; \
901 000100 TDATA6= BIT06 ; !
902 000040 TDATA5= BIT05 ; !
903 000020 TDATA4= BIT04 ; \ TRANSMITTER DATA BUFFER
904 000010 TDATA3= BIT03 ; /
905 000004 TDATA2= BIT02 ; !
906 000002 TDATA1= BIT01 ; !
907 000001 TDATA0= BIT00 ; /

```

```

;*****
; FLAG BITS TO BE USE OR CLEARED IN $USWR.

```

```

913 000017 DATA = 17
914 000020 PARITY = 20
915 000040 EVENODD = 40
916 000100 COMSPD = 100
917 000200 PBR = 200
918
919 ; BAUDE MUST BE ON THE UPPER
920 ; BYTE BOUNDARY OF $USWR.--4 BITS
921 007400 BAUD = 7400
922 010000 BRK = 10000
923 020000 CABLE = 20000
924 040000 FRFD = 40000

```

```

;*****
.SBTTL TRAP CATCHER

```

```

928 000000 .=0
929 ;*ALL UNUSED LOCATIONS FROM 4 - 776 CONTAIN A ".=2,HALT'
930 ;*SEQUENCE TO CATCH ILLEGAL TRAPS AND INTERRUPTS
931 ;*LOCATION 0 CONTAINS 0 TO CATCH IMPROPERLY LOADED VECTORS
932 000174 .=174
933 000174 000000 DISPREG: .WORD 0 ;:SOFTWARE DISPLAY REGISTER
934 000176 000000 SWREG: .WORD 0 ;:SOFTWARE SWITCH REGISTER
935 .SBTTL STARTING ADDRESS(ES)
936 000200 00013 001336 JMP $START ;:JUMP TO STARTING ADDRESS OF PROGRAM
937 .SBTTL ACT11 HOOKS

```

```

;*****
;HOOKS REQUIRED BY ACT11

```

```

941 000204 $SVPC= . ;SAVE PC
942 000046 .=46
943 000046 012452 $ENDAD ;:1)SET LOC.46 TO ADDRESS OF $ENDAD IN .;EOP
944 000052 .=52
945 000052 000000 .WORD 0 ;:2)SET LOC.52 TO ZERO
946 000204 .=$SVPC ;: RESTORE PC
947 001000 .=1000
948 .SBTTL APT PARAMETER BLOCK

```


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```

949
950 ;*****
951 ;SET LOCATIONS 24 AND 44 AS REQUIRED FOR APT
952 ;*****
953         001000      .IX=      ;;SAVE CURRENT LOCATION
954         000024      =24      ;;SET POWER FAIL TO POINT TO START OF PROGRAM
955 000024 000200      200      ;;FOR APT START UP
956         000044      =44      ;;POINT TO APT INDIRECT ADDRESS PNTR.
957 000044 001000      $APTHDR  ;;POINT TO APT HEADER BLOCK
958         001000      =.IX     ;;RESET LOCATION COUNTER
959 ;*****
960 ;SETUP APT PARAMETER BLOCK AS DEFINED IN THE APT-PDP11 DIAGNOSTIC
961 ;INTERFACE SPEC.
962
963 001000  $APTHD:
964 001000 000000  $HIBTS: .WORD 0      ;;TWO HIGH BITS OF 18 BIT MAILBOX ADDR.
965 001002 001174  $MBADR: .WORD $MAIL  ;;ADDRESS OF APT MAILBOX (BITS 0-15)
966 001004 000005  $TSTM: .WORD 5      ;;RUN TIM OF LONGEST TEST
967 001006 000055  $PASTM: .WORD 45.   ;;RUN TIME IN SECS. OF 1ST PASS ON 1 UNIT (QUICK VERIFY)
968 001010 000036  $UNITH: .WORD 30.   ;;ADDITIONAL RUN TIME (SECS) OF A PASS FOR EACH ADDITIONAL UNIT
969 001012 000030  .WORD $ETEND-$MAIL/2 ;;LENGTH MAILBOX-ETABLE(WORDS)

```

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```

970      .SBTTL  COMMON TAGS
971
972      ;;*****
973      ;*THIS TABLE CONTAINS VARIOUS COMMON STORAGE LOCATIONS
974      ;*USED IN THE PROGRAM.
975
976      001100      .=1100
977      001100      $CMTAG:      ;;START OF COMMON TAGS
978      001100      000000      .WORD      0
979      001102      000      $TSTNM: .BYTE      0      ;;CONTAINS THE TEST NUMBER
980      001103      000      $ERFLG: .BYTE      0      ;;CONTAINS ERROR FLAG
981      001104      000000      $ICNT:  .WORD      0      ;;CONTAINS SUBTEST ITERATION COUNT
982      001106      000000      $LPADR: .WORD      0      ;;CONTAINS SCOPE LOOP ADDRESS
983      001110      000000      $LPERR: .WORD      0      ;;CONTAINS SCOPE RETURN FOR ERRORS
984      001112      000000      $ERTTL: .WORD      0      ;;CONTAINS TOTAL ERRORS DETECTED
985      001114      000      $ITEMB: .BYTE      0      ;;CONTAINS ITEM CONTROL BYTE
986      001115      001      $ERMAX: .BYTE      1      ;;CONTAINS MAX. ERRORS PER TEST
987      001116      000000      $ERRPC: .WORD      0      ;;CONTAINS PC OF LAST ERROR INSTRUCTION
988      001120      000000      $GOADR: .WORD      0      ;;CONTAINS ADDRESS OF 'GOOD' DATA
989      001122      000000      $BDADR: .WORD      0      ;;CONTAINS ADDRESS OF 'BAD' DATA
990      001124      000000      $GDDAT: .WORD      0      ;;CONTAINS 'GOOD' DATA
991      001126      000000      $BDDAT: .WORD      0      ;;CONTAINS 'BAD' DATA
992      001130      000000      .WORD      0      ;;RESERVED--NOT TO BE USED
993      001132      000000      .WORD      0
994      001134      000      $AUTOB: .BYTE      0      ;;AUTOMATIC MODE INDICATOR
995      001135      000      $INTAG: .BYTE      0      ;;INTERRUPT MODE INDICATOR
996      001136      000000      .WORD      0
997      001140      177570      $SWR:   .WORD      DSWR      ;;ADDRESS OF SWITCH REGISTER
998      001142      177570      $DISP: .WORD      DDISP     ;;ADDRESS OF DISPLAY REGISTER
999      001144      177560      $TKS:   177560      ;;TTY KBD STATUS
1000     001146      177562      $TKB:   177562      ;;TTY KBD BUFFER
1001     001150      177564      $TPS:   177564      ;;TTY PRINTER STATUS REG. ADDRESS
1002     001152      177566      $TPB:   177566      ;;TTY PRINTER BUFFER REG. ADDRESS
1003     001154      000      $NULL: .BYTE      0      ;;CONTAINS NULL CHARACTER FOR FILLS
1004     001155      002      $FILLS: .BYTE      2      ;;CONTAINS # OF FILLER CHARACTERS REQUIRED
1005     001156      012      $FILLC: .BYTE     12      ;;INSERT FILL CHARS. AFTER A "LINE FEED"
1006     001157      000      $TPFLG: .BYTE      0      ;;"TERMINAL AVAILABLE" FLAG (BIT<07>=0=YES)
1007     001160      000000      $TIMES: 0      ;;MAX. NUMBER OF ITERATIONS
1008     001162      000000      $ESCAPE:0      ;;ESCAPE ON ERROR ADDRESS
1009     001164      177607      000377 $BELL:  .ASCIZ <207><377><377> ;;CODE FOR BELL
1010     001170      077      $QUES:  .ASCII  /?/      ;;QUESTION MARK
1011     001171      015      $CRLF:  .ASCII  <15>      ;;CARRIAGE RETURN
1012     001172      000012      $LF:   .ASCIZ  <12>      ;;LINE FEED
1013     ;;*****
1014     .SBTTL  APT MAILBOX-ETABLE
1015
1016     ;;*****
1017     .EVEN
1018     001174      $MAIL:      ;;APT MAILBOX
1019     001174      000000      $MSGTY: .WORD      MSGTY   ;;MESSAGE TYPE CODE
1020     001176      000000      $FATAL: .WORD      AFATAL  ;;FATAL ERROR NUMBER
1021     001200      000000      $TESTN: .WORD      ATESTN  ;;TEST NUMBER
1022     001202      000000      $PASS:  .WORD      APASS   ;;PASS COUNT
1023     001204      000000      $DEVCT: .WORD      ADEVCT  ;;DEVICE COUNT
1024     001206      000000      $UNIT:  .WORD      AUNIT   ;;I/O UNIT NUMBER
1025     001210      000000      $MSGAD: .WORD      AMSGAD  ;;MESSAGE ADDRESS

```

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05:04 APT MAILBOX-ETABLE

| | | | | | |
|------|--------|--------|----------------|--------|--|
| 1026 | 001212 | 000000 | \$MSGLG: .WORD | AMSGLG | ::MESSAGE LENGTH |
| 1027 | 001214 | | \$ETABLE: | | ::APT ENVIRONMENT TABLE |
| 1028 | 001214 | 000 | \$ENV: .BYTE | AENV | ::ENVIRONMENT BYTE |
| 1029 | 001215 | 000 | \$ENVM: .BYTE | AENVM | ::ENVIRONMENT MODE BITS |
| 1030 | 001216 | 000000 | \$SWREG: .WORD | ASWREG | ::APT SWITCH REGISTER |
| 1031 | 001220 | 071110 | \$USWR: .WORD | AUSWR | ::USER SWITCHES |
| 1032 | 001222 | 000000 | \$CPUOP: .WORD | ACPUOP | ::CPU TYPE,OPTIONS |
| 1033 | | | .* | | BITS 15-11=CPU TYPE |
| 1034 | | | .* | | 11/04=01,11/05=02,11/20=03,11/40=04,11/45=05 |
| 1035 | | | .* | | 11/70=06,PDQ=07,Q=10 |
| 1036 | | | .* | | BIT 10=REAL TIME CLOCK |
| 1037 | | | .* | | BIT 9=FLOATING POINT PROCESSOR |
| 1038 | | | .* | | BIT 8=MEMORY MANAGEMENT |
| 1039 | 001224 | 000 | \$MAMS1: .BYTE | AMAMS1 | ::HIGH ADDRESS,M.S. BYTE |
| 1040 | 001225 | 000 | \$MTYP1: .BYTE | AMTYP1 | ::MEM. TYPE,BLK#1 |
| 1041 | | | .* | | MEM.TYPE BYTE -- (HIGH BYTE) |
| 1042 | | | .* | | 900 NSEC CORE=001 |
| 1043 | | | .* | | 300 NSEC BIPOLAR=002 |
| 1044 | | | .* | | 500 NSEC MOS=003 |
| 1045 | 001226 | 000000 | \$MADR1: .WORD | AMADR1 | ::HIGH ADDRESS,BLK#1 |
| 1046 | | | .* | | MEM.LAST ADDR.=3 BYTES,THIS WORD AND LOW OF "TYPE" ABOVE |
| 1047 | 001230 | 000 | \$MAMS2: .BYTE | AMAMS2 | ::HIGH ADDRESS,M.S. BYTE |
| 1048 | 001231 | 000 | \$MTYP2: .BYTE | AMTYP2 | ::MEM.TYPE,BLK#2 |
| 1049 | 001232 | 000000 | \$MADR2: .WORD | AMADR2 | ::MEM.LAST ADDRESS,BLK#2 |
| 1050 | 001234 | 000 | \$MAMS3: .BYTE | AMAMS3 | ::HIGH ADDRESS,M.S.BYTE |
| 1051 | 001235 | 000 | \$MTYP3: .BYTE | AMTYP3 | ::MEM.TYPE,BLK#3 |
| 1052 | 001236 | 000000 | \$MADR3: .WORD | AMADR3 | ::MEM.LAST ADDRESS,BLK#3 |
| 1053 | 001240 | 000 | \$MAMS4: .BYTE | AMAMS4 | ::HIGH ADDRESS,M.S.BYTE |
| 1054 | 001241 | 000 | \$MTYP4: .BYTE | AMTYP4 | ::MEM.TYPE,BLK#4 |
| 1055 | 001242 | 000000 | \$MADR4: .WORD | AMADR4 | ::MEM.LAST ADDRESS,BLK#4 |
| 1056 | 001244 | 000300 | \$VECT1: .WORD | AVECT1 | ::INTERRUPT VECTOR#1,BUS PRIORITY#1 |
| 1057 | 001246 | 000000 | \$VECT2: .WORD | AVECT2 | ::INTERRUPT VECTOR#2BUS PRIORITY#2 |
| 1058 | 001250 | 175610 | \$BASE: .WORD | ABASE | ::BASE ADDRESS OF EQUIPMENT UNDER TEST |
| 1059 | 001252 | 000001 | \$DEVM: .WORD | ADEVM | ::DEVICE MAP |
| 1060 | 001254 | | \$ETEND: | | |
| 1061 | | | .MEXIT | | |

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1062
 1063
 1064
 1065
 1066
 1067
 1068
 1069
 1070
 1071
 1072
 1073
 1074
 1075
 1076 001254
 1077
 1078 001254 175610
 1079 001256 000300
 1080 001260 175610
 1081 001262 175612
 1082 001264 175614
 1083 001266 175615
 1084 001270 175616
 1085 001272 000000
 1086 001274 000020
 1087 001334 000000
 1088 001336
 1089
 1090
 1091 001336 012706 001100
 1092 001342 005026
 1093 001344 022706 001140
 1094 001350 001374
 1095 001352 012706 001100
 1096
 1097 001356 012737 014374 000020
 1098 001364 012737 000340 000022
 1099 001372 012737 014174 000030
 1100 001400 012737 000340 000032
 1101 001406 012737 015326 000034
 1102 001414 012737 000340 000036
 1103 001422 012737 012506 000024
 1104 001430 012737 000340 000026
 1105 001436 016767 010756 010746
 1106 001444 005067 177510
 1107 001450 005067 177506
 1108 001454 112767 000001 177433
 1109 001462 012767 001462 177416
 1110 001470 012767 001470 177412
 1111
 1112
 1113 001476 013746 000004
 1114 001502 012737 001536 000004
 1115 001510 012767 177570 177422
 1116 001516 012767 177570 177416
 1117 001524 022777 177777 177406

.SBTTL ERROR POINTER TABLE

;; THIS TABLE CONTAINS THE INFORMATION FOR EACH ERROR THAT CAN OCCUR.
 ;; THE INFORMATION IS OBTAINED BY USING THE INDEX NUMBER FOUND IN
 ;; LOCATION #ITEMB. THIS NUMBER INDICATES WHICH ITEM IN THE TABLE IS PERTINENT.
 ;; NOTE1: IF #ITEMB IS 0 THE ONLY PERTINENT DATA IS (#ERRPC).
 ;; NOTE2: EACH ITEM IN THE TABLE CONTAINS 4 POINTERS EXPLAINED AS FOLLOWS:

;; # EM ;;POINTS TO THE ERROR MESSAGE
 ;; # DM ;;POINTS TO THE DATA HEADER
 ;; # DT ;;POINTS TO THE DATA
 ;; # DF ;;POINTS TO THE DATA FORMAT

#ERRTB:

```

;; GLOBAL DATA
DLADD: DLADDR
DLVEC: 300
RCSR: DLADDR * 0
RBUF: DLADDR * 2
TCSR: DLADDR * 4
TCSRMI: DLADDR * 5
TBUF: DLADDR * 6
I: 0
.BLKW 20 ;FOR R5 STACK
RSSTACK: .WORD 0
    
```

START:

```

.SBTTL INITIALIZE THE COMMON TAGS
;; CLEAR THE COMMON TAGS (#CHTAG) AREA
MOV #CHTAG,R6 ;;FIRST LOCATION TO BE CLEARED
CLR (R6). ;;CLEAR MEMORY LOCATION
CMP #SWR,R6 ;;DONE?
BNE -.6 ;;LOOP BACK IF NO
MOV #STACK,SP ;;SETUP THE STACK POINTER
;; INITIALIZE A FEW VECTORS
MOV #SCOPE,#IOTVEC ;;IOT VECTOR FOR SCOPE ROUTINE
MOV #340,#IOTVEC+2 ;;LEVEL 7
MOV #ERROR,#EMTVEC ;;EMT VECTOR FOR ERROR ROUTINE
MOV #340,#EMTVEC+2 ;;LEVEL 7
MOV #TRAP,#TRAPVEC ;;TRAP VECTOR FOR TRAP CALLS
MOV #340,#TRAPVEC+2 ;;LEVEL 7
MOV #PWRDN,#PWRVEC ;;POWER FAILURE VECTOR
MOV #340,#PWRVEC+2 ;;LEVEL 7
MOV #ENDCT,#EOPCT ;;SETUP END-OF-PROGRAM COUNTER
CLR #TIMES ;;INITIALIZE NUMBER OF ITERATIONS
CLR #ESCAPE ;;CLEAR THE ESCAPE ON ERROR ADDRESS
MOVB #1,#ERMAX ;;ALLOW ONE ERROR PER TEST
MOV #.,#LPADR ;;INITIALIZE THE LOOP ADDRESS FOR SCOPE
MOV #.,#LPERR ;;SETUP THE ERROR LOOP ADDRESS
;; SIZE FOR A HARDWARE SWITCH REGISTER. IF NOT FOUND OR IT IS
;; EQUAL TO A "-1", SETUP FOR A SOFTWARE SWITCH REGISTER.
MOV #ERRVEC,-(SP) ;;SAVE ERROR VECTOR
MOV #64,#ERRVEC ;;SET UP ERROR VECTOR
MOV #DSWR,SWR ;;SETUP FOR A HARDWARE SWITCH REGISTER
MOV #DDISP,DISPLAY ;;AND A HARDWARE DISPLAY REGISTER
CMP #1,BSWR ;;TRY TO REFERENCE HARDWARE SWR
    
```

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 CVDVAD.P11 12 JUL -84 05:04 INIT SIZE THE COMMON TAGS

```

1118 001532 001012          BNE      66H      ;; BRANCH IF NO TIMEOUT TRAP OCCURRED
1119                                ;; AND THE HARDWARE SWR IS NOT = 1
1120 001534 000403          BR       65H      ;; BRANCH IF NO TIMEOUT
1121 001536 012716 001544 64H:  MOV     #65H,(SP) ;; SET UP FOR TRAP RETURN
1122 001542 000002          RTI
1123 001544 012767 000176 177366 55H:  MOV     @SWREG,SWR ;; POINT TO SOFTWARE SWR
1124 001552 012767 000174 177362      MOV     @DISPREG,DISPLAY
1125 001560 012637 000004 66H:  MOV     (SP),@ERRVEC ;; RESTORE ERROR VECTOR
1126
1127 001564 005067 177412          CLR     @PASS      ;; CLEAR PASS COUNT
1128 001570 132767 000200 177417      BITB   @APTSIZE,@ENVH ;; TEST USER SIZE UNDER APT
1129 001576 001403          BEQ     67H      ;; YES,USE NON-APT SWITCH
1130 001600 012767 001216 177332      MOV     @SWREG,SWR ;; NO,USE APT SWITCH REGISTER
1131 001606
1132                                67H:
1133                                .SBTTL  TYPE PROGRAM NAME
1134                                ;;TYPE THE NAME OF THE PROGRAM IF FIRST PASS
1134 001606 005227 177777          INC     @-1      ;; FIRST TIME?
1135 001612 001051          BNE     68H      ;; BRANCH IF NO
1136 001614 022737 012452 000042      CMP     @ENDAD,@M42 ;; ACT-11?
1137 001622 001445          BEQ     68H      ;; BRANCH IF YES
1138 001624 104401 001672          TYPE   ,69H    ;; TYPE ASCIZ STRING
1139                                .SBTTL  GET VALUE FOR SOFTWARE SWITCH REGISTER
1140 001630 005737 000042          TST     @M42    ;; ARE WE RUNNING UNDER XXDP/ACT?
1141 001634 001012          BNE     70H      ;; BRANCH IF YES
1142 001636 126727 177352 000001      CMPB   @ENV,@1   ;; ARE WE RUNNING UNDER APT?
1143 001644 001406          BEQ     70H      ;; BRANCH IF YES
1144 001646 026727 177266 000176      CMP     SWR,@SWREG ;; SOFTWARE SWITCH REG SELECTED?
1145 001654 001005          BNE     71H      ;; BRANCH IF NO
1146 001656 104406          GTSWR      ;; GET SOFT-SWR SETTINGS
1147 001660 000403          BR      71H
1148 001662 112767 000001 177244 70H:  MOVB   @1,@AUTOB ;; SET AUTO-MODE INDICATOR
1149 001670 71H:
1150 001670 000422          BR      68H      ;; GET OVER THE ASCIZ
1151                                ;;69H: .ASCIZ <CRLF>*ZZ-CVDVA-D GLV11-E OFFLINE TEST*<CRLF>
1152                                68H:
1153                                LET INITFLAG := #1
1154 001736 012767 000001 010410      MOV     @1,INITFLAG
1155 001744          LOOP:
1156 001744          CALL   CYCLE    ; NO ARGUMENTS- ADRES -> NEXT ADDRESS
1157 001744 004767 010254          JSR     PC,CYCLE ;
1158                                ;
1159                                ;
1160                                ;
1160 001750          LET     ADDR.2 > NEXT VECTOR
1161 001750 012167 177300          MOV     (ADRS),DLADD ;GET UNIT ADDRESS
1162                                DLADD := (ADRS)
1163                                ;GET UNIT VECTOR
1163 001754          LET     DLVEC := (ADRS)
1164 001754 011167 177276          MOV     (ADRS),DLVEC
1165 001760          LET     ADRS := DLADD
1166 001760 016701 177270          MOV     DLADD,ADRS
1167                                ;RCSR = DLADD * 0
1168 001764          LET     RCSR := DLADD
1169 001764 016767 177264 177266      MOV     DLADD,RCSR
1170 001772          LET     RBUF := DLADD * #2
1171 001772 016767 177256 177262      MOV     DLADD,RBUF
1172 002000 062767 000002 177254      ADD     @2,RBUF
1173 002006          LET     TCSR := DLADD * #4
    
```

MAINDEC-22 CVDVA D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 31
CVDVAD.P11 12-JUL 84 05:04 GET VALUE FOR SOFTWARE SWITCH REGISTER

| | | | | | | | | |
|------|--------|--------|--------|--------|-------|--------------|-----|----------------------|
| 1174 | 002006 | 016767 | 177242 | 177250 | MOV | DLADD,TCSR | | |
| 1175 | 002014 | 062767 | 000004 | 177242 | ADD | #4,TCSR | | |
| 1176 | 002022 | | | | | | LET | TCSRHI := DLADD * #5 |
| 1177 | 002022 | 016767 | 177226 | 177236 | MOV | DLADD,TCSRHI | | |
| 1178 | 002030 | 062767 | 000005 | 177230 | ADD | #5,TCSRHI | | |
| 1179 | 002036 | | | | | | LET | TBUF := DLADD * #6 |
| 1180 | 002036 | 016767 | 177212 | 177224 | MOV | DLADD,TBUF | | |
| 1181 | 002044 | 062767 | 000006 | 177216 | ADD | #6,TBUF | | |
| 1182 | 002052 | | | | | | LET | RS := #RSSTACK |
| 1183 | 002052 | 012705 | 001334 | | MOV | #RSSTACK,RS | | |
| 1184 | | | | | | | | ::BRESET |
| 1185 | 002056 | 000005 | | | RESET | | | |

MAINDEC-22 CVDVA D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 32
 CVDVAD.P11 12 JUL 84 05:04 T1 ADDRESSABILITY

```

1186 ;*****
1187 ;*TEST 1 ADDRESSABILITY
1188 ;* THIS TEST VERIFIES THAT THE ADDRESS AS PLACED IN
1189 ;* THE HARDWARE P-TABLE TO BE CORRECT AND THE DLV11-E RESPONDS
1190 ;* TO THAT ADDRESS SPACE
1191 ;*****
1192 002060 000004 TST1: SCOPE
1193 002062 012767 000002 177070 MOV #2,#TIMES ;DO 2 ITERATIONS
1194 002070 012767 000001 177102 MOV #1,#TESTN ;SET TEST NUMBER IN APT MAIL BOX
1195 002076 LET ADRS := DLADD
1196 002076 016701 177152 MOV DLADD,ADRS
1197 ; SET UP INTERRUPT
1198 002102 SETVEC #ILLMEM,#INTSRV,#PR7
1199 002102 010146 MOV R1,-(SP)
1200 002104 012701 000004 MOV #ILLMEM,R1
1201 002110 012721 012032 MOV #INTSRV,(R1)
1202 002114 012711 000340 MOV #PR7,(R1)
1203 002120 012601 MOV (SP),R1
1204 002122 LET I := #0
1205 002122 005067 177144 CLR I
1206 002126 REPEAT
1207 002126 ;1: BGNSUB
1208 002126 MOV #64,#LPERR ;CLEAR FLAG
1209 002126 012767 002134 176754 CLR INTFLAG LET INTFLAG := #0
1210 ;READ FLAG
1211 002134 TST #ADRS IF INTFLAG NE #0 THEN
1212 002134 005067 007700 TST INTFLAG
1213 ; FATAL ERROR
1214 ; ERRDF 1,,NOOL
1215 002140 005711 BEQ #2 ; FATAL ERROR
1216 002142 ERROR 1 ERRDF 1,,NOOL
1217 002142 005767 007672 ENDIF
1218 002146 001401 ;2: ENDSUB
1219 002150 LET I := I + #2
1220 002150 104001 LET ADRS := DLADD + I
1221 002152 UNTIL I EQ #8.
1222 002152 ADD #2,I
1223 002152 MOV D,ADD,ADRS
1224 002152 062767 000002 177112 ADD I,ADRS
1225 002160 CMP I,#8.
1226 002160 016701 177070 BNE #1 CLRVEC ILLMEM
1227 002170 ;PUSH R1 ON STACK
1228 002170 026727 177076 000010 ;PUSH R2 ON STACK
1229 002176 001353 MOV R1,-(SP)
1230 002200 MOV R2,-(SP)
1231 002200 010146 MOV #ILLMEM,R1
1232 002202 010246 MOV R1,R2
1233 002204 012701 000004 ADD #2,R2
1234 002210 010102 MOV R2,(R1)
1235 002212 062702 000002 CLR (R1)
1236 002216 010221 MOV (SP),R2
1237 002220 005011 ;POP STACK INTO R2
1238 002222 012602
    
```

MAINDEC-ZZ CVDVA-D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 33
CVDVAD.P11 12 JUL-84 05:04 T1 ADDRESSABILITY

```

1242 002224 012601          MOV      (SP),R1          ;:POP STACK INTO R1
1243                                     ;:END OF TEST
1244 002226                                     ENDTST
1245 ;:*****
1246 ;* THE FOLLOWING 8 TESTS TEST ALL 'READ WRITE' BITS
1247 ;:*****
1248
1249

```


MAINDEC-ZZ CVDVA-D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 34
 CVDVAD.P11 12-JUL-84 05:04 T2 BREAK - TCSRO SET, CLEAR, RESET

```

1250 ;*****
1251 ;*TEST 2      BREAK - TCSRO SET, CLEAR, RESET
1252 ;*          NOTE: THE (M) JUMPER MUST BE REMOVED FOR THIS
1253 ;*          TEST TO FUNCTION PROPERLY.
1254 ;*****
1255 002226 000004 TST2: SCOPE
1256 002230 012767 000010 176722 MOV    #10,#TIMES      ;;DO 10 ITERATIONS
1257 002236 012767 000002 176734 MOV    #2,#TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
1258
1259 002244                                IF #BRK NOTSETIN #USWR THEN
1260 002244 032767 010000 176746 BIT    #BRK,#USWR
1261 002252 001004                                BNE    #3
1262 002254                                EXIT TST
1263 002254 012767 000001 176676 MOV    #1,#TIMES
1264 002262 000452 BR     TST3          ;;EXIT THIS TEST
1265 002264                                ENDIF
1266 002264                                $3:
1267                                ; SEE IF IT IS CLEAR
1268 002264                                BGNSUB
1269 002264 012767 002272 176616 MOV    #64#,#LPERR
1270
1271 002272                                IF    #BREAK SETIN @TCSR THEN
1272 002272 032777 000001 176764 BIT    #BREAK,@TCSR
1273 002300 001401                                BEQ    #4
1274                                ; BREAK DID NOT RESET IN TCSR
1275 002302                                ERRHRD 2,,DIDNOT
1276 002302 104002 ERROR 2
1277 002304                                ENDIF
1278 002304                                $4:
1279 002304                                ENDSUB
1280
1281                                ; TRY TO SET BREAK BIT
1282 002304                                BGNSUB
1283 002304 012767 002312 176576 MOV    #64#,#LPERR
1284 002312                                LET    @TCSR := @TCSR SET.BY #BREAK
1285 002312 052777 000001 176744 BIS    #BREAK,@TCSR
1286                                ; STUCK TO 0
1287 002320                                IF    #BREAK NOTSETIN @ICSR THEN
1288 002320 032777 000001 176736 BIT    #BREAK,@TCSR
1289 002326 001001                                BNE    #5
1290                                ; BREAK DID NOT SET IN TCSR
1291 002330                                ERRHRD 3,,DIDNOT
1292 002330 104003 ERROR 3
1293 002332                                ENDIF
1294 002332                                $5:
1295 002332                                ENDSUB
1296
1297                                ; TRY TO CLEAR A SET BIT
1298 002332                                BGNSUB
1299 002332 012767 002340 176550 MOV    #64#,#LPERR
1300
1301                                LET    @TCSR := @TCSR CLR.BY #BREAK
1302 002340 042777 000001 176716 BIC    #BREAK,@TCSR
1303                                ; SHOULD HAVE CLEARED
1304 002346                                IF    #BREAK SETIN @TCSR THEN
1305 002346 032777 000001 176710 BIT    #BREAK,@TCSR

```

MAINDEC-22 CVDVA-D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 35
CVDVAD.P11 12 JUL-84 05:04 T2 BREAK - TCSRO SET, CLEAR, RESET

```

1306 002354 001401          BEQ      $6
1307                                     ; BREAK DID NOT CLEAR IN TCSR
1308 002356                                     ERRHRD 4,,DIDNOT
1309 002356 104004          ERROR    4
1310 002360                                     ENDIF
1311 002360          $6:
1312 002360                                     ENDSUB
1313
1314                                     ; NOW SEE IF RESET CLEARS IT
1315 002360                                     BGNSUB
1316 002360 012767 002366 176522      MOV      @64$, $LPERR
1317
1318 002366                                     LET      @TCSR := @TCSR SET.BY @BREAK
1319 002366 052777 000001 176670      BIS      @BREAK, @TCSR
1320                                     ; ISSUE BUS RESET
1321 002374                                     BRESET
1322 002374 000005          RESET
1323 002376                                     IF      @BREAK SETIN @TCSR THEN
1324 002376 032777 000001 176660      BIT      @BREAK, @TCSR
1325 002404 001401          BEQ      $7
1326                                     ; BREAK DID NOT RESET IN TCSR
1327 002406                                     ERRHRD 5,,DIDNOT
1328 002406 104005          ERROR    5
1329 002410                                     ENDIF
1330 002410          $7:
1331 002410                                     ENDSUB
1332 002410                                     ENDTST
1333
1334
1335          ; .....

```

MAINDEC-ZZ CVDVA-D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 36
 CVDVAD.P11 12-JUL-84 05:04 T3 MAINT - TCSR2 SET, CLEAR, RESET

```

1336 ;*****
1337 ;*TEST 3 MAINT - TCSR2 SET, CLEAR, RESET
1338 ;*****
1339 002410 000004 TST3: SCOPE
1340 002412 012767 000010 176540 MOV #10,#TIMES ;DO 10 ITERATIONS
1341 002420 012767 000003 176552 MOV #3,#TESTN ;SET TEST NUMBER IN APT MAIL BOX
1342
1343 ; SEE IF IT IS CLEAR
1344 002426 BGNSUB
1345 002426 012767 002434 176454 MOV #64#,#LPERR
1346
1347 IF #MAINT SETIN @TCSR THEN
1348 002434 032777 000004 176622 BIT #MAINT,@TCSR
1349 002442 001401 BEQ #10
1350 ; MAINT DID NOT RESET IN TCSR
1351 002444 ERRHRD 6,,DIDNOT
1352 002444 104006 ERROR 6
1353 002446 ENDIF
1354 002446 $10:
1355 002446 ENDSUB
1356
1357 ; TRY TO SET MAINT BIT
1358 002446 BGNSUB
1359 002446 012767 002454 176434 MOV #64#,#LPERR
1360 002454 LET @TCSR := @TCSR SET.BY #MAINT
1361 002454 052777 000004 176602 BIS #MAINT,@TCSR
1362 ; STUCK TO 0
1363 002462 IF #MAINT NOTSETIN @TCSR THEN
1364 002462 032777 000004 176574 BIT #MAINT,@TCSR
1365 002470 001001 BNE #11
1366 ; MAINT DID NOT SET IN TCSR
1367 002472 ERRHRD 7,,DIDNOT
1368 002472 104007 ERROR 7
1369 002474 ENDIF
1370 002474 $11:
1371 002474 ENDSUB
1372
1373 ; TRY TO CLEAR A SET BIT
1374 002474 BGNSUB
1375 002474 012767 002502 176406 MOV #64#,#LPERR
1376
1377 LET @TCSR := @TCSR CLR.BY #MAINT
1378 002502 032777 000004 176554 BIC #MAINT,@TCSR
1379 ; SHOULD HAVE CLEARED
1380 002510 IF #MAINT SETIN @TCSR THEN
1381 002510 032777 000004 176546 BIT #MAINT,@TCSR
1382 002516 001401 BEQ #12
1383 ; MAINT DID NOT CLEAR INTCSR
1384 002520 ERRHRD 10,,DIDNOT
1385 002520 104010 ERROR 10
1386 002522 ENDIF
1387 002522 $12:
1388 002522 ENDSUB
1389
1390 ; NOW SEE IF RESET CLEARS IT
1391 002522 BGNSUB

```

MAINDEC-ZZ-CVDVA-D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 37
CVDVAD.P11 12 JUL-84 05:04 T3 MAINT - TCSR2 SET, CLEAR, RESET

```

1392 002522 012767 002530 176360      MOV      @64@, $LPERR
1393
1394 002530                                LET      @TCSR := @TCSR SET.BY @MAINT
1395 002530 052777 000004 176526      BIS      @MAINT, @TCSR
1396                                ; ISSUE BUS RESET
1397                                BRESET
1398 002536 000005      RESET
1399 002540                                IF      @MAINT SE*IN @TCSR THEN
1400 002540 032777 000004 176516      BIT      @MAINT, @TCSR
1401 002546 001401      BEQ      $13
1402                                ; MAINT DID NOT RESET IN TCSR
1403                                ERRHRD 11,,DIDNOT
1404 002550 104011      ERROR  11
1405                                ENDF
1406 002552      $13:
1407 002552                                ENDSUB
1408 002552                                ENDTST
1409
1410
1411
1412      ;*****

```

MAINDEC-ZZ CVDVA-D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 38
 CVDVAD.P11 12-JUL-84 05:04 T4 XMITIE - TCSR6 SET, CLEAR, RESET

```

1413 ;*****
1414 ;*TEST 4 XMITIE - TCSR6 SET, CLEAR, RESET
1415 ;*****
1416 002552 000004 TST4: SCOPE
1417 002554 012767 000010 176376 MOV #10,#TIMES ;DO 10 ITERATIONS
1418 002562 012767 000004 176410 MOV #4,#TESTN ;SET TEST NUMBER IN APT MAIL BOX
1419 ; USE PRIORITY OF 7
1420 002570 012746 000340 MOV #PR7,-(SP) ;PUT NEW PS ON STACK
1421 002574 012746 002602 MOV #64,-(SP) ;PUT NEW PC ON STACK
1422 002600 000002 RTI ;POP NEW PC AND PS
1423 002602 64:
1424
1425 ; SEE IF IT IS CLEAR
1426 002602 BGNSUB
1427 002602 012767 002610 176300 MOV #65,#LPERR
1428
1429 002610 IF #XMITIE SETIN @TCSR THEN
1430 002610 032777 000100 176446 BIT #XMITIE,@TCSR
1431 002616 001401 BEQ #14
1432 ; XMITIE DID NOT RESET IN TCSR
1433 002620 ERRHRD 12..DIDNOT
1434 002620 104012 ERROR 12
1435 002622
1436 002622 #14:
1437 002622 ENDSUB
1438
1439 ; TRY TO SET XMITIE BIT
1440 002622 BGNSUB
1441 002622 012767 002630 176260 MOV #64,#LPERR
1442 002630 LET @TCSR := @TCSR SET.BY #XMITIE
1443 002630 052777 000100 176426 BIS #XMITIE,@TCSR
1444 ; STUCK TO 0
1445 002636 IF #XMITIE NOTSETIN @TCSR THEN
1446 002636 032777 000100 176420 BIT #XMITIE,@TCSR
1447 002644 001001 BNE #15
1448 ; XMIT DID NOT RESET IN TCSR
1449 002646 ERRHRD 13..DIDNOT
1450 002646 104013 ERROR 13
1451 002650
1452 002650 #15:
1453 002650 ENDSUB
1454
1455 ; TRY TO CLEAR A SET BIT
1456 002650 BGNSUB
1457 002650 012767 002656 176232 MOV #64,#LPERR
1458
1459 002656 LET @TCSR := @TCSR CLR.BY #XMITIE
1460 002656 042777 000100 176400 BIC #XMITIE,@TCSR
1461 ; SHOULD HAVE CLEARED
1462 002664 IF #XMITIE SETIN @TCSR THEN
1463 002664 032777 000100 176372 BIT #XMITIE,@TCSR
1464 002672 001401 BEQ #16
1465 ; XMIT DID NOT CLEAR IN TCSR
1466 002674 ERRHRD 14..DIDNOT
1467 002674 104014 ERROR 14
1468 002676 ENDSUB

```


MAINDEC-22 CVDVA D MACY11 30A(1052) 12-JUL 84 09:52 PAGE 40
 CVDVA0.P11 12 JUL-84 05:04 T5 DTR - RCSR1 SET, CLEAR

```

1495
1496
1497
1498
1499
1500
1501
1502
1503 002726 000004
1504 002730 012767 000010 176222
1505 002736 012767 000005 176234
1506 002744
1507 002744 032767 040000 176246
1508 002752 001004
1509 002754
1510 002754 012767 000001 176176
1511 002762 000441
1512 002764
1513 002764
1514
1515 002764
1516 002764 012767 002772 176116
1517 002772
1518 002772 042777 000002 176260
1519
1520 003000
1521 003000 032777 000002 176252
1522 003006 001401
1523
1524 003010
1525 003010 104016
1526 003012
1527 003012
1528 003012
1529
1530
1531 003012
1532 003012 012767 003020 176070
1533
1534 003020
1535 003020 052777 000002 176232
1536 003026
1537 003026 032777 000002 176224
1538 003034 001001
1539
1540 003036
1541 003036 104017
1542 003040
1543 003040
1544 003040
1545
1546
1547 003040
1548 003040 012767 003046 176042
1549 003046
1550 003046 042777 000002 176204

```

```

*****
; *TEST 5      DTR - RCSR1  SET, CLEAR
; *           NOTE:  RESET DOES NOT CLEAR THIS BIT
; *           WE CANNOT TEST FOR AN INITIAL CONDITION
; *           AS THIS BIT IS UNDEFINED UPON POWER UP AND
; *           INIT DOESN'T AFFECT IT.
; *           THE (-FD) JUMPER MUST BE IN FOR THIS TEST TO WORK.
*****
TSTS:  SCOPE
        MOV     @10,%TIMES      ;;DO 10 ITERATIONS
        MOV     @5,%TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
                                   IF @FRFD NOTSETIN %USWR THEN
        BIT     @FRFD,%USWR
        BNE     $20
                                   EXIT TST
        MOV     @1,%TIMES
        BR      TST6           ;;EXIT THIS TEST
                                   ENDIF
$20:
        ; TRY TO CLEAR DTR BIT
        BGNSUB
        MOV     @64,%LPERR
        LET     @RCSR := @RCSR CLR.BY @DTR
        BIC     @DTR,@RCSR
        ; STUCK TO 0
        IF     @DTR SETIN @RCSR THEN
        BIT     @DTR,@RCSR
        BEQ     $21
        ; DTR DID NOT CLEAR IN RCSR
        ERRHRD 16.,DIDNOT
        ENDIF
$21:
        ENDSUB
        ; TRY TO SET DTR
        BGNSUB
        MOV     @64,%LPERR
        LET     @RCSR := @RCSR SET.BY @DTR
        BIS     @DTR,@RCSR
        IF     @DTR NOTSETIN @RCSR THEN
        BIT     @DTR,@RCSR
        BNE     $22
        ; DTR DID NOT SET IN RCSR
        ERRHRD 17.,DIDNOT
        ENDIF
$22:
        ENDSUB
        ; TRY TO CLEAR IT AGAIN
        BGNSUB
        MOV     @64,%LPERR
        LET     @RCSR := @RCSR CLR.BY @DTR
        BIC     @DTR,@RCSR

```


MAINDEC-ZZ-CVDVA-D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 42
 CVDVAD.P11 12-JUL-84 05:04 T6 REQSEND - RCSR2 SET, CLEAR, RESET

```

1566
1567
1568
1569
1570 003066 000004
1571 003070 012767 000010 176062
1572 003076 012767 000006 176074
1573 003104
1574 003104 032767 040000 176106
1575 003112 001004
1576 003114
1577 003114 012767 000001 176036
1578 003122 000452
1579 003124
1580 003124
1581
1582
1583 003124
1584 003124 012767 003132 175756
1585
1586 003132
1587 003132 032777 000004 176120
1588 003140 001401
1589
1590 003142
1591 003142 104021
1592 003144
1593 003144
1594 003144
1595
1596
1597 003144
1598 003144 012767 003152 175736
1599 003152
1600 003152 052777 000004 176100
1601
1602 003160
1603 003160 032777 000004 176072
1604 003166 001001
1605
1606 003170
1607 003170 104022
1608 003172
1609 003172
1610 003172
1611
1612
1613 003172
1614 003172 012767 003200 175710
1615
1616 003200
1617 003200 042777 000004 176052
1618
1619 003206
1620 003206 032777 000004 176044
1621 003214 001401

```

```

;*****
;TEST 6      REQSEND - RCSR2      SET, CLEAR, RESET
;          THIS TEST ASSUMES THAT JUMPER -(FR) IS IN
;*****
TST6:  SCOPE
      MOV     #10,#TIMES      ;DO 10 ITERATIONS
      MOV     #6,#TESTN      ;SET TEST NUMBER IN APT MAIL BOX
                               IF #FRFD NOTSETIN #USWR THEN
      BIT     #FRFD,#USWR
      BNE     $24
                               EXIT TST
      MOV     #1,#TIMES
      BR      TST7           ;EXIT THIS TEST
                               ENDIF
$24:
      ; SEE IF IT IS CLEAR
      BGNSUB
      MOV     #64,#LPERR
      ;
      IF     #REQSEND SETIN #RCSR THEN
      BIT     #REQSEND,#RCSR
      BEQ     $25
      ; REQSEND DID NOT RESET IN RCSR
      ERRHRD 21..DIDNOT
      ERROR  21
      ENDIF
$25:
      ENDSUB
      ; TRY TO SET REQSEND BIT
      BGNSUB
      MOV     #64,#LPERR
      LET     #RCSR := #RCSR SET.BY #REQSEND
      BIS     #REQSEND,#RCSR
      ; STUCK TO 0
      IF     #REQSEND NOTSETIN #RCSR THEN
      ; REQSEND DID NOT SET IN RCSR
      ERRHRD 22..DIDNOT
      ERROR  22
      ENDIF
$26:
      ENDSUB
      ; TRY TO CLEAR A SET BIT
      BGNSUB
      MOV     #64,#LPERR
      LET     #RCSR := #RCSR CLR.BY #REQSEND
      BIC     #REQSEND,#RCSR
      ; SHOULD HAVE CLEARED
      IF     #REQSEND SETIN #RCSR THEN
      BIT     #REQSEND,#RCSR
      BEQ     $27

```


MAINDEC 22 CVDVA-D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 44
CVDVAD.P11 12-JUL-84 05:04 T7 SECXMIT - RCSR3 SET, CLEAR, RESET

```

1652
1653
1654
1655 003250 000004
1656 003252 012767 000010 175700
1657 003260 012767 000007 175712
1658
1659 003266
1660 003266 012767 003274 175614
1661
1662 003274
1663 003274 032777 000010 175756
1664 003302 001401
1665
1666 003304
1667 003304 104025
1668 003306
1669 003306
1670 003306
1671
1672
1673 003306
1674 003306 012767 003314 175574
1675 003314
1676 003314 052777 000010 175736
1677
1678 003322
1679 003322 032777 000010 175730
1680 003330 001001
1681
1682 003332
1683 003332 104026
1684 003334
1685 003334
1686 003334
1687
1688
1689 003334
1690 003334 012767 003342 175546
1691
1692 003342
1693 003342 042777 000010 175710
1694
1695 003350
1696 003350 032777 000010 175702
1697 003356 001401
1698
1699 003360
1700 003360 104027
1701 003362
1702 003362
1703 003362
1704
1705 003362
1706 003362 012767 003370 175520
1707

```

```

;*****
;TEST 7 SECXMIT - RCSR3 SET, CLEAR, RESET
;*****
TST7: SCOPE
MOV #10,#TIMES ;DO 10 ITERATIONS
MOV #7,#TESTN ;SET TEST NUMBER IN AP1 MAIL BOX
; SEE IF IT IS CLEAR
BGNSUB
MOV #64,#LPERR
IF #SECXMIT SETIN @RCSR THEN
BIT #SECXMIT,@RCSR
BEQ #31
; SECXMIT DID NOT RESET IN RCSR
ERRHRD 25.,DIDNOT
ERROR 25
ENDIF
;31:
ENDSUB
; TRY TO SET SECXMIT BIT
BGNSUB
MOV #64,#LPERR
LET @RCSR := @RCSR SET.BY #SECXMIT
BIS #SECXMIT,@RCSR
; STUCK TO 0
IF #SECXMIT NOTSETIN @RCSR THEN
BIT #SECXMIT,@RCSR
BNE #32
; SECXMIT DID NOT SET IN RCSR
ERRHRD 26.,DIDNOT
ERROR 26
ENDIF
;32:
ENDSUB
; TRY TO CLEAR A SET BIT
BGNSUB
MOV #64,#LPERR
LET @RCSR := @RCSR CLR.BY #SECXMIT
BIC #SECXMIT,@RCSR
; SHOULD HAVE CLEARED
IF #SECXMIT SETIN @RCSR THEN
BIT #SECXMIT,@RCSR
BEQ #33
; SECXMIT DID NOT CLEAR IN RCSR
ERRHRD 27.,DIDNOT
ERROR 27
ENDIF
;33:
ENDSUB
BGNSUB
MOV #64,#LPERR
; NOW SEE IF RESET CLEARS IT

```

MAINDEC-22-CVDVA D MACY11 30A(1052) 12-JUL 84 09:52 PAGE 45
CVDVAD.P11 12-JUL-84 05:04 T7 SECXMIT - RCSR3 SET, CLEAR, RESET

```

1708
1709 003370 LET @RCSR := @RCSR SET.BY @SECXMIT
1710 003370 052777 000010 175662 BIS @SECXMIT,@RCSR ; ISSUE BUS RESET
1711 ; BRESET
1712 003376 RESET
1713 003376 000005
1714 003400 IF @SECXMIT SET IN @RCSR THEN
1715 003400 032777 000010 175652 BIT @SECXMIT,@RCSR
1716 003406 001401 BEQ $34 ; SECXMIT DID NOT RESET IN RCSR
1717 ; ERRHRD 30.,DIDNOT
1718 003410 ERROR 30
1719 003410 104030
1720 003412 ENDF
1721 003412 $34:
1722 003412 ENDSUB
1723 003412 ENDTST
1724
1725
1726
1727 ;*****

```

MAINDEC-22-CVDVA-D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 46
 CVDVAD.P11 12-JUL-84 05:04 T10 DATAIE - RCSR5 SET, CLEAR, RESET

```

1728                                     ;*****
1729 ;*TEST 10          DATAIE - RCSR5 SET, CLEAR, RESET
1730                                     ;*****
1731 003412 000004 TST10: SCOPE
1732 003414 012767 000010 175536      MOV    #10,#TIMES      ;;DO 10 ITERATIONS
1733 003422 012767 000010 175550      MOV    #10,#TESTN    ;;SET TEST NUMBER IN APT MAIL BOX
1734                                     ; SEE IF IT IS CLEAR
1735 003430                                     BGNSUB
1736 003430 012767 003436 175452      MOV    #64#,#LPERR
1737
1738 003436                                     IF    #DATAIE SETIN @RCSR THEN
1739 003436 032777 000040 175614      BIT    #DATAIE,@RCSR
1740 003444 001401                                     BEQ    #35
1741                                     ; DATAIE DID NOT RESET IN RCSR
1742 003446                                     ERRHRD 31.,DIDNOT
1743 003446 104031                                     ERROR  31
1744 003450                                     ENDIF
1745 003450 #35:
1746 003450                                     ENDSUB
1747
1748                                     ; TRY TO SET DATAIE BIT
1749 003450                                     BGNSUB
1750 003450 012767 003456 175432      MOV    #64#,#LPERR
1751 003456                                     LET    @RCSR := @RCSR SET.BY #DATAIE
1752 003456 052777 000040 175574      BIS    #DATAIE,@RCSR
1753                                     ; STUCK TO 0
1754 003464                                     IF    #DATAIE NOTSETIN @RCSR THEN
1755 003464 032777 000040 175566      BIT    #DATAIE,@RCSR
1756 003472 001001                                     BNE    #36
1757                                     ; DATAIE DID NOT SET IN RCSR
1758 003474                                     ERRHRD 32.,DIDNOT
1759 003474 104032                                     ERROR  32
1760 003476                                     ENDIF
1761 003476 #36:
1762 003476                                     ENDSUB
1763
1764                                     ; TRY TO CLEAR A SET BIT
1765 003476                                     BGNSUB
1766 003476 012767 003504 175404      MOV    #64#,#LPERR
1767
1768 003504                                     L: T    @RCSR := @RCSR CLR.BY #DATAIE
1769 003504 042777 000040 175546      BIC    #DATAIE,@RCSR
1770                                     ; SHOULD HAVE CLEARED
1771 003512                                     IF    #DATAIE SETIN @RCSR THEN
1772 003512 032777 000040 175540      BIT    #DATAIE,@RCSR
1773 003520 001401                                     BEQ    #37
1774                                     ; DATAIE DID NOT CLEAR IN RCSR
1775 003522                                     ERRHRD 33.,DIDNOT
1776 003522 104033                                     ERROR  33
1777 003524                                     ENDIF
1778 003524 #37:
1779 003524                                     ENDSUB
1780
1781                                     ; NOW SEE IF RESET CLEARS IT
1782 003524                                     BGNSUB
1783 003524 012767 003532 175356      MOV    #64#,#LPERR
    
```

MAINDEC-22 CVDVA-D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 47
CVDVAD.P11 12-JUL-84 05:04 T10 DATAIE - RCSR5 SET, CLEAR, RESET

```

1784
1785 003532          LET   @RCSR := @RCSR SET.BY #DATAIE
1786 003532 052777 000040 175520      BIS   #DATAIE,@RCSR
1787                                     ; ISSUE BUS RESET
1788 003540          BRESET
1789 003540 000005          RESET
1790 003542          IF   #DATAIE SETIN @RCSR THEN
1791 003542 032777 000040 175510      BIT   #DATAIE,@RCSR
1792 003550 001401          BEQ   #40
1793                                     ; DATAIE DID NOT RESET IN RCSR
1794 003552          ERRHRD 34,,DIDNOT
1795 003552 104034          ERROR  34
1796 003554          ENDF
1797 003554          $40:
1798 003554          ENDSUB
1799 003554          ENDTST
1800
1801
1802
1803 ;*****

```

MAINDEC-ZZ-CVDVA-D MACY11 30A(1052) 12 JUL-84 09:52 PAGE 48
CVDVAD.P11 12-JUL-84 05:04 T11 RCVRIE - RCSR6 SET, CLEAR, RESET

```

1804 ;*****
1805 ;*TEST 11 RCVRIE - RCSR6 SET, CLEAR, RESET
1806 ;*****
1807 003554 000004 TST11: SCOPE
1808 003556 012767 000010 175374 MOV #10,#TIMES ;DO 10 ITERATIONS
1809 003564 012767 000011 175406 MOV #11,#TESTN ;SET TEST NUMBER IN APT MAIL BOX
1810 ; SEE IF IT IS CLEAR
1811 003572 ;*****
1812 003572 012767 003600 175310 MOV #64#,#LPERR
1813 ;*****
1814 003600 IF #RCVRIE SETIN #RCSR THEN
1815 003600 032777 000100 175452 BIT #RCVRIE,#RCSR
1816 003606 001401 BEQ #41
1817 ; RCVRIE DID NOT RESET IN RCSR
1818 003610 ERRHRD 35,,DIDNOT
1819 003610 104035 ERROR 35
1820 003612 ENDF
1821 003612 ;41:
1822 003612 ENDSUB
1823 ;*****
1824 ; TRY TO SET RCVRIE BIT
1825 003612 ;*****
1826 003612 012767 003620 175270 MOV #64#,#LPERR
1827 003620 LET #RCSR := #RCSR SET.BY #RCVRIE
1828 003620 052777 000100 175432 BIS #RCVRIE,#RCSR
1829 ; STUCK TO 0
1830 003626 IF #RCVRIE NOTSETIN #RCSR THEN
1831 003626 032777 000100 175424 BIT #RCVRIE,#RCSR
1832 003634 001001 BNE #42
1833 ; RCVRIE DID NOT SET IN RCSR
1834 003636 ERRHRD 36,,DIDNOT
1835 003636 104036 ERROR 36
1836 003640 ENDF
1837 003640 ;42:
1838 003640 ENDSUB
1839 ;*****
1840 ; TRY TO CLEAR A SET BIT
1841 003640 ;*****
1842 003640 012767 003646 175242 MOV #64#,#LPERR
1843 ;*****
1844 003646 LET #RCSR := #RCSR CLR.BY #RCVRIE
1845 003646 042777 000100 175404 BIC #RCVRIE,#RCSR
1846 ; SHOULD HAVE CLEARED
1847 003654 IF #RCVRIE SETIN #RCSR THEN
1848 003654 032777 000100 175376 BIT #RCVRIE,#RCSR
1849 003662 001401 BEQ #43
1850 ; RCVRIE DID NOT CLEAR IN RCSR
1851 003664 ERRHRD 37,,DIDNOT
1852 003664 104037 ERROR 37
1853 003666 ENDF
1854 003666 ;43:
1855 003666 ENDSUB
1856 ;*****
1857 ; NOW SEE IF RESET CLEARS IT
1858 003666 ;*****
1859 003666 012767 003674 175214 MOV #64#,#LPERR

```

MAINDEC-ZZ-CVDVA-D MACY11 30A(1052) 12 JUL-84 09:52 PAGE 49
CVDVAD.P11 12-JUL-84 05:04 T11 RCVRIE - RCSR6 SET, CLEAR, RESET

```

1860
1861 003674          LET  @RCSR := @RCSR SET.BY @RCVRIE
1862 003674 052777 000100 175356  BIS  @RCVRIE,@RCSR          ; ISSUE BUS RESET
1863                                     BRESET
1864 003702          RESET
1865 003702 000005
1866 003704          IF  @RCVRIE SETIN @RCSR THEN
1867 003704 032777 000100 175346  BIT  @RCVRIE,@RCSR
1868 003712 001401  BEQ  $44
1869                                     ; RCVRIE DID NOT RESET IN RCSR
1870 003714          ERRHRD 40.,.DIDNOT
1871 003714 104040  ERROR 40
1872 003716
1873 003716          $44:
1874 003716          CKLOOP
1875 003716          ENDSUB
1876 003716          ENDTST
1877
1878
1879
1880

```

```

1881 ;:*****
1882 ;* THE FOLLOWING 4 TESTS VERIFY
1883 ;* THAT RESET (INIT) INITIALIZES READ ONLY BITS.
1884 ;:*****
1885
1886

```


MAINDEC-ZZ-CVDVA-D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 50
CVDVAD.P11 12-JUL-84 05:04 T12 TEST THAT RCVRDONE - RCSR 7 - IS CLEARED BY INIT

```

1887
1888
1889
1890 003716 000004
1891 003720 012767 000010 175232
1892 003726 012767 000012 175244
1893
1894
1895
1896
1897
1898 003734
1899 003734 012767 003742 175146
1900 003742
1901 003742 032777 000200 175310
1902 003750 001402
1903
1904
1905
1906 003752
1907 003752 104041
1908
1909 003754
1910 003754 000005
1911 003756
1912 003756
1913
1914 003756
1915 003756
1916 003756
1917
1918
1919

```

```

;*****
;*TEST 12 TEST THAT RCVRDONE - RCSR 7 - IS CLEARED BY INIT
;*****
TST12: SCOPE
MOV #10,$TIMES ;;DO 10 ITERATIONS
MOV #12,$TESTN ;;SET TEST NUMBER IN APT MAIL BOX

BGNSUB
IF #RCVRDONE SETIN @RCSR THEN
BIT #RCVRDONE,@RCSR
BEQ $45
;RCVRDONE SHOULD HAVE CLEARED BY INIT
; RCVRDONE DID NOT CLEAR IN RCSR
ERRMHD 41,MRESET, DIDNOT
;REISSUE RESET
BRESET
ENDIF
;ALLOW LOOPING AFTER ERROR
CKLOOP
ENDSUB
ENDTST
$45:

```

MAINDEC-ZZ-CVDVA-D
CVDVAD.P11 12-JUL-84

MACY11 30A(1052) 05:04

12-JUL-84 09:52 PAGE 51
T13 TEST THAT XMITRDY - TCSR 7 - IS SET BY INIT

1920
1921
1922
1923
1924
1925
1926
1927
1928
1929
1930
1931
1932
1933
1934
1935
1936
1937
1938
1939
1940
1941
1942
1943
1944
1945
1946
1947
1948
1949
1950
1951
1952

003756 000004
003760 012767 000010 175172
003766 012767 000013 175204

003774
003774 012767 004002 175106

004002
004002 032777 000200 175254
004010 001002

004012
004012 104042

004014
004014 000005
004016
004016
004016
004016
004016

```
;;*****  
;TEST 13 TEST THAT XMITRDY - TCSR 7 - IS SET BY INIT  
;;*****  
TST13: SCOPE  
MOV @10,$TIMES ;;DO 10 ITERATIONS  
MOV @13,$TESTN ;;SET TEST NUMBER IN APT MAIL BOX  
  
BGNSUB  
MOV @64,$LPERR  
  
IF @XMITRDY NOTSETIN @TCSR THEN  
BIT @XMITRDY,@TCSR  
BNE $46  
  
;PESET SHOULD HAVE SET BIT.  
;XMITRDY DID NOT SET IN TCSR (AFTER RESE  
ERRHRD 42,HRESET,DIDNOT  
  
;ISSUE ANOTHER RESET  
BRESET  
  
ENDIF  
  
;ALLOW LOOPING ON ERROR  
CKLOOP  
ENDSUB  
ENDTST
```

\$46:

MAINDEC-ZZ-CVDVA-D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 52
CVDVAD.P11 12-JUL-84 05:04 T14 TEST THAT DATAINT - RCSR 15 - IS CLEARED BY INIT.

```

1953 ;*****
1954 ;*TEST 14 TEST THAT DATAINT - RCSR 15 - IS CLEARED BY INIT.
1955 ;*****
1956 004016 000004 TST14: SCOPE
1957 004020 012767 000010 175132 MOV #10,#TIMES ;DO 10 ITERATIONS
1958 004026 012767 000014 175144 MOV #14,#TESTN ;SET TEST NUMBER IN APT MAIL BOX
1959
1960
1961
1962
1963 004034 BGNSUB
1964 004034 012767 004042 175046 MOV #64,#LPERR
1965 004042 IF #DATAINT SET IN RCSR THEN
1966 004042 032777 100000 175210 BIT #DATAINT,RCSR
1967 004050 001402 BEQ #47
1968
1969 004052 ERRHRD 43, HRESET, DIDNOT
1970 004052 104043 ERROR 43
1971
1972 ;TESTING EFFECT OF RESET ON BIT
1973
1974 ;DATAINT DID NOT CLEAR IN RCSR
1975 ;ALLOW A FRESH START
1976 004054 BRESET
1977 004054 000005 RESET
1978 004056 ENDF
1979 004056 $47: CKLOOP
1980 004056 ENDSUB
1981 004056 ENDTST
1982 004056
1983
1984
1985
1986 ;*****

```

MAINDEC-ZZ CVDVA D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 53
CVDVAD.P11 12-JUL-84 05:04 T15 TEST THAT RCVRACT - RCSR 11 - 15 CLEARED BY INIT

```

1987
1988
1989
1990 004056 000004
1991 004060 012767 000010 175072
1992 004066 012767 000015 175104
1993
1994
1995 004074
1996 004074 032767 020000 175116
1997 004102 001004
1998
1999 004104
2000 004104 012767 000001 175046
2001 004112 000411
2002 004114
2003 004114
2004
2005
2006
2007 004114
2008 004114 012767 004122 174766
2009
2010 004122
2011 004122 032777 004000 175130
2012 004130 001402
2013
2014
2015 004132
2016 004132 104044
2017
2018
2019
2020
2021
2022
2023 004134
2024 004134 000005
2025 004136
2026 004136
2027
2028 004136
2029 004136
2030 004136
2031

```

```

;*****
;*TEST 15 TEST THAT RCVRACT - RCSR 11 - 15 CLEARED BY INIT
;*****
TST15: SCOPE
MOV @10,@TIMES ;;DO 10 ITERATIONS
MOV @15,@TESTN ;;SET TEST NUMBER IN APT MAIL BOX

IF @CABLE NOTSETIN @USWR THEN
BIT @CABLE,@USWR
BNE $50
; CAN'T TEST WITHOUT BERG OR M315.
EXIT TST
MOV @1,@TIMES
BR TST16 ;;EXIT THIS TEST
ENDIF

$50:
BGNSUB
MOV @64,@LPERR

IF @RCVRACT SETIN @RCSR THEN
BIT @RCVRACT,@RCSR
BEQ $51
;RESET SHOULD HAVE CLEARED RCVRACT
ERRHRD 44, MRESET, DIDNOT

; TESTING EFFECT OF RESET ON BIT
; RCVRACT DID NOT CLEAR IN RCSR
; ALLOW ANOTHER TRY
BRESET

ENDIF
; ALLOW LOOPING ON ERROR
CKLOOP
ENDSUB
ENDTST

```

MAINDEC-ZZ-CVDVA-D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 54
 CVDVAD.P1' 12-JUL-84 05:04 T15 TEST THAT RCVRCT - RCSR 11 - 15 CLEARED BY INIT

```

2032 ;*****
2033 ;* THE FOLLOWING 4 TESTS VERIFY
2034 ;* THAT THE EIA SIGNALS CAN BE TRANSMITTED
2035 ;* AND RECEIVED THROUGH THE CABLE
2036 ;*****
2037
2038
2039
2040 ;*****
2041 ;*TEST 16 TEST THAT CARDET SETS AND CLEARS
2042 ;* AS DTR SETS AND CLEARS
2043 ;* THE (-FD) JUMPER MUST BE IN FOR THIS TEST.
2044 ;*****
2045 004136 000004 TST16: SCOPE
2046 004140 012767 000010 175012 MOV #10,$TIMES ;;DO 10 ITERATIONS
2047 004146 012767 000016 175024 MOV #16,$TESTN ;;SET TEST NUMBER IN APT MAIL BOX
2048 ; CAN WE USE THE WRAPAROUND??
2049 004154 IF #CABLE*FRFD NOTSETIN $USWR THEN
2050 004154 032767 060000 175036 BIT #CABLE*FRFD,$USWR
2051 004162 001004 BNE $52
2052 ; CAN'T TEST WITHOUT BERG OR H315
2053 ; OR WITH (-FD) JUMPER OUT.
2054 ; OR WITH (-FR) JUMPER OUT.
2055 ; EXIT TST
2056 004164 012767 000001 174766 MOV #1,$TIMES
2057 004172 000441 BR TST17 ;;EXIT THIS TEST
2058 004174 ENDIF
2059 004174 $52:
2060
2061 ; DTR AND
2062 ; CARDET ARE CONNECTED
2063
2064 ; BY THE .1315 OR EQUIV.
2065
2066 ; CLEAR
2067 004174 ; CLEAR BGNSUB
2068 004174 012767 004202 174706 MOV #64,$LPERR
2069
2070 ; CLEAR DTR
2071 004202 LET @RCSR := @RCSR CLR.BY @DTR
2072 004202 042777 000002 175050 BIC @DTR,@RCSR
2073 ; CARDET SHOULD FOLLOW
2074 004210 IF #CARDET SETIN @RCSR THEN
2075 004210 032777 010000 175042 BIT #CARDET,@RCSR
2076 004216 001401 BEQ $53
2077 ; CARDET DID NOT
2078 004220 ERRHRD 45,,FORCE
2079 004220 104045 ERROR 45
2080
2081 ; CLEAR WITH DTR
2082 004222 ENDIF
2083 004222 $53:
2084 004222 ENDSUB
2085
2086 ; SET
2087 004222 BGNSUB
    
```

MAINDEC-ZZ-CVDVA-D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 55
CVDVAD.P11 12-JUL-84 05:04 T16 TEST THAT CARDET SETS AND CLEARS

```

2088 004222 012767 004230 174660      MOV      #641, #LPERR
2089
2090                                     ; SET DTR
2091 004230                                     LET      @RCSR := @RCSR SET.BY #DTR
2092 004230 052777 000002 175022      BIS      #DTR, @RCSR
2093                                     ; CARDET SHOULD FOLLOW
2094 004236                                     IF      @CARDET NOTSETIN @RCSR THEN
2095 004236 032777 010000 175014      BIT      @CARDET, @RCSR
2096 004244 001001                                     BNE      #54
2097                                     ; CARDET DID NOT SET
2098 004246                                     ERRHRD 46, .FORCE
2099 004246 104046      ERROR      46
2100
2101                                     ; WITH DTR
2102 004250                                     ENDIF
2103 004250      #54:
2104 004250                                     ENDSUB
2105
2106                                     ; CLEAR
2107 004250                                     BGNSUB
2108 004250 012767 004256 174632      MOV      #641, #LPERR
2109
2110                                     ; CLEAR DTR
2111 004256                                     LET      @RCSR := @RCSR CLR.BY #DTR
2112 004256 042777 000002 174774      BIC      #DTR, @RCSR
2113                                     ; CARDET SHOULD FOLLOW
2114 004264                                     IF      @CARDET SETIN @RCSR THEN
2115 004264 032777 010000 174766      BIT      @CARDET, @RCSR
2116 004272 001401                                     BEQ      #55
2117                                     ; CARDET DID NOT
2118 004274                                     ERRHRD 47, .FORCE
2119 004274 104047      ERROR      47
2120
2121                                     ; CLEAR WITH DTR
2122 004276                                     ENDIF
2123 004276      #55:
2124 004276                                     ENDSUB
2125 004276      ENDTST
2126
2127
2128
2129

```

MAINDEC 22 CVDVA-D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 56
CVDVAD.P11 12-JUL-84 05:04 T16 TEST THAT CARDET SETS AND CLEARS

```

2130 ;:.....
2131 ;:.....
2132 ;*TEST 17 TEST THAT CLREND SETS AND CLEARS
2133 ;* AS DTR SETS AND CLEARS
2134 ;* (-FD) JUMPER MUST BE IN FOR THIS TEST TO WORK
2135 ;:.....
2136 004276 000004 TST17: SCOPE
2137 004300 012767 000010 174652 MOV #10,#TIMES ;DO 10 ITERATIONS
2138 004306 012767 000017 174664 MOV #17,#TESTN ;SET TEST NUMBER IN APT MAIL BOX
2139 ; CAN WE USE THE WRAPAROUND??
2140 004314 IF #CABLE.#FRFD NOTSETIN #USMR THEN
2141 004314 032767 060000 174676 BIT #CABLE.#FRFD,#USMR
2142 004322 001004 BNE #56
2143 ; CAN'T TEST WITHOUT BERG OR H315
2144 004324 EXIT TST
2145 004324 012767 000001 174626 MOV #1,#TIMES
2146 004332 000441 BR TST20 ;EXIT THIS TEST
2147 004334 ENDF
2148 004334 ;56:
2149 ;
2150 ; DTR AND
2151 ; CLREND ARE CONNECTED
2152 ;
2153 ; BY THE H315 OR EQUIV.
2154 ;
2155 ; CLEAR
2156 004334 ;56:
2157 004334 012767 004342 174546 MOV #64,#LPERR
2158 ;
2159 ; CLEAR DTR
2160 004342 LET #RCSR := #RCSR CLR.BY #DTR
2161 004342 042777 000002 174710 BIC #DTR,#RCSR
2162 ; CLREND SHOULD FOLLOW
2163 004350 IF #CLREND SETIN #RCSR THEN
2164 004350 032777 020000 174702 BIT #CLREND,#RCSR
2165 004356 001401 BEQ #57
2166 ; CLREND DID NOT
2167 004360 ERROR 50 ERRHAD 50.,FORCE
2168 004360 104050
2169 ;
2170 ; CLEAR WITH DTR
2171 004362 ENDF
2172 004362 ;57:
2173 004362 ENDSUB
2174 ;
2175 ; SET
2176 004362 ;57:
2177 004362 012767 004370 174520 MOV #64,#LPERR
2178 ;
2179 ; SET DTR
2180 004370 LET #RCSR := #RCSR SET.BY #DTR
2181 004370 052777 000002 174662 BIS #DTR,#RCSR
2182 ; CLREND SHOULD FOLLOW
2183 004376 IF #CLREND NOTSETIN #RCSR THEN
2184 004376 032777 020000 174654 BIT #CLREND,#RCSR
2185 004404 001001 BNE #60

```


MAINDEC-22 CVDVA D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 58
 CVDVAD.P11 12-JUL-84 05:04 T17 TEST THAT CLRSEND SETS AND CLEARS

```

2219 ;*****
2220 ;*****
2221 ;*TEST 20      TEST THAT RING SETS AND CLEARS
2222 ;*           AS REQSEND SETS AND CLEARS
2223 ;*           THE (-FR) JUMPER MUST BE IN FOR THIS TEST.
2224 ;*****
2225 004436 000004          TST20: SCOPE
2226 004440 012767 000010 174512      MOV      #10,#TIMES      ;;DO 10 ITERATIONS
2227 004446 012767 000020 174524      MOV      #20,#TESTN     ;;SET TEST NUMBER IN APT MAIL BOX
2228                                     ; CAN WE USE THE WRAPAROUND??
2229 004454                                     IF      #CABLE+FRFD NOTSETIN #USWR THEN
2230 004454 032767 060000 174536      BIT      #CABLE+FRFD,#USWR
2231 004462 001004                                     BNE      #62
2232                                     ; CAN'T TEST WITHOUT BERG OR H315
2233                                     ; OR WITH (-FR) JUMPER OUT.
2234 004464                                     EXIT TST
2235 004464 012767 000001 174466      MOV      #1,#TIMES
2236 004472 000441          BR        TST21          ;;EXIT THIS TEST
2237 004474                                     ENDF
2238 004474          $62:
2239
2240                                     ; REQSEND AND
2241                                     ; RING ARE CONNECTED
2242
2243                                     ; BY THE H315 OR EQUIV.
2244
2245                                     ; CLEAR
2246 004474          BGNSUB
2247 004474 012767 004502 174406      MOV      #64,#LPERR
2248
2249                                     ; CLEAR REQSEND
2250 004502          LET      @RCSR := @RCSR CLR.BY @REQSEND
2251 004502 042777 000004 174550      BIC      @REQSEND,@RCSR
2252                                     ; RING SHOULD FOLLOW
2253 004510          IF      #RING SETIN @RCSR THEN
2254 004510 032777 040000 174542      BIT      #RING,@RCSR
2255 004516 001401          BEQ      #63
2256                                     ; RING DID NOT
2257 004520          ERRMRD 53..FORCE
2258 004520 104053          ERROR 53
2259
2260                                     ; CLEAR WITH REQSEND
2261 004522          ENDF
2262 004522          $63:
2263 004522          ENDSUB
2264
2265                                     ; SET
2266 004522          BGNSUB
2267 004522 012767 004530 174360      MOV      #64,#LPERR
2268
2269                                     ; SET REQSEND
2270 004530          LET      @RCSR := @RCSR SET.BY @REQSEND
2271 004530 052777 000004 174522      BIS      @REQSEND,@RCSR
2272                                     ; RING SHOULD FOLLOW
2273 004536          IF      #RING NOTSETIN @RCSR THEN
2274 004536 032777 040000 174514      BIT      #RING,@RCSR

```


MAINDEC-ZZ-CVDVA-D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 60
 CVDVAD.P11 12-JUL-84 05:04 T20 TEST THAT RING SETS AND CLEARS

```

2309 ;*****
2310 ;*****
2311 ;*TEST 21 TEST THAT SECRC SETS AND CLEARS
2312 ;* AS SECXMIT SETS AND CLEARS
2313 ;*****
2314 004576 000004 TST21: SCOPE
2315 004600 012767 000010 174352 MOV #10,#TIMES ;DO 10 ITERATIONS
2316 004606 012767 000021 174364 MOV #21,#TESTN ;SET TEST NUMBER IN APT MAIL BOX
2317 ; CAN WE USE THE WRAPAROUND??
2318 004614 IF #CABLE,#USWR #CABLE NOTSETIN #USWR THEN
2319 004614 032767 020000 174376 BIT #CABLE,#USWR
2320 004622 001004 BNE $66
2321 ; CAN'T TEST WITHOUT BERG OR H315.
2322 004624 EXIT TST
2323 004624 012767 000001 174326 MOV #1,#TIMES
2324 004632 000441 BR TST22 ;EXIT THIS TEST
2325 004634 ENDF
2326 004634 $66:
2327
2328 ; SECXMIT AND
2329 ; SECRC ARE CONNECTED
2330
2331 ; BY THE H315 OR EQUIV.
2332
2333 ; CLEAR
2334 004634 BGNSUB
2335 004634 012767 004642 174246 MOV #64,#LPERR
2336
2337 ; CLEAR SECXMIT
2338 004642 LET #RCSR := #RCSR CLR.BY #SECXMIT
2339 004642 042777 000010 174410 BIC #SECXMIT,#RCSR
2340 ; SECRC SHOULD FOLLOW
2341 004650 IF #SECRC SETIN #RCSR THEN
2342 004650 032777 002000 174402 BIT #SECRC,#RCSR
2343 004656 001401 BEQ $67
2344 ; SECRC DID NOT
2345 004660 ERRHRD 56,,FORCE
2346 004660 104056 ERROR 56
2347
2348 ; CLEAR WITH SECXMIT
2349 004662 ENDF
2350 004662 $67:
2351 004662 ENDSUB
2352
2353 ; SET
2354 004662 BGNSUB
2355 004662 012767 004670 174220 MOV #64,#LPERR
2356
2357 ; SET SECXMIT
2358 004670 LET #RCSR := #RCSR SET.BY #SECXMIT
2359 004670 052777 000010 174362 BIS #SECXMIT,#RCSR
2360 ; SECRC SHOULD FOLLOW
2361 004676 IF #SECRC NOTSETIN #RCSR THEN
2362 004676 032777 002000 174354 BIT #SECRC,#RCSR
2363 004704 001001 BNE $70
2364 ; SECRC DID NOT SET

```

MAINDEC ZZ CVDVA D MACY11 30A(1052) 12 JUL-84 09:52 PAGE 61
 CVDVAD.P11 12-JUL 84 05:04 T21 TEST THAT SECURE SETS AND CLEARS

```

2365 004706                                ERRHRD 57,,FORCE
2366 004706 104057                        ERROR 57
2367
2368
2369 004710                                ; WITH SECXMIT
2370 004710                                ENDIF
2371 004710                                ;70:
2372
2373
2374 004710                                ; CLEAR
2375 004710 012767 004716 174172          MOV    #64#,#LPERR
2376
2377
2378 004716                                ; CLEAR SECXMIT
2379 004716 042777 000010 174334          BIC    #SECXMIT,#RCSR
2380
2381 004724                                ; SECURE SHOULD FOLLOW
2382 004724 032777 002000 174326          BIT    #SECURE,#RCSR
2383 004732 001401                          BEQ    #71
2384
2385 004734                                ; SECURE DID NOT
2386 004734 104060                        ERROR 60
2387
2388
2389 004736                                ; CLEAR WITH SECXMIT
2390 004736                                ENDIF
2391 004736                                ;71:
2392 004736                                ENDSUB
2393
2394
2395
2396
    ENDTST
    
```

MAINDEC-ZZ-CVDVA D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 62
 CVDVAD.P11 12-JUL-84 05:04 T21 TEST THAT SECURE SETS AND CLEARS

```

2397      ;|*****
2398      ;|*****
2399      ;*TEST 22      TEST THAT DATAINT (RCSR-15) SETS
2400      ;*          WHEN DTR CHANGES STATE
2401      ;*          AND THAT DATAINT IS CLEARED AFTER READING RCSR
2402      ;*          NOTE DTR IS TIED TO BOTH CARDET AND CLRSEND BY THE H315
2403      ;*          THE (-FD) JUMPER MUST BE IN FOR THIS TEST.
2404      ;|*****
2405      004736 000004      TST22: SCOPE
2406      004740 012767 000010 174212      MOV      #10,#TIMES      ;;DO 10 ITERATIONS
2407      004746 012767 000022 174224      MOV      #22,#TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
2408      ;          ; CAN WE USE THE WRAPAROUND??
2409      004754          IF          #CABLE+FRFD NOTSETIN #USWR THEN
2410      004754 032767 060000 174236      BIT      #CABLE+FRFD,#USWR
2411      004762 001004          BNE      $72
2412      ;          ; CAN'T TEST WITHOUT BERG OR H315
2413      ;          ; OR WITH (-FD) JUMPER OUT.
2414      004764          EXIT TST
2415      004764 012767 000001 174166      MOV      #1,#TIMES
2416      004772 000463          BR      TST23      ;;EXIT THIS TEST
2417      004774          ENDIF
2418      004774          $72:
2419
2420      ;          ;MAKE SURE NOTHING UNEXPECTED HAPPENS
2421      004774 012746 000340          MOV      #PR7,-(SP)      ;;PUT NEW PS ON STACK
2422      005000 012746 005006          MOV      #64,-(SP)      ;;PUT NEW PC ON STACK
2423      005004 000002          RTI          ;;POP NEW PC AND PS
2424      005006          64$:
2425
2426      ;          ;READ TWICE - CLEARS
2427      005006          BGNSUB
2428      005006 012767 005014 174074      MOV      #65,#LPERR
2429      ;          ; CLEAR DTR
2430      005014          LET      @RCSR := @RCSR CLR.BY @DTR
2431      005014 042777 000002 174236      BIC      @DTR,@RCSR
2432      ;          ;WAIT 1 MILLI-SEC FOR CABLE
2433      005022          WAITMS 1
2434      005022 010546          MOV      R5,-(SP)
2435      005024 012745 000001          MOV      #1,-(R5)
2436      005030 004767 004716          JSR      PC,WAIT
2437      005034 012605          MOV      (SP)+,R5
2438
2439      ;          ; READ RCSR - TO CLEAR DATAINT
2440      005036          LET      R3 := @RCSR
2441      005036 017703 174216          MOV      @RCSR,R3
2442      ;          ; READ RCSR AGAIN
2443      005042          IF      @DATAINT SETIN @RCSR THEN
2444      005042 032777 100000 174210      BIT      @DATAINT,@RCSR
2445      005050 001401          BEQ      $73
2446      ;          ; READING RCSR DID NOT CLEAR DATAINT
2447      005052 104061          ERROR 61,EDATAINT
2448      005054          ENDIF
2449      005054          $73:
2450
2451      005054          ENDSUB
2452
    
```


MAINDEC-ZZ-CVDVA-D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 64
 CVDVAD.P11 12-JUL-84 05:04 T22 TEST THAT DATAINT (RCSR-15) SETS

```

2499 ;*****
2500 ;*****
2501 ;*TEST 23      TEST THAT DATAINT SETS WHEN RING SETS
2502 ;*              AND THAT DATAINT DOES NOT SET WHEN RING CLEARS
2503 ;*              THE (-FR) JUMPER MUST BE IN FOR THIS TEST.
2504 ;*****
2505 005142 000004 TST23: SCOPE
2506 005144 012767 000010 174006      MOV    #10,#TIMES      ;;DO 10 ITERATIONS
2507 005152 012767 000023 174020      MOV    #23,#TESTN     ;;SET TEST NUMBER IN APT MAIL BOX
2508 ;*              ; CAN WE USE THE WRAPAROUND??
2509 005160 ;*              IF      #CABLE+FRFD NOTSETIN #USWR THEN
2510 005160 032767 060000 174032      BIT    #CABLE+FRFD,#USWR
2511 005166 001004 ;*              ; CAN'T TEST WITHOUT BERG OR H315
2512 ;*              ; OR WITH (-FR) JUMPER OUT.
2513 ;*              EXIT TST
2514 005170 ;*              EXIT TST
2515 005170 012767 000001 173762      MOV    #1,#TIMES
2516 005176 000473 ;*              ;;EXIT THIS TEST
2517 005200 ;*              ENDF
2518 005200 ;*              $77:
2519 ;*
2520 ;*              ;NO INTERRUPTS
2521 005200 012746 000340      MOV    #PN7,-(SP)     ;;PUT NEW PS ON STACK
2522 005204 012746 005212      MOV    #64,-(SP)     ;;PUT NEW PC ON STACK
2523 005210 000002 ;*              ;;POP NEW PC AND PS
2524 005212 ;*              64:
2525 ;*
2526 ;*              ;START OFF WITH EVERYTHING CLEAR
2527 005212 ;*              BGNSUB
2528 005212 012767 005220 173670      MOV    #65,#LPERR
2529 ;*
2530 ;*              ;CLEAR RING
2531 005220 ;*              LET    @RCSR := @RCSR CLR.BY @REQSEND
2532 005220 042777 000004 174032      BIC    @REQSEND,@RCSR
2533 ;*              ;WAIT 1 MILLI-SEC FOR CABLE
2534 005226 ;*              WAITMS 1
2535 005226 010546 ;*              MOV    R5,-(SP)
2536 005230 012745 000001 ;*              MOV    #1,-(R5)
2537 005234 004767 004512 ;*              JSR    PC,WAIT
2538 005240 012605 ;*              MOV    (SP)+,R5
2539 ;*
2540 005242 ;*              ;READ ONCE
2541 005242 017703 174012      MOV    @RCSR,R3
2542 ;*              ;READ TWICE
2543 005246 ;*              IF    #DATAINT SETIN @RCSR THEN
2544 005246 032777 100000 174004      BIT    #DATAINT,@RCSR
2545 005254 001401 ;*              BEQ    #100
2546 ;*              ;READING RCSR DID NOT CLEAR DATAINT
2547 005256 ;*              ERRHRD 65, EDATAINT
2548 005256 104065 ;*              ERROR 65
2549 005260 ;*              ENDF
2550 005260 ;*              $100:
2551 005260 ;*              ENDSUB
2552 ;*
2553 ;*              ; SET RING --> SET DATAINT
2554 005260 ;*              BGNSUB

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MAINDEC-ZZ-CVDVA D      MACY11 30A(1052) 12-JUL 84 09:52 PAGE 65
CVDVAD.P11      12 JUL-84 05:04      T23      TEST THAT DATAINT SETS WHEN RING SETS
2555 005260 012767 005266 173622      MOV      #641, $LPERR
2556
2557                                     ;WE ARE SETTING RING
2558                                     ; SET RING
2559 005266                                     LET      @RCSR := @RCSR SET.BY @REQSEND
2560 005266 052777 000004 173764      BIS      @REQSEND, @RCSR
2561                                     ;WAIT 1 MILLI-SEC FOR CABLE
2562 005274                                     WAITMS  1
2563 005274 010546      MOV      R5, -(SP)
2564 005276 012745 000001      MOV      #1, -(R5)
2565 005302 004767 004444      JSR      PC, WAIT
2566 005306 012605      MOV      (SP)+, R5
2567 005310                                     IF      @DATAINT NOTSETIN @RCSR THEN
2568 005310 032777 100000 173742      BIT      @DATAINT, @RCSR
2569 005316 001001      BNE      #101
2570                                     ;SETTING RING DID NOT SET DATAINT
2571 005320                                     ERRHRD 122, E2DATA
2572 005320 104122      ERROR   122
2573 005322                                     ENDIF
2574 005322      #101:
2575 005322                                     ENDSUB
2576
2577                                     ;CLEAR RING CAUSES NO CHANGE IN DATAINT (CLEAR)
2578 005322                                     BGNSUB
2579 005322 012767 005330 173560      MOV      #641, $LPERH
2580
2581                                     ;CLEAR RING
2582 005330                                     LET      @RCSR := @RCSR CLR.BY @REQSEND
2583 005330 042777 000004 173722      BIC      @REQSEND, @RCSR
2584                                     ;WAIT 1 MILLI SEC FOR CABLE
2585 005336                                     WAITMS  1
2586 005336 010546      MOV      R5, -(SP)
2587 005340 012745 000001      MOV      #1, -(R5)
2588 005344 004767 004402      JSR      PC, WAIT
2589 005350 012605      MOV      (SP)+, R5
2590 005352                                     IF      @DATAINT SETIN @RCSR THEN
2591 005352 032777 100000 173700      BIT      @DATAINT, @RCSR
2592 005360 001401      BEQ      #102
2593                                     ;CLEARING RING SET DATAINT
2594 005362                                     ERRHRD 123, CLRRNG
2595 005362 104123      ERROR   123
2596 005364                                     ENDIF
2597 005364      #102:
2598 005364                                     ENDSUB
2599 005364      EXIT      ;SKIP AROUND MESSAGE
2600 005364 000400      BR      TST24      ;:EXIT THIS TEST
2601 005366      ENDTST
2602
2603
2604

```


MAINDEC-22 CVDVA D MACY11 30A(1052) 12 JUL-84 09:52 PAGE 66
 CVDVAD.P11 12 JUL 84 05:04 T23 TEST THAT DATAINT SETS WHEN RING SETS

```

2605 ;*****
2606 ;*****
2607 ;*TEST 24 TEST THAT DATAINT SETS WHEN SECREC CHANGES STATE
2608 ;*****
2609 005366 000004 TST24: SCOPE
2610 005370 012767 000010 173562 MOV #10,#TIMES ;;DO 10 ITERATIONS
2611 005376 012767 000024 173574 MOV #24,#TESTN ;;SET TEST NUMBER IN APT MAIL BOX
2612 ; CAN WE USE THE WRAPAROUND??
2613 005404 IF #CABLE,#USMR THEN
2614 005404 032767 020000 173606 BIT #CABLE,#USMR
2615 005412 001004 BNE #103
2616 ; CAN'T TEST WITHOUT BERG OR M315.
2617 005414 EXIT TST
2618 005414 012767 000001 173536 MOV #1,#TIMES
2619 005422 000454 BR TST25 ;;EXIT THIS TEST
2620 005424 ENDF
2621 005424 #103:
2622
2623 ;NO INTERRUPTS
2624 005424 012746 000340 MOV #PR7,-(SP) ;;PUT NEW PS ON STACK
2625 005430 012746 005436 MOV #64,-(SP) ;;PUT NEW PC ON STACK
2626 005434 000002 RTI ;;POP NEW PC AND PS
2627 005436 64:
2628
2629 ;START FRESH
2630 ;CLEAR SECREC
2631 LET @RCSR := @RCSR CLR.BY @SECXMIT
2632 005436
2633 005436 042777 000010 173614 BIC @SECXMIT,@RCSR
2634 005444 LET R3 := @RCSR
2635 005444 017703 173610 MOV @RCSR,R3
2636 ;SET SECREC --> DATAINT SET
2637 ;BGNSUB
2638 005450
2639 005450 012767 005456 173432 MOV #65,#LPERR
2640
2641 ;SET SECREC
2642 005456 LET @RCSR := @RCSR SET.BY @SECXMIT
2643 005456 052777 000010 173574 BIS @SECXMIT,@RCSR
2644 ;WAIT 1 MILLI SEC FOR CABLE
2645 005464 WAITMS 1
2646 005464 010546 MOV R5,-(SP)
2647 005466 012745 000001 MOV #1,-(R5)
2648 005472 004767 004254 JSR PC,WAIT
2649 005476 012605 MOV (SP)+,R5
2650 ;IF #DATAINT NOTSETIN @RCSR THEN
2651 005500 032777 100000 173552 BIT #DATAINT,@RCSR
2652 005506 001001 BNE #104
2653 ;SETTING SECREC DID NOT SET DATAINT
2654 005510 ERRHRD 124., E2DATA
2655 005510 104124 ERROR 124
2656 005512 ENDF
2657 005512 #104:
2658 005512 ENDSUB
2659
2660 ;CLEAR SECREC -> DATAINT SET
    
```


MAINDEC-ZZ-CVDVA D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 68
 CVDVAD.P11 12-JUL-84 05:04 T24 TEST THAT DATAINT SETS WHEN SECREC CHANGES STATE

```

2685
2686
2687
2688
2689
2690
2691 005554 000004
2692 005556 012767 000001 173374
2693 005564 012767 000025 173406
2694
2695
2696 005572
2697 005572 032767 000001 173414
2698 005600 001404
2699 005602
2700 005602 012767 000001 173350
2701 005610 000454
2702 005612
2703 005612
2704 005612
2705 005612 012767 005620 173270
2706
2707
2708
2709
2710
2711
2712 005620
2713 005620 105077 173444
2714
2715
2716
2717 005624
2718 005624 010546
2719 005626 012745 177777
2720 005632 016745 173426
2721 005636 012745 000200
2722 005642 012745 001000
2723 005646 004767 003622
2724 005652 012605
2725
2726
2727 005654
2728 005654 103001
2729
2730 005656
2731 005656 104066
2732 005660
2733 005660
2734 005660
2735
2736 005660
2737 005660 012767 005666 173222
2738
2739
2740

```

```

;*****
;*****
;TEST 25      TEST THAT XMIT RDY - TCSR 7 - CLEARS
;             WHEN TBUF IS LOADED WITH A CHARACTER
;             AND THAT IT SETS WITHIN A REASONABLE AMOUNT OF TIME.
;*****
TST25:  SCOPE
        MOV     @1,@TIMES      ;DO 1 ITERATION
        MOV     @25,@TESTN    ;SET TEST NUMBER IN APT MAIL BOX
; THIS TEST IS 'BREAK OR HALT' SENSITIVE.
; IF @APTENV SET IN @ENV THEN
        BIT     @APTENV,@ENV
        BEQ    $106
; EXIT TEST
        MOV     @1,@TIMES
        BR     TST26          ;EXIT THIS TEST
;ENDIF
;*****
;106:
        BGNSUB
        MOV     @64,@LPERR
; LOAD TBUF WITH ONE CHARACTER
; WAIT FOR READY TO SET
; (SHOULD BE VERY SHORT WAIT
; SINCE UART DOUBLE BUFFERS ITS INPUT)
; SEND A CHARACTER
        LET    @TBUF,@B,@0
; WAIT A MAXIMUM
; OF 50 MSEC FOR
; XMIT RDY TO SET IN TCSR
        CALL  TIMER IN (<@1000,@XMITRDY,TCSR,@SET>)
        MOV     R5,-(SP)
        MOV     @SET,-(R5)
        MOV     TCSR,-(R5)
        MOV     @XMITRDY,-(R5)
        MOV     @1000,-(R5)
        JSR    PC,TIMER
        MOV     (SP),R5
; TIMER RETURNS AN ERROR IF BIT DID
; NOT MEET CONDITION WITHIN TIME LIMIT
; IF .ERROR THEN
        BCC    $107
; XMIT RDY DID NOT SET IN TCSR
        ERRRD 66,.DIDNOT
;ENDIF
        ENDSUB
;*****
;107:
        BGNSUB
        MOV     @64,@LPERR
; LOAD TBUF WITH A SECOND CHARACTER
; CHECK IMMEDIATELY THAT XMITRDY IS CLEAR
; AND THEN WAIT FOR IT TO SET

```

MAINDEC 22 CVDVA D MAC11 30.1(1052) 12 JUL 84 09:52 PAGE 69
 CVDVAD.P11 12 JUL 84 05:04 T25 TEST THAT XMIT RDY TCSR 7 CLEARS

```

2741
2742
2743 005666
2744 005666 105077 173376          CLRB  @TBUF
2745 005672 000240                    NOP
2746
2747
2748 005674
2749 005674 032777 000200 173362    BIT    @XMITRDY,@TCSR
2750 005702 001401                    BEQ    @110
2751
2752 005704
2753 005704 104067                    ERROR  67
2754 005706
2755 005706                @110:
2756
2757
2758
2759
2760 005706
2761 005706 010546                    MOV    R5,-(SP)
2762 005710 012745 177777            MOV    @SET,-(R5)
2763 005714 016745 173344            MOV    TCSR,-(R5)
2764 005720 012745 000200            MOV    @XMITRDY,-(R5)
2765 005724 012745 001000            MOV    @1000,-(R5)
2766 005730 004767 003540            JSR    PC,TIMER
2767 005734 012605                    MOV    (SP),R5
2768 005736
2769 005736 103001                    BCC    @111
2770
2771 005740
2772 005740 104070                    ERROR  70
2773 005742
2774 005742                @111:
2775 005742
2776 005742
    ;SEND SECOND CHARACTER
    LET @TBUF :B= @0
    ; GIVE IT TIME TO CLEAR
    ; XMITRDY SHOULD HAVE CLEARED UPON
    ; RECEIPT OF A CHARACTER
    IF @XMITRDY SET IN @TCSR THEN
        ; XMITRDY DID NOT CLEAR IN TCSR
        ERRARD 67..DIDNOT
    ENDIF
    ;WAIT A MAXIMUM
    ;OF 50 MSEC FOR
    ;XMIT RDY TO SET IN TCSR
    CALL TIMER IN (&1000,@XMITRDY,TCSR,@SET)
    IF .ERROR THEN
        ;XMIT RDY DID NOT SET IN TCSR
        ERRARD 70..DIDNOT
    ENDIF
    ENDSUB
    ENDTST
    
```

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 CVDVAD.P11 12-JUL-84 05:04 T25 TEST THAT XMIT RDY - TCSR 7 CLEARS

```

2777 ;:.....
2778 ;:.....
2779 ;*TEST 26 TEST THAT OUTPUTTING A CHAR FROM TBUF (WITH MAINT SET)
2780 ;* RESULTS IN RCVRDONE SETTING WITHIN A REASONABLE AMOUNT OF TIME
2781 ;* AND THAT RESET CLEARS THE BIT.
2782 ;:.....
2783 005742 000004 TST26: SCOPE
2784 005744 012.67 000010 173206 MOV #10,#TIMES ;DO 10 ITERATIONS
2785 005752 012767 000026 173220 MOV #26,#TESTN ;SET TEST NUMBER IN APT MAIL BOX
2786
2787 ; SET THE MAINTENANCE BIT
2788 005760 LET @TCSR := @TCSR SET.BY @MAINT
2789 005760 052777 000004 173276 BIS @MAINT,@TCSR
2790
2791 005766 BGNSUB
2792 005766 012767 005774 173114 MOV #64,#LPERR
2793 ; SEND A CHARACTER AND LET IT WRAP AROUND
2794
2795 005774 LET @TBUF :B= #0
2796 005774 105077 173270 CLRB @TBUF
2797
2798 ; WAIT A MAXIMUM OF 50 MSEC
2799 ; FOR RCVR DONE TO SET IN
2800 ; RCSR
2801 006000 CALL TIMER IN <#1000,@RCVRDONE,RCSR,#SET>
2802 006000 010546 MOV R5,-(SP)
2803 006002 012745 177777 MOV #SET,-(R5)
2804 006006 016745 173246 MOV RCSR,-(R5)
2805 006012 012745 000200 MOV @RCVRDONE,-(R5)
2806 006016 012745 001000 MOV #1000,-(R5)
2807 006022 004767 003446 JSR PC,TIMER
2808 006026 012605 MOV (SP)+,R5
2809
2810 ;DIDN'T SET IN TIME
2811 006030 IF.ERROR THEN
2812 006030 103001 BCC #112
2813
2814 ; RCVRDONE DID NOT SET IN RCSR
2815 006032 104071 ERROR 71 ERRHRD 71..DIDNOT
2816 006034
2817 006034 #112: ENDF
2818
2819 006034 ENDSUB
2820
2821 006034 BGNSUB
2822 006034 012767 006042 173046 MOV #64,#LPERR
2823 ; NOW THAT IT IS SET SEE IF IT CAN BE RESET
2824 ; THIS ALSO WILL CLEAR THE MAINT. BIT
2825 006042 BRESET
2826 006042 000005 RESET
2827
2828 006044 IF @RCVRDONE SETIN @RCSR THEN

```

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CVDVAD.P11 12 JUL-84 05:04 T26 TEST THAT OUTPUTTING A CHAR FROM TBUF (WITH MAINT SET)

2829 006044 032777 000200 173206
2830 006052 001401
2831
2832 006054
2833 006054 104072
2834 006056
2835 006056
2836 006056
2837 006056

BIT @RCVROONE,@RCSR
BEQ \$113

; RCVROONE DID NOT RESET IN RCSR.
ERRHRD 72.,JIDNOT

ERROR 72

ENDIF

\$113:

ENDSUB
ENDTST

MAINDEC-ZZ CVDVA D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 72
 CVDVAD.P11 12-JUL-84 05:04 T26 TEST THAT OUTPUTTING A CHAR FROM TBUF (WITH MAINT SET)

```

2838 ;*****
2839 ;*****
2840 ;*TEST 27 TEST THAT RCVRDONE IS CLEARED BY READING RBUF
2841 ;*****
2842 006056 000004 TST27: SCOPE
2843 006060 012767 000010 173072 MOV #10,#TIMES ;DO 10 ITERATIONS
2844 006066 012767 000027 173104 MOV #27,#TESTN ;SET TEST NUMBER IN APT MAIL BOX
2845
2846 ; SET MAINT. BIT
2847 006074 ; LET @TCSR := @TCSR SET.BY @MAINT
2848 006074 052777 000004 173162 BIS #MAINT,@TCSR
2849 006102 BGNSUB
2850 006102 012767 006110 173000 MOV #64,#LPERR
2851 ; OUTPUT A CHARACTER WITH MAINTENANCE
2852 ; SET, AND WAIT FOR XMITRDY TO SET.
2853
2854 ; OUTPUT A CHARACTER
2855 006110 LET @TBUF :B= #0
2856 006110 105077 173154 CLRB @TBUF
2857 ; WAIT MAXIMUM OF 1000 MSEC
2858 ; FOR RCVRDONE TO SET IN
2859 ; RCSR
2860 CALL TIMER IN <#1000,@RCVRDONE,RCSR,#SET>
2861 006114 MOV R5,-(SP)
2862 006116 010546 MOV #SET,-(R5)
2863 006122 012745 177777 MOV RCSR,-(R5)
2864 006126 012745 173132 MOV #RCVRDONE,-(R5)
2865 006132 012745 001000 MOV #1000,-(R5)
2866 006136 004767 003332 JSR PC,TIMER
2867 006142 012605 MOV (SP),R5
2868
2869 ; DID IT BECAME READY?
2870 006144 IF.ERROR THEN BCC #114
2871 ;RCVRDONE DID NOT SET IN RCSR
2872 006146 ERRMRD 73.. DIDNOT
2873 006146 104073 ERROR 73
2874 006150 ENDF
2875 006150 ;114:
2876 006150 ENDSUB
2877
2878 ; NOW THAT IT IS SET LETS SEE IF READING THE
2879 ; BUFFER CLEARS RCVRDONE.
2880
2881 ;READ BUFFER
2882 006150 LET RO :B= @RBUF
2883 006150 117700 173106 MOVB @RBUF,RO
2884
2885 IF #RCVRDONE SETIN @RCSR THEN
2886 006154 BIT #RCVRDONE,@RCSR
2887 006162 001401 BEQ #115
2888 ;RCVRDONE DID NOT CLEAR IN RCSR
2889 006164 ERRMRD 74.DIDNOT
2890 006164 104074 ERROR 74
2891 006166 ENDF
2892 006166 ;115:
2893 006166 ENDTST

```

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T27

TEST THAT RCVRDONE IS CLEARED BY READING RBUF

```

2894 ;*****
2895 ;*****
2896 ;*TEST 30      TEST THAT RCVRACT - RCSR 11 - SETS
2897 ;*              WHEN A START BIT IS RECEIVED AND
2898 ;*              CLEARS WHEN RCVRDONE - RCSR 7 - SETS
2899 ;*****
2900 TST30: SCOPE
2901     MOV     #10,#TIMES      ;DO 10 ITERATIONS
2902     MOV     #30,#TESTN     ;SET TEST NUMBER IN APT MAIL BOX
2903
2904 ; THIS TEST IS 'BREAK OR HALT' SENSITIVE.
2905 ; IF #APTENV SET IN #ENV THEN
2906     BIT     #APTENV,#ENV
2907     BEQ     $116
2908
2909 ; EXIT TEST
2910     MOV     #1,#TIMES
2911     BR      TST31          ;EXIT THIS TEST
2912
2913 ; ENDIF
2914
2915 ; LET #TCSR := #TCSR SET BY #MAINT
2916     BIS     #MAINT,#TCSR
2917
2918 ; LET R0 := #CLR
2919     MOV     #CLR,R0
2920
2921 ; LET R1 := #0
2922     CLR     R1
2923
2924 ; LOAD A CHARACTER INTO TBUF
2925 ; WAIT FOR RCVRACT TO SET
2926
2927 ; SEND A CHARACTER
2928     LET    #TBUF :B= #0
2929
2930 REPEAT
2931     IF    #RCVRACT SET IN #RCSR THEN
2932
2933         LET R0 := #SET
2934
2935     ELSE
2936
2937         LET R1 := R1 + #1
2938
2939     ENDIF
2940
2941 UNTIL R0 EQ #SET OR R1 HI MAX
2942
2943
2944 ; IT NEVER SET
2945 ; RCVRACT DID NOT SET IN RCSR.
2946
2947
2948
2949

```


MAINDEC-ZZ-CVDVA-D MACY11 30A(1052) 12 JUL-84 09:52 PAGE 75
 CVDVAD.P11 12-JUL-84 05:04 T30 TEST THAT RCVRCT - RCSR 11 - SETS

```

3006
3007 006402
3008 006402 017700 172654      MOV      @RBUF,R0
3009
3010 006406
3011 006406 032777 000200 172644      BIT      @RCVRDONE,@RCSR
3012 006414 001401                      BEQ      #131
3013
3014 006416
3015 006416 104100                      ERROR   100
3016 006420
3017 006420
3018
3019 006420
3020 006420 000401                      BR       TST31
3021 006422 070000                      MAX:70000
3022
3023 006424
3024

```

;READ CHAR.
 LET R0 := @RBUF
 IF @RCVRDONE SETIN @RCSR THEN
 ;RCVRDONE DID NOT CLEAR IN RCSR
 ERRHRD 100.,DIDNOT
 ENDIF
 #131:
 EXIT
 ;;;EXIT THIS TEST
 ENDTST

MAINDEC-ZZ-CVDVA-D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 76
 CVDVAD.P11 12 JUL-84 05:04 T30 TEST THAT RCVRCT - RCSR 11 - SETS

```

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3030 006424 000004
3031 006426 012767 000010 172524
3032 006434 012767 000031 172536
3033
3034 006442
3035 006442 012767 006450 172440
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3041 006450
3042 006450 105077 172614
3043
3044 006454
3045 006454 010546
3046 006456 012745 002000
3047 006462 004767 003264
3048 006466 012605
3049
3050
3051 006470
3052 006470 105077 172574
3053
3054 006474
3055 006474 010546
3056 006476 012745 002000
3057 006502 004767 003244
3058 006506 012605
3059
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3061 006510
3062 006510 017704 172546
3063
3064
3065 006514
3066 006514 032704 040000
3067 006520 001005
3068
3069 006522
3070 006522 104101
3071
3072
3073 006524
3074 006524 012767 000001 172426
3075 006532 000456
3076 006534
3077 006534
3078 006534
3079
3080

```

```

;*****
;*****
;TEST 31 TEST THE OVERRUN BIT - RBUF 14
;*****
TST31: SCOPE
MOV #10,#TIMES ;DO 10 ITERATIONS
MOV #31,#TESTN ;SET TEST NUMBER IN APT MAIL BOX

BGNSUB
MOV #64,#LPERR
;OUTPUT 2 CHARACTERS WITH
;AMPLE DELAYS BETWEEN FOR RECEPTION.
;THIS SHOULD AN CAUSE OVERRUN ERROR.

;OUTPUT 1 CHARACTER
LET @TBUF :B= #0

;GO AWAY FOR 1024. 11 SEC
WAITMS 1024.

MOV R5,-(SP)
MOV #1024,-(R5)
JSR PC,WAIT
MOV (SP)+,R5

;OUTPUT 2ND CHARACTER
LET @TBUF :B= #0

;LET OVERRUN HAPPEN
WAITMS 1024.

MOV R5,-(SP)
MOV #1024,-(R5)
JSR PC,WAIT
MOV (SP)+,R5

;READ BUFFER AND ERROR BITS
LET R4 := @RBUF

;IT DIDN'T SET
IF #ORERR NOTSET IN R4 THEN

;ORERR DID NOT SET IN RBUF
ERRMRD 101..DIDNOT

;NO USE COMPOUNDING ERRORS
EXIT TST

MOV #1,#TIMES
BR TST32 ;;;EXIT THIS TEST
ENDIF

#132:
ENDSUB

;NOW SEE IF ERROR BIT SET WITH OVERRUN ERROR:

```

MAINDEC-ZZ-CVDVA-D MACY11 30A(1052) 12 JUL-84 09:52 PAGE 77
 CVDVAD.P11 12-JUL-84 05:04 T31 TEST THE OVERRUN BIT RBUF 14

```

3081 006534                                BGNSUB
3082 006534 012767 006542 172346          MOV    #64,LPERR
3083 006542                                IF #ERROR NOTSET IN R4 THEN
3084 006542 032704 100000                  BIT    #ERROR,R4
3085 006546 001005                          BNE    #133
3086
3087
3088 006550                                ;ERROR DID NOT SET IN RBUF
3089 006550 104102                          ERROR  102
3090
3091
3092
3093 006552                                ;-WHEN ORERR SET.
3094 006552 012767 000001 172400          MOV    #1,STIMES
3095 006560 000443                          BR     TST32
3096 006562                                ;;;EXIT THIS TEST
3097 006562                                ENDIF
3098 006562                                #133:
3099
3100 006562                                BGNSUB
3101 006562 012767 006570 172320          MOV    #64,LPERR
3102
3103
3104 006570                                ;CHECK REAL RBUF TO SEE IF ORERR IS STILL SET.
3105 006570 032777 040000 172464          BIT    #ORERR,RBUF
3106 006576 001002                          BNE    #134
3107
3108
3109 006600                                IF #ORERR NOTSET IN RBUF THEN
3110 006600 104103                          ERROR  103
3111
3112 006602                                ;READING RBUF CLEARED ORERR.
3113 006602 000432                          BR     TST32
3114 006604                                ERRHRD 103,ITCLRD
3115 006604                                ;SKIP REST OF TEST
3116 006604                                EXIT
3117
3118 006604                                ;;;EXIT THIS TEST
3119 006604 012767 006612 172276          MOV    #64,LPERR
3120
3121
3122 006612                                ENDIF
3123 006612 105077 172452                          CLR    @RBUF
3124
3125
3126 006616                                ;LET IT CIRCULATE
3127 006616 010546                          MOV    R5,-(SP)
3128 006620 012745 002000                      MOV    #1024,-(R5)
3129 006624 004767 003122                      JSR    PC,WAIT
3130 006630 012605                          MOV    (SP),R5
3131
3132 006632                                WAITMS 1024.
3133 006632 032777 040000 172422          BIT    #ORERR,RBUF
3134 006640 001405                          BEQ    #135
3135
3136 006642                                IF #ORERR SET IN RBUF THEN
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 CVDVAD.P11 12 JUL-84 05:04 T31 TEST THE OVERRUN BIT - RBUF 14

```

3137 006642 104104          ERROR 104
3138
3139
3140                                ; - AFTER RECEIVING ANOTHER CHAR
3141                                ; SKIP AROUND REST
3141 006644                                EXIT TST
3142 006644 012767 000001 172306      MOV    #1, #TIMES
3143 006652 000406                                BR    TST32          ;;:EXIT THIS TEST
3144 006654                                ENDIF
3145 006654                                #135:
3146
3147 006654                                IF #ERROR SET IN @RBUF THEN
3148 006654 032777 100000 172400      BIT    #ERROR, @RBUF
3149 006662 001401                                BEQ    #136
3150
3151                                ; ERROR DID NOT CLEAR IN RBUF
3151 006664                                ERRHRD 105..DIDNOT
3152 006664 104105          ERROR 105
3153
3154                                ENDIF
3155 006666                                #136:
3156 006666
3157 006666                                ENDSUB
3158 006666 000400          BR    TST32          ;;:EXIT THIS TEST
3159                                .EVEN
3160 006670                                ENDTST
3161

```

MAINDEC-ZZ CVDVA D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 79
 CVDVAD.P11 12 JUL 84 05:04 T31 TEST THE OVERRUN BIT - RBUF 14

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3170 006670 000004
3171 006672 012767 000010 172260
3172 006700 012767 000032 172272
3173 006706
3174 006706 032767 000200 172304
3175 006714 001004
3176 006716
3177 006716 012767 000001 172234
3178 006724 000552
3179 006726
3180 006726
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3182 006726
3183 006726 032767 000001 172260
3184 006734 001404
3185 006736
3186 006736 012767 000001 172214
3187 006744 000542
3188 006746
3189 006746
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3191 006746
3192 006746 012767 177777 000272
3193 006754
3194 006754 012767 177777 000266
3195 006762
3196 006762 052777 000004 172274
3197
3198 006770
3199 006770 005003
3200 006772 000401
3201 006774
3202 006774 005203
3203 006776
3204 006776 020327 000017
3205 007002 003060
3206 007004
3207 007004 017700 172252
3208
3209 007010
3210 007010 116377 007170 172250
3211
3212 007016
3213 007016 005002
3214
3215 007020
3216 007020 005077 172244
3217

```

```

;*****
;*****
;TEST 32 PROGRAMMABLE BAUD RATE TEST
;* TEST AT ALL SPEEDS AVAILABLE
;* A COMPARISON WILL BE MADE TO SEE
;* IF NEW TIME IS LESS THAN PREVIOUS.
;*****
TST32: SCOPE
MOV @10,@TIMES ;;DO 10 ITERATIONS
MOV @32,@TESTN ;;SET TEST NUMBER IN APT MAIL BOX
IF @PBR NOTSETIN @USMR THEN
EXIT TST
MOV @1,@TIMES
BR TST33 ;;EXIT THIS TEST
ENDIF
$137:
; THIS TEST IS 'BREAK OR HALT' SENSITIVE.
IF @APTENV SETIN @ENV THEN
BIT @APTENV,@ENV
BEQ $140
EXIT TEST
MOV @1,@TIMES
BR TST33 ;;EXIT THIS TEST
ENDIF
$140:
LET OLD := @ 1
LET OLD*2 := @-1
LET @TCSR := @TCSR SET.BY @MAINT
;EACH BAUD RATE
INCR R3 FROM @0 TO @15. BY @1
CLR R3
BR $141
$142: INC R3
$141: CMP R3,@15.
BGT $143
LET R0 := @RBUF
;CHANGE BAUD RATE
LET @TCSRHI := @RATES(R3)
;FLAG
LET BIT := @0
;OUTPUT THE CHARACTER
LET @TBUF := @0
;INITIALIZE COUNTER

```

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 CVDVAD.P11 12-JUL-84 05:04 T32 PROGRAMMABLE BAUD RATE TEST

| | | | | | | | |
|------|--------|--------|--------|--------|-------|-----------------|---------------------------------------|
| 3218 | 007024 | | | | | | LET NEW := #0 |
| 3219 | 007024 | 005067 | 000212 | | CLR | NEW | |
| 3220 | 007030 | | | | | | LET NEW+2 := #0 |
| 3221 | 007030 | 005067 | 000210 | | CLR | NEW+2 | |
| 3222 | 007034 | | | | | | WHILE BIT EQ #0 DO |
| 3223 | 007034 | | | \$144: | | | |
| 3224 | 007034 | 005702 | | | TST | BIT | |
| 3225 | 007036 | 001014 | | | BNE | \$145 | |
| 3226 | 007040 | | | | | | IF #RCVRDONE SETIN #RCSR THEN |
| 3227 | 007040 | 032777 | 000200 | 172212 | BIT | #RCVRDONE,#RCSR | |
| 3228 | 007046 | 001403 | | | BEQ | \$146 | |
| 3229 | | | | | | | ;DONE - ITS READY |
| 3230 | 007050 | | | | | | LET BIT := #1 |
| 3231 | 007050 | 012702 | 000001 | | MOV | #1,BIT | |
| 3232 | 007054 | | | | | | ELSE |
| 3233 | 007054 | 000404 | | | BR | \$147 | |
| 3234 | 007056 | | | \$146: | | | |
| 3235 | | | | | | | ;OTHERWISE-INCREMENT TIME |
| 3236 | 007056 | | | | | | LET NEW := NEW + #1 |
| 3237 | 007056 | 005267 | 000160 | | INC | NEW | |
| 3238 | 007062 | | | | | | LET NEW+2 := NEW+2 + CARRY |
| 3239 | 007062 | 005567 | 000156 | | ADC | NEW+2 | |
| 3240 | 007066 | | | | | | ENDIF |
| 3241 | 007066 | | | \$147: | | | |
| 3242 | | | | | | | ;SIGNALS DONE |
| 3243 | 007066 | | | | | | ENDDO |
| 3244 | 007066 | 000762 | | | BR | \$144 | |
| 3245 | 007070 | | | \$145: | | | |
| 3246 | | | | | | | |
| 3247 | 007070 | | | | | | IF NEW+2 LO OLD+2 THEN |
| 3248 | 007070 | 026767 | 000150 | 000152 | CMP | NEW+2,OLD+2 | |
| 3249 | 007076 | 103001 | | | BHIS | \$150 | |
| 3250 | | | | | | | ; OK |
| 3251 | 007100 | | | | | | ELSE |
| 3252 | 007100 | 000412 | | | BR | \$151 | |
| 3253 | 007102 | | | \$150: | | | |
| 3254 | | | | | | | ; NEW+2 >= OLD+2 |
| 3255 | 007102 | | | | | | IF NEW+2 EQ OLD+2 AND NEW LO OLD THEN |
| 3256 | 007102 | 026767 | 000136 | 000140 | CMP | NEW+2,OLD+2 | |
| 3257 | 007110 | 001005 | | | BNE | \$152 | |
| 3258 | 007112 | 026767 | 000124 | 000126 | CMP | NEW,OLD | |
| 3259 | 007120 | 103001 | | | BHIS | \$152 | |
| 3260 | | | | | | | ;OK |
| 3261 | 007122 | | | | | | ELSE |
| 3262 | 007122 | 000401 | | | BR | \$153 | |
| 3263 | 007124 | | | \$152: | | | |
| 3264 | | | | | | | ;NEW+2 > OLD+2 OR |
| 3265 | | | | | | | ;(NEW+2 = OLD+2 AND |
| 3266 | | | | | | | ; NEW >= OLD) |
| 3267 | | | | | | | ;BAUD RATE DIDN'T CHANGE |
| 3268 | 007124 | | | | | | ERRHRD 126, BAUDRATE |
| 3269 | 007124 | 104126 | | | ERROR | 126 | |
| 3270 | 007126 | | | | | | ENDIF |
| 3271 | 007126 | | | \$153: | | | |
| 3272 | 007126 | | | | | | ENDIF |
| 3273 | 007126 | | | \$151: | | | |

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```

3274                                     ;UPDATE OLD TIME
3275 007126                               LET OLD := NEW
3276 007126 016767 000110 000112      MOV  NEW,OLD
3277 007134                               LET OLD*2 := NEW*2
3278 007134 016767 000104 000106      MOV  NEW*2,OLD*2
3279
3280 007142                               ENDINC ;BAUD RATE
3281 007142 000714                      BR   #142
3282 007144                               ;143:
3283 007144                               LET R3 :B= #USMR*1 AND #17 ; PUT BAUD BACK
3284 007144 116703 172051              MOVB #USMR*1,R3
3285 007150 110346                     MOVB R3,-(SP)
3286 007152 142716 000017              BICB #17,(SP)
3287 007156 142603                     BICB (SP),R3
3288 007160                               LET #TCSRHI :B= RATES(R3) ; LIKE HE WANTED IT
3289 007160 116377 007170 172100      MOVB RATES(R3),#TCSRHI
3290
3291 007166                               EXIT ;SKIP TABLE
3292 007166 000431                      BR   TST33 ;;;EXIT THIS TEST
3293
3294 007170

```

RATES: ;A TABLE OF THE ACTUAL BYTES TO MOVE INTO THE
;UPPER BYTE OF XCSR FOR EACH BAUD RATE
; ** NOTE **: THE VALUE INDICATED IN THE COLUMN 'OFFSET
; ** INTO TABLE' CAN BE PLACED INTO BITS<11:8>
; ** OF LOCATION '#USMR' TO CAUSE THE CORROSPONDING
; ** BAUD TO BE SELECTED IN THE DLV11-E UPON
; ** COMPLETION OF THIS TEST.

| | | | | | BAUD | OFFSET INTO TABLE |
|------|--------|-----|---------|-------|------|-------------------|
| 3302 | | | | | | |
| 3303 | 007170 | 010 | R0050: | .BYTE | 010 | 0 |
| 3304 | 007171 | 030 | R0070: | .BYTE | 030 | 1 |
| 3305 | 007172 | 050 | R0110: | .BYTE | 050 | 2 |
| 3306 | 007173 | 070 | R0135: | .BYTE | 070 | 3 |
| 3307 | 007174 | 110 | R0150: | .BYTE | 110 | 4 |
| 3308 | 007175 | 130 | R0300: | .BYTE | 130 | 5 |
| 3309 | 007176 | 150 | R0600: | .BYTE | 150 | 6 |
| 3310 | 007177 | 170 | R0200: | .BYTE | 170 | 7 |
| 3311 | 007200 | 210 | R1800: | .BYTE | 210 | 10 |
| 3312 | 007201 | 230 | R2000: | .BYTE | 230 | 11 |
| 3313 | 007202 | 250 | R2400: | .BYTE | 250 | 12 |
| 3314 | 007203 | 270 | R3600: | .BYTE | 270 | 13 |
| 3315 | 007204 | 310 | R4800: | .BYTE | 310 | 14 |
| 3316 | 007205 | 330 | R7200: | .BYTE | 330 | 15 |
| 3317 | 007206 | 350 | R9600: | .BYTE | 350 | 16 |
| 3318 | 007207 | 370 | R10000: | .BYTE | 370 | 17 |
| 3319 | | | | | | |

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| | | | | | | |
|------|--------|--------|--------|--------|-----------|-----------------------------------|
| 3320 | 007210 | 040502 | 042125 | 051040 | BAUDRATE: | .ASCII /BAUD RATE DIDN'T CHANGE./ |
| 3321 | 007216 | 052101 | 020105 | 044504 | | |
| 3322 | 007224 | 047104 | 052047 | 041440 | | |
| 3323 | 007232 | 040510 | 043516 | 027105 | | |
| 3324 | 007240 | 000 | | | | |
| 3325 | | 007242 | | | .EVEN | |
| 3326 | 007242 | 000000 | 000000 | | NEW: 0.0 | |
| 3327 | 007246 | 000000 | 000000 | | OLD: 0.0 | |
| 3328 | 007252 | | | | | ENDST |
| 3329 | | | | | | |
| 3330 | | | | | | |
| 3331 | | | | | | |

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```

3332
3333
3334
3335
3336
3337
3338
3339
3340
3341 007252 000004
3342 007254 012767 000010 171676
3343 007262 012767 000033 171710
3344
3345 007270
3346 007270 005067 002544
3347
3348
3349 007274
3350 007274 016703 171756
3351
3352 007300
3353 007300 062703 000004
3354
3355 007304
3356 007304 010146
3357 007306 010301
3358 007310 012721 012032
3359 007314 012711 000340
3360 007320 012601
3361 007322
3362 007322 012767 007330 171560
3363
3364 007330
3365 007330 042777 000100 171726
3366
3367
3368 007336 012746 000000
3369 007342 012746 007350
3370 007346 000002
3371 007350
3372
3373
3374 007350
3375 007350 052777 000100 171706
3376
3377
3378 007356
3379 007356 010546
3380 007360 012745 002000
3381 007364 004767 002362
3382 007370 012605
3383
3384
3385 007372
3386 007372 026727 002442 000001
3387 007400 001406

```

```

;*****
;*****
;TEST 33 TRANSMITTER INTERRUPT LOGIC TEST
; LOGICALLY THIS IS 4 SEPARATE TESTS
; A) DOES TRANSMITTER INTERRUPT LOGIC WORK
; B) AT PRIORITY OF 0
; C) AND ONLY ONCE
; D) BUT NOT WITH INTERRUPT ENABLE CLEAR
;*****
TST33: SCOPE
MOV #10,#TIMES ;DO 10 ITERATIONS
MOV #33,#TESTN ;SET TEST NUMBER IN APT MAIL BOX
;CLEAR 'INTERRUPT OCCURED' FLAG
LET INTFLAG := #0
;GET VECTOR ADDRESS
LET R3 := DLVEC
;FOR THE TRANSMITTER
LET R3 := R3 * #4
;SET VECTOR TO POINT TO TRANS.SRV AT PRI
SETVEC R3, #INTSRV, #PR7
MOV R1, -(SP)
MOV R3, R1
MOV #INTSRV, (R1)
MOV #PR7, (R1)
MOV (SP), R1
BGNSUB
;CLEAR INTERRUPT ENABLE
LET #TCSR := #TCSR CLR.BY #XMITIE
;SET IT TO 0
MOV #PRO, -(SP) ;PUT NEW PS ON STACK
MOV #65, -(SP) ;PUT NEW PC ON STACK
RTI ;POP NEW PC AND PS
65:
;NOW SET I.E. BIT
LET #TCSR := #TCSR SET.BY #XMITIE
;LET INTERRUPT HAVE TIME TO OCCUR
WAITMS 1024.
MOV R5, -(SP)
MOV #1024, -(R5)
JSR PC, WAIT
MOV (SP), R5
;DID EXACTLY 1 INTERRUPT OCCUR
IF INTFLAG NE #1 THEN
CMP INTFLAG, #1
BEQ #154

```

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```

3388
3389 007402
3390 007402 005767 002432          TST   INTFLAG
3391 007406 001002                    BNE   $155
3392
3393 007410
3394 007410 104106          ERROR   106
3395 007412
3396 007412 000401          BR     $156
3397 007414          $155:
3398
3399
3400 007414
3401 007414 104107          ERROR   107
3402 007416
3403 007416          $156:
3404 007416
3405 007416          $154:
3406 007416
3407
3408 007416
3409 007416 012767 007424 171464      MOV   #64,$LPERR
3410
3411 007424
3412 007424 005067 002410          CLR   INTFLAG
3413
3414 007430
3415 007430 042777 000100 171626      BIC   #XMITIE,$TCSR
3416
3417 007436 012746 000000          MOV   #PRO,-(SP)      ;;PUT NEW PS ON STACK
3418 007442 012746 007450          MOV   #65,-(SP)      ;;PUT NEW PC ON STACK
3419 007446 000002          RTI                    ;;POP NEW PC AND PS
3420 007450          65$:
3421
3422 007450
3423 007450 010546          MOV   R5,-(SP)
3424 007452 012745 000002          MOV   #2,-(R5)
3425 007456 004767 002270          JSR   PC,WAIT
3426 007462 012605          MOV   (SP),R5
3427 007464
3428 007464 005767 002350          TST   INTFLAG
3429 007470 001401          BEQ   $157
3430
3431 007472
3432 007472 104110          ERROR   110
3433 007474
3434 007474          $157:
3435 007474
3436 007474 000005          RESET
3437 007476
3438
3439 007476
3440 007476 017704 171554          MOV   $DLVEC,R4
3441 007502
3442 007502 010146          MOV   R1,-(SP)      ;;PUSH R1 ON STACK
3443 007504 010246          MOV   R2,-(SP)      ;;PUSH R2 ON STACK

;NO - WAS IT 0 OR MORE THAN ONCE
;IF INTFLAG EQ #0 THEN

;TRANSMITTER DID NOT INTERRUPT IN TIME
ERRHRD 106,,DIDNOT

ELSE

;TWICE
;TRANSMITTER INTERRUPTED TWICE
ERRHRD 107,,TWICE

ENDIF

ENDIF

ENDSUB
;INTERRUPT WITHOUT INTERRUPT ENABLE SET
BGNSUB

;CLEAR 'INTERRUPT OCCURED' FLAG
LET INTFLAG := #0

;CLEAR INTERRUPT ENABLE
LET $TCSR := $TCSR CLR.BY $XMITIE

;NO INTERRUPTS SHOULD OCCUR.

;DARE IT TO HAPPEN
WAITMS 2

;INTERRUPT OCCURED WITH I E CLEARED
ERRHRD 110,NOTENAB

BRESET

ENDSUB
;RESTORE VECTOR AREA
LET R4 := $DLVEC

CLRVEC R4

```


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```

3458 ;*****
3459 ;*****
3460 ;TEST 34 RECEIVER INTERRUPT LOGIC TEST
3461 ;* THIS TEST COVERS ALL OF THE RECEIVER
3462 ;* SIDE OF THE INTERRUPT LOGIC, BOTH DATASET
3463 ;* AND CHARACTER MODES.
3464 ;*****
3465 007530 000004 TST34: SCOPE
3466 007532 012767 000010 171420 MOV #10,#TIMES ;;DO 10 ITERATIONS
3467 007540 012767 000034 171432 MOV #34,#TESTN ;;SET TEST NUMBER IN APT MAIL BOX
3468 ;CLEAR INTERRUPT OCCURED FLAG
3469 ;SET UP RECEIVER INTER.VECTOR
3470 007546 SETVEC DLVEC,#INTSRV,#PR7
3471 007546 010146 MOV R1,-(SP)
3472 007550 016701 171502 MOV DLVEC,R1
3473 007554 012721 012032 MOV #INTSRV,(R1)
3474 007560 012711 000340 MOV #PR7,(R1)
3475 007564 012601 MOV (SP),R1
3476 ;PRIORITY 0 AND MULTIPLE INTERRUPT TEST.-RCVRIE
3477 007566 BGNSUB
3478 007566 012767 007574 171314 MOV #64,#LPERR
3479 007574 LET INTFLAG := #0
3480 007574 005067 002240 CLR INTFLAG
3481 ;SET MAINT. BIT
3482 007600 LET #TCSR := #TCSR SET.BY #MAINT
3483 007600 052777 000004 171456 BIS #MAINT,#TCSR
3484 ;CLEAR INTERRUPTS
3485 007606 LET #RCSR := #RCSR CLR.BY #RCVRIE
3486 007606 042777 000100 171444 BIC #RCVRIE,#RCSR
3487 ;CHANGE PRIORITY
3488 ;..TO 0
3489 007614 012746 000000 MOV #PRO,-(SP) ;;PUT NEW PS ON STACK
3490 007620 012746 007626 MOV #65,-(SP) ;;PUT NEW PC ON STACK
3491 007624 000002 RTI ;;POP NEW PC AND PS
3492 007626 654:
3493
3494 ;SEND A CHARACTER
3495 007626 LET #TBUF := #0
3496 007626 105077 171436 CLRB #TBUF
3497 ;WAIT A MAXIMUM
3498 ;OF 1000 MSEC FOR
3499 ;RCVR RDY TO SET IN RCSR
3500 CALL TIMER IN <#1000,#RCVRDONE,RCSR,#SET>
3501 007632 MOV R5,-(SP)
3502 007634 010546 MOV #SET,-(R5)
3503 007640 016745 171414 MOV RCSR,-(R5)
3504 007644 012745 000200 MOV #RCVRDONE,-(R5)
3505 007650 012745 001000 MOV #1000,-(R5)
3506 007654 004767 001614 JSR PC,TIMER
3507 007660 012605 MOV (SP),R5
3508 ;SET INTERRUPT ENABLE
3509 007662 LET #RCSR := #RCSR SET.BY #RCVRIE
3510 007662 052777 000100 171370 BIS #RCVRIE,#RCSR
3511 ;LET IT COME IN.
3512 007670 WAITMS 1
3513 007670 010546 MOV R5,-(SP)

```

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```

3514 007672 012745 000001      MOV    #1,-(R5)
3515 007676 004767 002050      JSR    PC WAIT
3516 007702 012605              MOV    (SP),R5
3517 007704                      LET R0 := BRBUF ; CLEAR RCVRDONE
3518 007704 017700 171352      MOV    BRBUF,R0
3519
3520                      ;DID HE DO IT RIGHT?
3521 007710                      IF INTFLAG NE #1 THEN
3522 007710 026727 002124 000001  CMP    INTFLAG,#1
3523 007716 001406              BEQ    #160
3524                      ;NONE OCCURED
3525 007720                      IF INTFLAG EQ #0 THEN
3526 007720 005767 002114      TST    INTFLAG
3527 007724 001002              BNE    #161
3528                      ;RECEIVER DID NOT INTERRUPT IN TIME
3529 007726                      ERRMRD 111,,DIDNOT
3530 007726 104111              ERROR  111
3531                      ;TWICE OR MORE
3532 007730                      ELSE
3533 007730 000401              BR     #162
3534 007732                      ;RECEIVER INTERRUPTED TWICE
3535                      ERRMRD 112,,TWICE
3536 007732                      ;RECEIVER INTERRUPTED TWICE
3537 007732 104112              ERROR  112
3538 007734                      ENDIF
3539 007734                      #162:
3540 007734                      ENDIF
3541 007734                      #160:
3542                      ;RESET MAINT. BIT.
3543 007734                      LET @TCSR := @TCSR CLR.BY @MAINT
3544 007734 042777 000004 171322  BIC    @MAINT,@TCSR
3545                      ; CLEAR INTERRUPT ENABLE
3546 007742                      LET @RCSR := @RCSR CLR.BY @RCVRIE
3547 007742 042777 000100 171310  BIC    @RCVRIE,@RCSR
3548 007750                      ENDSUB
3549
3550
3551
3552
3553
3554
3555
3556                      ;PRIORITY 0 AND MULTIPLE INTERRUPT TEST. DATAIE
3557 007750                      BGNSUB
3558 007750 012767 007756 171132  MOV    #64,#LPERR
3559 007756                      IF #CABLE NOTSETJN #USWR THEN
3560 007756 032767 020000 171234  BIT    #CABLE,#USWR
3561 007764 001004              BNE    #163
3562                      ;CAN'T TEST WITHOUT A CABLE
3563 007766                      EXIT TST
3564 007766 012767 000001 171164  MOV    #1,#TIMES
3565 007774 000466              BR     TST35
3566 007776                      ;;;EXIT THIS TEST
3567 007776                      #163:
3568                      ; CLEAR 'INTFLAG'
3569 007776                      LET INTFLAG := #0

```

```

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3570 007776 005067 002036          CLR      INTFLAG
3571                                ;CLEAR INTERRUPTS
3572 010002                                LET @RCSR := @RCSR CLR.BY @DATAIE
3573 010002 042777 000040 171250    BIC      @DATAIE,@RCSR
3574                                ;CHANGE PRIORITY
3575                                ;..TO 0
3576 010010 012746 000000          MOV      @PRO,-(SP)      ;;PUT NEW PS ON STACK
3577 010014 012746 010022          MOV      @64,-(SP)      ;;PUT NEW PC ON STACK
3578 010020 000002                                RTI      ;;POP NEW PC AND PS
3579 010022                                64:
3580 010022                                LET @RCSR := @RCSR CLR.BY @REQSEND
3581 010022 042777 000004 171230    BIC      @REQSEND,@RCSR
3582                                ;SET INTERRUPT ENABLE
3583 010030                                LET @RCSR := @RCSR SET.BY @DATAIE
3584 010030 052777 000040 171222    BIS      @DATAIE,@RCSR
3585 010036                                LET @RCSR := @RCSR SET.BY @REQSEND
3586 010036 052777 000004 171214    BIS      @REQSEND,@RCSR
3587                                ;LET IT COME IN.
3588 010044                                WAITMS 1
3589 010044 010546          MOV      R5,-(SP)
3590 010046 012745 000001          MOV      @1,-(R5)
3591 010052 004767 001674          JSR      PC,WAIT
3592 010056 012605          MOV      (SP),R5
3593
3594                                ; DID IT DO IT RIGHT?
3595 010060                                IF INTFLAG NE @1 THEN
3596 010060 026727 001754 000001    CMP      INTFLAG,@1
3597 010066 001406          BEQ      @164
3598                                ;NONE OCCURED
3599 010070                                IF INTFLAG EQ @0 THEN
3600 010070 005767 001744          TST      INTFLAG
3601 010074 001002          BNE      @165
3602                                ;DATAINT DID NOT INTERRUPT IN TIME
3603 010076                                ERRMRD 113,,DIDNOT
3604 010076 104113          ERROR   113
3605                                ;TWICE OR MORE
3606 010100                                ELSE
3607 010100 000401          BR      @166
3608 010102                                @165:
3609                                ; DATAINT INTERRUPTED TWICE
3610 010102                                ERRMRD 114,,TWICE
3611 010102 104114          ERROR   114
3612 010104                                @166:
3613 010104                                @164:
3614 010104                                @164:
3615 010104                                @164:
3616 010104                                @164:
3617 010104 042777 000040 171146    BIC      @DATAIE,@RCSR
3618 010112                                LET @RCSR := @RCSR CLR.BY @REQSEND
3619 010112 042777 000004 171140    BIC      @REQSEND,@RCSR
3620 010120                                ENDSUB
3621
3622 010120                                LET R4 := @DLVEC
3623 010120 017704 171132          MOV      @DLVEC,R4
3624 010124                                CLRVEC R4
3625 010124 010146          MOV      R1,-(SP)      ;;PUSH R1 ON STACK

```

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| | | | | | | |
|------|--------|--------|--------|-----|-----------|---------------------|
| 3626 | 010126 | 010246 | | MOV | R2, -(SP) | ::PUSH R2 ON STACK |
| 3627 | 010130 | 012701 | 000004 | MOV | #R4, R1 | |
| 3628 | 010134 | 010102 | | MOV | R1, R2 | |
| 3629 | 010136 | 062702 | 000002 | ADD | #2, R2 | |
| 3630 | 010142 | 010221 | | MOV | R2, (R1)+ | |
| 3631 | 010144 | 005011 | | CLR | (R1) | |
| 3632 | 010146 | 012602 | | MOV | (SP)+, R2 | ::POP STACK INTO R2 |
| 3633 | 010150 | 012601 | | MOV | (SP)+, R1 | ::POP STACK INTO R1 |
| 3634 | 010152 | | | | | ENDTST |

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```

3635 ;*****
3636 ;*****
3637 ;*TEST 35 TEST ACTUAL DATA TRANSFERED
3638 ;* NON-INTERRUPT MAINTENANCE BIT SET
3639 ;*****
3640 TST35: SCOPE
3641 MOV #1,#TIMES ;DO 1 ITERATION
3642 MOV #35,#TESTN ;SET TEST NUMBER IN APT MAIL BOX
3643 ;SET MAINT. BIT
3644 ;LET @TCSR := @TCSR SET.BY #MAINT
3645 BIS #MAINT,@TCSR
3646
3647 ;CHANGE PRIORITY
3648 ;..TO 0
3649 MOV #PRO,-(SP) ;PUT NEW PS ON STACK
3650 MOV #64,-(SP) ;PUT NEW PC ON STACK
3651 RTI ;POP NEW PC AND PS
3652
3653 ;GET DATA MASK.
3654 CALL DATLNG OUT <R1>
3655
3656 SUB #1*2,R5
3657 JSR PC,DATLNG
3658 MOV (R5)+,R1
3659
3660 ; START CLEAN
3661 LET R0 := @RBUF
3662
3663 ;ALL BINARY CHAR.
3664 INCR R2 FROM #0 TO #377 BY #1
3665
3666 #170:
3667 INC R2
3668 #167:
3669 CMP R2,#377
3670 BGT #171
3671
3672
3673 ;TRANSMIT CHAR IN R2
3674 CALL TIMER IN <#1000,#XMITRDY,TCSR,#SET>
3675
3676 MOV R5,-(SP)
3677 MOV #SET,-(R5)
3678 MOV TCSR,-(R5)
3679 MOV #XMITRDY,-(R5)
3680 MOV #1000,-(R5)
3681 JSR PC,TIMER
3682 MOV (SP)+,R5
3683
3684 ;TRANSMIT IT
3685 LET @TBUF :R= R2
3686
3687 CALL TIMER IN <#1000,#RCVRDONE,RCSR,#SET>
3688
3689 MOV R5,-(SP)
3690 MOV #SET,-(R5)
    
```


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```

3734 ;:*****
3735 ;:*****
3736 ;*TEST 36 TEST DATA THROUGH CABLE
3737 ;:*****
3738 010366 000004 TST36: SCOPE
3739 010370 012767 000001 170562 MOV #1,#TIMES ;:DO 1 ITERATION
3740 010376 012767 000036 170574 MOV #36,#TESTN ;:SET TEST NUMBER IN APT MAIL BOX
3741 010404 BIT #CABLE,#USWR IF #CABLE NOTSETIN #USWR THEN
3742 010404 032767 020000 170606 BNE #173
3743 010412 001004
3744 ;:CAN'T TEST WITHOUT A CABLE
3745 010414 EXIT TST
3746 010414 012767 000001 170536 MOV #1,#TIMES
3747 010422 000474 BR TST37 ;:EXIT THIS TEST
3748 010424 ENDIF
3749 010424 #173:
3750 ;:DON'T USE MAINT.
3751 010424 042777 000004 170632 BIC #MAINT,#TCSR LET #TCSR := #TCSR CLR.BY #MAINT
3752 010424
3753 ;:CHANGE PRIORITY
3754 ;:..TO 0
3755 010432 012746 000000 MOV #PRO,-(SP) ;:PUT NEW PS ON STACK
3756 010436 012746 010444 MOV #64#,-(SP) ;:PUT NEW PC ON STACK
3757 010442 000002 RTI ;:POP NEW PC AND PS
3758 010444 64#:
3759 ;:GET DATA MASK
3760 010444 CALL DATLNG OUT <R1>
3761 010444 162705 000002 SUB #1*2,R5
3762 010450 004767 001176 JSR PC,DATLNG
3763 010454 012501 MOV (R5),R1
3764 010456
3765 010456 017700 170600 MOV #RBUF,R0 LET R0 := #RBUF ; START CLEAN
3766
3767 010462 ;:BINARY COUNT PATTERN
3768 010462 005002 CLR R2 INCR R2 FROM #0 TO #377 BY #1
3769 010464 000401 BR #174
3770 010466 #175:
3771 010466 005202 INC R2
3772 010470 #174:
3773 010470 020227 000377 CMP R2,#377
3774 010474 003047 BGT #176
3775
3776
3777 ;:TRANSMIT THE CHAR. IN R2.
3778 CALL TIMER IN <#1000,#XMITRDY,TCSR,#SET>
3779 010476
3780 010476 010546 MOV R5,-(SP)
3781 010500 012745 177777 MOV #SET,-(R5)
3782 010504 016745 170554 MOV TCSR,-(R5)
3783 010510 012745 000200 MOV #XMITRDY,-(R5)
3784 010514 012745 001000 MOV #1000,-(R5)
3785 010520 004767 000750 JSR PC,TIMER
3786 010524 012605 MOV (SP),R5
3787
3788 ;:START IT ON ITS WAY
3789 010526 LET #TBUF :B= R2

```

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```

3790 010526 110277 170536      MOVB   R2,@TBUF
3791 010532
3792 010532 010546
3793 010534 012745 177777      MOV    R5,-(SP)
3794 010540 016745 170514      MOV    #SET,-(R5)
3795 010544 012745 000200      MOV    RCSR,-(R5)
3796 010550 012745 001000      MOV    #RCVDRONE,-(R5)
3797 010554 004767 000714      MOV    #1000,-(R5)
3798 010560 012605      JSR    PC,TIMER
3799
3800
3801 010562
3802 010562 017703 170474      MOV    @RBUF,R3
3803
3804
3805 010566
3806 010566 010204      MOV    R2,R4
3807 010570 040104      BIC   R1,R4
3808 010572
3809 010572 040103      BIC   R1,R3
3810
3811
3812 010574
3813 010574 020403      CMP   R4,R3
3814 010576 001405      BEQ   #177
3815
3816 010600
3817 010600 104117      ERROR 117
3818 010602
3819 010602 012767 000001 170350      MOV   #1,#TIMES
3820 010610 000401
3821 010612
3822 010612          $177:
3823
3824 010612
3825 010612 000725      BR    #175
3826 010614          $176:
3827
3828
3829
3830 010614
3831
3832
3833
3834

```

CALL TIMER IN <#1000,#RCVDRONE,RCSR,#SET>

;RETRIEVE
LET R3 := @RBUF

;STRIP OFF JUNK ON BOTH
LET R4 := R2 CLR.BY R1

LET R3 := R3 CLR.BY R1

;WE HAVE TROUBLE
IF R4 NE R3 THEN

;DATA COMPARE ERROR
ERRHRD 117,COMP,SBWAS

EXIT TST ; ON ERROR

:::EXIT THIS TEST
ENDIF

ENDINC ; R2

ENDTST

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CVDVA0.P11 12 JUL-84 05:04 T36 TEST DATA THROUGH CABLE

```

3835 ;:.....
3836 ;:.....
3837 ;*TEST 37 FULL DATA TRANSFER WITH INTERRUPTS
3838 ;* AND MAINTENANCE MODE.
3839 ;:.....
3840 TST37: SCOPE
3841 MOV #1,#TIMES ;DO 1 ITERATION
3842 MOV #37,#TESTN ;SET TEST NUMBER IN APT MAIL BOX
3843
3844
3845 ; THIS TEST IS 'BREAK OR HALT' SENSITIVE.
3846 ; IF #APTENV SETIN #ENV THEN
3847 BIT #APTENV,#ENV
3848 BEQ $200
3849
3850 ; EXIT TEST
3851 MOV #1,#TIMES
3852 BR TST40 ;EXIT THIS TEST
3853 ; ENDF
3854
3855 ;GET DATA MASK
3856 ;CALL DATLNG OUT <R3>
3857
3858 SUB #1*2,R5
3859 JSR PC,DATLNG
3860 MOV (R5),R3
3861
3862 ; THIS TEST WILL RUN BOTH TRANSMITTER AND
3863 ; RECIEVER AT FULL SPEED TESTING
3864 ; THE ABILITY OF THE MODULE
3865 ; TO HANDLE INTERRUPTS FROM BOTH SIDES
3866 ; AT ONCE. ALSO, THE DOUBLE BUFFERING LOGIC
3867 ; OF THE UART WILL BE FULLY TESTED.
3868 ; THIS TEST WILL TRANSFER A MAXIMUM OF 400(8)
3869 ; CHARACTERS THROUGH THE MODULE, BUT IF AN ERROR
3870 ; IS DETECTED BY THE TEST A PREMATURE SHUTDOWN OCCURS.
3871
3872
3873 ;CHANGE PRIORITY
3874 ;..TO 0
3875 MOV #PRO,-(SP) ;PUT NEW PS ON STACK
3876 MOV #64,-(SP) ;PUT NEW PC ON STACK
3877 RTI ;POP NEW PC AND PS
3878
3879 ;GET VECTOR ADDRESS
3880 LET R1 := DLVEC
3881
3882 ;RCVR VECTOR
3883 LET (R1) := #REC
3884
3885 LET (R1) := #PR7
3886
3887 ;POINT TO TRANSMITTER VECTOR
3888 ;AND SET IT UP ALSO
3889 LET (R1) := #TRAN
3890 LET (R1) := #PR7

```

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```

3891 010716 012711 000340      MOV      @PR7,(R1)
3892
3893
3894 010722
3895 010722 012701 177777      MOV      @ 1,R1
3896
3897 010726
3898 010726 005002      CLR      R2
3899
3900 010730
3901 010730 012704 177777      MOV      @-1,R4
3902
3903
3904 010734
3905 010734 005067 000066      CLR      ERRCNT
3906
3907 010740
3908 010740 000005      RESET
3909
3910 010742
3911 010742 052777 000004 170314      BIS      @MAINT,@TCSR
3912
3913
3914 010750
3915 010750 052777 000100 170306      BIS      @XMITIE,@TCSR
3916
3917 010756
3918 010756 052777 000100 170274      BIS      @RCVRIE,@RCSR
3919
3920
3921
3922 010764
3923 010764
3924 010764      $201:
3925 010764 020467 000040      CMP      R4,NUMBER
3926 010770 001403      BEQ      $202
3927 010772 005767 000030      TST      ERRCNT
3928 010776 003772      BLE      $201
3929 011000      $202:
3930
3931
3932 011000
3933 011000 005767 000022      TST      ERRCNT
3934 011004 001401      BEQ      $203
3935
3936 011006
3937 011006 104120      ERROR   120
3938 011010
3939 011010      $203:
3940
3941 011010
3942 011010 042777 000100 170246      BIC      @XMITIE,@TCSR
3943 011016
3944 011016 042777 000100 170234      BIC      @XMITIE,@RCSR
3945
3946 011024

```

; INITIALIZE COUNTERS
 LET R1 := @-1

; RECEIVER STORAGE
 LET R2 := @0

; @ OF RECEIVED CHAR. COUNT.
 LET R4 := @-1

; CLEAR ERROR COUNT.
 LET ERRCNT := @0

BRESET ;SET UP ALL REGISTERS

;SET UP MAINTENANCE
 LET @TCSR := @TCSR SET.BY @MAINT

;SET I.E. IN TRANSMITTER
 LET @TCSR := @TCSR SET.BY @XMITIE

;AND RECEIVER
 LET @RCSR := @RCSR SET.BY @RCVRIE

;NOW WE WAIT UNTIL R4 COUNT (RECEIVED) IS EQUAL
 REPEAT

UNTIL R4 EQ NUMBER OR ERRCNT GT @0

;DATA COMPARE ERRORS.
 IF ERRCNT NE @0 THEN

;DATA COMPARE ERROR
 ERRHAD 120,COMP,FIRST

ENDIF

LET @TCSR := @TCSR CLR.BY @XMITIE

LET @RCSR := @RCSR CLR.BY @XMITIE

EXIT ;SKIP OVER SUPPORT ROUTINES & STORAGE

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CVDVAD.P11 12 JUL 84 05:04 T37 FULL DATA TRANSFER WITH INTERRUPTS

```

3947 011024 000462          BR      TST40          ;;;EXIT THIS TEST
3948
3949 011026 000000          ERRCNT: 0
3950 011030 000400          NUMBER: 400
3951 011032      000          SB:      .BYTE 0
3952 011033      000          WAS:      .BYTE 0
3953
3954
3955
3956          ;*****
3957          ;TRANSMIT INTERRUPT HANDLER
3958
3959 011034          BGNSRV  TRAN
3960 011034
3961          ;*****
3962
3963          ;INCREMENT CHAR COUNT
3964 011034          LET R1 := R1 + #1
3965 011034 005201          INC      R1
3966          ;SET UP FOR TRANSFER
3967 011036          LET HOLD := R1      CLR.BY R3
3968 011036 010167 000030      MOV      R1,HOLD
3969 011042 040367 000024      BIC      R3,HOLD
3970          ;AND SEND.
3971 011046          LET @TBUF := HOLD
3972 011046 016777 000020 170214  MOV      HOLD,@TBUF
3973          ;ALL DONE
3974 011054          IF R1 EQ NUMBER THEN
3975 011054 020167 177750      CMP      R1,NUMBER
3976 011060 001003          BNE      #204
3977          ;STOP INTERRUPT PROCESSING
3978 011062          LET @TCSR := @TCSR CLR.BY @XMITIE
3979 011062 042777 000100 170174  BIC      @XMITIE,@TCSR
3980 011070          ENDIF
3981 011070          #204:
3982
3983 011070 000401          BR      ZZZ          ; EXIT SRV
3984
3985 011072 000000          HOLD:0
3986
3987 011074          ZZZ:          ENDSRV
3988 011074 000002          RTI
3989
3990
3991          ;*****
3992          ;RECEIVER INTERRUPT HANDLER
3993          BGNSRV  REC
3994 011076
3995 011076
3996          ;*****
3997
3998          ;COUNT THIS CHAR.
3999 011076          LET R4 := R4 + #1
4000 011076 005204          INC      R4
4001          ;GET CHAR IN + MASK IT
4002 011100          LET R2 := @RBUF CLR.BY R3

```

```

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CVDVAD.P11 12-JUL-84 05:04 T37 FULL DATA TRANSFER WITH INTERRUPTS

4003 011100 017702 170156      MOV  BRBUF,R2
4004 011104 040302              BIC  R3,R2
4005                               ;RHLD WILL CONTAIN EXPECTED INPUT
4006 011106              LET RHLD := R4 CLR.BY R3
4007 011106 010467 000054      MOV  R4,RHLD
4008 011112 040367 000050      BIC  R3,RHLD
4009
4010                               ;DO THEY COMPARE
4011 011116              IF R2 NE RHLD THEN
4012 011116 020267 000044      CMP  R2,RHLD
4013 011122 001412              BEQ  $205
4014
4015                               ;FIRST ERROR
4016 011124 005767 177676      TST  ERRCNT
4017 011130 001005              BNE  $206
4018
4019                               ;SAVE RECORD OF FIRST MISS
4020 011132 116767 000030 177672  MOVB RHLD,S8
4021 011140              LET S8 :B= RHLD
4022 011140 110267 177667      MOVB R2,WAS
4023 011144
4024 011144              $206:
4025
4026 011144              ;COUNT IT.
4027 011144 005267 177656      INC  ERRCNT
4028 011150
4029 011150              $205:
4030
4031
4032 011150              ;ALL DONE?
4033 011150 020467 177654      CMP  R4,NUMBER
4034 011154 001003              BNE  $207
4035
4036 011156              ;STOP RECEIVER INTERRUPTS
4037 011156 042777 000100 170074  BIC  @RCVRIE,@RCSR
4038
4039 011164              ;MAIN REPEAT LOOP IS CHECKING
4040 011164              $207:
4041
4042
4043 011164 000401              BR   ZZZZ
4044
4045 011166 000000              ;FOR 'R4 = NUMBER' ALSO
4046 011170              ; EXIT SRV
4047 011170              RHLD:0
4048 011170 000002              RTI
4049
4050 011172              ENDSRV
4051
4052
4053              ENDTST

```


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 CVDVAD.P11 12-JUL-84 05:04 T37 FULL DATA TRANSFER WITH INTERRUPTS

```

4054 ;*****
4055 ;*****
4056 ;*TEST 40 TEST BREAK GENERATION LOGIC
4057 ;* TRANSMIT KNOWN CHAR WITH BREAK SET
4058 ;* AND COMPARE RECEIVED WITH 0.
4059 ;*****
4060 011172 000004 TST40: SCOPE
4061 011174 012767 000010 167756 MOV #10,#TIMES ;DO 10 ITERATIONS
4062 011202 012767 000040 167770 MOV #40,#TESTN ;SET TEST NUMBER IN APT MAIL BOX
4063 011210 ; IF #BRK NOTSETIN #USWR THEN
4064 011210 032767 010000 170002 BIT #BRK,#USWR
4065 011216 001004 BNE #210
4066 011220 ;
4067 011220 012767 000001 167732 MOV #1,#TIMES EXIT TST
4068 011226 000452 BR TST41 ;EXIT THIS TEST
4069 011230 ;
4070 011230 ;210: ;
4071 ;
4072 011230 ;SET MAINTENANCE BIT
4073 011230 052777 000004 170026 BIS #MAINT,#TCSR LET #TCSR := #TCSR SET.BY #MAINT
4074 ;
4075 ; CLEAR RCVRDONE JUST IN CASE
4076 011236 ; LET RO := #RBUF
4077 011236 017700 170020 MOV #RBUF,RO
4078 ;
4079 ;
4080 ;SET BREAK BIT
4081 011242 ; LET #TCSR := #TCSR SET.BY #BREAK
4082 011242 052777 000001 170014 BIS #BREAK,#TCSR
4083 ;
4084 011250 ;NON-ZERO CHAR. '*'
4085 011250 012777 000252 170012 MOV #252,#TBUF LET #TBUF := #252
4086 011256 ;
4087 011256 010546 MOV R5,-(SP) CALL TIMER IN <#1000,#RCVRDONE,#RCSR,#SET>
4088 011260 012745 177777 MOV #SET,-(R5)
4089 011264 016745 167770 MOV #RCSR,-(R5)
4090 011270 012745 000200 MOV #RCVRDONE,-(R5)
4091 011274 012745 001000 MOV #1000,-(R5)
4092 011300 004767 000170 JSR PC,TIMER
4093 011304 012605 MOV (SP),R5
4094 011306 ;
4095 011306 103001 BCC #211 IF.ERROR THEN
4096 ;
4097 011310 ; RECIEVER DONE DID NOT SET
4098 011310 104115 ERROR 115 ERRHRD 115
4099 011312 ;
4100 011312 ;211: ;
4101 ;
4102 011312 ; IFB #RBUF NE #0 THEN
4103 011312 105777 167744 TSTB #RBUF
4104 011316 001401 BEQ #212
4105 ;
4106 011320 ; BREAK DID NOT EQUAL 0
4107 011320 104121 ERROR 121 ERRHRD 121 ,BADBRK
4108 011322 ;
4109 011322 ;212: ;

```

MAINDEC-ZZ-CVDVA D MACY11 30A(1052) 12 JUL-84 09:52 PAGE 99
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```
4110 011322                                BRESET ;CLEAN UP
4111 011322 000005                          RESET
4112 011324                                EXIT
4113 011324 000413                          BR      TST41      ;;;EXIT THIS TEST
4114 011326 051102 040505 020113          BADBRK: .ASCIZ /BREAK DID NOT EQUAL 0/
4115 011334 044504 020104 047516
4116 011342 020124 050505 040525
4117 011350 020114 000060
4118
4119 011354                                ENDTST
```

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```

4120
4121
4122
4123
4124 011354 000004
4125 011356 012767 000001 167574
4126 011364 104401 011372
4127 011370 000404
4128
4129 011402
4130 011402 016746 167646
4131 011406 104402
4132 011410 104401 011416
4133 011414 000405
4134
4135 011430
4136 011430 016746 167622
4137 011434 104402
4138 011436 104401 011444
4139 011442 000405
4140
4141 011456
4142 011456 016746 167430
4143 011462 104405
4144 011464 005067 167422
4145 011470 000167 170250

```

```

;*****
;TEST 41      NOT A TEST - SEND BACK TO LOOP
;*****
TST41:  SCOPE
        MOV     #1,#TIMES      ;;DO 1 ITERATION
        TYPE   ,65#           ;;TYPE ASCIZ STRING
        BR     64#            ;;GET OVER THE ASCIZ
;65#:   .ASCIZ <CRLF>*(LSR: *
64#:
        MOV     DLADD,-(SP)    ;;SAVE DLADD FOR TYPEOUT
        TYPOC  ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
        TYPE   ,67#           ;;TYPE ASCIZ STRING
        BR     66#            ;;GET OVER THE ASCIZ
;67#:   .ASCIZ *,VECTOR: *
66#:
        MOV     DLVEC,-(SP)    ;;SAVE DLVEC FOR TYPEOUT
        TYPOC  ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
        TYPE   ,69#           ;;TYPE ASCIZ STRING
        BR     68#            ;;GET OVER THE ASCIZ
;69#:   .ASCIZ *,ERRORS: *
68#:
        MOV     $ERTTL,-(SP)   ;;SAVE $ERTTL FOR TYPEOUT
        TYPOS  ;;GO TYPE--DECIMAL ASCII WITH SIGN
        CLR    $ERTTL         ; RESET FOR NEXT DEVICE/PASS
        JMP    LOOP           ; BACK UP TO THE BEGINNING

```

```

4146
4147
4148
4149 011474
4150 011474
4151
4152
4153
4154
4155
4156
4157
4158
4159
4160
4161
4162
4163
4164
4165
4166
4167
4168
4169
4170
4171 000001
4172 000000
4173
4174 011474
4175 011474 016567 000004 000136
4176 011502
4177 011502 016567 000000 000132
4178 011510
4179 011510 112767 000000 000126
4180
4181
4182
4183
4184 011516
4185 011516
4186
4187 011516
4188 011516 036577 000002 000114
4189 011524 001004
4190 011526
4191 011526 112767 000000 000111
4192 011534
4193 011534 000403
4194 011536
4195 011536
4196 011536 112767 177777 000101
4197 011544
4198 011544
4199
4200
4201 011544

```

```

; ;BGNMOD SUBS
; ;*****
ROUTINE TIMER <HOWLONG,WHICHBIT,REG,SETCLR>
TIMER:
; * ROUTINE:TIMER
; * THIS ROUTINE IS USED TO TEST THE STATUS OF ANY BIT
; * IN ANY REGISTER.
; * INPUTS:
; * HOWLONG THE MAXIMUM AMOUNT OF TIME TO SPEND IN
; * THIS ROUTINE.
; * WHICHBIT A MASK WITH THE BIT(S) SET THAT ARE
; * TO BE CHECKED.
; * REG A POINTER TO THE REGISTER TO BE CHECKED
; * SETCLR THE DESIRED RESULTS
; * EITHER #SET OR #CLEAR
; * OUTPUT:
; * THE 'C' BIT IS SET TO INDICATE AN ERROR
; * BUT IT IS TESTED BY THE IF.ERROR STATEMENT
; *
; * NOTE:: THE USE OF (R5) IS PART OF THE LINKAGE
; * MECHANISM BETWEEN THE CALLER AND THE CALLED
; ;*****
TRUE= 1
FALSE= 0
LET REGSAV := REG(R5) ; GET POINTER TO REGIST
LET TIMSAV := HOWLONG(R5) ; SAVE HOWLONG FOR
LET FLAG :B= #FALSE ; INITIALIZE THE EXIT FLA
; START OF AN INFINITE LOOP
LOOP
; TEST TO SEE IF WHICHBIT IS SET
IF WHICHBIT(R5) NOTSETIN @REGSAV THEN
LET HOLDSC :B= #CLR
ELSE
LET HOLDSC :B= #SET ; REMEMBER THIS
ENDIF
; NOW SEE IF THAT WAS WHAT WE WANTED
IFB HOLDSC EQ SETCLR(R5) THEN

```

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```

4202 011544 126765 000075 000006      CMPB  HOLDSC,SETCLR(R5)
4203 011552 001003                    BNE   $221
4204                                     ; JUST THE THING WE NEEDED
4205 011554                                     LET   FLAG :B= #TRUE
4206 011534 112767 000001 000062      MOVB  #TRUE,FLAG
4207 011562                                     ENDIF
4208 011562                                $221:
4209
4210 011562                                     EXIFB FLAG EQ #TRUE OR TIMSAV LE #0
4211 011562 126727 000056 000001      CMPB  FLAG,#TRUE
4212 011570 001414                    BEQ   $216
4213 011572 005767 000044                    TST  TIMSAV
4214 011576 003411                    BLE  $216
4215
4216                                     ; ONE WAY OR THE OTHER, WE ARE DONE
4217                                     ; IF WE ARE STILL HERE THEN HANG AROUND A WHILE
4218 011600                                     WAITMS 1           ;WAIT FOR 10 MILLI-SECONDS
4219 011600 010546                    MOV   R5,-(SP)
4220 011602 012745 000001                    MOV   #1,-(R5)
4221 011606 004767 000140                    JSR   PC,WAIT
4222 011612 012605                    MOV   (SP),R5
4223 011614                                     LET   TIMSAV := TIMSAV - #1 ; COUNTING DOWN
4224 011614 005367 000022                    DEC  TIMSAV
4225 011620                                     ENDL00P           ; CONTINUED AT THE TOP
4226 011620 000736                    BR   $215
4227 011622                                $216:
4228
4229                                     ; ONLY 2 WAYS TO GET HERE
4230                                     ; 1). WE RAN OUT OF TIME---ERROR !!
4231                                     ; 2). THE BIT IS IN THE CORRECT CONDITION GOOD !!
4232
4233 011622                                     IFB   FLAG EQ #TRUE THEN
4234 011622 126727 000016 000001      CMPB  FLAG,#TRUE
4235 011630 001001                    BNE  $222
4236 011632                                     RETURN NO.ERROR   ; GOOD
4237 011632 000405                    BR   $213
4238 011634
4239 011634                                $222:
4240 011634                                     RETURN ERROR      ; BAD
4241 011634 000261                    SEC
4242 011636 000404                    BR   $214
4243
4244 011640 000000                                     REGSAV: .WORD 0
4245 011642 000000                                     TIMSAV: .WORD 0
4246 011644 000                                     FLAG:   .BYTE 0
4247 011645 000                                     HOLDSC: .BYTE 0
4248                                     ; WE ARE DONE GO BACK HOME
4249 011646                                     ENDRTN
4250 011646                                $213:
4251 011646 000241                    CLC
4252 011650                                $214:
4253 011650 000207                    RTS   PC
    
```

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```

4254
4255
4256 011652
4257 011652
4258
4259
4260
4261
4262
4263
4264
4265
4266
4267
4268
4269
4270
4271 011652
4272 011652 005065 000000
4273 011656
4274 011656 016767 167336 000062
4275 011664 016746 000056
4276 011670 042716 000017
4277 011674 042667 000046
4278
4279 011700
4280 011700 012767 000001 167364
4281 011706 000402
4282 011710
4283 011710 005267 167356
4284 011714
4285 011714 026767 167352 000024
4286 011722 003006
4287 011724
4288 011724 006365 000000
4289 011730
4290 011730 052765 000001 000000
4291 011736
4292 011736 000764
4293 011740
4294 011740
4295 011740 005165 000000
4296 011744
4297 011744 000401
4298 011746 000000
4299 011750
4300 011750
4301 011750
4302 011750 000207

```

```

;*****
ROUTINE DATLNG <MASK>
DATLNG:
;* ROUTINE:DATLNG
;* THIS ROUTINE SETS UP A MASK FOR DATA, WITH
;* INPUT - NOTHING IS PASSED TO THIS ROUTINE
;* BUT GLOBAL INFORMATION IS ASSUMED TO EXIST:
;* $USMR-- THE WORD FOR SOFTWARE PARAMETERS
;* DATA-- A MASK FOR THE LOCATION OF THE OCTAL
;* NUMBER OF DATA BITS
;* OUTPUT----
;* MASK-- A MASK OF BINARY ONES RIGHT-JUSTIFIED
;* THE NUMBER OF WHICH IS DEFINED IN $USMF WORD.
;*****
LET MASK(R5) := #0 ; START
LET NUMBR := $USMR AND #DATA
MOV $USMR,NUMBR
MOV NUMBR,-(SP)
BIC #DATA,(SP)
BIC (SP)+,NUMBR
INCR I FROM #1 TO NUMBR BY #1
MOV #1,I
BR $225
$226: INC I
$225: CMP I,NUMBR
BGT $227
LET MASK(R5) := MASK(R5) SHIFT #1
LET MASK(R5) := MASK(R5) SET.BY #1
ENDINC
BR $226
$227: LET MASK(R5) := COMP MASK(R5)
COM MASK(R5)
BR $223
NUMBR:0
ENDRTN
$223:
$224: RTS PC

```

```

4303
4304
4305 011752
4306 011752
4307
4308
4309
4310
4311
4312
4313
4314 011752 010146
4315 011754 010246
4316 011756 010346
4317 011760
4318 011760 016501 000000
4319 011764
4320 011764 012702 000001
4321 011770 000402
4322 011772
4323 011772 062702 000001
4324 011776
4325 011776 020201
4326 012000 101010
4327 012002
4328 012002 005003
4329 012004 000401
4330 012006
4331 012006 005203
4332 012010
4333 012010 020327 000100
4334 012014 003001
4335 012016
4336 012016 000773
4337 012020
4338 012020
4339 012020 000764
4340 012022
4341 012022 012603
4342 012024 012602
4343 012026 012601
4344 012030
4345 012030
4346 012030
4347 012030 000207

```

```

;*****
ROUTINE WAIT <TIME>
WAIT:
; ROUTINE:WAIT
; THIS ROUTINE IS USED TO DELAY EXECUTION OF THE
; MAIN PROGRAM FOR A SPECIFIED AMOUNT OF TIME.
; THIS IS ACCOMPLISHED BY INCREMENTING A
; REGISTER UP TO A LIMIT. THE INNER LOOP IS SET
; TO APPROXIMATE 1 MILLI SEC.
;*****
MOV R1,-(SP) ;;PUSH R1 ON STACK
MOV R2,-(SP) ;;PUSH R2 ON STACK
MOV R3,-(SP) ;;PUSH R3 ON STACK
LET R1 := TIME(R5)
MOV TIME(R5),R1
INCRU R2 FROM #1 TO R1 BY #1
MOV #1,R2
BR #232
#233: ADD #01,R2
#232: CMP R2,R1
BHI #234
INCR R3 FROM #0 TO #100 BY #1
CLR R3
BR #235
#236: INC R3
#235: CMP R3,#100
BGT #237
ENDINC
BR #236
#237: ENDINC
BR #233
#234: MOV (SP),R3 ;;POP STACK INTO R3
MOV (SP),R2 ;;POP STACK INTO R2
MOV (SP),R1 ;;POP STACK INTO R1
ENDRTN
#230:
#231: RTS PC

```

MAINDEC-27 CVDVA-D MACY11 30A(1052) 12 JUL-84 09:52 PAGE 105
CVDVA0.P11 12 JUL-84 05:04 ROUTINE - WAIT

```

4348
4349 .SBTTL INTSRV INTERRUPT SERVICE ROUTINE
4350 ;*****
4351 012032 INTSRV:
4352 ;* SERVICE ROUTINE: INTSRV
4353 ;* THIS GLOBAL ROUTINE DOES NOTHING BUT INCREMENT
4354 ;* 'INTFLAG' EACH TIME IT IS CALLED. IT ASSUMES
4355 ;* THAT THE MAIN CALLING ROUTINE WILL KNOW WHAT
4356 ;* TO LOOK FOR.
4357 ;*****
4358
4359 ;ADD 1 TO 'INTERRUPT OCCURED' FLAG
4360 012032 LET INTFLAG := INTFLAG + #1
4361 012032 005267 000002 INC INTFLAG
4362 012036 ENDSRV ;THAT'S ALL
4363 012036 000002 RTI
4364 012040 000000 INTFLAG: 0

```


MAINDEC-ZZ-CVDVA D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 106
 CVDVAD.P11 12-JUL-84 05:04 INTSRV INTERRUPT SERVICE ROUTINE

```

4365
4366 012042
4367 012042
4368
4369 012042 104401 012050
4370 012046 000405
4371
4372 012062
4373 012062 016746 167112
4374 012066 104402
4375 012070 104401 012076
4376 012074 000405
4377
4378 012110
4379 012110 116767 167000 167060
4380 012116 016746 167054
4381 012122 104402
4382 012124 104401 012132
4383 012130 000404
4384
4385 012142
4386 012142 016746 166750
4387 012146 104402
4388 012150 104401 012156
4389 012154 000404
4390
4391 012166
4392 012166 016746 167062
4393 012172 104402
4394 012174 104401 012202
4395 012200 000405
4396
4397 012214
4398 012214 016746 167036
4399 012220 104402
4400 012222
4401 012222
4402 012222
4403 012222 000207

ROUTINE MYTYPE
MYTYPE:
;*****
TYPE ,65$ ;;TYPE ASCIZ STRING
BR 64$ ;;GET OVER THE ASCIZ
;;65$: .ASCIZ <CRLF>*TEST *
64$:
MOV $TESTN,-(SP) ;;SAVE $TESTN FOR TYPEOUT
TYPOC ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
TYPE ,67$ ;;TYPE ASCIZ STRING
BR 66$ ;;GET OVER THE ASCIZ
;;67$: .ASCIZ *.ERROR *
66$:
MOVB $ITMB,$FATAL ; APT FATAL ERROR NUMBER
MOV $FATAL,-(SP) ;;SAVE $FATAL FOR TYPEOUT
TYPOC ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
TYPE ,69$ ;;TYPE ASCIZ STRING
BR 68$ ;;GET OVER THE ASCIZ
;;69$: .ASCIZ *.PC = *
68$:
MOV $ERRPC,-(SP) ;;SAVE $ERRPC FOR TYPEOUT
TYPOC ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
TYPE ,71$ ;;TYPE ASCIZ STRING
BR 70$ ;;GET OVER THE ASCIZ
;;71$: .ASCIZ *.CSR: *
70$:
MOV DLADD,-(SP) ;;SAVE DLADD FOR TYPEOUT
TYPOC ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
TYPE ,73$ ;;TYPE ASCIZ STRING
BR 72$ ;;GET OVER THE ASCIZ
;;73$: .ASCIZ *.VECTOR: *
72$:
MOV DLVEC,-(SP) ;;SAVE DLVEC FOR TYPEOUT
TYPOC ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
ENDRTN
$240:
$241:
RTS PC
    
```

MAINDEC-27 CVDVA D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 107
 CVDVAD.P11 12 JUL 84 05:04 ROUTINE MYTYPE

```

4404 012224 ROUTINE CYCLE
4405 012224 CYCLE:
4406 ; ;*****
4407 ; * ROUTINE: CYCLE
4408 ; * THIS ROUTINE CAUSES ADRS TO POINT TO THE
4409 ; * ADDRESS OF DLV11-E UNDER TEST, ADRS +2 TO
4410 ; * POINT TO THE VECTOR OF THE DLV11-E UNDER TEST.
4411 ; * IT KEEPS TRACK OF THE CURRENT DEVICE AND BIT
4412 ; * MASKS.
4413 ; ;*****
4414 012224 REPEAT
4415 012224 $244:
4416 012224 IF BITMASK EQ #0 THEN
4417 012224 005767 000122 TST BITMASK
4418 012230 001027 BNE $245
4419 012232 IF INITFLAG EQ #1 THEN
4420 012232 026727 000116 000001 CMP INITFLAG,#1
4421 012240 001003 BNE $246
4422 012242 LET INITFLAG := #0
4423 012242 005067 000106 CLR INITFLAG
4424 012246 ELSE
4425 012246 000403 BR $247
4426 012250 $246:
4427 012250 CALL $EOP ; AS A SUBROUTINE
4428 012250 004767 000110 JSR PC,$EOP
4429
4430 012254 SPECIAL ADDRESS: ; BECAUSE $EOP RETURNS AS A JUMP
4431 012254 LET RO := POP
4432 012254 012600 MOV (SP)+,RO
4433 012256 ENDF
4434 012256 $247:
4435 012256 LET BITMASK := #1
4436 012256 012767 000001 000066 MOV #1,BITMASK
4437 012264 LET $DEVCT := #1
4438 012264 012767 000001 166712 MOV #1,$DEVCT
4439 012272 LET ADDRESS := $BASE
4440 012272 016767 166752 000056 MOV $BASE,ADDRESS
4441 012300 LET VECTOR := $VECT1
4442 012300 016767 166740 000052 MOV $VECT1,VECTOR
4443 012306 ELSE
4444 012306 000410 BR $250
4445 012310 $245:
4446 012310 LET R4 := #10
4447 012310 012704 000010 MOV #10,R4
4448 012314 LET BITMASK := BITMASK ROTATE 1
4449 012314 006167 000032 ROL BITMASK
4450 012320 LET ADDRESS := ADDRESS + R4
4451 012320 060467 000032 ADD R4,ADDRESS
4452 012324 LET VECTOR := VECTOR + R4
4453 012324 060467 000030 ADD R4,VECTOR
4454 012330 ENDF
4455 012330 $250:
4456 012330 UNTIL BITMASK SET IN $DEVH
4457 012330 036767 000016 166714 BIT BITMASK,$DEVH
4458 012336 001732 BEQ $244
4459
    
```

MAINDEC-ZZ-CVDVA D MACY11 30A(1052) 12 JUL 84 09:52 PAGE 108
CVDVAD.P11 12 JUL -84 05:04 ROUTINE CYCLE

```

4460 012340          LET ADRS := @ADDRESS
4461 012340 012701 012356      MOV  @ADDRESS,ADRS
4462 012344          LET $DEVCT := $DEVCT + #1
4463 012344 005267 166634      INC  $DEVCT
4464 012350          RETURN
4465 012350 000404          BR   $242
4466 012352 000000      BITMASK: 0
4467 012354 000001      INITFLAG: 1
4468 012356 000000      ADDRESS:  0
4469 012360 000000      VECTOR:   0
4470
4471 012362          ENDRTN
4472 012362          $242:
4473 012362          $243:
4474 012362 000207      RTS   PC
4475
4476

```

MAINDEC-ZZ CVDVA D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 109
CVDVAD.P11 12 JUL-84 05:04 END OF PASS ROUTINE

4477
4478
4479
4480
4481
4482
4483
4484
4485
4486 012364
4487 012364 000004
4488 012366 005067 166510
4489 012372 005067 166562
4490 012376 005267 166600
4491 012402 042767 100000 166572
4492 012410 005327
4493 012412 000001
4494 012414 003022
4495 012416 012737
4496 012420 000001
4497 012422 012412
4498 012424 104401 012471
4499 012430 016746 166546
4500 012434 104405
4501 012436 104401 012466
4502 012442 013700 000042
4503 012446 001405
4504 012450 000005
4505 012452 004710
4506 012454 000240
4507 012456 000240
4508 012460 000240
4509 012462
4510 012462 000137
4511 012464 012254
4512 012466 377 377 000
4513 012471 015 042412 042116
4514 012476 050040 051501 020123
4515 012504 000043

```
.SBTTL END OF PASS ROUTINE
;*****
;INCREMENT THE PASS NUMBER (#PASS)
;INDICATE END-OF-PROGRAM AFTER 1 PASSES THRU THE PROGRAM
;TYPE "END PASS #XXXXX" (WHERE XXXXX IS A DECIMAL NUMBER)
;IF THERES A MONITOR GO TO IT
;IF THERE ISN'T JUMP TO SPECIALADDRESS

$EOP:
      SCOPE
      CLR    $TSTNM      ;;ZERO THE TEST NUMBER
      CLR    $TIMES      ;;ZERO THE NUMBER OF ITERATIONS
      INC    $PASS       ;;INCREMENT THE PASS NUMBER
      BIC    @100000,$PASS ;;DON'T ALLOW A NEG. NUMBER
      DEC    (PC)        ;;LOOP?
$EOPCT: .WORD 1
      BGT    $DOAGN      ;;YES
      MOV    (PC),@(PC)  ;;RESTORE COUNTER
$ENDCT: .WORD 1
      $EOPCT
      TYPE   , $ENDMG    ;;TYPE "END PASS #"
      MOV    $PASS,-(SP) ;;SAVE $PASS FOR TYPEOUT
      TYPDS  ;;GO TYPE--DECIMAL ASCII WITH SIGN
      TYPE   , $ENULL    ;;TYPE A NULL CHARACTER
$GET42: MOV    @42,R0    ;;GET MONITOR ADDRESS
      BEQ    $DOAGN      ;;BRANCH IF NO MONITOR
      RESET  ;;CLEAR THE WORLD
$ENDAD: JSR    PC,(R0)  ;;GO TO MONITOR
      NOP    ;;SAVE ROOM
      NOP    ;;FOR
      NOP    ;;ACT11
$DOAGN:
      JMP    @(PC)      ;;RETURN
$RTNAD: .WORD SPECIALADDRESS
$ENULL: .BYTE -1,-1,0  ;;NULL CHARACTER STRING
$ENDMG: .ASCIZ '<15><12>/END PASS #/'
```

MAINDEC-ZZ-CVDVA-D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 110
 CVDVAD.P11 12-JUL-84 05:04 POWER DOWN AND UP ROUTINES

```

4516          .SBTTL POWER DOWN AND UP ROUTINES
4517
4518          ;*****
4519          ;POWER DOWN ROUTINE
4520 012506 012737 012652 000024 $PWRDN: MOV    @ILLUP,@PWRVEC ;;SET FOR FAST UP
4521 012514 012737 000340 000026      MOV    @340,@PWRVEC+2 ;;PRIO:7
4522 012522 010046          MOV    R0,-(SP) ;;PUSH R0 ON STACK
4523 012524 010146          MOV    R1,-(SP) ;;PUSH R1 ON STACK
4524 012526 010246          MOV    R2,-(SP) ;;PUSH R2 ON STACK
4525 012530 010346          MOV    R3,-(SP) ;;PUSH R3 ON STACK
4526 012532 010446          MOV    R4,-(SP) ;;PUSH R4 ON STACK
4527 012534 010546          MOV    R5,-(SP) ;;PUSH R5 ON STACK
4528 012536 017746 166376      MOV    @SWR,-(SP) ;;PUSH @SWR ON STACK
4529 012542 010667 000110      MOV    SP,@SAVR6 ;;SAVE SP
4530 012546 012737 012560 000024      MOV    @PWRUP,@PWRVEC ;;SET UP VECTOR
4531 012554 000000          HALT
4532 012556 000776          BR     .-2 ;;HANG UP
4533
4534          ;*****
4535          ;POWER UP ROUTINE
4536 012560 012737 012652 000024 $PWRUP: MOV    @ILLUP,@PWRVEC ;;SET FOR FAST DOWN
4537 012566 016706 000064      MOV    @SAVR6,SP ;;GET SP
4538 012572 005067 000060          CLR    @SAVR6 ;;WAIT LOOP FOR THE TTY
4539 012576 005267 000054 1$: INC    @SAVR6 ;;WAIT FOR THE INC
4540 012602 001375          BNE   1$ ;;OF WORD
4541 012604 012677 166330      MOV    (SP)+,@SWR ;;POP STACK INTO @SWR
4542 012610 012605          MOV    (SP)+,R5 ;;POP STACK INTO R5
4543 012612 012604          MOV    (SP)+,R4 ;;POP STACK INTO R4
4544 012614 012603          MOV    (SP)+,R3 ;;POP STACK INTO R3
4545 012616 012602          MOV    (SP)+,R2 ;;POP STACK INTO R2
4546 012620 012601          MOV    (SP)+,R1 ;;POP STACK INTO R1
4547 012622 012600          MOV    (SP)+,R0 ;;POP STACK INTO R0
4548 012624 012737 012506 000024      MOV    @PWRDN,@PWRVEC ;;SET UP THE POWER DOWN VECTOR
4549 012632 012737 000340 000026      MOV    @340,@PWRVEC+2 ;;PRIO:7
4550 012640 104401          TYPE   ;;REPORT THE POWER FAILURE
4551 012642 012660 $PWRMG: .WORD @POWER ;;POWER FAIL MESSAGE POINTER
4552 012644 012716      MOV    (PC)+,(SP) ;;RESTART AT START
4553 012646 001336 $PWRAD: .WORD START ;;RESTART ADDRESS
4554 012650 000002          RTI
4555 012652 000000 $ILLUP: HALT ;;THE POWER UP SEQUENCE WAS STARTED
4556 012654 000775          BR     .-2 ;; BEFORE THE POWER DOWN WAS COMPLETE
4557 012656 000000 $SAVR6: 0 ;;PUT THE SP HERE
4558 012660 005015 047520 042527 $POWER: .ASCIZ <15><12>"POWER"
4559 012666 000122          .EVEN
4560

```

MAINDEC-ZZ-CVDVA-D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 111
 CVDVAD.P11 12-JUL-84 05:04 TYPE ROUTINE

```

4561 .SBTTL TYPE ROUTINE
4562
4563 ;*****
4564 ;*ROUTINE TO TYPE ASCIZ MESSAGE. MESSAGE MUST TERMINATE WITH A 0 BYTE.
4565 ;*THE ROUTINE WILL INSERT A NUMBER OF NULL CHARACTERS AFTER A LINE FEED.
4566 ;*NOTE1:      $NULL CONTAINS THE CHARACTER TO BE USED AS THE FILLER CHARACTER.
4567 ;*NOTE2:      $FILLS CONTAINS THE NUMBER OF FILLER CHARACTERS REQUIRED.
4568 ;*NOTE3:      $FILLC CONTAINS THE CHARACTER TO FILL AFTER.
4569 ;*
4570 ;*CALL:
4571 ;*1) USING A TRAP INSTRUCTION
4572 ;*      TYPE      ,MESADR      ;;MESADR IS FIRST ADDRESS OF AN ASCIZ STRING
4573 ;*OR
4574 ;*      TYPE
4575 ;*      MESADR
4576 ;*
4577
4578 012670 105767 166263 $TYPE: TSTB      $TPFLG      ;;IS THERE A TERMINAL?
4579 012674 100002      BPL          1$          ;;BR IF YES
4580 012676 000000      HALT         ;;HALT HERE IF NO TERMINAL
4581 012700 000430      BR           3$          ;;LEAVE
4582 012702 010046      1$:  MOV        RO,-(SP)      ;;SAVE RO
4583 012704 017600 000002  MOV        B2(SP),RO      ;;GET ADDRESS OF ASCIZ STRING
4584 012710 122767 000001 166276  CMPB       @APTENV,$ENV      ;;RUNNING IN APT MODE
4585 012716 001011      BNE          62$          ;;NO,GO CHECK FOR APT CONSOLE
4586 012720 132767 000100 166267  BITB       @APTPOOL,$ENVM    ;;SPOOL MESSAGE TO APT
4587 012726 001405      BEQ          62$          ;;NO,GO CHECK FOR CONSOLE
4588 012730 010067 000004      MOV        RO,61$          ;;SETUP MESSAGE ADDRESS FOR APT
4589 012734 004767 000774      JSR        PC,$ATY3        ;;SPOOL MESSAGE TO APT
4590 012740 000000      61$:  .WORD      0          ;;MESSAGE ADDRESS
4591 012742 132767 000040 166245 62$:  BITB       @APTCSUP,$ENVM    ;;APT CONSOLE SUPPRESSED
4592 012750 001003      BNE          60$          ;;YES,SKIP TYPE OUT
4593 012752 112046      2$:  MOVB      (RO),-(SP)      ;;PUSH CHARACTER TO BE TYPED ONTO STACK
4594 012754 001005      BNE          4$          ;;BR IF IT ISN'T THE TERMINATOR
4595 012756 005726      TST        (SP),          ;;IF TERMINATOR POP IT OFF THE STACK
4596 012760 012600      60$:  MOV        (SP),RO      ;;RESTORE RO
4597 012762 062716 000002      3$:  ADD        @2,(SP)      ;;ADJUST RETURN PC
4598 012766 000002      RTI         ;;RETURN
4599 012770 122716 000011      4$:  CMPB       @HT,(SP)      ;;BRANCH IF <HT>
4600 012774 001430      BEQ          5$          ;;BRANCH IF NOT <CRLF>
4601 012776 122716 000200      CMPB       @CRLF,(SP)
4602 013002 001006      BNE          5$          ;;POP <CR><LF> EQUIV
4603 013004 005726      TST        (SP),          ;;TYPE A CR AND LF
4604 013006 104401      TYPE
4605 013010 001171      $CRLF
4606 013012 105067 000130      CLRB      $CHARCNT      ;;CLEAR CHARACTER COUNT
4607 013016 000755      BR          2$          ;;GET NEXT CHARACTER
4608 013020 004767 000056      5$:  JSR        PC,$TYPEC      ;;GO TYPE THIS CHARACTER
4609 013024 126726 166126      6$:  CMPB       $FILLC,(SP),    ;;IS IT TIME FOR FILLER CHARS.?
4610 013030 001350      BNE          2$          ;;IF NO GO GET NEXT CHAR.
4611 013032 016746 166116      MOV        $NULL,-(SP)    ;;GET # OF FILLER CHARS. NEEDED
4612 ;;AND THE NULL CHAR.
4613 013036 105366 000001      7$:  DECB      1(SP)          ;;DOES A NULL NEED TO BE TYPED?
4614 013042 002770      BLT          6$          ;;BR IF NO--GO POP THE NULL OFF OF STACK
4615 013044 004767 000032      JSR        PC,$TYPEC      ;;GO TYPE A NULL
4616 013050 105367 000072      DECB      $CHARCNT      ;;DO NOT COUNT AS A COUNT
    
```

MAINDEC-ZZ-CVDVA-D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 112
 CVDVAD.P11 12-JUL-84 05:04 TYPE ROUTINE

```

4617 013054 000770                    BR      7#                    ;;LOOP
4618
4619                    ;HORIZONTAL TAB PROCESSOR
4620
4621 013056 112716 000040            8#:    MOVB    #' ,(SP)            ;;REPLACE TAB WITH SPACE
4622 013062 004767 000014            9#:    JSR    PC,$TYPEC            ;;TYPE A SPACE
4623 013066 132767 000007 000052    BITB    #7,$CHARCNT            ;;BRANCH IF NOT AT
4624 013074 001372                    BNE    9#                    ;;TAB STOP
4625 013076 005726                    TST    (SP)+                ;;POP SPACE OFF STACK
4626 013100 000724                    BR      2#                    ;;GET NEXT CHARACTER
4627 013102 105777 166042            $TYPEC: TSTB    @#TPS            ;;WAIT UNTIL PRINTER IS READY
4628 013106 100375                    BPL    $TYPEC
4629 013110 116677 000002 166034    MOVB    2(SP),@#TPB            ;;LOAD CHAR TO BE TYPED INTO DATA REG.
4630 013116 122766 000015 000002    CMPB    @CR,2(SP)            ;;IS CHARACTER A CARRIAGE RETURN?
4631 013124 001003                    BNE    1#                    ;;BRANCH IF NO
4632 013126 105067 000014            CLRB    $CHARCNT            ;;YES--CLEAR CHARACTER COUNT
4633 013132 000406                    BR      $TYPEX                ;;EXIT
4634 013134 122766 000012 000002 1#:    CMPB    @LF,2(SP)            ;;IS CHARACTER A LINE FEED?
4635 013142 001402                    BEQ    $TYPEX                ;;BRANCH IF YES
4636 013144 105227                    INCB    (PC)+                ;;COUNT THE CHARACTER
4637 013146 000000                    $CHARCNT: .WORD 0            ;;CHARACTER COUNT STORAGE
4638 013150 000207                    $TYPEX: RTS      PC
4639

```

MAINDEC-ZZ-CVDVA D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 113
 CVDVAD.P11 12 JUL -84 05:04 TTY INPUT ROUTINE

```

4640 .SBTTL TTY INPUT ROUTINE
4641
4642 ;*****
4643 .ENABL LSB
4644
4645 ;*****
4646 ;*SOFTWARE SWITCH REGISTER CHANGE ROUTINE.
4647 ;*ROUTINE IS ENTERED FROM THE TRAP HANDLER, AND WILL
4648 ;*SERVICE THE TEST FOR CHANGE IN SOFTWARE SWITCH REGISTER TRAP CALL
4649 ;*WHEN OPERATING IN TTY FLAG MODE.
4650 013152 022767 000176 165760 $CKSWR: CMP #SWREG,SWR ;;IS THE SOFT-SWR SELECTED?
4651 013160 001074 BNE 15# ;;BRANCH IF NO
4652 013162 105777 165756 TST #TKS ;;CHAR THERE?
4653 013166 100071 BPL 15# ;;IF NO, DON'T WAIT AROUND
4654 013170 117746 165752 MOV #TKB,-(SP) ;;SAVE THE CHAR
4655 013174 042716 177600 BIC #C177,(SP) ;;STRIP-OFF THE ASCII
4656 013200 022726 000007 CMP #7,(SP) ;;IS IT A CONTROL G?
4657 013204 001062 BNE 15# ;;NO, RETURN TO USER
4658 013206 126727 165722 000001 CMPB #AUTOB,#1 ;;ARE WE RUNNING IN AUTO-MODE?
4659 013214 001456 BEQ 15# ;;BRANCH IF YES
4660
4661 013216 104401 013677 $GTSWR: TYPE ,#CNTLG ;;ECHO THE CONTROL-G (+G)
4662 013222 104401 013704 TYPE ,#MSWR ;;TYPE CURRENT CONTENTS
4663 013226 016746 164744 MOV SWREG,-(SP) ;;SAVE SWREG FOR TYPEOUT
4664 013232 104402 TYPOC ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
4665 013234 104401 013715 TYPE ,#MNEW ;;PROMPT FOR NEW SWR
4666 013240 005046 19#: CLR -(SP) ;;CLEAR COUNTER
4667 013242 005046 CLR -(SP) ;;THE NEW SWR
4668 013244 105777 165674 7#: YSTB #TKS ;;CHAR THERE?
4669 013250 100375 BPL 7# ;;IF NOT TRY AGAIN
4670
4671 013252 117746 165670 MOV #TKB,-(SP) ;;PICK UP CHAR
4672 013256 042716 177600 BIC #C177,(SP) ;;MAKE IT 7-BIT ASCII
4673
4674
4675
4676 013262 021627 000025 9#: CMP (SP),#25 ;;IS IT A CONTROL-U?
4677 013266 001005 BNE 10# ;;BRANCH IF NOT
4678 013270 104401 013672 TYPE ,#CNTLU ;;YES, ECHO CONTROL-U (+U)
4679 013274 062706 000006 20#: ADD #6,SP ;;IGNORE PREVIOUS INPUT
4680 013300 000757 BR 19# ;;LET'S TRY IT AGAIN
4681
4682
4683 013302 021627 000015 10#: CMP (SP),#15 ;;IS IT A <CR>?
4684 013306 001022 BNE 16# ;;BRANCH IF NO
4685 013310 005766 000004 TST 4(SP) ;;YES, IS IT THE FIRST CHAR?
4686 013314 001403 BEQ 11# ;;BRANCH IF YES
4687 013316 016677 000002 165614 MOV 2(SP),#SWR ;;SAVE NEW SWR
4688 013324 062706 000006 11#: ADD #6,SP ;;CLEAR UP STACK
4689 013330 104401 001171 14#: TYPE ,#CRLF ;;ECHO <CR> AND <LF>
4690 013334 126727 165575 000001 CMPB #INTAG,#1 ;;RE-ENABLE TTY KBD INTERRUPTS?
4691 013342 001003 BNE 15# ;;BRANCH IF NOT
4692 013344 012777 000100 165572 MOV #100,#TKS ;;RE-ENABLE TTY KBD INTERRUPTS
4693 013352 000002 15#: RTI ;;RETURN
4694 013354 004767 177522 16#: JSR PC,#TYPEC ;;ECHO CHAR
4695 013360 021627 000060 CMP (SP),#60 ;;CHAR < 0?
    
```


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 CVDVAD.P11 12 JUL-84 05:04 TTY INPUT ROUTINE

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4696 013364 002420          BLT      18#          ;;BRANCH IF YES
4697 013366 021627 000067    CMP      (SP),#67      ;;CHAR > 7?
4698 013372 003015          BGT      18#          ;;BRANCH IF YES
4699 013374 042726 000060    BIC      #60,(SP)     ;;STRIP-OFF ASCII
4700 013400 005766 000002    TST      2(SP)        ;;IS THIS THE FIRST CHAR
4701 013404 001403          BEQ      17#          ;;BRANCH IF YES
4702 013406 006316          ASL      (SP)         ;;NO, SHIFT PRESENT
4703 013410 006316          ASL      (SP)         ;; CHAR OVER TO MAKE
4704 013412 006316          ASL      (SP)         ;; ROOM FOR NEW ONE.
4705 013414 005266 000002    17#:    INC      2(SP)        ;;KEEP COUNT OF CHAR
4706 013420 056616 177776    BIS      -2(SP),(SP)  ;;SET IN NEW CHAR
4707 013424 000707          BR       7#           ;;GET THE NEXT ONE
4708 013426 104401 001170    18#:    TYPE     ,#QUES      ;;TYPE ?<CR><LF>
4709 013432 000720          BR       20#          ;;SIMULATE CONTROL-U
4710
4711
4712
4713          ;;*****
4714          ;*THIS ROUTINE WILL INPUT A SINGLE CHARACTER FROM THE TTY
4715          ;*CALL:
4716          ;*      RDCHR          ;;INPUT A SINGLE CHARACTER FROM THE TTY
4717          ;*      RETURN HERE   ;;CHARACTER IS ON THE STACK
4718          ;*                  ;;WITH PARITY BIT STRIPPED OFF
4719          ;
4720
4721 013434 011646          $RDCHR: MOV      (SP),-(SP)    ;;PUSH DOWN THE PC
4722 013436 016666 000004 000002    MOV      4(SP),2(SP)   ;;SAVE THE PS
4723 013444 105777 165474    1#:    TSTB     #1TKS        ;;WAIT FOR
4724 013450 100375          BPL      1#           ;;A CHARACTER
4725 013452 117766 165470 000004    MOVB     #1TKB,4(SP)   ;;READ THE TTY
4726 013460 042766 177600 000004    BIC      #C<177>,4(SP) ;;GET RID OF JUNK IF ANY
4727 013466 026627 000004 000023    CMP      4(SP),#23     ;;IS IT A CONTROL-S?
4728 013474 001013          BNE      3#           ;;BRANCH IF NO
4729 013476 105777 165442    2#:    TSTB     #1TKS        ;;WAIT FOR A CHARACTER
4730 013502 100375          BPL      2#           ;;LOOP UNTIL ITS THERE
4731 013504 117746 165436    MOVB     #1TKB,-(SP)   ;;GET CHARACTER
4732 013510 042716 177600    BIC      #C<177>,(SP)  ;;MAKE IT 7-BIT ASCII
4733 013514 022627 000021    CMP      (SP),#21     ;;IS IT A CONTROL-Q?
4734 013520 001366          BNE      2#           ;;IF NOT DISCARD IT
4735 013522 000750          BR       1#           ;;YES, RESUME
4736 013524 026627 000004 000140    3#:    CMP      4(SP),#140   ;;IS IT UPPER CASE?
4737 013532 002407          BLT      4#           ;;BRANCH IF YES
4738 013534 026627 000004 000175    CMP      4(SP),#175   ;;IS IT A SPECIAL CHAR?
4739 013542 003003          BGT      4#           ;;BRANCH IF YES
4740 013544 042766 000040 000004    BIC      #40,4(SP)    ;;MAKE IT UPPER CASE
4741 013552 000002          4#:    RTI                    ;;GO BACK TO USER
4742          ;;*****
4743          ;*THIS ROUTINE WILL INPUT A STRING FROM THE TTY
4744          ;*CALL:
4745          ;*      RDLIN          ;;INPUT A STRING FROM THE TTY
4746          ;*      RETURN HERE   ;;ADDRESS OF FIRST CHARACTER WILL BE ON THE STACK
4747          ;*                  ;;TERMINATOR WILL BE A BYTE OF ALL 0'S
4748
4749 013554 010346          $RDLIN: MOV      R3,-(SP) ;;SAVE R3
4750 013556 012703 013662    1#:    MOV      #1TTYIN,R3   ;;GET ADDRESS
4751 013562 022703 013672    2#:    CMP      #1TTYIN+8.,R3 ;;BUFFER FULL?

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 CVDVAD.P11 12-JUL-84 05:04 TTY INPUT ROUTINE

| | | | | | | | | | |
|------|--------|--------|--------|--------|------|---------|--------------|------------------|---|
| 4752 | 013566 | 101405 | | | | BLOS | 48 | | ::BR IF YES |
| 4753 | 013570 | 104410 | | | | RDCHR | | | ::GO READ ONE CHARACTER FROM THE TTY |
| 4754 | 013572 | 112613 | | | | MOVB | (SP)+,(R3) | | ::GET CHARACTER |
| 4755 | 013574 | 122713 | 000177 | | 108: | CMPB | #177,(R3) | | ::IS IT A RUBOUT |
| 4756 | 013600 | 001003 | | | | BNE | 38 | | ::SKIP IF NOT |
| 4757 | 013602 | 104401 | 001170 | | 48: | TYPE | ,#QUES | | ::TYPE A '?' |
| 4758 | 013606 | 000763 | | | | BR | 18 | | ::CLEAR THE BUFFER AND LOOP |
| 4759 | 013610 | 111367 | 000044 | | 38: | MOVB | (R3),98 | | ::ECHO THE CHARACTER |
| 4760 | 013614 | 104401 | 013660 | | | TYPE | ,98 | | |
| 4761 | 013620 | 122723 | 000015 | | | CMPB | #15,(R3)+ | | ::CHECK FOR RETURN |
| 4762 | 013624 | 001356 | | | | BNE | 28 | | ::LOOP IF NOT RETURN |
| 4763 | 013626 | 105063 | 177777 | | | CLRB | -1(R3) | | ::CLEAR RETURN (THE 15) |
| 4764 | 013632 | 104401 | 001172 | | | TYPE | ,#LF | | ::TYPE A LINE FEED |
| 4765 | 013636 | 012603 | | | | MOV | (SP)+,R3 | | ::RESTORE R3 |
| 4766 | 013640 | 011646 | | | | MOV | (SP),-(SP) | | ::ADJUST THE STACK AND PUT ADDRESS OF THE |
| 4767 | 013642 | 016666 | 000004 | 000002 | | MOV | 4(SP),2(SP) | | ::FIRST ASCII CHARACTER ON IT |
| 4768 | 013650 | 012766 | 013662 | 000004 | | MOV | #TTYIN,4(SP) | | |
| 4769 | 013656 | 000002 | | | | RTI | | | ::RETURN |
| 4770 | 013660 | 000 | | | 98: | .BYTE | 0 | | ::STORAGE FOR ASCII CHAR. TO TYPE |
| 4771 | 013661 | 000 | | | | .BYTE | 0 | | ::TERMINATOR |
| 4772 | 013662 | 000010 | | | | #TTYIN: | .BLKB | 8. | ::RESERVE 8 BYTES FOR TTY INPUT |
| 4773 | 013672 | 052536 | 005015 | 000 | | #CNTLU: | .ASCIZ | /'U/'<15><12> | ::CONTROL "U" |
| 4774 | 013677 | 136 | 006507 | 000012 | | #CNTLG: | .ASCIZ | /'G/'<15><12> | ::CONTROL "G" |
| 4775 | 013704 | 005015 | 053523 | 020122 | | #MSWR: | .ASCIZ | <15><12>/SWR = / | |
| 4776 | 013712 | 020075 | 000 | | | | | | |
| 4777 | 013715 | 040 | 047040 | 053505 | | #MNEW: | .ASCIZ | / NEW = / | |
| 4778 | 013722 | 036440 | 000040 | | | | | | |

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 CVDVAD.P11 12-JUL-84 05:04 APT COMMUNICATIONS ROUTINE

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4779      .SBTTL  APT COMMUNICATIONS ROUTINE
4780
4781      ;:*****
4782 013726 112767 000001 000236 $ATY1:  MOVB  @1,$FFLG      ;:TO REPORT FATAL ERROR
4783 013734 112767 000001 000226 $ATY3:  MOVB  @1,$MFLG      ;:TO TYPE A MESSAGE
4784 013742 000403          BR      $ATYC
4785 013744 112767 000001 000220 $ATY4:  MOVB  @1,$FFLG      ;:TO ONLY REPORT FATAL ERROR
4786 013752          $ATYC:
4787 013752 010046          MOV    R0,-(SP)      ;:PUSH R0 ON STACK
4788 013754 010146          MOV    R1,-(SP)      ;:PUSH R1 ON STACK
4789 013756 105767 000206          TSTB  $MFLG      ;:SHOULD TYPE A MESSAGE?
4790 013762 001450          BEQ   5:          ;:IF NOT: BR
4791 013764 122767 000001 165222      CMPB  @APTENV,$ENV      ;:OPERATING UNDER APT?
4792 013772 001031          BNE   3:          ;:IF NOT: BR
4793 013774 132767 000100 165213      BITB  @APTSPOOL,$ENVM  ;:SHOULD SPOOL MESSAGES?
4794 014002 001425          BEQ   3:          ;:IF NOT: BR
4795 014004 017600 000004          MOV    @4(SP),R0      ;:GET MESSAGE ADDR.
4796 014010 062766 000002 000004      ADD    @2,4(SP)      ;:BUMP RETURN ADDR.
4797 014016 005767 165152          1:    TST    $MSGTYPE      ;:SEE IF DONE W/ LAST XMISSION?
4798 014022 001375          BNE   1:          ;:IF NOT: WAIT
4799 014024 010067 165160          MOV    R0,$MSGAD      ;:PUT ADDR IN MAILBOX
4800 014030 105720          2:    TSTB  (R0)+      ;:FIND END OF MESSAGE
4801 014032 001376          BNE   2:          ;
4802 014034 166700 165150          SUB    $MSGAD,R0      ;:SUB START OF MESSAGE
4803 014040 006200          ASR   R0              ;:GET MESSAGE LNGTH IN WORDS
4804 014042 010067 165144          MOV    R0,$MSGLGT      ;:PUT LENGTH IN MAILBOX
4805 014046 012767 000004 165120      MOV    @4,$MSGTYPE      ;:TELL APT TO TAKE MSG
4806 014054 000413          BR    5:
4807 014056 017667 000004 000016 3:    MOV    @4(SP),4:      ;:PUT MSG ADDR IN JSR LINKAGE
4808 014064 062766 000002 000004      ADD    @2,4(SP)      ;:BUMP RETURN ADDRESS
4809 014072 016746 163700          MOV    177776,-(SP)   ;:PUSH 177776 ON STACK
4810 014076 004767 176566          JSR   PC,$TYPE      ;:CALL TYPE MACRO
4811 014102 000000          4:    .WORD  0
4812 014104          5:
4813 014104 105767 000062          10:   TSTB  $FFLG      ;:SHOULD REPORT FATAL ERROR?
4814 014110 001416          BEQ   12:          ;:IF NOT: BR
4815 014112 005767 165076          TST   $ENV          ;:RUNNING UNDER APT?
4816 014116 001413          BEQ   12:          ;:IF NOT: BR
4817 014120 005767 165050          11:   TST   $MSGTYPE      ;:FINISHED LAST MESSAGE?
4818 014124 001375          BNE   11:          ;:IF NOT: WAIT
4819 014126 017667 000004 165042      MOV    @4(SP),$FATAL   ;:GET ERROR #
4820 014134 062766 000002 000004      ADD    @2,4(SP)      ;:BUMP RETURN ADDR.
4821 014142 005267 165026          INC   $MSGTYPE      ;:TELL APT TO TAKE ERROR
4822 014146 105067 000020          12:   CLRB  $FFLG      ;:CLEAR FATAL FLAG
4823 014152 105067 000013          CLRB  $LFLG      ;:CLEAR LOG FLAG
4824 014156 105067 000006          CLRB  $MFLG      ;:CLEAR MESSAGE FLAG
4825 014162 012601          MOV   (SP)+,R1      ;:POP STACK INTO R1
4826 014164 012600          MOV   (SP)+,R0      ;:POP STACK INTO R0
    
```

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| | | | | | |
|------|--------|--------|--------------|----|---------------|
| 4827 | 014166 | 000207 | RTS | PC | ::RETURN |
| 4828 | 014170 | 000 | %MFLG: .BYTE | 0 | ::MESSG. FLAG |
| 4829 | 014171 | 000 | %LFLG: .BYTE | 0 | ::LOG FLAG |
| 4830 | 014172 | 000 | %FFLG: .BYTE | 0 | ::FATAL FLAG |
| 4831 | | 014174 | .EVEN | | |
| 4832 | | 000200 | APTSIZE=200 | | |
| 4833 | | 000001 | APTENV=001 | | |
| 4834 | | 000100 | APTSPool=100 | | |
| 4835 | | 000040 | APTCSUP=040 | | |

MAINDEC 22 CVDVA D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 118
 CVDVAD.P11 12 JUL 84 05:04 ERROR HANDLER ROUTINE

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4836 .SBTTL ERROR HANDLER ROUTINE
4837
4838 ;*****
4839 ;*THIS ROUTINE WILL INCREMENT THE ERROR FLAG AND THE ERROR COUNT,
4840 ;*SAVE THE ERROR ITEM NUMBER AND THE ADDRESS OF THE ERROR CALL
4841 ;*AND GO TO MYTYPE ON ERROR
4842 ;*THE SWITCH OPTIONS PROVIDED BY THIS ROUTINE ARE:
4843 ;*SW15=1 HALT ON ERROR
4844 ;*SW13=1 INHIBIT ERROR TYPEOUTS
4845 ;*SW10=1 BELL ON ERROR
4846 ;*SW09=1 LOOP ON ERROR
4847 ;*CALL
4848 ;* ERROR N ;;ERROR=EMT AND N=ERROR ITEM NUMBER
4849
4850 $ERROR:
4851 014174 104407 CKSWR ;;TEST FOR CHANGE IN SOFT-SWR
4852 014176 105267 164701 7$: INCB $ERFLG ;;SET THE ERROR FLAG
4853 014202 001775 BEQ 7$ ;;DON'T LET THE FLAG GO TO ZERO
4854 014204 016777 164672 164730 MOV $TSTNM,$DISPLAY ;;DISPLAY TEST NUMBER AND ERROR FLAG
4855 014212 032777 002000 164720 BIT $BIT10,$BSWR ;;BELL ON ERROR?
4856 014220 001402 BEQ 1$ ;;NO - SKIP
4857 014222 104401 001164 TYPE , $BELL ;;RING BELL
4858 014226 005267 164660 1$: INC $ERTTL ;;COUNT THE NUMBER OF ERRORS
4859 014232 011667 164660 MOV (SP),$ERRPC ;;GET ADDRESS OF ERROR INSTRUCTION
4860 014236 162767 000002 164652 SUB $2,$ERRPC
4861 014244 117767 164646 164642 MOV $ERRPC,$ITEMB ;;STRIP AND SAVE THE ERROR ITEM CODE
4862 014252 032777 020000 164660 BIT $BIT13,$BSWR ;;SKIP TYPEOUT IF SET
4863 014260 001004 BNE 20$ ;;SKIP TYPEOUTS
4864 014262 004767 175554 JSR PC,MYTYPE ;;GO TO USER ERROR ROUTINE
4865 014266 104401 001171 TYPE , $CRLF
4866 014272
4867 014272 122767 000001 164714 20$: CMPB $APTENV,$ENV ;;RUNNING IN APT MODE
4868 014300 001007 BNE 2$ ;;NO,SKIP APT ERROR REPORT
4869 014302 116767 164606 000004 MOV $ITEMB,21$ ;;SET ITEM NUMBER AS ERROR NUMBER
4870 014310 004767 177430 JSR PC,$ATY4 ;;REPORT FATAL ERROR TO APT
4871 014314 000 21$: .BYTE 0
4872 014315 000 .BYTE 0
4873 014316 000777 22$: BR 22$ ;;APT ERROR LOOP
4874 014320 005777 164614 2$: TST $BSWR ;;HALT ON ERROR
4875 014324 100002 BPL 3$ ;;SKIP IF CONTINUE
4876 014326 000000 HALT ;;HALT ON ERROR!
4877 014330 104407 CKSWR ;;TEST FOR CHANGE IN SOFT-SWR
4878 014332 032777 001000 164600 3$: BIT $BIT09,$BSWR ;;LOOP ON ERROR SWITCH SET?
4879 014340 001402 BEQ 4$ ;;BR IF NO
4880 014342 016716 164542 MOV $LPERR,(SP) ;;FUDGE RETURN FOR LOOPING
4881 014346 005767 164610 4$: TST $ESCAPE ;;CHECK FOR AN ESCAPE ADDRESS
4882 014352 001402 BEQ 5$ ;;BR IF NONE
4883 014354 016716 164602 MOV $ESCAPE,(SP) ;;FUDGE RETURN ADDRESS FOR ESCAPE
4884 014360
4885 014360 022737 012452 000042 5$: CMP $ENDAD,$$42 ;;ACT-11 AUTO-ACCEPT?
4886 014366 001001 BNE 6$ ;;BRANCH IF NO
4887 014370 000000 HALT ;;YES
4888 014372
4889 014372 000002 6$: RTI ;;RETURN

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 CVDVAD.P11 12 JUL-84 05:04 SCOPE HANDLER ROUTINE

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4890 .SBTTL SCOPE HANDLER ROUTINE
4891
4892 ;*****
4893 ;*THIS ROUTINE CONTROLS THE LOOPING OF SUBTESTS. IT WILL INCREMENT
4894 ;*AND LOAD THE TEST NUMBER($TSTNM) INTO THE DISPLAY REG.(DISPLAY<7:0>)
4895 ;*AND LOAD THE ERROR FLAG ($ERFLG) INTO DISPLAY<15:08>
4896 ;*THE SWITCH OPTIONS PROVIDED BY THIS ROUTINE ARE:
4897 ;*SW14=1 LOOP ON TEST
4898 ;*SW11=1 INHIBIT ITERATIONS
4899 ;*SW09=1 LOOP ON ERROR
4900 ;*SW08=1 LOOP ON TEST IN SWR<7:0>
4901 ;*CALL
4902 ;* SCOPE ;:SCOPE=IOT
4903
4904 $SCOPE:
4905 014374 104407 CKSWR ;:TEST FOR CHANGE IN SOFT-SWR
4906 014376 032777 040000 164534 1$: BIT #BIT14,$SWR ;:LOOP ON PRESENT TEST?
4907 014404 001114 BNE $OVER ;:YES IF SW14=1
4908 ;*****START OF CODE FOR THE XOR TESTER*****
4909 014406 000416 $XTSTR: BR 6$ ;:IF RUNNING ON THE "XOR" TESTER CHANGE
4910 ;:THIS INSTRUCTION TO A "NOP" (NOP=240)
4911 014410 013746 000004 MOV $ERRVEC,-(SP) ;:SAVE THE CONTENTS OF THE ERROR VECTOR
4912 014414 012737 014434 000004 MOV #5,$ERRVEC ;:SET FOR TIMEOUT
4913 014422 005737 177060 TST #177060 ;:TIME OUT ON XOR?
4914 014426 012637 000004 MOV (SP)+,$ERRVEC ;:RESTORE THE ERROR VECTOR
4915 014432 000463 BR $SVLAD ;:GO TO THE NEXT TEST
4916 014434 022626 5$: CMP (SP)+,(SP)+ ;:CLEAR THE STACK AFTER A TIME OUT
4917 014436 012637 000004 MOV (SP)+,$ERRVEC ;:RESTORE THE ERROR VECTOR
4918 014442 000423 BR 7$ ;:LOOP ON THE PRESENT TEST
4919 014444 6$: *****END OF CODE FOR THE XOR TESTER*****
4920 014444 032777 000400 164466 BIT #BIT08,$SWR ;:LOOP ON SPEC. TEST?
4921 014452 001404 BEQ 2$ ;:BR IF NO
4922 014454 127767 164460 164420 CMPB $SWR,$TSTNM ;:ON THE RIGHT TEST? SWR<7:0>
4923 014462 001465 BEQ $OVER ;:BR IF YES
4924 014464 105767 164413 2$: TSTB $ERFLG ;:HAS AN ERROR OCCURRED?
4925 014470 001421 BEQ 3$ ;:BR IF NO
4926 014472 126767 164417 164403 CMPB $ERMAX,$ERFLG ;:MAX. ERRORS FOR THIS TEST OCCURRED?
4927 014500 101015 BHI 3$ ;:BR IF NO
4928 014502 032777 001000 164430 BIT #BIT09,$SWR ;:LOOP ON ERROR?
4929 014510 001404 BEQ 4$ ;:BR IF NO
4930 014512 016767 164372 164366 7$: MOV $LPERR,$LPADR ;:SET LOOP ADDRESS TO LAST SCOPE
4931 014520 000446 BR $OVER
4932 014522 105067 164355 4$: CLRB $ERFLG ;:ZERO THE ERROR FLAG
4933 014526 005067 164426 CLR $TIMES ;:CLEAR THE NUMBER OF ITERATIONS TO MAKE
4934 014532 000415 BR 1$ ;:ESCAPE TO THE NEXT TEST
4935 014534 032777 004000 164376 3$: BIT #BIT11,$SWR ;:INHIBIT ITERATIONS?
4936 014542 001011 BNE 1$ ;:BR IF YES
4937 014544 005767 164432 TST $PASS ;:IF FIRST PASS OF PROGRAM
4938 014550 001406 BEQ 1$ ;: INHIBIT ITERATIONS
4939 014552 005267 164326 INC $ICNT ;:INCREMENT ITERATION COUNT
4940 014556 026767 164376 164320 CMP $TIMES,$ICNT ;:CHECK THE NUMBER OF ITERATIONS MADE
4941 014564 002024 BGE $OVER ;:BR IF MORE ITERATION REQUIRED
4942 014566 012767 000001 164310 1$: MOV #1,$ICNT ;:REINITIALIZE THE ITERATION COUNTER
4943 014574 016767 000052 164356 MOV $MXCNT,$TIMES ;:SET NUMBER OF ITERATIONS TO DO
4944 014602 105267 164274 $SVLAD: INCB $TSTNM ;:COUNT TEST NUMBERS
4945 014606 116767 164270 164364 MOVB $TSTNM,$TESTN ;:SET TEST NUMBER IN APT MAILBOX
    
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 CVDVAD.P11 12-JUL-84 05:04 SCOPE HANDLER ROUTINE

| | | | | | | | |
|------|--------|--------|--------|--------|---------------|-----------------|--|
| 4946 | 014614 | 011667 | 164266 | | MOV | (SP),%LPADR | ::SAVE SCOPE LOOP ADDRESS |
| 4947 | 014620 | 011667 | 164264 | | MOV | (SP),%LPERR | ::SAVE ERROR LOOP ADDRESS |
| 4948 | 014624 | 005067 | 164332 | | CLR | %ESCAPE | ::CLEAR THE ESCAPE FROM ERROR ADDRESS |
| 4949 | 014630 | 112767 | 000001 | 164257 | MOVB | #1,%ERMAX | ::ONLY ALLOW ONE(1) ERROR ON NEXT TEST |
| 4950 | 014636 | 016777 | 164240 | 164276 | %OVER: MOV | %TSTNM,%DISPLAY | ::DISPLAY TEST NUMBER |
| 4951 | 014644 | 016716 | 164236 | | MOV | %LPADR,(SP) | ::FUDGE RETURN ADDRESS |
| 4952 | 014650 | 000002 | | | RTI | | ::FIXES PS |
| 4953 | 014652 | 003720 | | | %MXCNT: 2000. | | ::MAX. NUMBER OF ITERATIONS |

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 CVDVAD.F11 12 JUL -84 05:04 CONVERT BINARY TO DECIMAL AND TYPE ROUTINE

.SBTTL CONVERT BINARY TO DECIMAL AND TYPE ROUTINE

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4954
4955
4956
4957
4958
4959
4960
4961
4962
4963
4964
4965
4966 014654
4967 014654 010046
4968 014656 010146
4969 014660 010246
4970 014662 010346
4971 014664 010546
4972 014666 012746 020200
4973 014672 016605 000020
4974 014676 100004
4975 014700 005405
4976 014702 112766 000055 000001
4977 014710 005000
4978 014712 012703 015070
4979 014716 112723 000040
4980 014722 005002
4981 014724 016001 015060
4982 014730 160105
4983 014732 002402
4984 014734 005202
4985 014736 000774
4986 014740 060105
4987 014742 005702
4988 014744 001002
4989 014746 105716
4990 014750 100407
4991 014752 106316
4992 014754 103003
4993 014756 116663 000001 177777
4994 014764 052702 000060
4995 014770 052702 000040
4996 014774 110223
4997 014776 005720
4998 015000 020027 000010
4999 015004 002746
5000 015006 003002
5001 015010 010502
5002 015012 000764
5003 015014 105726
5004 015016 100003
5005 015020 116663 177777 177776
5006 015026 105013
5007 015030 012605
5008 015032 012603
5009 015034 012602

;*****
;THIS ROUTINE IS USED TO CHANGE A 16-BIT BINARY NUMBER TO A 5-DIGIT
;SIGNED DECIMAL (ASCII) NUMBER AND TYPE IT. DEPENDING ON WHETHER THE
;NUMBER IS POSITIVE OR NEGATIVE A SPACE OR A MINUS SIGN WILL BE TYPED
;BEFORE THE FIRST DIGIT OF THE NUMBER. LEADING ZEROS WILL ALWAYS BE
;REPLACED WITH SPACES.
;CALL:
;*   MOV     NUM,-(SP)      ;PUT THE BINARY NUMBER ON THE STACK
;*   TYPDS   ;GO TO THE ROUTINE

;TYPDS:
MOV     R0,-(SP)      ;PUSH R0 ON STACK
MOV     R1,-(SP)      ;PUSH R1 ON STACK
MOV     R2,-(SP)      ;PUSH R2 ON STACK
MOV     R3,-(SP)      ;PUSH R3 ON STACK
MOV     R5,-(SP)      ;PUSH R5 ON STACK
MOV     @20200,-(SP)   ;SET BLANK SWITCH AND SIGN
MOV     20(SP),R5     ;GET THE INPUT NUMBER
BPL     1;            ;BR IF INPUT IS POS.
NEG     R5            ;MAKE THE BINARY NUMBER POS.
MOVB   #'-(SP)       ;MAKE THE ASCII NUMBER NEG.
1;:    CLR     R0      ;ZERO THE CONSTANTS INDEX
MOV     @1DBLK,R3     ;SETUP THE OUTPUT POINTER
MOVB   #' ,(R3).     ;SET THE FIRST CHARACTER TO A BLANK
2;:    CLR     R2      ;CLEAR THE BCD NUMBER
MOV     @DTBL(R0),R1  ;GET THE CONSTANT
3;:    SUB     R1,R5   ;FORM THIS BCD DIGIT
BLT     4;           ;BR IF DONE
INC     R2           ;INCREASE THE BCD DIGIT BY 1
BR      3;
4;:    ADD     R1,R5   ;ADD BACK THE CONSTANT
TST     R2           ;CHECK IF BCD DIGIT=0
BNE     5;           ;FALL THROUGH IF 0
TSTB   (SP)         ;STILL DOING LEADING 0'S?
BMI     7;           ;BR IF YES
5;:    ASLB   (SP)     ;MSD?
BCC     6;           ;BR IF NO
MOVB   1(SP),-1(R3)  ;YES--SET THE SIGN
6;:    BIS    #'0,R2   ;MAKE THE BCD DIGIT ASCII
7;:    BIS    #' ,R2   ;MAKE IT A SPACE IF NOT ALREADY A DIGIT
MOVB   R2,(R3).     ;PUT THIS CHARACTER IN THE OUTPUT BUFFER
TST    (R0).        ;JUST INCREMENTING
CMP     R0,@10     ;CHECK THE TABLE INDEX
BLT     2;         ;GO DO THE NEXT DIGIT
BGT     8;         ;GO TO EXIT
MOV     R5,R2      ;GET THE LSD
BR      6;         ;GO CHANGE TO ASCII
8;:    TSTB   (SP).   ;WAS THE LSD THE FIRST NON-ZERO?
BPL     9;         ;BR IF NO
MOVB   -1(SP),-2(R3);YES--SET THE SIGN FOR TYPING
9;:    CLRB   (R3)    ;SET THE TERMINATOR
MOV     (SP),R5    ;POP STACK INTO R5
MOV     (SP),R3    ;POP STACK INTO R3
MOV     (SP),R2    ;POP STACK INTO R2
    
```


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CVDVAD.P11 12-JUL-84 05:04 CONVERT BINARY TO DECIMAL AND TYPE ROUTINE

| | | | | | | | |
|------|--------|--------|--------|--------|--------|-------------|-----------------------|
| 5010 | 015036 | 012601 | | | MOV | (SP),R1 | ;;POP STACK INTO R1 |
| 5011 | 015040 | 012600 | | | MOV | (SP),R0 | ;;POP STACK INTO R0 |
| 5012 | 015042 | 104401 | 015070 | | TYPE | ,#DBLK | ;;NOW TYPE THE NUMBER |
| 5013 | 015046 | 016666 | 000002 | 000004 | MOV | 2(SP),4(SP) | ;;ADJUST THE STACK |
| 5014 | 015054 | 012616 | | | MOV | (SP), (SP) | |
| 5015 | 015056 | 000002 | | | RTI | | ;;RETURN TO USER |
| 5016 | 015060 | 023420 | | | #DTBL: | 10000. | |
| 5017 | 015062 | 001750 | | | | 1000. | |
| 5018 | 015064 | 000144 | | | | 100. | |
| 5019 | 015066 | 000012 | | | | 10. | |
| 5020 | 015070 | 000004 | | | #DBLK: | .BLKW 4 | |

MAINDEC-ZZ-CVDVA D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 123
 CVDVAD.P11 12-JUL-84 05:04 BINARY TO OCTAL (ASCII) AND TYPE

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5021 .SBTTL BINARY TO OCTAL (ASCII) AND TYPE
5022
5023 ;*****
5024 ;THIS ROUTINE IS USED TO CHANGE A 16-BIT BINARY NUMBER TO A 6-DIGIT
5025 ;OCTAL (ASCII) NUMBER AND TYPE IT.
5026 ;$TYPOS---ENTER HERE TO SETUP SUPPRESS ZEROS AND NUMBER OF DIGITS TO TYPE
5027 ;CALL:
5028 ;*      MOV      NUM,-(SP)      ;;NUMBER TO BE TYPED
5029 ;*      TYPOS    ;;CALL FOR TYPEOUT
5030 ;*      .BYTE   N              ;;N=1 TO 6 FOR NUMBER OF DIGITS TO TYPE
5031 ;*      .BYTE   M              ;;M=1 OR 0
5032 ;*                                  ;;1=TYPE LEADING ZEROS
5033 ;*                                  ;;0=SUPPRESS LEADING ZEROS
5034 ;*
5035 ;$TYPON---ENTER HERE TO TYPE OUT WITH THE SAME PARAMETERS AS THE LAST
5036 ;$TYPOS OR $TYPOC
5037 ;CALL:
5038 ;*      MOV      NUM,-(SP)      ;;NUMBER TO BE TYPED
5039 ;*      TYPON    ;;CALL FOR TYPEOUT
5040 ;*
5041 ;$TYPOC---ENTER HERE FOR TYPEOUT OF A 16 BIT NUMBER
5042 ;CALL:
5043 ;*      MOV      NUM,-(SP)      ;;NUMBER TO BE TYPED
5044 ;*      TYPOC    ;;CALL FOR TYPEOUT
5045
5046 015100 017646 000000 $TYPOS: MOV      8(SP),-(SP)      ;;PICKUP THE MODE
5047 015104 116667 000001 000211 MOVVB    1(SP),#OFILL      ;;LOAD ZERO FILL SWITCH
5048 015112 112667 000207 MOVVB    (SP),#OMODE*1      ;;NUMBER OF DIGITS TO TYPE
5049 015116 062716 000002 ADD      #2,(SP)          ;;ADJUST RETURN ADDRESS
5050 015122 000406 BR      $TYPON
5051 015124 112767 000001 000171 $TYPOC: MOVVB    #1,#OFILL      ;;SET THE ZERO FILL SWITCH
5052 015132 112767 000006 000165 MOVVB    #6,#OMODE*1      ;;SET FOR SIX(6) DIGITS
5053 015140 112767 000005 000154 $TYPON: MOVVB    #5,#OCNT      ;;SET THE ITERATION COUNT
5054 015146 010346 MOV      R3,-(SP)          ;;SAVE R3
5055 015150 010446 MOV      R4,-(SP)          ;;SAVE R4
5056 015152 010546 MOV      R5,-(SP)          ;;SAVE R5
5057 015154 116704 000145 MOVVB    #OMODE*1,R4      ;;GET THE NUMBER OF DIGITS TO TYPE
5058 015160 005404 NEG      R4
5059 015162 062704 000006 ADD      #6,R4          ;;SUBTRACT IT FOR MAX. ALLOWED
5060 015166 110467 000132 MOVVB    R4,#OMODE      ;;SAVE IT FOR USE
5061 015172 116704 000125 MOVVB    #OFILL,R4      ;;GET THE ZERO FILL SWITCH
5062 015176 016605 000012 MOV      12(SP),R5      ;;PICKUP THE INPUT NUMBER
5063 015202 005003 CLR      R3              ;;CLEAR THE OUTPUT WORD
5064 015204 006105 1#: ROL      R5          ;;ROTATE MSB INTO "C"
5065 015206 000404 BR      3#              ;;GO DO MSB
5066 015210 006105 2#: ROL      R5          ;;FORM THIS DIGIT
5067 015212 006105 ROL      R5
5068 015214 006105 ROL      R5
5069 015216 010503 MOV      R5,R3
5070 015220 006103 3#: ROL      R3          ;;GET LSB OF THIS DIGIT
5071 015222 105367 000076 DECB    #OMODE          ;;TYPE THIS DIGIT?
5072 015226 100016 BPL     7#              ;;BR IF NO
5073 015230 042703 177770 BIC     #177770,R3      ;;GET RID OF JUNK
5074 015234 001002 BNE     4#              ;;TEST FOR 0
5075 015236 005704 TST     R4              ;;SUPPRESS THIS 0?
5076 015240 001403 BEQ     5#              ;;BR IF YES

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 CVDVAD.P11 12-JUL-84 05:04 BINARY TO OCTAL (ASCII) AND TYPE

| | | | | | | | | |
|------|--------|--------|---------------|----------|-------|-------------|--|-----------------------------------|
| 5077 | 015242 | 005204 | | 4: | INC | R4 | | ::DON'T SUPPRESS ANYMORE 0'S |
| 5078 | 015244 | 052703 | 000060 | | BIS | #'0,R3 | | ::MAKE THIS DIGIT ASCII |
| 5079 | 015250 | 052703 | 000040 | 5: | BIS | #',R3 | | ::MAKE ASCII IF NOT ALREADY |
| 5080 | 015254 | 110367 | 000040 | | MOVB | R3,R# | | ::SAVE FOR TYPING |
| 5081 | 015260 | 104401 | 015320 | | TYPE | .8 | | ::GO TYPE THIS DIGIT |
| 5082 | 015264 | 105367 | 000032 | 7: | DECB | \$OCNT | | ::COUNT BY 1 |
| 5083 | 015270 | 003347 | | | BGT | 2 | | ::BR IF MORE TO DO |
| 5084 | 015272 | 002402 | | | BLT | 6 | | ::BR IF DONE |
| 5085 | 015274 | 005204 | | | INC | R4 | | ::INSURE LAST DIGIT ISN'T A BLANK |
| 5086 | 015276 | 000744 | | | BR | 2 | | ::GO DO THE LAST DIGIT |
| 5087 | 015300 | 012605 | | 6: | MOV | (SP),R5 | | ::RESTORE R5 |
| 5088 | 015302 | 012604 | | | MOV | (SP),R4 | | ::RESTORE R4 |
| 5089 | 015304 | 012603 | | | MOV | (SP),R3 | | ::RESTORE R3 |
| 5090 | 015306 | 016666 | 000002 000004 | | MOV | 2(SP),4(SP) | | ::SET THE STACK FOR RETURNING |
| 5091 | 015314 | 012616 | | | MOV | (SP), (SP) | | |
| 5092 | 015316 | 000002 | | | FTI | | | ::RETURN |
| 5093 | 015320 | 000 | | 8: | .BYTE | 0 | | ::STORAGE FOR ASCII DIGIT |
| 5094 | 015321 | 000 | | | .BYTE | 0 | | ::TERMINATOR FOR TYPE ROUTINE |
| 5095 | 015322 | 000 | | \$OCNT: | .BYTE | 0 | | ::OCTAL DIGIT COUNTER |
| 5096 | 015323 | 000 | | \$OFILL: | .BYTE | 0 | | ::ZERO FILL SWITCH |
| 5097 | 015324 | 000000 | | \$OMODE: | .WORD | 0 | | ::NUMBER OF DIGITS TO TYPE |

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 CVDVAD.P11 12 JUL-84 05:04 TRAP DECODER

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5098 .SBTTL TRAP DECODER
5099
5100 ;*****
5101 ;*THIS ROUTINE WILL PICKUP THE LOWER BYTE OF THE "TRAP" INSTRUCTION
5102 ;*AND USE IT TO INDEX THROUGH THE TRAP TABLE FOR THE STARTING ADDRESS
5103 ;*OF THE DESIRED ROUTINE. THEN USING THE ADDRESS OBTAINED IT WILL
5104 ;*GO TO THAT ROUTINE.
5105
5106 $TRAP: MOV RO,-(SP) ;SAVE RO
5107 015326 010046 MOV 2(SP),RO ;GET TRAP ADDRESS
5108 015330 016600 000002 TST -(RO) ;BACKUP BY 2
5109 015334 005740 MOVB (RO),RO ;GET RIGHT BYTE OF TRAP
5110 015336 111000 ASL RO ;POSITION FOR INDEXING
5111 015340 006300 MOV $TRPAD(RO),RO ;INDEX TO TABLE
5112 015342 015362 RTS RO ;GO TO ROUTINE
5113
5114
5115 ;;THIS IS USE TO HANDLE THE "GETPRI" MACRO
5116
5117 $TRAP2: MOV (SP),-(SP) ;;MOVE THE PC DOWN
5118 015350 011646 000004 000002 MOV 4(SP),2(SP) ;;MOVE THE PSW DOWN
5119 015352 016666 RTI ;;RESTORE THE PSW
5120
5121 .SBTTL TRAP TABLE
5122
5123 ;*THIS TABLE CONTAINS THE STARTING ADDRESSES OF THE ROUTINES CALLED
5124 ;*BY THE "TRAP" INSTRUCTION.
5125
5126 ; ROUTINE
5127 ; -----
5128 $TRPAD: .WORD $TRAP2
5129 015362 015350 $TYPE ;;CALL=TYPE TRAP.1(104401) TTY TYPEOUT ROUTINE
5130 015364 012670 $TYPOC ;;CALL=TYPOC TRAP.2(104402) TYPE OCTAL NUMBER (WITH LEADING ZEROS)
5131 015366 015124 $TYPOS ;;CALL=TYPOS TRAP.3(104403) TYPE OCTAL NUMBER (NO LEADING ZEROS)
5132 015370 015100 $TYPON ;;CALL=TYPON TRAP.4(104404) TYPE OCTAL NUMBER (AS PER LAST CALL)
5133 015372 015140 $TYPDS ;;CALL=TYPDS TRAP.5(104405) TYPE DECIMAL NUMBER (WITH SIGN)
5134 015374 014654
5135 015376 013222 $GTSWR ;;CALL=GTSWR TRAP.6(104406) GET SOFT-SWR SETTING
5136
5137 015400 013152 $CKSWR ;;CALL=CKSWR TRAP.7(104407) TEST FOR CHANGE IN SOFT-SWR
5138 015402 013434 $RDCHR ;;CALL=RDCHR TRAP.10(104410) TTY TYPEIN CHARACTER ROUTINE
5139 015404 013554 $RDLIN ;;CALL=RDLIN TRAP.11(104411) TTY TYPEIN STRING ROUTINE
5140 000001 .END

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CVDVAD.P11 12-JUL-84 05:04 CROSS REFERENCE TABLE -- JGR SYMBOLS

| | | | | | | | | | |
|-----------------|-------|-------|-------|-------|------|------|-------|------|--|
| ABASE = 175610 | 10 | 1017 | 1058 | | | | | | |
| ACDW1 = 000000 | 1017 | | | | | | | | |
| ACDW2 = 000000 | 1017 | | | | | | | | |
| ACPUOP = 000000 | 1017 | 1032 | | | | | | | |
| ADDRES 012356 | 4440* | 4451* | 4461 | 4468* | | | | | |
| ADDW0 = 000000 | 1017 | | | | | | | | |
| ADDW1 = 000000 | 1017 | | | | | | | | |
| ADDW10 = 000000 | 1017 | | | | | | | | |
| ADDW11 = 000000 | 1017 | | | | | | | | |
| ADDW12 = 000000 | 1017 | | | | | | | | |
| ADDW13 = 000000 | 1017 | | | | | | | | |
| ADDW14 = 000000 | 1017 | | | | | | | | |
| ADDW15 = 000000 | 1017 | | | | | | | | |
| ADDW2 = 000000 | 1017 | | | | | | | | |
| ADDW3 = 000000 | 1017 | | | | | | | | |
| ADDW4 = 000000 | 1017 | | | | | | | | |
| ADDW5 = 000000 | 1017 | | | | | | | | |
| ADDW6 = 000000 | 1017 | | | | | | | | |
| ADDW7 = 000000 | 1017 | | | | | | | | |
| ADDW8 = 000000 | 1017 | | | | | | | | |
| ADDW9 = 000000 | 1017 | | | | | | | | |
| ADEVCT = 000000 | 1017 | 1023 | | | | | | | |
| ADEVN = 000001 | 10 | 1017 | 1059 | | | | | | |
| AENV = 000000 | 1017 | 1028 | | | | | | | |
| AENVN = 000000 | 1017 | 1029 | | | | | | | |
| AFATAL = 000000 | 1017 | 1020 | | | | | | | |
| AMADR1 = 000000 | 1017 | 1045 | | | | | | | |
| AMADR2 = 000000 | 1017 | 1049 | | | | | | | |
| AMADR3 = 000000 | 1017 | 1052 | | | | | | | |
| AMADR4 = 000000 | 1017 | 1055 | | | | | | | |
| AMAMS1 = 000000 | 1017 | 1039 | | | | | | | |
| AMAMS2 = 000000 | 1017 | 1047 | | | | | | | |
| AMAMS3 = 000000 | 1017 | 1050 | | | | | | | |
| AMAMS4 = 000000 | 1017 | 1053 | | | | | | | |
| AMSGAD = 000000 | 1017 | 1025 | | | | | | | |
| AMSGLG = 000000 | 1017 | 1026 | | | | | | | |
| AMSGTY = 000000 | 1017 | 1019 | | | | | | | |
| AMTYP1 = 000000 | 1017 | 1040 | | | | | | | |
| AMTYP2 = 000000 | 1017 | 1048 | | | | | | | |
| AMTYP3 = 000000 | 1017 | 1051 | | | | | | | |
| AMTYP4 = 000000 | 1017 | 1054 | | | | | | | |
| APASS = 000000 | 1017 | 1022 | | | | | | | |
| APRIOR = 000000 | 1017 | | | | | | | | |
| APTCSU = 000040 | 4591 | 4835* | | | | | | | |
| APTENV = 000001 | 2697 | 2906 | 3183 | 3847 | 4584 | 4791 | 4833* | 4867 | |
| APTSIZ = 000200 | 1128 | 4832* | | | | | | | |
| APTSP0 = 000100 | 4586 | 4793 | 4834* | | | | | | |
| ASWREG = 000000 | 1017 | 1030 | | | | | | | |
| ATESTN = 000000 | 1017 | 1021 | | | | | | | |
| AUNIT = 000000 | 1017 | 1024 | | | | | | | |
| AUSMR = 071110 | 10 | 1017 | 1031 | | | | | | |
| AVECT1 = 000300 | 10 | 1017 | 1056 | | | | | | |
| AVECT2 = 000000 | 1017 | 1057 | | | | | | | |
| BADBRK 011326 | 4114* | | | | | | | | |
| BAUD = 007400 | 921* | | | | | | | | |
| BAUDRA 007210 | 3320* | | | | | | | | |

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CVDVAD.P11 12-JUL-84 05:04 CROSS REFERENCE TABLE -- USER SYMBOLS

| | | | | | | | | | | | | | | |
|--------|----------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|
| BITMAS | 012352 | 4417 | 4436* | 4449* | 4457 | 44660 | | | | | | | | |
| BIT0 | = 000001 | 7960 | | | | | | | | | | | | |
| BIT00 | = 000001 | 7860 | 796 | 865 | 886 | 907 | | | | | | | | |
| BIT01 | = 000002 | 7850 | 795 | 844 | 864 | 906 | | | | | | | | |
| BIT02 | = 000004 | 7840 | 794 | 843 | 863 | 884 | 905 | | | | | | | |
| BIT03 | = 000010 | 7830 | 793 | 842 | 862 | 904 | | | | | | | | |
| BIT04 | = 000020 | 7820 | 792 | 861 | 903 | | | | | | | | | |
| BIT05 | = 000040 | 7810 | 791 | 840 | 860 | 902 | | | | | | | | |
| BIT06 | = 000100 | 7800 | 790 | 839 | 859 | 880 | 901 | | | | | | | |
| BIT07 | = 000200 | 7790 | 789 | 838 | 858 | 879 | 900 | | | | | | | |
| BIT08 | = 000400 | 7780 | 788 | 4920 | | | | | | | | | | |
| BIT09 | = 001000 | 7770 | 787 | 4878 | 4928 | | | | | | | | | |
| BIT1 | = 000002 | 7950 | | | | | | | | | | | | |
| BIT10 | = 002000 | 7760 | 835 | 4855 | | | | | | | | | | |
| BIT11 | = 004000 | 7750 | 834 | 874 | 4935 | | | | | | | | | |
| BIT12 | = 010000 | 7740 | 833 | 853 | 873 | | | | | | | | | |
| BIT13 | = 020000 | 7730 | 832 | 852 | 872 | 4862 | | | | | | | | |
| BIT14 | = 040000 | 7720 | 831 | 851 | 871 | 4906 | | | | | | | | |
| BIT15 | = 100000 | 7710 | 830 | 850 | 870 | | | | | | | | | |
| BIT2 | = 000004 | 7940 | | | | | | | | | | | | |
| BIT3 | = 000010 | 7930 | | | | | | | | | | | | |
| BIT4 | = 000020 | 7920 | | | | | | | | | | | | |
| BIT5 | = 000040 | 7910 | | | | | | | | | | | | |
| BIT6 | = 000100 | 7900 | | | | | | | | | | | | |
| BIT7 | = 000200 | 7890 | | | | | | | | | | | | |
| BIT8 | = 000400 | 7880 | | | | | | | | | | | | |
| BIT9 | = 001000 | 7870 | | | | | | | | | | | | |
| BPTVEC | = 000014 | 8030 | | | | | | | | | | | | |
| BREAK | = 000001 | 8860 | 1272 | 1285 | 1288 | 1302 | 1305 | 1319 | 1324 | 4082 | | | | |
| BRK | = 010000 | 9220 | 1260 | 4064 | | | | | | | | | | |
| CABLE | = 020000 | 9230 | 1996 | 2050 | 2141 | 2230 | 2319 | 2410 | 2510 | 2614 | 3560 | 3742 | | |
| CARDET | = 010000 | 8330 | 2075 | 2095 | 2115 | | | | | | | | | |
| CKSWR | = 104407 | 4851 | 4877 | 4905 | 51370 | | | | | | | | | |
| CLR | = 000000 | 8240 | 2916 | 4191 | | | | | | | | | | |
| CLRSEN | = 020000 | 8320 | 2164 | 2184 | 2204 | | | | | | | | | |
| COMSPD | = 000100 | 9160 | | | | | | | | | | | | |
| CR | = 000015 | 7110 | 4630 | 4640 | | | | | | | | | | |
| CRLF | = 000200 | 7120 | 1152 | 4129 | 4372 | 4601 | 4640 | | | | | | | |
| CYCLE | 012224 | 1157 | 44050 | | | | | | | | | | | |
| DATA | = 000017 | 9130 | 4275 | 4276 | | | | | | | | | | |
| DATAIE | = 000040 | 8400 | 1739 | 1752 | 1755 | 1769 | 1772 | 1786 | 1791 | 3573 | 3584 | 3617 | | |
| DATAIN | = 100000 | 8300 | 1966 | 2443 | 2461 | 2470 | 2487 | 2544 | 2568 | 2591 | 2651 | 2673 | | |
| DATLNG | 011652 | 3656 | 3762 | 3857 | 42570 | | | | | | | | | |
| DDISP | = 177570 | 7180 | 998 | 1116 | | | | | | | | | | |
| DISPLA | 001142 | 9980 | 1116* | 1124* | 4854* | 4950* | | | | | | | | |
| DISPRE | 000174 | 9330 | 1124 | | | | | | | | | | | |
| DLADD | 001254 | 10780 | 1161* | 1166 | 1169 | 1171 | 1174 | 1177 | 1180 | 1196 | 1228 | 4130 | 4392 | |
| DLADDR | = 175610 | 8200 | 1078 | 1080 | 1081 | 1082 | 1083 | 1084 | | | | | | |
| DLVEC | 001256 | 10790 | 1164* | 3350 | 3440 | 3472 | 3623 | 3880 | 4136 | 4398 | | | | |
| DSWR | = 177570 | 7170 | 997 | 1115 | | | | | | | | | | |
| DTR | = 000002 | 8440 | 1518 | 1521 | 1535 | 1537 | 1550 | 1553 | 2072 | 2092 | 2112 | 2161 | 2181 | 2201 |
| | | 2431 | 2459 | 2485 | | | | | | | | | | |
| EMTVEC | = 000030 | 8060 | 1099* | 1100* | | | | | | | | | | |
| ERRCNT | 011026 | 3905* | 3927 | 3933 | 39490 | 4016 | 4027* | | | | | | | |
| ERROR | = 100000 | 8500 | 3084 | 3148 | | | | | | | | | | |
| ERRVEC | = 000004 | 7990 | 1113 | 1114* | 1125* | 1911 | 4912* | 4914* | 4917* | | | | | |

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 CVDVAD.P11 12 JUL-84 05:04 CROSS REFERENCE TABLE - USER SYMBOLS

| | | | | | | | | | | | | | | |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| EVENOD= | 000040 | 9150 | | | | | | | | | | | | |
| FALSE = | 000000 | 41720 | 4179 | | | | | | | | | | | |
| FLAG | 011644 | 4179* | 4206* | 4211 | 4234 | 42460 | | | | | | | | |
| FRERR = | 020000 | 8520 | | | | | | | | | | | | |
| FRFD = | 040000 | 9240 | 1507 | 1574 | 2050 | 2141 | 2230 | 2410 | 2510 | | | | | |
| GNS = | ***** U | 932 | 1151 | 4128 | 4134 | 4140 | 4371 | 4377 | 4384 | 4390 | 4396 | 5129 | 5130 | 5131 |
| | | 5172 | 5133 | 5135 | 5137 | 5138 | 5139 | | | | | | | |
| GTSWR = | 104406 | 1146 | 51350 | | | | | | | | | | | |
| HOLD | 011072 | 3968* | 3969* | 3972 | 39850 | | | | | | | | | |
| HOLDSC | 011645 | 4191* | 4196* | 4202 | 42470 | | | | | | | | | |
| HOMLON= | 000000 | 41510 | 4177 | | | | | | | | | | | |
| HT = | 000011 | 7090 | 4599 | 4640 | | | | | | | | | | |
| I | 001272 | 10850 | 1205* | 1226* | 1229 | 1231 | 4280* | 4283* | 4285 | | | | | |
| ILLMEM= | 000004 | 8110 | 1200 | 1236 | | | | | | | | | | |
| INITFL | 012354 | 1154* | 4420 | 4423* | 44670 | | | | | | | | | |
| INTFLA | 012040 | 1212* | 1217 | 3346* | 3386 | 3390 | 3412* | 3428 | 3480* | 3522 | 3526 | 3570* | 3596 | 3600 |
| | | 4361* | 43640 | | | | | | | | | | | |
| INTSRV | 012032 | 1201 | 3358 | 3473 | 43510 | | | | | | | | | |
| IOTVEC= | 000020 | 8040 | 1097* | 1098* | | | | | | | | | | |
| LF = | 000012 | 7100 | 4634 | 4640 | | | | | | | | | | |
| LOOP | 001744 | 11550 | 4145 | | | | | | | | | | | |
| MAINT = | 000004 | 8840 | 1348 | 1361 | 1364 | 1378 | 1381 | 1395 | 1400 | 2789 | 2848 | 2914 | 3196 | 3483 |
| | | 3544 | 3645 | 3729 | 3752 | 3911 | 4073 | | | | | | | |
| MASK = | 000000 | 42580 | 4272* | 4288* | 4290* | 4295* | | | | | | | | |
| MAX | 006422 | 2942 | 2946 | 30210 | | | | | | | | | | |
| MYTYPE | 012042 | 43670 | 4864 | | | | | | | | | | | |
| NEW | 007242 | 3219* | 3221* | 3237* | 3239* | 3248 | 3256 | 3258 | 3276 | 3278 | 33260 | | | |
| NUMBER | 011030 | 3925 | 39500 | 3975 | 4033 | | | | | | | | | |
| NUMBR | 011746 | 4274* | 4275 | 4277* | 4285 | 42980 | | | | | | | | |
| OLD | 007246 | 3192* | 3194* | 3248 | 3256 | 3258 | 3276* | 3278* | 33270 | | | | | |
| ORERR = | 040000 | 8510 | 3066 | 3105 | 3133 | | | | | | | | | |
| PARITY= | 000020 | 9140 | | | | | | | | | | | | |
| PBAUDS= | 004000 | 8740 | | | | | | | | | | | | |
| PBAUDO= | 010000 | 8730 | | | | | | | | | | | | |
| PBAUD1= | 020000 | 8720 | | | | | | | | | | | | |
| PBAUD2= | 040000 | 8710 | | | | | | | | | | | | |
| PBAUD3= | 100000 | 8700 | | | | | | | | | | | | |
| PBR = | 000200 | 9170 | 3174 | | | | | | | | | | | |
| PERR = | 010000 | 8530 | | | | | | | | | | | | |
| PIRQ = | 177772 | 7160 | | | | | | | | | | | | |
| PIRQVE= | 000240 | 8100 | | | | | | | | | | | | |
| PRO = | 000000 | 7330 | 3368 | 3417 | 3489 | 3576 | 3649 | 3755 | 3874 | | | | | |
| PR1 = | 000040 | 7340 | | | | | | | | | | | | |
| PR2 = | 000100 | 7350 | | | | | | | | | | | | |
| PR3 = | 000140 | 7360 | | | | | | | | | | | | |
| PR4 = | 000200 | 7370 | | | | | | | | | | | | |
| PR5 = | 000240 | 7380 | | | | | | | | | | | | |
| PR6 = | 000300 | 7390 | | | | | | | | | | | | |
| PR7 = | 000340 | 7400 | 1202 | 1420 | 2421 | 2521 | 2624 | 3359 | 3474 | 3885 | 3891 | | | |
| PS = | 177776 | 7130 | 714 | | | | | | | | | | | |
| PSW = | 177776 | 7140 | | | | | | | | | | | | |
| PWRVEC= | 000024 | 8050 | 1103* | 1104* | 4520* | 4521* | 4530* | 4536* | 4548* | 4549* | | | | |
| RATES | 007170 | 3210 | 3289 | 32940 | | | | | | | | | | |
| RBUF | 001262 | 10810 | 1171* | 1172* | 2883 | 2953 | 3008 | 3062 | 3105 | 3133 | 3148 | 3207 | 3518 | 3660 |
| | | 3698 | 3765 | 3802 | 4003 | 4077 | 4103 | | | | | | | |
| RCSR | 001260 | 10800 | 1169* | 1518* | 1521 | 1535* | 1537 | 1550* | 1553 | 1587 | 1600* | 1603 | 1617* | 1620 |

MAINDEC ZZ CVDVA D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 133
 CVDVAD.P11 12-JUL-84 05:04 CROSS REFERENCE TABLE -- USER SYMBOLS

| | | | | | | | | | | | | | | |
|----------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
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| \$BASE | 001250 | 10580 | 4440 | | | | | | | | | | | |
| \$BOADR | 001122 | 9890 | | | | | | | | | | | | |
| \$BDDAT | 001126 | 9910 | | | | | | | | | | | | |
| \$BELL | 001164 | 10090 | 4857 | 4890 | | | | | | | | | | |
| \$BGNLF- | 177777 | 10 | | | | | | | | | | | | |
| \$CHARC | 013146 | 4606* | 4616* | 4623 | 4632* | 46370 | | | | | | | | |
| \$CKSMR | 013152 | 46500 | 5137 | | | | | | | | | | | |
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| \$CM3 | - 000000 | 10070 | | | | | | | | | | | | |
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| \$CNTLU | 013672 | 4678 | 47730 | | | | | | | | | | | |
| \$CPUOP | 001222 | 10320 | | | | | | | | | | | | |
| \$CRLF | 001171 | 10110 | 4605 | 4640 | 4689 | 4773 | 4865 | 4890 | | | | | | |
| \$DBLK | 015070 | 4978 | 5012 | 50200 | | | | | | | | | | |
| \$DEVCT | 001204 | 10230 | 4438* | 4463* | | | | | | | | | | |
| \$DEVH | 001252 | 10590 | 4457 | | | | | | | | | | | |
| \$DOAGN | 012462 | 4494 | 4503 | 45090 | | | | | | | | | | |
| \$DTBL | 015060 | 4981 | 50160 | | | | | | | | | | | |
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| \$ENDCT | 012420 | 1105 | 44960 | | | | | | | | | | | |
| \$ENDMG | 012471 | 4498 | 45130 | | | | | | | | | | | |
| \$ENULL | 012466 | 4501 | 45120 | | | | | | | | | | | |
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| | | 11740 | 1176 | 11770 | 1179 | 11800 | 1182 | 11830 | 1184 | 11960 | 1197 | 11990 | 12000 | 12010 |
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| | | 12990 | 1300 | 13020 | 1303 | 13160 | 1317 | 13190 | 1320 | 13450 | 1346 | 13590 | 1360 | 13610 |
| | | 1362 | 13750 | 1376 | 13780 | 1379 | 13920 | 1393 | 13950 | 1396 | 14270 | 1428 | 14410 | 1442 |
| | | 14430 | 1444 | 14570 | 1458 | 14600 | 1461 | 14740 | 1475 | 14770 | 1478 | 15100 | 1511 | 15160 |
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| | | 1784 | 17860 | 1787 | 18120 | 1813 | 18260 | 1827 | 18280 | 1829 | 18420 | 1843 | 18450 | 1846 |
| | | 18590 | 1860 | 18620 | 1863 | 18990 | 1900 | 19310 | 1932 | 19640 | 1965 | 20000 | 2001 | 20080 |
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| | | 21120 | 2113 | 21450 | 2146 | 21570 | 2158 | 21610 | 2162 | 21770 | 2178 | 21810 | 2182 | 21970 |
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| | | 29160 | 2917 | 29180 | 2919 | 29240 | 2925 | 29310 | 2932 | 29360 | 2937 | 29530 | 2954 | 29550 |
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| | | | | | | | | | | | | | | |
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| 38060 | 3808 | 38090 | 3810 | 38190 | 3820 | 38500 | 3851 | 38560 | 38800 | 3881 | 38830 | 3884 | | |
| 38850 | 3886 | 38890 | 3890 | 38910 | 3892 | 38950 | 3896 | 38980 | 3899 | 39010 | 3902 | 39050 | | |
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| 42740 | 4278 | 42800 | 4281 | 4283 | 4287 | 42880 | 4289 | 42900 | 4291 | 42950 | 4296 | 43180 | | |
| 4319 | 43200 | 4321 | 4323 | 4327 | 43280 | 4329 | 4331 | 4335 | 43610 | 4362 | 44230 | 4424 | | |
| 44280 | 44320 | 4433 | 44360 | 4437 | 44380 | 4439 | 44400 | 4441 | 44420 | 4443 | 44470 | 4448 | | |
| 44490 | 4450 | 44510 | 4452 | 44530 | 4454 | 44610 | 4462 | 44630 | 4464 | | | | | |
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| \$ERRTB | 001254 | 10760 | | | | | | | | | | | | |
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| | | 1465 | 1484 | 1509 | 1523 | 1539 | 1555 | 1576 | 1589 | 1605 | 1622 | 1641 | 1665 | 1681 |
| | | 1698 | 1717 | 1741 | 1757 | 1774 | 1793 | 1817 | 1833 | 1850 | 1869 | 1903 | 1936 | 1968 |
| | | 1998 | 2013 | 2052 | 2077 | 2097 | 2117 | 2143 | 2166 | 2186 | 2206 | 2232 | 2256 | 2276 |
| | | 2296 | 2321 | 2344 | 2364 | 2384 | 2412 | 2445 | 2463 | 2472 | 2489 | 2512 | 2546 | 2570 |
| | | 2593 | 2616 | 2653 | 2675 | 2699 | 2751 | 2831 | 2888 | 2908 | 2930 | 2948 | 2969 | 2973 |
| | | 2976 | 2996 | 3013 | 3068 | 3086 | 3107 | 3135 | 3150 | 3176 | 3185 | 3226 | 3229 | 3250 |
| | | 3258 | 3388 | 3392 | 3430 | 3524 | 3528 | 3562 | 3598 | 3602 | 3715 | 3744 | 3815 | 3849 |
| | | 3935 | 3977 | 4014 | 4018 | 4035 | 4066 | 4105 | 4190 | 4204 | 4236 | 4419 | 4422 | |
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| | | 1698 | 1717 | 1741 | 1757 | 1774 | 1793 | 1817 | 1833 | 1850 | 1869 | 1903 | 1936 | 1968 |
| | | 1998 | 2013 | 2052 | 2077 | 2097 | 2117 | 2143 | 2166 | 2186 | 2206 | 2232 | 2256 | 2276 |
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| | | 2593 | 2616 | 2653 | 2675 | 2699 | 2751 | 2831 | 2888 | 2908 | 2930 | 2948 | 2969 | 2973 |
| | | 2976 | 2996 | 3013 | 3068 | 3086 | 3107 | 3135 | 3150 | 3176 | 3185 | 3226 | 3229 | 3250 |
| | | 3260 | 3388 | 3392 | 3430 | 3524 | 3528 | 3562 | 3598 | 3602 | 3715 | 3744 | 3815 | 3849 |
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| | | 1696 | 1715 | 1739 | 1755 | 1772 | 1791 | 1815 | 1831 | 1848 | 1867 | 1901 | 1966 |
| | | 1996 | 2011 | 2050 | 2075 | 2095 | 2115 | 2141 | 2164 | 2184 | 2204 | 2230 | 2274 |
| | | 2294 | 2319 | 2342 | 2362 | 2382 | 2410 | 2443 | 2461 | 2470 | 2487 | 2510 | 2568 |
| | | 2591 | 2614 | 2651 | 2673 | 2697 | 2728 | 2749 | 2769 | 2812 | 2829 | 2870 | 2906 |
| | | 2928 | 2946 | 2966 | 2967 | 2971 | 2974 | 2994 | 3011 | 3066 | 3084 | 3105 | 3148 |
| | | 3174 | 3183 | 3223 | 3224 | 3227 | 3248 | 3256 | 3386 | 3390 | 3428 | 3522 | 3560 |
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| | | 1469 | 1482 | 1488 | 1507 | 1513 | 1521 | 1527 | 1537 | 1543 | 1553 | 1559 | 1580 |
| | | 1587 | 1593 | 1603 | 1609 | 1620 | 1626 | 1639 | 1645 | 1663 | 1669 | 1679 | 1685 |
| | | 1702 | 1715 | 1721 | 1739 | 1745 | 1755 | 1761 | 1772 | 1778 | 1791 | 1797 | 1815 |
| | | 1831 | 1837 | 1848 | 1854 | 1867 | 1873 | 1901 | 1912 | 1934 | 1945 | 1966 | 1979 |
| | | 2003 | 2011 | 2026 | 2050 | 2059 | 2075 | 2083 | 2095 | 2103 | 2115 | 2123 | 2141 |
| | | 2164 | 2172 | 2184 | 2192 | 2204 | 2212 | 2230 | 2238 | 2254 | 2262 | 2274 | 2282 |
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| | | 2461 | 2467 | 2470 | 2476 | 2487 | 2493 | 2510 | 2518 | 2544 | 2550 | 2568 | 2574 |
| | | 2597 | 2614 | 2621 | 2651 | 2657 | 2673 | 2679 | 2697 | 2703 | 2728 | 2733 | 2749 |
| | | 2769 | 2774 | 2812 | 2817 | 2829 | 2835 | 2870 | 2875 | 2886 | 2892 | 2906 | 2912 |
| | | 2933 | 2938 | 2946 | 2958 | 2971 | 2974 | 2985 | 2987 | 2994 | 3001 | 3011 | 3017 |
| | | 3077 | 3084 | 3097 | 3105 | 3115 | 3133 | 3145 | 3148 | 3155 | 3174 | 3180 | 3183 |
| | | 3227 | 3233 | 3241 | 3248 | 3252 | 3256 | 3258 | 3262 | 3271 | 3273 | 3386 | 3390 |
| | | 3403 | 3405 | 3428 | 3434 | 3522 | 3526 | 3533 | 3539 | 3541 | 3560 | 3567 | 3596 |
| | | 3607 | 3613 | 3615 | 3713 | 3722 | 3742 | 3749 | 3813 | 3822 | 3847 | 3853 | 3933 |
| | | 3975 | 3981 | 4012 | 4016 | 4024 | 4029 | 4033 | 4040 | 4064 | 4070 | 4095 | 4100 |
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| | | 1696 | 1715 | 1739 | 1755 | 1772 | 1791 | 1815 | 1831 | 1848 | 1867 | 1901 | 1966 |
| | | 1996 | 2011 | 2050 | 2075 | 2095 | 2115 | 2141 | 2164 | 2184 | 2204 | 2230 | 2274 |
| | | 2294 | 2319 | 2342 | 2362 | 2382 | 2410 | 2443 | 2461 | 2470 | 2487 | 2510 | 2568 |
| | | 2591 | 2614 | 2651 | 2673 | 2697 | 2749 | 2829 | 2886 | 2906 | 2928 | 2946 | 2971 |
| | | 2974 | 2994 | 3011 | 3066 | 3084 | 3105 | 3133 | 3148 | 3174 | 3183 | 3224 | 3248 |
| | | 3256 | 3258 | 3386 | 3390 | 3428 | 3522 | 3526 | 3560 | 3596 | 3600 | 3713 | 3742 |
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| | | 1698 | 1717 | 1741 | 1757 | 1774 | 1793 | 1817 | 1833 | 1850 | 1869 | 1903 | 1968 |
| | | 1998 | 2013 | 2052 | 2077 | 2097 | 2117 | 2143 | 2166 | 2186 | 2206 | 2232 | 2276 |
| | | 2296 | 2321 | 2344 | 2364 | 2384 | 2412 | 2445 | 2463 | 2472 | 2489 | 2512 | 2546 |
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| | | 3258 | 3260 | 3388 | 3392 | 3430 | 3524 | 3528 | 3562 | 3598 | 3602 | 3715 | 3744 |
| | | 3849 | 3935 | 3977 | 4014 | 4018 | 4035 | 4066 | 4105 | 4190 | 4204 | 4236 | 4419 |
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| | 1463 | 1482 | 1507 | 1521 | 1537 | 1553 | 1574 | 1587 | 1603 | 1620 | 1639 | 1663 | 1679 |
| | 1696 | 1715 | 1739 | 1755 | 1772 | 1791 | 1815 | 1831 | 1848 | 1867 | 1901 | 1934 | 1966 |
| | 1996 | 2011 | 2050 | 2075 | 2095 | 2115 | 2141 | 2164 | 2184 | 2204 | 2230 | 2254 | 2274 |
| | 2294 | 2319 | 2342 | 2362 | 2382 | 2410 | 2443 | 2461 | 2470 | 2487 | 2510 | 2544 | 2568 |
| | 2591 | 2614 | 2651 | 2673 | 2697 | 2749 | 2829 | 2886 | 2906 | 2928 | 2946 | 2967 | 2971 |
| | 2974 | 2994 | 3011 | 3066 | 3084 | 3105 | 3133 | 3148 | 3174 | 3183 | 3224 | 3227 | 3248 |
| | 3256 | 3258 | 3386 | 3390 | 3428 | 3522 | 3526 | 3560 | 3596 | 3600 | 3713 | 3742 | 3813 |
| | 3847 | 3933 | 3975 | 4012 | 4016 | 4033 | 4064 | 4103 | 4188 | 4202 | 4234 | 4417 | 4420 |
| \$GDADR 001120 | 9880 | | | | | | | | | | | | |
| \$GDDAT 001124 | 9900 | | | | | | | | | | | | |
| \$GET42 012442 | 45020 | | | | | | | | | | | | |
| \$GTSMR 013222 | 46620 | 5135 | | | | | | | | | | | |
| \$HD - 000000 | 689 | | | | | | | | | | | | |
| \$HIBTS 001000 | 9640 | | | | | | | | | | | | |
| \$ICNT 001104 | 9810 | 49390 | 4940 | 49420 | 4953 | | | | | | | | |
| \$IFLEV- 177777 | 10 | 12170 | 12230 | 12600 | 12660 | 12720 | 12780 | 12880 | 12940 | 13050 | 13110 | 13240 | 13300 |
| | 13480 | 13540 | 13640 | 13700 | 13810 | 13870 | 14000 | 14060 | 14300 | 14360 | 14460 | 14520 | 14630 |
| | 14690 | 14820 | 14880 | 15070 | 15130 | 15210 | 15270 | 15370 | 15430 | 15530 | 15590 | 15740 | 15800 |
| | 15870 | 15930 | 16030 | 16090 | 16200 | 16260 | 16390 | 16450 | 16630 | 16690 | 16790 | 16850 | 16960 |
| | 17020 | 17150 | 17210 | 17390 | 17450 | 17550 | 17610 | 17720 | 17780 | 17910 | 17970 | 18150 | 18210 |
| | 18310 | 18370 | 18480 | 18540 | 18670 | 18730 | 19010 | 19120 | 19340 | 19450 | 19660 | 19790 | 19960 |
| | 20030 | 20110 | 20260 | 20500 | 20590 | 20750 | 20830 | 20950 | 21030 | 21150 | 21230 | 21410 | 21480 |
| | 21640 | 21720 | 21840 | 21920 | 22040 | 22120 | 22300 | 22380 | 22540 | 22620 | 22740 | 22820 | 22940 |
| | 23020 | 23190 | 23260 | 23420 | 23500 | 23620 | 23700 | 23820 | 23900 | 24100 | 24180 | 24430 | 24490 |
| | 24610 | 24670 | 24700 | 24760 | 24870 | 24930 | 25100 | 25180 | 25440 | 25500 | 25680 | 25740 | 25910 |
| | 25970 | 26140 | 26210 | 26510 | 26570 | 26730 | 26790 | 26970 | 27030 | 27280 | 27330 | 27490 | 27550 |
| | 27690 | 27740 | 28120 | 28170 | 28290 | 28350 | 28700 | 28750 | 28860 | 28920 | 29060 | 29120 | 29280 |
| | 29380 | 29460 | 29580 | 29710 | 29740 | 29850 | 29870 | 29940 | 30010 | 30110 | 30170 | 30660 | 30770 |
| | 30840 | 30970 | 31050 | 31150 | 31330 | 31450 | 31480 | 31550 | 31740 | 31800 | 31830 | 31890 | 32270 |
| | 32410 | 32480 | 32560 | 32710 | 32730 | 33860 | 33900 | 34030 | 34050 | 34280 | 34340 | 35220 | 35260 |
| | 35390 | 35410 | 35600 | 35670 | 35960 | 36000 | 36130 | 36150 | 37130 | 37220 | 37420 | 37490 | 38130 |
| | 38220 | 38470 | 38530 | 39330 | 39390 | 39750 | 39810 | 40120 | 40160 | 40240 | 40290 | 40330 | 40400 |
| | 40640 | 40700 | 40950 | 41000 | 41030 | 41090 | 41880 | 41980 | 42020 | 42080 | 42340 | 42390 | 44170 |
| | 44200 | 44340 | 44550 | | | | | | | | | | |
| \$ILLUP 012652 | 4520 | 4536 | 45550 | | | | | | | | | | |
| \$INTAG 001135 | 9950 | 4690 | 4779 | | | | | | | | | | |
| \$ISKO - 000001 | 12170 | 1223 | 12600 | 1266 | 12720 | 1278 | 12880 | 1294 | 13050 | 1311 | 13240 | 1330 | 13480 |
| | 1354 | 13640 | 1370 | 13810 | 1387 | 14000 | 1406 | 14300 | 1436 | 14460 | 1452 | 14630 | 1469 |
| | 14820 | 1488 | 15070 | 1513 | 15210 | 1527 | 15370 | 1543 | 15530 | 1559 | 15740 | 1580 | 15870 |
| | 1593 | 16030 | 1609 | 16200 | 1626 | 16390 | 1645 | 16630 | 1669 | 16790 | 1685 | 16960 | 1702 |
| | 17150 | 1721 | 17390 | 1745 | 17550 | 1761 | 17720 | 1778 | 17910 | 1797 | 18150 | 1821 | 18310 |
| | 1837 | 18480 | 1854 | 18670 | 1873 | 19010 | 1912 | 19340 | 1945 | 19660 | 1979 | 19960 | 2003 |
| | 20110 | 2026 | 20500 | 2059 | 20750 | 2083 | 20950 | 2103 | 21150 | 2123 | 21410 | 2148 | 21640 |
| | 2172 | 21840 | 2192 | 22040 | 2212 | 22300 | 2238 | 22540 | 2262 | 22740 | 2282 | 22940 | 2302 |
| | 23190 | 2326 | 23420 | 2350 | 23620 | 2370 | 23820 | 2390 | 24100 | 2418 | 24430 | 2449 | 24610 |
| | 2467 | 24700 | 2476 | 24870 | 2493 | 25100 | 2518 | 25440 | 2550 | 25680 | 2574 | 25910 | 2597 |
| | 26140 | 2621 | 26510 | 2657 | 26730 | 2679 | 26970 | 2703 | 27280 | 2733 | 27490 | 2755 | 27690 |
| | 2774 | 28120 | 2817 | 28290 | 2835 | 28700 | 2875 | 28860 | 2892 | 29060 | 2912 | 29280 | 2938 |
| | 29460 | 2958 | 29710 | 2987 | 29940 | 3001 | 30110 | 3017 | 30660 | 3077 | 30840 | 3097 | 31050 |
| | 3115 | 31330 | 3145 | 31480 | 3155 | 31740 | 3180 | 31830 | 3189 | 32270 | 3241 | 32480 | 3273 |
| | 33860 | 3405 | 34280 | 3434 | 35220 | 3541 | 35600 | 3567 | 35960 | 3615 | 37130 | 3722 | 37420 |
| | 3749 | 38130 | 3822 | 38470 | 3853 | 39330 | 3939 | 39750 | 3981 | 40120 | 4029 | 40330 | 4040 |
| | 40640 | 4070 | 40950 | 4100 | 41030 | 4109 | 41880 | 4198 | 42020 | 4208 | 42340 | 4239 | 44170 |
| | 4455 | | | | | | | | | | | | |
| \$ISK1 - 000001 | 29740 | 2985 | 32560 | 3271 | 33900 | 3403 | 35260 | 3539 | 36000 | 3613 | 40160 | 4024 | 44200 |
| | 4434 | | | | | | | | | | | | |

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CVDVAD.P11 12-JUL-84 05:04 CROSS REFERENCE TABLE -- USER SYMBOLS

| | | | | | | | | | | | | | | |
|----------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| \$ITEMB | 001114 | 9850 | 4379 | 4861* | 4869 | 4890 | | | | | | | | |
| \$LF | 001172 | 10120 | 4640 | 4764 | 4773 | 4890 | | | | | | | | |
| \$LFLG | 014171 | 4823* | 48290 | | | | | | | | | | | |
| \$LOCTA- | 177777 | 10 | 1207 | 1208 | 1218 | 1219 | 1223 | 1224 | 1232 | 1233 | 1261 | 1262 | 1266 | 1267 |
| | | 1273 | 1274 | 1278 | 1279 | 1289 | 1290 | 1294 | 1295 | 1306 | 1307 | 1311 | 1312 | 1325 |
| | | 1326 | 1330 | 1331 | 1349 | 1350 | 1354 | 1355 | 1365 | 1366 | 1370 | 1371 | 1382 | 1383 |
| | | 1387 | 1388 | 1401 | 1402 | 1406 | 1407 | 1431 | 1432 | 1436 | 1437 | 1447 | 1448 | 1452 |
| | | 1453 | 1464 | 1465 | 1469 | 1470 | 1483 | 1484 | 1488 | 1489 | 1508 | 1509 | 1513 | 1514 |
| | | 1522 | 1523 | 1527 | 1528 | 1538 | 1539 | 1543 | 1544 | 1554 | 1555 | 1559 | 1560 | 1575 |
| | | 1576 | 1580 | 1581 | 1588 | 1589 | 1593 | 1594 | 1604 | 1605 | 1609 | 1610 | 1621 | 1622 |
| | | 1626 | 1627 | 1640 | 1641 | 1645 | 1646 | 1664 | 1665 | 1669 | 1670 | 1680 | 1681 | 1685 |
| | | 1686 | 1697 | 1698 | 1702 | 1703 | 1716 | 1717 | 1721 | 1722 | 1740 | 1741 | 1745 | 1746 |
| | | 1756 | 1757 | 1761 | 1762 | 1773 | 1774 | 1778 | 1779 | 1792 | 1793 | 1797 | 1798 | 1816 |
| | | 1817 | 1821 | 1822 | 1832 | 1833 | 1837 | 1838 | 1849 | 1850 | 1854 | 1855 | 1868 | 1869 |
| | | 1873 | 1874 | 1902 | 1903 | 1912 | 1913 | 1935 | 1936 | 1945 | 1946 | 1967 | 1968 | 1979 |
| | | 1980 | 1997 | 1998 | 2003 | 2004 | 2012 | 2013 | 2026 | 2027 | 2051 | 2052 | 2059 | 2060 |
| | | 2076 | 2077 | 2083 | 2084 | 2096 | 2097 | 2103 | 2104 | 2116 | 2117 | 2123 | 2124 | 2142 |
| | | 2143 | 2148 | 2149 | 2165 | 2166 | 2172 | 2173 | 2185 | 2186 | 2192 | 2193 | 2205 | 2206 |
| | | 2212 | 2213 | 2231 | 2232 | 2238 | 2239 | 2255 | 2256 | 2262 | 2263 | 2275 | 2276 | 2282 |
| | | 2283 | 2295 | 2296 | 2302 | 2303 | 2320 | 2321 | 2326 | 2327 | 2343 | 2344 | 2350 | 2351 |
| | | 2363 | 2364 | 2370 | 2371 | 2383 | 2384 | 2390 | 2391 | 2411 | 2412 | 2418 | 2419 | 2444 |
| | | 2445 | 2449 | 2450 | 2462 | 2463 | 2467 | 2468 | 2471 | 2472 | 2476 | 2477 | 2488 | 2489 |
| | | 2493 | 2494 | 2511 | 2512 | 2518 | 2519 | 2545 | 2546 | 2550 | 2551 | 2569 | 2570 | 2574 |
| | | 2575 | 2592 | 2593 | 2597 | 2598 | 2615 | 2616 | 2621 | 2622 | 2652 | 2653 | 2657 | 2658 |
| | | 2674 | 2675 | 2679 | 2680 | 2698 | 2699 | 2703 | 2704 | 2728 | 2729 | 2733 | 2734 | 2750 |
| | | 2751 | 2755 | 2756 | 2769 | 2770 | 2774 | 2775 | 2812 | 2813 | 2817 | 2818 | 2830 | 2831 |
| | | 2835 | 2836 | 2870 | 2871 | 2875 | 2876 | 2887 | 2888 | 2892 | 2893 | 2907 | 2908 | 2912 |
| | | 2913 | 2926 | 2927 | 2929 | 2930 | 2933 | 2934 | 2935 | 2938 | 2939 | 2941 | 2942 | 2943 |
| | | 2944 | 2945 | 2947 | 2948 | 2958 | 2959 | 2966 | 2967 | 2968 | 2969 | 2972 | 2973 | 2975 |
| | | 2976 | 2985 | 2986 | 2987 | 2988 | 2989 | 2990 | 2991 | 2995 | 2996 | 3001 | 3002 | 3012 |
| | | 3013 | 3017 | 3018 | 3067 | 3068 | 3077 | 3078 | 3085 | 3086 | 3097 | 3098 | 3106 | 3107 |
| | | 3115 | 3116 | 3134 | 3135 | 3145 | 3146 | 3149 | 3150 | 3155 | 3156 | 3175 | 3176 | 3180 |
| | | 3181 | 3184 | 3185 | 3189 | 3190 | 3200 | 3201 | 3202 | 3203 | 3204 | 3205 | 3206 | 3223 |
| | | 3224 | 3225 | 3226 | 3228 | 3229 | 3233 | 3234 | 3235 | 3241 | 3242 | 3244 | 3245 | 3246 |
| | | 3249 | 3250 | 3252 | 3253 | 3254 | 3257 | 3258 | 3259 | 3260 | 3262 | 3263 | 3264 | 3271 |
| | | 3272 | 3273 | 3274 | 3281 | 3282 | 3283 | 3387 | 3388 | 3391 | 3392 | 3396 | 3397 | 3398 |
| | | 3403 | 3404 | 3405 | 3406 | 3429 | 3430 | 3434 | 3435 | 3523 | 3524 | 3527 | 3528 | 3533 |
| | | 3534 | 3535 | 3539 | 3540 | 3541 | 3542 | 3561 | 3562 | 3567 | 3568 | 3597 | 3598 | 3601 |
| | | 3602 | 3607 | 3608 | 3609 | 3613 | 3614 | 3615 | 3616 | 3665 | 3666 | 3667 | 3668 | 3669 |
| | | 3670 | 3671 | 3714 | 3715 | 3722 | 3723 | 3724 | 3725 | 3726 | 3743 | 3744 | 3749 | 3750 |
| | | 3769 | 3770 | 3771 | 3772 | 3773 | 3774 | 3775 | 3814 | 3815 | 3822 | 3823 | 3825 | 3826 |
| | | 3827 | 3848 | 3849 | 3853 | 3854 | 3923 | 3924 | 3926 | 3927 | 3928 | 3929 | 3930 | 3934 |
| | | 3935 | 3939 | 3940 | 3976 | 3977 | 3981 | 3982 | 4013 | 4014 | 4017 | 4018 | 4024 | 4025 |
| | | 4029 | 4030 | 4034 | 4035 | 4040 | 4041 | 4065 | 4066 | 4070 | 4071 | 4095 | 4096 | 4100 |
| | | 4101 | 4104 | 4105 | 4109 | 4110 | 4150 | 4185 | 4186 | 4189 | 4190 | 4193 | 4194 | 4195 |
| | | 4198 | 4199 | 4203 | 4204 | 4208 | 4209 | 4212 | 4213 | 4214 | 4215 | 4226 | 4227 | 4228 |
| | | 4235 | 4236 | 4237 | 4238 | 4239 | 4240 | 4242 | 4243 | 4250 | 4251 | 4252 | 4253 | 4257 |
| | | 4281 | 4282 | 4283 | 4284 | 4285 | 4286 | 4287 | 4292 | 4293 | 4294 | 4297 | 4298 | 4300 |
| | | 4301 | 4302 | 4306 | 4321 | 4322 | 4323 | 4324 | 4325 | 4326 | 4327 | 4329 | 4330 | 4331 |
| | | 4332 | 4333 | 4334 | 4335 | 4336 | 4337 | 4338 | 4339 | 4340 | 4341 | 4345 | 4346 | 4347 |
| | | 4367 | 4401 | 4402 | 4403 | 4405 | 4415 | 4416 | 4418 | 4419 | 4421 | 4422 | 4425 | 4426 |
| | | 4427 | 4434 | 4435 | 4444 | 4445 | 4446 | 4455 | 4456 | 4458 | 4459 | 4465 | 4466 | 4472 |
| | | 4473 | 4474 | | | | | | | | | | | |
| \$LPADR | 001106 | 9820 | 1109* | 4930* | 4946* | 4951 | 4953 | | | | | | | |
| \$LPERR | 001110 | 9830 | 1110* | 1209* | 1269* | 1283* | 1299* | 1316* | 1345* | 1359* | 1375* | 1392* | 1427* | 1441* |
| | | 1457* | 1474* | 1516* | 1532* | 1548* | 1584* | 1598* | 1614* | 1631* | 1660* | 1674* | 1690* | 1706* |

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\$LSTCN= 177777

| | | | | | | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1736* | 1750* | 1766* | 1783* | 1812* | 1826* | 1842* | 1859* | 1899* | 1931* | 1964* | 2008* | 2068* |
| 2088* | 2108* | 2157* | 2177* | 2197* | 2247* | 2267* | 2287* | 2335* | 2355* | 2375* | 2428* | 2455* |
| 2481* | 2528* | 2555* | 2579* | 2639* | 2662* | 2705* | 2737* | 2792* | 2822* | 2850* | 3035* | 3082* |
| 3101* | 3119* | 3362* | 3409* | 3478* | 3558* | 4880 | 4930 | 4947* | 4953 | | | |
| 1 | 1207 | 1208 | 1217 | 1219 | 1223 | 1231 | 1260 | 1262 | 1266 | 1272 | 1274 | 1278 |
| 1288 | 1290 | 1294 | 1305 | 1307 | 1311 | 1324 | 1326 | 1330 | 1348 | 1350 | 1354 | 1364 |
| 1366 | 1370 | 1381 | 1383 | 1387 | 1400 | 1402 | 1406 | 1430 | 1432 | 1436 | 1446 | 1448 |
| 1452 | 1463 | 1465 | 1469 | 1482 | 1484 | 1488 | 1507 | 1509 | 1513 | 1521 | 1523 | 1527 |
| 1537 | 1539 | 1543 | 1553 | 1555 | 1559 | 1574 | 1576 | 1580 | 1587 | 1589 | 1593 | 1603 |
| 1605 | 1609 | 1620 | 1622 | 1626 | 1639 | 1641 | 1645 | 1663 | 1665 | 1669 | 1679 | 1681 |
| 1685 | 1696 | 1698 | 1702 | 1715 | 1717 | 1721 | 1739 | 1741 | 1745 | 1755 | 1757 | 1761 |
| 1772 | 1774 | 1778 | 1791 | 1793 | 1797 | 1815 | 1817 | 1821 | 1831 | 1833 | 1837 | 1848 |
| 1850 | 1854 | 1867 | 1869 | 1873 | 1901 | 1903 | 1912 | 1934 | 1936 | 1945 | 1966 | 1968 |
| 1979 | 1996 | 1998 | 2003 | 2011 | 2013 | 2026 | 2050 | 2052 | 2059 | 2075 | 2077 | 2083 |
| 2095 | 2097 | 2103 | 2115 | 2117 | 2123 | 2141 | 2143 | 2148 | 2164 | 2166 | 2172 | 2184 |
| 2186 | 2192 | 2204 | 2206 | 2212 | 2230 | 2232 | 2238 | 2254 | 2256 | 2262 | 2274 | 2276 |
| 2282 | 2294 | 2296 | 2302 | 2319 | 2321 | 2326 | 2342 | 2344 | 2350 | 2362 | 2364 | 2370 |
| 2382 | 2384 | 2390 | 2410 | 2412 | 2418 | 2443 | 2445 | 2449 | 2461 | 2463 | 2467 | 2470 |
| 2472 | 2476 | 2487 | 2489 | 2493 | 2510 | 2512 | 2518 | 2544 | 2546 | 2550 | 2568 | 2570 |
| 2574 | 2591 | 2593 | 2597 | 2614 | 2616 | 2621 | 2651 | 2653 | 2657 | 2673 | 2675 | 2679 |
| 2697 | 2699 | 2703 | 2728 | 2729 | 2733 | 2749 | 2751 | 2755 | 2769 | 2770 | 2774 | 2812 |
| 2813 | 2817 | 2829 | 2831 | 2835 | 2870 | 2871 | 2875 | 2886 | 2888 | 2892 | 2906 | 2908 |
| 2912 | 2926 | 2927 | 2928 | 2930 | 2934 | 2935 | 2938 | 2940 | 2945 | 2946 | 2948 | 2958 |
| 2966 | 2967 | 2969 | 2971 | 2973 | 2974 | 2976 | 2985 | 2987 | 2989 | 2990 | 2994 | 2996 |
| 3001 | 3011 | 3013 | 3017 | 3066 | 3068 | 3077 | 3084 | 3086 | 3097 | 3105 | 3107 | 3115 |
| 3133 | 3135 | 3145 | 3146 | 3150 | 3155 | 3174 | 3176 | 3180 | 3183 | 3185 | 3189 | 3199 |
| 3201 | 3202 | 3203 | 3206 | 3223 | 3224 | 3226 | 3227 | 3229 | 3234 | 3235 | 3241 | 3244 |
| 3245 | 3248 | 3250 | 3253 | 3254 | 3256 | 3260 | 3263 | 3264 | 3271 | 3273 | 3281 | 3282 |
| 3386 | 3388 | 3390 | 3392 | 3397 | 3398 | 3403 | 3405 | 3428 | 3430 | 3434 | 3522 | 3524 |
| 3526 | 3528 | 3534 | 3535 | 3539 | 3541 | 3560 | 3562 | 3567 | 3596 | 3598 | 3600 | 3602 |
| 3608 | 3609 | 3613 | 3615 | 3664 | 3666 | 3667 | 3668 | 3671 | 3713 | 3715 | 3722 | 3724 |
| 3725 | 3742 | 3744 | 3749 | 3768 | 3770 | 3771 | 3772 | 3775 | 3813 | 3815 | 3822 | 3825 |
| 3826 | 3847 | 3849 | 3853 | 3923 | 3924 | 3925 | 3930 | 3933 | 3935 | 3939 | 3975 | 3977 |
| 3981 | 4012 | 4014 | 4016 | 4018 | 4024 | 4029 | 4033 | 4035 | 4040 | 4064 | 4066 | 4070 |
| 4095 | 4096 | 4100 | 4103 | 4105 | 4109 | 4151 | 4185 | 4186 | 4188 | 4190 | 4194 | 4195 |
| 4198 | 4202 | 4204 | 4208 | 4226 | 4227 | 4234 | 4236 | 4239 | 4250 | 4258 | 4280 | 4282 |
| 4283 | 4284 | 4287 | 4292 | 4293 | 4300 | 4307 | 4320 | 4322 | 4323 | 4324 | 4327 | 4328 |
| 4330 | 4331 | 4332 | 4335 | 4336 | 4337 | 4339 | 4340 | 4345 | 4368 | 4401 | 4406 | 4415 |
| 4416 | 4417 | 4419 | 4420 | 4422 | 4426 | 4427 | 4434 | 4445 | 4446 | 4455 | 4457 | 4472 |
| 1 | 1154 | 1155 | 1157 | 1158 | 1161 | 1162 | 1164 | 1165 | 1166 | 1167 | 1169 | 1170 |
| 1171 | 1172 | 1173 | 1174 | 1175 | 1176 | 1177 | 1178 | 1179 | 1180 | 1181 | 1182 | 1183 |
| 1184 | 1196 | 1197 | 1199 | 1200 | 1201 | 1202 | 1203 | 1204 | 1205 | 1206 | 1209 | 1210 |
| 1212 | 1213 | 1217 | 1218 | 1219 | 1226 | 1227 | 1228 | 1229 | 1230 | 1231 | 1232 | 1233 |
| 1236 | 1237 | 1238 | 1239 | 1240 | 1241 | 1260 | 1261 | 1262 | 1263 | 1264 | 1269 | 1270 |
| 1272 | 1273 | 1274 | 1283 | 1284 | 1285 | 1286 | 1288 | 1289 | 1290 | 1299 | 1300 | 1302 |
| 1303 | 1305 | 1306 | 1307 | 1316 | 1317 | 1319 | 1320 | 1324 | 1325 | 1326 | 1345 | 1346 |
| 1348 | 1349 | 1350 | 1359 | 1360 | 1361 | 1362 | 1364 | 1365 | 1366 | 1375 | 1376 | 1378 |
| 1379 | 1381 | 1382 | 1383 | 1392 | 1393 | 1395 | 1396 | 1400 | 1401 | 1402 | 1427 | 1428 |
| 1430 | 1431 | 1432 | 1441 | 1442 | 1443 | 1444 | 1446 | 1447 | 1448 | 1457 | 1458 | 1460 |
| 1461 | 1463 | 1464 | 1465 | 1474 | 1475 | 1477 | 1478 | 1482 | 1483 | 1484 | 1507 | 1508 |
| 1509 | 1510 | 1511 | 1516 | 1517 | 1518 | 1519 | 1521 | 1522 | 1523 | 1532 | 1533 | 1535 |
| 1536 | 1537 | 1538 | 1539 | 1548 | 1549 | 1550 | 1551 | 1553 | 1554 | 1555 | 1574 | 1575 |
| 1576 | 1577 | 1578 | 1584 | 1585 | 1587 | 1588 | 1589 | 1598 | 1599 | 1600 | 1601 | 1603 |
| 1604 | 1605 | 1614 | 1615 | 1617 | 1618 | 1620 | 1621 | 1622 | 1631 | 1632 | 1634 | 1635 |
| 1639 | 1640 | 1641 | 1660 | 1661 | 1663 | 1664 | 1665 | 1674 | 1675 | 1676 | 1677 | 1679 |
| 1680 | 1681 | 1690 | 1691 | 1693 | 1694 | 1696 | 1697 | 1698 | 1706 | 1707 | 1710 | 1711 |

\$LSTIN= 000000

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CROSS REFERENCE TABLE -- USER SYMBOLS

| | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1715 | 1716 | 1717 | 1736 | 1737 | 1739 | 1740 | 1741 | 1750 | 1751 | 1752 | 1753 | 1755 |
| 1756 | 1757 | 1766 | 1767 | 1769 | 1770 | 1772 | 1773 | 1774 | 1783 | 1784 | 1786 | 1787 |
| 1791 | 1792 | 1793 | 1812 | 1813 | 1815 | 1816 | 1817 | 1826 | 1827 | 1828 | 1829 | 1831 |
| 1832 | 1833 | 1842 | 1843 | 1845 | 1846 | 1848 | 1849 | 1850 | 1859 | 1860 | 1862 | 1863 |
| 1867 | 1868 | 1869 | 1899 | 1900 | 1901 | 1902 | 1903 | 1931 | 1932 | 1934 | 1935 | 1936 |
| 1964 | 1965 | 1966 | 1967 | 1968 | 1996 | 1997 | 1998 | 2000 | 2001 | 2008 | 2009 | 2011 |
| 2012 | 2013 | 2050 | 2051 | 2052 | 2056 | 2057 | 2068 | 2069 | 2072 | 2073 | 2075 | 2076 |
| 2077 | 2088 | 2089 | 2092 | 2093 | 2095 | 2096 | 2097 | 2108 | 2109 | 2112 | 2113 | 2115 |
| 2116 | 2117 | 2141 | 2142 | 2143 | 2145 | 2146 | 2157 | 2158 | 2161 | 2162 | 2164 | 2165 |
| 2166 | 2177 | 2178 | 2181 | 2182 | 2184 | 2185 | 2186 | 2197 | 2198 | 2201 | 2202 | 2204 |
| 2205 | 2206 | 2230 | 2271 | 2232 | 2235 | 2236 | 2247 | 2248 | 2251 | 2252 | 2254 | 2255 |
| 2256 | 2267 | 2268 | 2271 | 2272 | 2274 | 2275 | 2276 | 2287 | 2288 | 2291 | 2292 | 2294 |
| 2295 | 2296 | 2319 | 2320 | 2321 | 2323 | 2324 | 2335 | 2336 | 2339 | 2340 | 2342 | 2343 |
| 2344 | 2355 | 2356 | 2359 | 2360 | 2362 | 2363 | 2364 | 2375 | 2376 | 2379 | 2380 | 2382 |
| 2383 | 2384 | 2410 | 2411 | 2412 | 2415 | 2416 | 2428 | 2429 | 2431 | 2432 | 2434 | 2435 |
| 2436 | 2437 | 2438 | 2440 | 2441 | 2443 | 2444 | 2445 | 2455 | 2456 | 2459 | 2460 | 2461 |
| 2462 | 2463 | 2470 | 2471 | 2472 | 2481 | 2482 | 2485 | 2486 | 2487 | 2488 | 2489 | 2510 |
| 2511 | 2512 | 2515 | 2516 | 2528 | 2529 | 2532 | 2533 | 2535 | 2536 | 2537 | 2538 | 2539 |
| 2541 | 2542 | 2544 | 2545 | 2546 | 2555 | 2556 | 2560 | 2561 | 2563 | 2564 | 2565 | 2566 |
| 2567 | 2568 | 2569 | 2570 | 2579 | 2580 | 2583 | 2584 | 2586 | 2587 | 2588 | 2589 | 2590 |
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| 1850 | 1854 | 1867 | 1869 | 1873 | 1901 | 1903 | 1912 | 1934 | 1936 | 1945 | 1966 | 1968 |
| 1979 | 1996 | 1998 | 2003 | 2011 | 2013 | 2026 | 2050 | 2052 | 2059 | 2075 | 2077 | 2083 |
| 2095 | 2097 | 2103 | 2115 | 2117 | 2123 | 2141 | 2143 | 2148 | 2164 | 2166 | 2172 | 2184 |
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| 3668 | 3671 | 3713 | 3715 | 3722 | 3724 | 3725 | 3742 | 3744 | 3749 | 3768 | 3770 | 3771 |
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| 3933 | 3935 | 3939 | 3975 | 3977 | 3981 | 4012 | 4014 | 4016 | 4018 | 4024 | 4029 | 4033 |
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MAINDEC-ZZ CVDVA-D MACY11 30A(1052) 12-JUL-84 09:52 PAGE 142
CVDVAD.P11 12-JUL-84 05:04 CROSS REFERENCE TABLE -- USER SYMBOLS

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| 14520 | 14630 | 15870 | 15930 | 16030 | 16090 | 16200 | 16260 | 16390 | 16450 | 16630 | 16690 | 16790 |
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| 16850 | 16960 | 18310 | 18370 | 18480 | 18540 | 18670 | 18730 | 19010 | 19120 | 19340 | 19450 | 19660 |
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| | | 24000 | 25000 | 25020 | 26060 | 26860 | 26880 | 27780 | 27800 | 28390 | 28950 | 28970 |
| | | 31660 | 33330 | 33350 | 34590 | 34610 | 36360 | 36380 | 37350 | 38360 | 38380 | 40550 |
| | | 50530 | 50820 | 50950 | | | | | | | | |
| | | 50480 | 50520 | 50570 | 50600 | 50710 | 50970 | | | | | |
| | | 49070 | 49230 | 49310 | 49410 | 49500 | | | | | | |
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\$OMODE 015324

\$OVER 014636

\$PASS 001202

MAINDEC-ZZ-CVDVA D MACY11 30A(1052) 12 JUL-84 09:52 PAGE 143
CVDVAD.P11 12 JUL 84 05:04 CROSS REFERENCE TABLE -- USER SYMBOLS

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| \$PWIMG | 012642 | 45510 | | | | | | | | | | | | |
| \$PWUP | 012560 | 4530 | 45360 | | | | | | | | | | | |
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| \$RDCMR | 013434 | 47210 | 5138 | | | | | | | | | | | |
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| \$RDOCT | ***** U | 5140 | | | | | | | | | | | | |
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| \$RTNAD | 012464 | 45110 | | | | | | | | | | | | |
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| \$SAVRE | ***** U | 5140 | | | | | | | | | | | | |
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| \$SCOPE | 014374 | 1097 | 49040 | | | | | | | | | | | |
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| \$SVPC | 000204 | 9410 | 946 | | | | | | | | | | | |
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| | | 1107 | 1109 | 1110 | 1193 | 1256 | 1340 | 1417 | 1504 | 1571 | 1656 | 1732 | 1808 | 1891 |
| | | 1924 | 1957 | 1991 | 2046 | 2137 | 2226 | 2315 | 2406 | 2506 | 2610 | 2692 | 2784 | 2843 |
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CVDVAD.P11 12 JUL-84 05:04 CROSS REFERENCE TABLE -- USER SYMBOLS

| | | | | | | | | | | | | | | |
|----------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
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| \$TRAP2 | 015350 | 5117# | 5128 | | | | | | | | | | | |
| \$TRP = | 000012 | 5121# | 5130# | 5131# | 5132# | 5133# | 5134# | 5135 | 5136# | 5137 | 5138# | 5139# | 5140# | |
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| | | 1484# | 1488 | 1509# | 1513 | 1523# | 1527 | 1539# | 1543 | 1555# | 1559 | 1576# | 1580 | 1589# |
| | | 1593 | 1605# | 1609 | 1622# | 1626 | 1641# | 1645 | 1665# | 1669 | 1681# | 1685 | 1698# | 1702 |
| | | 1717# | 1721 | 1741# | 1745 | 1757# | 1761 | 1774# | 1778 | 1793# | 1797 | 1817# | 1821 | 1833# |
| | | 1837 | 1850# | 1854 | 1869# | 1873 | 1903# | 1912 | 1936# | 1945 | 1968# | 1979 | 1998# | 2003 |
| | | 2013# | 2026 | 2052# | 2059 | 2077# | 2083 | 2097# | 2103 | 2117# | 2123 | 2143# | 2148 | 2166# |
| | | 2172 | 2186# | 2192 | 2206# | 2212 | 2232# | 2238 | 2256# | 2262 | 2276# | 2282 | 2296# | 2302 |
| | | 2321# | 2326 | 2344# | 2350 | 2364# | 2370 | 2384# | 2390 | 2412# | 2418 | 2445# | 2449 | 2463# |
| | | 2467 | 2472# | 2476 | 2489# | 2493 | 2512# | 2518 | 2546# | 2550 | 2570# | 2574 | 2593# | 2597 |
| | | 2616# | 2621 | 2653# | 2657 | 2675# | 2679 | 2699# | 2703 | 2729# | 2733 | 2751# | 2755 | 2770# |
| | | 2774 | 2813# | 2817 | 2831# | 2835 | 2871# | 2875 | 2888# | 2892 | 2908# | 2912 | 2927# | 2940 |
| | | 2948# | 2958 | 2967# | 2989 | 2996# | 3001 | 3013# | 3017 | 3068# | 3077 | 3086# | 3097 | 3107# |
| | | 3115 | 3135# | 3145 | 3150# | 3155 | 3176# | 3180 | 3185# | 3189 | 3201# | 3203 | 3206# | 3282 |
| | | 3388# | 3405 | 3430# | 3434 | 3524# | 3541 | 3562# | 3567 | 3598# | 3615 | 3666# | 3668 | 3671# |
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| | | 3977# | 3981 | 4014# | 4029 | 4035# | 4040 | 4066# | 4070 | 4096# | 4100 | 4105# | 4109 | 4186# |
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CVDVAD.P11 12 JUL-84 05:04 CROSS REFERENCE TABLE -- USER SYMBOLS

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| 1997 | 1998 | 2012 | 2013 | 2051 | 2052 | 2076 | 2077 | 2096 | 2097 | 2116 | 2117 | 2142 |
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| 2592 | 2593 | 2615 | 2616 | 2652 | 2653 | 2674 | 2675 | 2698 | 2699 | 2728 | 2729 | 2750 |
| 2751 | 2769 | 2770 | 2812 | 2813 | 2830 | 2831 | 2870 | 2871 | 2887 | 2888 | 2907 | 2908 |
| 2929 | 2930 | 2943 | 2944 | 2947 | 2948 | 2968 | 2969 | 2972 | 2973 | 2975 | 2976 | 2995 |
| 2996 | 3012 | 3013 | 3067 | 3068 | 3085 | 3086 | 3106 | 3107 | 3134 | 3135 | 3149 | 3150 |
| 3175 | 3176 | 3184 | 3185 | 3225 | 3226 | 3228 | 3229 | 3249 | 3250 | 3257 | 3258 | 3259 |
| 3260 | 3387 | 3388 | 3391 | 3392 | 3429 | 3430 | 3523 | 3524 | 3527 | 3528 | 3561 | 3562 |
| 3597 | 3598 | 3601 | 3602 | 3714 | 3715 | 3743 | 3744 | 3814 | 3815 | 3848 | 3849 | 3928 |
| 3929 | 3934 | 3935 | 3976 | 3977 | 4013 | 4014 | 4017 | 4018 | 4034 | 4035 | 4065 | 4066 |
| 4095 | 4096 | 4104 | 4105 | 4189 | 4190 | 4203 | 4204 | 4235 | 4236 | 4418 | 4419 | 4421 |
| 4422 | 4458 | 4459 | | | | | | | | | | |
| 4151 | 4253 | 4258 | 4302 | 4307 | 4347 | 4368 | 4403 | 4406 | 4474 | | | |
| 4151 | 4237 | 4241 | 4251 | 4258 | 4301 | 4307 | 4346 | 4368 | 4402 | 4406 | 4473 | |
| 4151 | 4237 | 4250 | 4258 | 4297 | 4300 | 4307 | 4345 | 4368 | 4401 | 4406 | 4465 | 4472 |
| 4151 | 4242 | 4252 | 4258 | 4301 | 4307 | 4346 | 4368 | 4402 | 4406 | 4473 | | |
| 3285 | 4275 | | | | | | | | | | | |
| 1157 | 1158 | 2434 | 2437 | 2535 | 2538 | 2563 | 2566 | 2586 | 2589 | 2646 | 2649 | 2668 |
| 2671 | 2718 | 2724 | 2761 | 2767 | 2802 | 2808 | 2861 | 2867 | 3045 | 3048 | 3055 | 3058 |
| 3127 | 3130 | 3379 | 3382 | 3423 | 3426 | 3501 | 3507 | 3513 | 3516 | 3589 | 3592 | 3655 |
| 3656 | 3657 | 3676 | 3682 | 3689 | 3695 | 3761 | 3762 | 3763 | 3780 | 3786 | 3792 | 3798 |
| 3856 | 3857 | 3858 | 4087 | 4093 | 4219 | 4222 | 4428 | 4429 | | | | |
| 5047 | 5051 | 5061 | 5096 | | | | | | | | | |

\$LOCN= 000000
 \$NETU= 000000
 \$RTN1= 000242
 \$RTN2= 000243
 \$SRC = 000027
 \$TO = 000000

\$FILL 015323
 \$1 002126
 \$10 002446
 \$100 005260
 \$101 005322
 \$102 005364
 \$103 005424
 \$104 005512
 \$105 005554
 \$106 005612
 \$107 005660
 \$11 002474
 \$110 005706
 \$111 005742
 \$112 006034
 \$113 006056
 \$114 006150
 \$115 006166
 \$116 006224
 \$117 006244
 \$12 002522
 \$120 006262
 \$121 006264
 \$122 006300
 \$123 006324
 \$124 006324
 \$125 006370
 \$126 006366

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 CVDVAD.F11 12 JUL -84 05:04 CROSS REFERENCE TABLE -- USER SYMBOLS

| | | | | |
|-------|--------|-------|-------|-------|
| \$127 | 06366 | 2975 | 29850 | |
| \$13 | 002552 | 1401 | 14060 | |
| \$130 | 006402 | 2995 | 30010 | |
| \$131 | 006420 | 3012 | 30170 | |
| \$132 | 006534 | 3067 | 30770 | |
| \$133 | 006562 | 3085 | 30970 | |
| \$134 | 006604 | 3106 | 31150 | |
| \$135 | 006654 | 3134 | 31450 | |
| \$136 | 006666 | 3149 | 31550 | |
| \$137 | 006726 | 3175 | 31800 | |
| \$14 | 002622 | 1431 | 14360 | |
| \$140 | 006746 | 3184 | 31890 | |
| \$141 | 006776 | 3200 | 32030 | |
| \$142 | 006774 | 32010 | 3281 | |
| \$143 | 007144 | 3205 | 32820 | |
| \$144 | 007034 | 32230 | 3244 | |
| \$145 | 007070 | 3225 | 32450 | |
| \$146 | 007056 | 3228 | 32340 | |
| \$147 | 007066 | 3233 | 32410 | |
| \$15 | 002650 | 1447 | 14520 | |
| \$150 | 007102 | 3249 | 32530 | |
| \$151 | 007126 | 3252 | 32730 | |
| \$152 | 007124 | 3257 | 3259 | 32630 |
| \$153 | 007126 | 3262 | 32710 | |
| \$154 | 007416 | 3387 | 34050 | |
| \$155 | 007414 | 3391 | 33970 | |
| \$156 | 007416 | 3396 | 34030 | |
| \$157 | 007474 | 3429 | 34340 | |
| \$16 | 002676 | 1464 | 14690 | |
| \$160 | 007734 | 3523 | 35410 | |
| \$161 | 007732 | 3527 | 35340 | |
| \$162 | 007734 | 3533 | 35390 | |
| \$163 | 007776 | 3561 | 35670 | |
| \$164 | 010104 | 3597 | 36150 | |
| \$165 | 010102 | 3601 | 36080 | |
| \$166 | 010104 | 3607 | 36130 | |
| \$167 | 010234 | 3665 | 36680 | |
| \$17 | 002726 | 1483 | 14880 | |
| \$170 | 010232 | 36660 | 3724 | |
| \$171 | 010360 | 3670 | 37250 | |
| \$172 | 010356 | 3714 | 37220 | |
| \$173 | 010424 | 3743 | 37490 | |
| \$174 | 010470 | 3769 | 37720 | |
| \$175 | 010466 | 37700 | 3825 | |
| \$176 | 010614 | 3774 | 38260 | |
| \$177 | 010612 | 3814 | 38220 | |
| \$2 | 002152 | 1218 | 12230 | |
| \$20 | 002764 | 1508 | 15130 | |
| \$200 | 010652 | 3848 | 38530 | |
| \$201 | 010764 | 39230 | 3928 | |
| \$202 | 011000 | 3926 | 39290 | |
| \$203 | 011010 | 3934 | 39390 | |
| \$204 | 011070 | 3976 | 39810 | |
| \$205 | 011150 | 4013 | 40290 | |
| \$206 | 011144 | 4017 | 40240 | |
| \$207 | 011164 | 4034 | 40400 | |

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 CVDVAD.P11 12-JUL-84 05:04 CROSS REFERENCE TABLE -- USER SYMBOLS

| | | | | |
|----------|---------|-------|-------|-------|
| \$21 | 003012 | 1522 | 1527# | |
| \$210 | 011230 | 4065 | 4070# | |
| \$211 | 011312 | 4095 | 4100# | |
| \$212 | 011322 | 4104 | 4109# | |
| \$213 | 011646 | 4237 | 4250# | |
| \$214 | 011650 | 4242 | 4252# | |
| \$215 | 011516 | 4185# | 4226 | |
| \$216 | 011622 | 4212 | 4214 | 4227# |
| \$217 | 011536 | 4189 | 4194# | |
| \$22 | 003040 | 1538 | 1543# | |
| \$220 | 011544 | 4193 | 4198# | |
| \$221 | 011562 | 4203 | 4208# | |
| \$222 | 011634 | 4235 | 4239# | |
| \$223 | 011750 | 4297 | 4300# | |
| \$224 | 011750 | 4301# | | |
| \$225 | 011714 | 4281 | 4284# | |
| \$226 | 011710 | 4282# | 4292 | |
| \$227 | 011740 | 4286 | 4293# | |
| \$23 | 003066 | 1554 | 1559# | |
| \$230 | 012030 | 4345# | | |
| \$231 | 012030 | 4346# | | |
| \$232 | 011776 | 4321 | 4324# | |
| \$233 | 011772 | 4322# | 4339 | |
| \$234 | 012022 | 4326 | 4340# | |
| \$235 | 012010 | 4329 | 4332# | |
| \$236 | 012006 | 4330# | 4336 | |
| \$237 | 012020 | 4334 | 4337# | |
| \$24 | 003124 | 1575 | 1580# | |
| \$240 | 012222 | 4401# | | |
| \$241 | 012222 | 4402# | | |
| \$242 | 012362 | 4465 | 4472# | |
| \$243 | 012362 | 4473# | | |
| \$244 | 012224 | 4415# | 4458 | |
| \$245 | 012310 | 4418 | 4445# | |
| \$246 | 012250 | 4421 | 4426# | |
| \$247 | 012256 | 4425 | 4434# | |
| \$25 | 003144 | 1588 | 1593# | |
| \$250 | 012330 | 4444 | 4455# | |
| \$26 | 003172 | 1604 | 1609# | |
| \$27 | 003220 | 1621 | 1626# | |
| \$3 | 002264 | 1261 | 1266# | |
| \$30 | 003250 | 1640 | 1645# | |
| \$31 | 003306 | 1664 | 1669# | |
| \$32 | 003334 | 1680 | 1685# | |
| \$33 | 003362 | 1697 | 1702# | |
| \$34 | 003412 | 1716 | 1721# | |
| \$35 | 003450 | 1740 | 1745# | |
| \$36 | 003476 | 1756 | 1761# | |
| \$37 | 003524 | 1773 | 1778# | |
| \$4 | 002304 | 1273 | 1278# | |
| \$40 | 003554 | 1792 | 1797# | |
| \$40CAT= | ***** U | 4864 | 4906 | |
| \$41 | 003612 | 1816 | 1821# | |
| \$42 | 003640 | 1832 | 1837# | |
| \$43 | 003666 | 1849 | 1854# | |
| \$44 | 003716 | 1868 | 1873# | |

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 CVDVAD.P11 12-JUL-84 05:04 CROSS REFERENCE TABLE -- MACRO NAMES

| | | | | | | | | | | | | | | | |
|---------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| BEGIN | 10 | | | | | | | | | | | | | | |
| BGNHRD | 10 | | | | | | | | | | | | | | |
| BGNHW | 10 | | | | | | | | | | | | | | |
| BGNINI | 10 | | | | | | | | | | | | | | |
| BGNMOD | 10 | 4147 | | | | | | | | | | | | | |
| BGNMSG | 10 | | | | | | | | | | | | | | |
| BGNSFT | 10 | | | | | | | | | | | | | | |
| BGNSRV | 10 | 3959 | 3994 | 4351 | | | | | | | | | | | |
| BGNSUB | 10 | 1208 | 1268 | 1282 | 1298 | 1315 | 1344 | 1358 | 1374 | 1391 | 1426 | 1440 | 1456 | 1473 | 1515 |
| | 1531 | 1547 | 1583 | 1597 | 1613 | 1630 | 1659 | 1673 | 1689 | 1705 | 1735 | 1749 | 1765 | 1782 | 1811 |
| | 1825 | 1841 | 1858 | 1898 | 1930 | 1963 | 2007 | 2067 | 2087 | 2107 | 2156 | 2176 | 2196 | 2246 | 2266 |
| | 2286 | 2334 | 2354 | 2374 | 2427 | 2454 | 2480 | 2527 | 2554 | 2578 | 2638 | 2661 | 2704 | 2736 | 2791 |
| | 2821 | 2849 | 3034 | 3081 | 3100 | 3118 | 3361 | 3408 | 3477 | 3557 | | | | | |
| BGNSW | 10 | | | | | | | | | | | | | | |
| BRESET | 10 | 1184 | 1321 | 1397 | 1479 | 1636 | 1712 | 1788 | 1864 | 1909 | 1942 | 1976 | 2023 | 2825 | 3435 |
| | 3907 | 4110 | | | | | | | | | | | | | |
| CALL | 10 | 1156 | 2434 | 2535 | 2563 | 2586 | 2646 | 2668 | 2717 | 2760 | 2801 | 2860 | 3045 | 3055 | 3127 |
| | 3379 | 3423 | 3500 | 3513 | 3589 | 3654 | 3675 | 3688 | 3760 | 3779 | 3791 | 3855 | 4086 | 4219 | 4427 |
| CASE | 10 | | | | | | | | | | | | | | |
| CKLOOP | 10 | 1874 | 1914 | 1947 | 1980 | 2028 | | | | | | | | | |
| CLRVEC | 10 | 1233 | 3441 | 3624 | | | | | | | | | | | |
| COMMEN | 10 | 8110 | | | | | | | | | | | | | |
| DECR | 10 | | | | | | | | | | | | | | |
| DECRU | 10 | | | | | | | | | | | | | | |
| DEFAULT | 10 | | | | | | | | | | | | | | |
| DEVREG | 10 | | | | | | | | | | | | | | |
| DEVTYP | 10 | | | | | | | | | | | | | | |
| DISPAT | 10 | | | | | | | | | | | | | | |
| ELSE | 10 | 2932 | 3232 | 3251 | 3261 | 3395 | 3532 | 3606 | 4192 | 4424 | 4443 | | | | |
| END | 10 | | | | | | | | | | | | | | |
| ENDCLM | 10 | | | | | | | | | | | | | | |
| ENDCOM | 10 | 8110 | | | | | | | | | | | | | |
| ENDDEC | 10 | | | | | | | | | | | | | | |
| ENDDO | 10 | 2988 | 3243 | | | | | | | | | | | | |
| ENDHRD | 10 | | | | | | | | | | | | | | |
| ENDHW | 10 | | | | | | | | | | | | | | |
| ENDIF | 10 | 1222 | 1265 | 1277 | 1293 | 1310 | 1329 | 1353 | 1369 | 1386 | 1405 | 1435 | 1451 | 1468 | 1487 |
| | 1512 | 1526 | 1542 | 1558 | 1579 | 1592 | 1608 | 1625 | 1644 | 1668 | 1684 | 1701 | 1720 | 1744 | 1760 |
| | 1777 | 1796 | 1820 | 1836 | 1853 | 1872 | 1911 | 1944 | 1978 | 2002 | 2025 | 2058 | 2082 | 2102 | 2122 |
| | 2147 | 2171 | 2191 | 2211 | 2237 | 2261 | 2281 | 2301 | 2325 | 2349 | 2369 | 2389 | 2417 | 2448 | 2466 |
| | 2475 | 2492 | 2511 | 2549 | 2573 | 2596 | 2620 | 2656 | 2678 | 2702 | 2732 | 2754 | 2773 | 2816 | 2834 |
| | 2874 | 2891 | 2911 | 2937 | 2957 | 2984 | 2986 | 3000 | 3016 | 3076 | 3096 | 3114 | 3144 | 3154 | 3179 |
| | 3188 | 3240 | 3270 | 3272 | 3402 | 3404 | 3433 | 3538 | 3540 | 3566 | 3612 | 3614 | 3721 | 3748 | 3821 |
| | 3852 | 3938 | 3980 | 4023 | 4028 | 4039 | 4069 | 4099 | 4108 | 4197 | 4207 | 4238 | 4433 | 4454 | |
| ENDINC | 10 | 3280 | 3723 | 3824 | 4291 | 4335 | 4338 | | | | | | | | |
| ENDINI | 10 | | | | | | | | | | | | | | |
| ENDLOO | 10 | 4225 | | | | | | | | | | | | | |
| ENDMOD | 10 | | | | | | | | | | | | | | |
| ENDMSG | 10 | | | | | | | | | | | | | | |
| ENDRTN | 10 | 4249 | 4299 | 4344 | 4400 | 4471 | | | | | | | | | |
| ENDSEL | 10 | | | | | | | | | | | | | | |
| ENDSFT | 10 | | | | | | | | | | | | | | |
| ENDSRV | 10 | 3987 | 4047 | 4362 | | | | | | | | | | | |
| ENDSUB | 10 | 1224 | 1279 | 1295 | 1312 | 1331 | 1355 | 1371 | 1388 | 1407 | 1437 | 1453 | 1470 | 1489 | 1528 |
| | 1544 | 1560 | 1594 | 1610 | 1627 | 1646 | 1670 | 1686 | 1703 | 1722 | 1746 | 1762 | 1779 | 1798 | 1822 |
| | 1838 | 1855 | 1875 | 1915 | 1948 | 1981 | 2029 | 2084 | 2104 | 2124 | 2173 | 2193 | 2213 | 2263 | 2283 |

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| | | | | | | | | | | | | | | | |
|--------|------|------|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| | 2303 | 2351 | 2371 | 2391 | 2451 | 2477 | 2494 | 2551 | 2575 | 2598 | 2658 | 2680 | 2734 | 2775 | 2819 |
| | 2836 | 2876 | 3078 | 3098 | 3116 | 3156 | 3406 | 3437 | 3548 | 3620 | | | | | |
| ENDSW | 10 | | | | | | | | | | | | | | |
| ENDTST | 10 | 1244 | 1332 | 1408 | 1490 | 1561 | 1647 | 1723 | 1799 | 1876 | 1916 | 1949 | 1982 | 2030 | 2125 |
| | 2214 | 2304 | 2392 | 2495 | 2601 | 2681 | 2776 | 2837 | 2893 | 3023 | 3160 | 3328 | 3451 | 3634 | 3730 |
| | 3830 | 4050 | 4119 | | | | | | | | | | | | |
| EQUALS | 10 | | | | | | | | | | | | | | |
| ERRDF | 10 | 1220 | | | | | | | | | | | | | |
| ERRMRD | 10 | 1275 | 1291 | 1308 | 1327 | 1351 | 1367 | 1384 | 1403 | 1433 | 1449 | 1466 | 1485 | 1524 | 1540 |
| | 1556 | 1590 | 1606 | 1623 | 1642 | 1666 | 1682 | 1699 | 1718 | 1742 | 1758 | 1775 | 1794 | 1818 | 1834 |
| | 1851 | 1870 | 1906 | 1939 | 1969 | 2015 | 2078 | 2098 | 2118 | 2167 | 2187 | 2207 | 2257 | 2277 | 2297 |
| | 2345 | 2365 | 2385 | 2446 | 2464 | 2473 | 2490 | 2547 | 2571 | 2594 | 2654 | 2676 | 2730 | 2752 | 2771 |
| | 2814 | 2832 | 2872 | 2889 | 2950 | 2978 | 2997 | 3014 | 3069 | 3088 | 3109 | 3136 | 3151 | 3268 | 3393 |
| | 3400 | 3431 | 3529 | 3536 | 3603 | 3610 | 3716 | 3816 | 3936 | 4097 | 4106 | | | | |
| ERROR | 7050 | 1221 | 1276 | 1292 | 1309 | 1328 | 1352 | 1368 | 1385 | 1404 | 1434 | 1450 | 1467 | 1486 | 1525 |
| | 1541 | 1557 | 1591 | 1607 | 1624 | 1643 | 1667 | 1683 | 1700 | 1719 | 1743 | 1759 | 1776 | 1795 | 1819 |
| | 1835 | 1852 | 1871 | 1907 | 1940 | 1970 | 2016 | 2079 | 2099 | 2119 | 2168 | 2188 | 2208 | 2258 | 2278 |
| | 2298 | 2346 | 2366 | 2386 | 2447 | 2465 | 2474 | 2491 | 2548 | 2572 | 2595 | 2655 | 2677 | 2731 | 2753 |
| | 2772 | 2815 | 2833 | 2873 | 2890 | 2951 | 2979 | 2998 | 3015 | 3070 | 3089 | 3110 | 3137 | 3152 | 3269 |
| | 3394 | 3401 | 3432 | 3530 | 3537 | 3604 | 3611 | 3717 | 3817 | 3937 | 4098 | 4107 | | | |
| ESCAPE | 10 | 8110 | | | | | | | | | | | | | |
| EXIF | 10 | | | | | | | | | | | | | | |
| EXIFB | 10 | 4210 | | | | | | | | | | | | | |
| EXIT | 10 | 1262 | 1509 | 1576 | 1999 | 2055 | 2144 | 2234 | 2322 | 2414 | 2514 | 2599 | 2617 | 2699 | 2908 |
| | 2954 | 2981 | 3019 | 3073 | 3093 | 3112 | 3141 | 3157 | 3176 | 3185 | 3291 | 3563 | 3718 | 3745 | 3818 |
| | 3849 | 3946 | 4066 | 4112 | | | | | | | | | | | |
| GETPRI | 10 | 8110 | | | | | | | | | | | | | |
| GETSMR | 10 | 8110 | 11390 | | | | | | | | | | | | |
| GPHARD | 10 | | | | | | | | | | | | | | |
| GPRMA | 10 | | | | | | | | | | | | | | |
| GPRMD | 10 | | | | | | | | | | | | | | |
| GPRML | 10 | | | | | | | | | | | | | | |
| HEADER | 10 | | | | | | | | | | | | | | |
| IF | 10 | 1216 | 1259 | 1271 | 1287 | 1304 | 1323 | 1347 | 1363 | 1380 | 1399 | 1429 | 1445 | 1462 | 1481 |
| | 1506 | 1520 | 1536 | 1552 | 1573 | 1586 | 1602 | 1619 | 1638 | 1662 | 1678 | 1695 | 1714 | 1738 | 1754 |
| | 1771 | 1790 | 1814 | 1830 | 1847 | 1866 | 1900 | 1933 | 1965 | 1995 | 2010 | 2049 | 2074 | 2094 | 2114 |
| | 2140 | 2163 | 2183 | 2203 | 2229 | 2253 | 2273 | 2293 | 2318 | 2341 | 2361 | 2381 | 2409 | 2442 | 2460 |
| | 2469 | 2486 | 2509 | 2543 | 2567 | 2590 | 2613 | 2650 | 2672 | 2696 | 2748 | 2828 | 2885 | 2905 | 2927 |
| | 2945 | 2970 | 2973 | 2993 | 3010 | 3065 | 3083 | 3104 | 3132 | 3147 | 3173 | 3182 | 3226 | 3247 | 3255 |
| | 3385 | 3389 | 3427 | 3521 | 3525 | 3559 | 3595 | 3599 | 3712 | 3741 | 3812 | 3846 | 3932 | 3974 | 4011 |
| | 4015 | 4032 | 4063 | 4187 | 4416 | 4419 | | | | | | | | | |
| IFB | 10 | 4102 | 4201 | 4233 | | | | | | | | | | | |
| IFCOND | 10 | | | | | | | | | | | | | | |
| IF.ERR | 10 | 2727 | 2768 | 2811 | 2869 | 4094 | | | | | | | | | |
| IF.NO. | 10 | | | | | | | | | | | | | | |
| INCR | 10 | 3198 | 3663 | 3767 | 4279 | 4327 | | | | | | | | | |
| INCRU | 10 | 4319 | | | | | | | | | | | | | |
| INLINE | 10 | | | | | | | | | | | | | | |
| LASTAD | 10 | | | | | | | | | | | | | | |
| LEAVE | 10 | | | | | | | | | | | | | | |
| LET | 10 | 1153 | 1160 | 1163 | 1165 | 1168 | 1170 | 1173 | 1176 | 1179 | 1182 | 1195 | 1199 | 1200 | 1201 |
| | 1202 | 1203 | 1204 | 1209 | 1211 | 1225 | 1227 | 1236 | 1237 | 1239 | 1240 | 1263 | 1269 | 1283 | 1284 |
| | 1299 | 1301 | 1316 | 1318 | 1345 | 1359 | 1360 | 1375 | 1377 | 1392 | 1394 | 1427 | 1441 | 1442 | 1457 |
| | 1459 | 1474 | 1476 | 1510 | 1516 | 1517 | 1532 | 1534 | 1548 | 1549 | 1577 | 1584 | 1598 | 1599 | 1614 |
| | 1616 | 1631 | 1633 | 1660 | 1674 | 1675 | 1690 | 1692 | 1706 | 1709 | 1736 | 1750 | 1751 | 1766 | 1768 |
| | 1783 | 1785 | 1812 | 1826 | 1827 | 1842 | 1844 | 1859 | 1861 | 1899 | 1931 | 1964 | 2000 | 2008 | 2056 |

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| | | | | | | | | | | | | | | | |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 2068 | 2071 | 2088 | 2091 | 2108 | 2111 | 2145 | 2157 | 2160 | 2177 | 2180 | 2197 | 2200 | 2235 | 2247 |
| | 2250 | 2267 | 2270 | 2287 | 2290 | 2323 | 2335 | 2338 | 2355 | 2358 | 2375 | 2378 | 2415 | 2428 | 2430 |
| | 2439 | 2455 | 2458 | 2481 | 2484 | 2515 | 2528 | 2531 | 2540 | 2555 | 2559 | 2579 | 2582 | 2618 | 2632 |
| | 2634 | 2639 | 2642 | 2662 | 2664 | 2700 | 2705 | 2712 | 2737 | 2743 | 2788 | 2792 | 2795 | 2822 | 2847 |
| | 2850 | 2855 | 2882 | 2909 | 2913 | 2915 | 2917 | 2923 | 2930 | 2935 | 2952 | 2955 | 2982 | 3007 | 3035 |
| | 3041 | 3051 | 3061 | 3074 | 3082 | 3094 | 3101 | 3119 | 3123 | 3142 | 3177 | 3186 | 3191 | 3193 | 3195 |
| | 3206 | 3209 | 3212 | 3215 | 3218 | 3220 | 3230 | 3236 | 3238 | 3275 | 3277 | 3283 | 3288 | 3345 | 3349 |
| | 3352 | 3356 | 3357 | 3358 | 3359 | 3360 | 3362 | 3364 | 3374 | 3409 | 3411 | 3414 | 3439 | 3444 | 3445 |
| | 3447 | 3448 | 3471 | 3472 | 3473 | 3474 | 3475 | 3478 | 3479 | 3482 | 3485 | 3495 | 3509 | 3517 | 3543 |
| | 3546 | 3558 | 3564 | 3569 | 3572 | 3580 | 3583 | 3585 | 3616 | 3618 | 3622 | 3627 | 3628 | 3630 | 3631 |
| | 3644 | 3659 | 3685 | 3697 | 3705 | 3708 | 3719 | 3728 | 3746 | 3751 | 3764 | 3789 | 3801 | 3805 | 3808 |
| | 3819 | 3850 | 3879 | 3882 | 3884 | 3888 | 3890 | 3894 | 3897 | 3900 | 3904 | 3910 | 3914 | 3917 | 3941 |
| | 3943 | 3964 | 3967 | 3971 | 3978 | 3999 | 4002 | 4006 | 4019 | 4021 | 4026 | 4036 | 4067 | 4072 | 4076 |
| | 4081 | 4084 | 4174 | 4176 | 4178 | 4190 | 4195 | 4205 | 4223 | 4271 | 4273 | 4287 | 4289 | 4294 | 4317 |
| | 4360 | 4422 | 4431 | 4435 | 4437 | 4439 | 4441 | 4446 | 4448 | 4450 | 4452 | 4460 | 4462 | | |
| LOCAL | 10 | | | | | | | | | | | | | | |
| LOOP | 10 | 4184 | | | | | | | | | | | | | |
| MSG | 11860 | 1188 | 12500 | 1252 | 14950 | 1497 | 15660 | 1568 | 20400 | 2042 | 21310 | 2133 | 22200 | 2222 | 23100 |
| | 2312 | 23980 | 2400 | 25000 | 2502 | 26860 | 2688 | 27780 | 2780 | 28950 | 2897 | 31640 | 3166 | 33330 | 3335 |
| | 34590 | 3461 | 36360 | 3638 | 38360 | 3838 | 40550 | 4057 | | | | | | | |
| MULT | 10 | 8110 | | | | | | | | | | | | | |
| NEWTST | 10 | 8110 | 1186 | 1250 | 1336 | 1413 | 1495 | 1566 | 1652 | 1728 | 1804 | 1887 | 1920 | 1953 | 1987 |
| | 2040 | 2131 | 2220 | 2310 | 2398 | 2500 | 2606 | 2686 | 2778 | 2839 | 2895 | 3027 | 3164 | 3333 | 3459 |
| | 3636 | 3735 | 3836 | 4055 | 4121 | | | | | | | | | | |
| NOLOCA | 10 | | | | | | | | | | | | | | |
| POINTE | 10 | | | | | | | | | | | | | | |
| POP | 10 | 8110 | 1241 | 3449 | 3632 | 4341 | 4541 | 4542 | 4825 | 4826 | 5007 | | | | |
| PRINTB | 10 | | | | | | | | | | | | | | |
| PUSH | 10 | 8110 | 1234 | 3442 | 3625 | 4314 | 4522 | 4528 | 4786 | 4788 | 4809 | 4966 | | | |
| REPEAT | 10 | 1206 | 2925 | 3922 | 4414 | | | | | | | | | | |
| REPORT | 10 | 8110 | | | | | | | | | | | | | |
| RETURN | 10 | 4236 | 4240 | 4296 | 4464 | | | | | | | | | | |
| ROUTIN | 10 | 4149 | 4256 | 4305 | 4366 | 4404 | | | | | | | | | |
| SAVR14 | 10 | | | | | | | | | | | | | | |
| SCOPE | 7060 | 1192 | 1255 | 1339 | 1416 | 1503 | 1570 | 1655 | 1731 | 1807 | 1890 | 1923 | 1956 | 1990 | 2045 |
| | 2136 | 2225 | 2314 | 2405 | 2505 | 2609 | 2691 | 2783 | 2842 | 2900 | 3030 | 3170 | 3341 | 3465 | 3640 |
| | 3738 | 3840 | 4060 | 4124 | 4487 | | | | | | | | | | |
| SELECT | 10 | | | | | | | | | | | | | | |
| SETPRI | 10 | 8110 | 1420 | 2421 | 2521 | 2624 | 3368 | 3417 | 3489 | 3576 | 3649 | 3755 | 3874 | | |
| SETTRA | 51210 | 5130 | 5131 | 5132 | 5133 | 5135 | 5137 | 5138 | 5139 | | | | | | |
| SETUP | 10 | 8110 | 1088 | | | | | | | | | | | | |
| SETVEC | 10 | 1198 | 3355 | 3470 | | | | | | | | | | | |
| SKIP | 10 | 8110 | 1264 | 1511 | 1578 | 2001 | 2057 | 2146 | 2236 | 2324 | 2416 | 2516 | 2600 | 2619 | 2701 |
| | 2910 | 2956 | 2983 | 3020 | 3075 | 3095 | 3113 | 3143 | 3158 | 3178 | 3187 | 3292 | 3565 | 3720 | 3747 |
| | 3820 | 3851 | 3947 | 4068 | 4113 | | | | | | | | | | |
| SLASH | 10 | 8110 | | | | | | | | | | | | | |
| SPACE | 8110 | | | | | | | | | | | | | | |
| STARS | 10 | 8110 | 827 | 829 | 847 | 849 | 867 | 869 | 889 | 891 | 910 | 925 | 939 | 950 | 952 |
| | 959 | 972 | 1013 | 1016 | 1186 | 1191 | 1245 | 1247 | 1250 | 1254 | 1335 | 1336 | 1338 | 1412 | 1413 |
| | 1415 | 1494 | 1495 | 1502 | 1565 | 1566 | 1569 | 1651 | 1652 | 1654 | 1727 | 1728 | 1730 | 1803 | 1804 |
| | 1806 | 1881 | 1884 | 1887 | 1889 | 1920 | 1922 | 1953 | 1955 | 1986 | 1987 | 1989 | 2032 | 2036 | 2040 |
| | 2044 | 2130 | 2131 | 2135 | 2219 | 2220 | 2224 | 2309 | 2310 | 2313 | 2397 | 2398 | 2404 | 2499 | 2500 |
| | 2504 | 2605 | 2606 | 2608 | 2685 | 2686 | 2690 | 2777 | 2778 | 2782 | 2838 | 2839 | 2841 | 2894 | 2895 |
| | 2899 | 3026 | 3027 | 3029 | 3163 | 3164 | 3169 | 3332 | 3333 | 3340 | 3458 | 3459 | 3464 | 3635 | 3636 |
| | 3639 | 3734 | 3735 | 3737 | 3835 | 3836 | 3839 | 4054 | 4055 | 4059 | 4121 | 4123 | 4148 | 4169 | 4255 |
| | 4269 | 4304 | 4313 | 4350 | 4357 | 4368 | 4406 | 4413 | 4479 | 4518 | 4534 | 4563 | 4642 | 4645 | 4713 |

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CVDVAD.P11 12-JUL-84 05:04 CROSS REFERENCE TABLE - MACRO NAMES

| | 4742 | 4781 | 4838 | 4892 | 4956 | 5023 | 5100 | | | | | | | | |
|---------|-------|------|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| STRUCT | 10 | | | | | | | | | | | | | | |
| SWRSU | 10 | 8110 | 11110 | | | | | | | | | | | | |
| TRMTRP | 51210 | | | | | | | | | | | | | | |
| TYPBIN | 10 | 8110 | | | | | | | | | | | | | |
| TYPDEC | 10 | 8110 | 4142 | 4499 | | | | | | | | | | | |
| TYPNAM | 10 | 8110 | 1132 | | | | | | | | | | | | |
| TYPNUM | 10 | 8110 | | | | | | | | | | | | | |
| TYPOCS | 10 | 8110 | | | | | | | | | | | | | |
| TYPOCT | 10 | 8110 | 4130 | 4136 | 4373 | 4380 | 4386 | 4392 | 4398 | 4663 | | | | | |
| TYPTXT | 10 | 8110 | 4126 | 4132 | 4138 | 4369 | 4375 | 4382 | 4388 | 4394 | | | | | |
| UNTIL | 10 | 1230 | 2939 | 3924 | 4456 | | | | | | | | | | |
| UNTILB | 10 | | | | | | | | | | | | | | |
| WHITMS | 10 | 2433 | 2534 | 2562 | 2585 | 2645 | 2667 | 3044 | 3054 | 3126 | 3378 | 3422 | 3512 | 3588 | 4218 |
| WHILE | 10 | 2965 | 3222 | | | | | | | | | | | | |
| WHILEB | 10 | | | | | | | | | | | | | | |
| %ADDON | 10 | 1207 | 1208 | 1217 | 1219 | 1260 | 1262 | 1272 | 1274 | 1288 | 1290 | 1305 | 1307 | 1324 | 1326 |
| | 1348 | 1350 | 1364 | 1366 | 1381 | 1383 | 1400 | 1402 | 1430 | 1432 | 1446 | 1448 | 1463 | 1465 | 1482 |
| | 1484 | 1507 | 1509 | 1521 | 1523 | 1537 | 1539 | 1553 | 1555 | 1574 | 1576 | 1587 | 1589 | 1603 | 1605 |
| | 1620 | 1622 | 1639 | 1641 | 1663 | 1665 | 1679 | 1681 | 1696 | 1698 | 1715 | 1717 | 1739 | 1741 | 1755 |
| | 1757 | 1772 | 1774 | 1791 | 1793 | 1815 | 1817 | 1831 | 1833 | 1848 | 1850 | 1867 | 1869 | 1901 | 1903 |
| | 1934 | 1936 | 1966 | 1968 | 1996 | 1998 | 2011 | 2013 | 2050 | 2052 | 2075 | 2077 | 2095 | 2097 | 2115 |
| | 2117 | 2141 | 2143 | 2164 | 2166 | 2184 | 2186 | 2204 | 2206 | 2230 | 2232 | 2254 | 2256 | 2274 | 2276 |
| | 2294 | 2296 | 2319 | 2321 | 2342 | 2344 | 2362 | 2364 | 2382 | 2384 | 2410 | 2412 | 2443 | 2445 | 2461 |
| | 2463 | 2470 | 2472 | 2487 | 2489 | 2510 | 2512 | 2544 | 2546 | 2568 | 2570 | 2591 | 2593 | 2614 | 2616 |
| | 2651 | 2653 | 2673 | 2675 | 2697 | 2699 | 2728 | 2729 | 2749 | 2751 | 2769 | 2770 | 2812 | 2813 | 2829 |
| | 2831 | 2870 | 2871 | 2886 | 2888 | 2906 | 2908 | 2926 | 2927 | 2928 | 2930 | 2935 | 2945 | 2946 | 2948 |
| | 2966 | 2967 | 2969 | 2971 | 2973 | 2974 | 2976 | 2989 | 2994 | 2996 | 3011 | 3013 | 3066 | 3068 | 3084 |
| | 3086 | 3105 | 3107 | 3133 | 3135 | 3148 | 3150 | 3174 | 3176 | 3183 | 3185 | 3199 | 3201 | 3202 | 3206 |
| | 3223 | 3224 | 3226 | 3227 | 3229 | 3235 | 3244 | 3248 | 3250 | 3254 | 3256 | 3260 | 3264 | 3386 | 3388 |
| | 3390 | 3392 | 3398 | 3428 | 3430 | 3522 | 3524 | 3526 | 3528 | 3535 | 3560 | 3562 | 3596 | 3598 | 3600 |
| | 3602 | 3609 | 3664 | 3666 | 3667 | 3671 | 3713 | 3715 | 3742 | 3744 | 3768 | 3770 | 3771 | 3775 | 3813 |
| | 3815 | 3847 | 3849 | 3923 | 3924 | 3930 | 3933 | 3935 | 3975 | 3977 | 4012 | 4014 | 4016 | 4018 | 4033 |
| | 4035 | 4064 | 4066 | 4095 | 4096 | 4103 | 4105 | 4151 | 4185 | 4186 | 4188 | 4190 | 4195 | 4202 | 4204 |
| | 4226 | 4234 | 4236 | 4258 | 4280 | 4282 | 4283 | 4287 | 4307 | 4320 | 4322 | 4323 | 4327 | 4328 | 4330 |
| | 4331 | 4335 | 4368 | 4406 | 4415 | 4416 | 4417 | 4419 | 4420 | 4422 | 4427 | 4446 | | | |
| %AND | 10 | 3256 | | | | | | | | | | | | | |
| %BRANC | 10 | 1218 | 1232 | 1261 | 1273 | 1289 | 1306 | 1325 | 1349 | 1365 | 1382 | 1401 | 1431 | 1447 | 1464 |
| | 1483 | 1508 | 1522 | 1538 | 1554 | 1575 | 1588 | 1604 | 1621 | 1640 | 1664 | 1680 | 1697 | 1716 | 1740 |
| | 1756 | 1773 | 1792 | 1816 | 1832 | 1849 | 1868 | 1902 | 1935 | 1967 | 1997 | 2012 | 2051 | 2076 | 2096 |
| | 2116 | 2142 | 2165 | 2185 | 2205 | 2231 | 2255 | 2275 | 2295 | 2320 | 2343 | 2363 | 2383 | 2411 | 2444 |
| | 2462 | 2471 | 2488 | 2511 | 2545 | 2569 | 2592 | 2615 | 2652 | 2674 | 2698 | 2728 | 2750 | 2769 | 2812 |
| | 2830 | 2870 | 2887 | 2907 | 2929 | 2933 | 2941 | 2943 | 2947 | 2968 | 2972 | 2975 | 2989 | 2995 | 3012 |
| | 3067 | 3085 | 3106 | 3134 | 3149 | 3175 | 3184 | 3200 | 3205 | 3225 | 3228 | 3233 | 3244 | 3249 | 3252 |
| | 3257 | 3259 | 3262 | 3281 | 3387 | 3391 | 3396 | 3429 | 3523 | 3527 | 3533 | 3561 | 3597 | 3601 | 3607 |
| | 3665 | 3670 | 3714 | 3724 | 3743 | 3769 | 3774 | 3814 | 3825 | 3848 | 3926 | 3928 | 3934 | 3976 | 4013 |
| | 4017 | 4034 | 4065 | 4095 | 4104 | 4189 | 4193 | 4203 | 4212 | 4214 | 4226 | 4235 | 4237 | 4242 | 4281 |
| | 4286 | 4292 | 4297 | 4321 | 4326 | 4329 | 4334 | 4336 | 4339 | 4418 | 4421 | 4425 | 4444 | 4458 | 4465 |
| %BRACOD | 10 | 2940 | 3204 | 3669 | 3773 | 3925 | 4211 | 4213 | 4285 | 4325 | 4333 | | | | |
| %CALL | 10 | 1157 | 2434 | 2535 | 2563 | 2586 | 2646 | 2668 | 2718 | 2761 | 2802 | 2861 | 3045 | 3055 | 3127 |
| | 3379 | 3423 | 3501 | 3513 | 3589 | 3655 | 3676 | 3689 | 3761 | 3780 | 3792 | 3856 | 4087 | 4219 | 4428 |
| %CHECK | 10 | 1217 | 1260 | 1272 | 1288 | 1305 | 1324 | 1348 | 1364 | 1381 | 1400 | 1430 | 1446 | 1463 | 1482 |
| | 1507 | 1521 | 1537 | 1553 | 1574 | 1587 | 1603 | 1620 | 1639 | 1663 | 1679 | 1696 | 1715 | 1739 | 1755 |
| | 1772 | 1791 | 1815 | 1831 | 1848 | 1867 | 1901 | 1934 | 1966 | 1996 | 2011 | 2050 | 2075 | 2095 | 2115 |
| | 2141 | 2164 | 2184 | 2204 | 2230 | 2254 | 2274 | 2294 | 2319 | 2342 | 2362 | 2382 | 2410 | 2443 | 2461 |
| | 2470 | 2487 | 2510 | 2544 | 2568 | 2591 | 2614 | 2651 | 2673 | 2697 | 2749 | 2829 | 2886 | 2906 | 2928 |

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CVDVAD.P11 12 JUL-84 05:04 CROSS REFERENCE TABLE MACRO NAMES

| | | | | | | | | | | | | | | | |
|---------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | 2946 | 2967 | 2971 | 2974 | 2994 | 3011 | 3066 | 3084 | 3105 | 3133 | 3148 | 3174 | 3183 | 3224 | 3227 |
| | 3248 | 3256 | 3386 | 3390 | 3428 | 3522 | 3526 | 3560 | 3596 | 3600 | 3713 | 3742 | 3813 | 3847 | 3933 |
| | 3975 | 4012 | 4016 | 4033 | 4064 | 4103 | 4188 | 4202 | 4234 | 4417 | 4420 | | | | |
| \$CRK1 | 10 | 1154 | 1161 | 1164 | 1166 | 1169 | 1183 | 1196 | 1199 | 1200 | 1201 | 1202 | 1203 | 1205 | 1209 |
| | 1212 | 1236 | 1239 | 1240 | 1263 | 1269 | 1283 | 1299 | 1316 | 1345 | 1359 | 1375 | 1392 | 1427 | 1441 |
| | 1457 | 1474 | 1510 | 1516 | 1532 | 1548 | 1577 | 1584 | 1598 | 1614 | 1631 | 1660 | 1674 | 1690 | 1706 |
| | 1736 | 1750 | 1766 | 1783 | 1812 | 1826 | 1842 | 1859 | 1899 | 1931 | 1964 | 2000 | 2008 | 2056 | 2068 |
| | 2088 | 2108 | 2145 | 2157 | 2177 | 2197 | 2235 | 2247 | 2267 | 2287 | 2323 | 2335 | 2355 | 2375 | 2415 |
| | 2428 | 2440 | 2455 | 2481 | 2515 | 2528 | 2541 | 2555 | 2579 | 2618 | 2635 | 2639 | 2662 | 2700 | 2705 |
| | 2713 | 2737 | 2744 | 2792 | 2796 | 2822 | 2850 | 2856 | 2883 | 2909 | 2916 | 2918 | 2924 | 2931 | 2953 |
| | 2955 | 2982 | 3008 | 3035 | 3042 | 3052 | 3062 | 3074 | 3082 | 3094 | 3101 | 3119 | 3124 | 3142 | 3177 |
| | 3186 | 3192 | 3194 | 3199 | 3202 | 3207 | 3210 | 3213 | 3216 | 3219 | 3221 | 3231 | 3276 | 3278 | 3289 |
| | 3346 | 3350 | 3356 | 3357 | 3358 | 3359 | 3360 | 3362 | 3409 | 3412 | 3440 | 3444 | 3447 | 3448 | 3471 |
| | 3472 | 3473 | 3474 | 3475 | 3478 | 3480 | 3496 | 3518 | 3558 | 3564 | 3570 | 3623 | 3627 | 3630 | 3631 |
| | 3660 | 3664 | 3667 | 3686 | 3698 | 3719 | 3746 | 3765 | 3768 | 3771 | 3790 | 3802 | 3819 | 3850 | 3880 |
| | 3883 | 3885 | 3889 | 3891 | 3895 | 3898 | 3901 | 3905 | 3972 | 4020 | 4022 | 4067 | 4077 | 4085 | 4175 |
| | 4177 | 4179 | 4191 | 4196 | 4206 | 4272 | 4280 | 4283 | 4295 | 4318 | 4320 | 4323 | 4328 | 4331 | 4423 |
| | 4432 | 4436 | 4438 | 4440 | 4442 | 4447 | 4461 | | | | | | | | |
| \$CKOP2 | 10 | 1171 | 1174 | 1177 | 1180 | 1226 | 1228 | 1237 | 1285 | 1302 | 1319 | 1361 | 1378 | 1395 | 1443 |
| | 1460 | 1477 | 1518 | 1535 | 1550 | 1600 | 1617 | 1634 | 1676 | 1693 | 1710 | 1752 | 1769 | 1786 | 1828 |
| | 1845 | 1862 | 2072 | 2092 | 2112 | 2161 | 2181 | 2201 | 2251 | 2271 | 2291 | 2339 | 2359 | 2379 | 2431 |
| | 2459 | 2485 | 2532 | 2560 | 2583 | 2633 | 2643 | 2665 | 2789 | 2848 | 2914 | 2936 | 3196 | 3237 | 3239 |
| | 3284 | 3353 | 3365 | 3375 | 3415 | 3445 | 3483 | 3486 | 3510 | 3544 | 3547 | 3573 | 3581 | 3584 | 3586 |
| | 3617 | 3619 | 3628 | 3645 | 3706 | 3709 | 3729 | 3752 | 3806 | 3809 | 3911 | 3915 | 3918 | 3942 | 3944 |
| | 3965 | 3968 | 3979 | 4000 | 4003 | 4007 | 4027 | 4037 | 4073 | 4082 | 4224 | 4274 | 4288 | 4290 | 4361 |
| | 4449 | 4451 | 4453 | 4463 | | | | | | | | | | | |
| \$CKR6 | 10 | 3285 | 4275 | | | | | | | | | | | | |
| \$CMND | 10 | 1217 | 1260 | 1272 | 1288 | 1305 | 1324 | 1348 | 1364 | 1381 | 1400 | 1430 | 1446 | 1463 | 1482 |
| | 1507 | 1521 | 1537 | 1553 | 1574 | 1587 | 1603 | 1620 | 1639 | 1663 | 1679 | 1696 | 1715 | 1739 | 1755 |
| | 1772 | 1791 | 1815 | 1831 | 1848 | 1867 | 1901 | 1934 | 1966 | 1996 | 2011 | 2050 | 2075 | 2095 | 2115 |
| | 2141 | 2164 | 2184 | 2204 | 2230 | 2254 | 2274 | 2294 | 2319 | 2342 | 2362 | 2382 | 2410 | 2443 | 2461 |
| | 2470 | 2487 | 2510 | 2544 | 2568 | 2591 | 2614 | 2651 | 2673 | 2697 | 2749 | 2829 | 2886 | 2906 | 2928 |
| | 2946 | 2967 | 2971 | 2974 | 2994 | 3011 | 3066 | 3084 | 3105 | 3133 | 3148 | 3174 | 3183 | 3224 | 3227 |
| | 3248 | 3256 | 3258 | 3386 | 3390 | 3428 | 3522 | 3526 | 3560 | 3596 | 3600 | 3713 | 3742 | 3813 | 3847 |
| | 3933 | 3975 | 4012 | 4016 | 4033 | 4064 | 4103 | 4188 | 4202 | 4234 | 4417 | 4420 | | | |
| \$COMPA | 10 | 1217 | 1260 | 1272 | 1288 | 1305 | 1324 | 1348 | 1364 | 1381 | 1400 | 1430 | 1446 | 1463 | 1482 |
| | 1507 | 1521 | 1537 | 1553 | 1574 | 1587 | 1603 | 1620 | 1639 | 1663 | 1679 | 1696 | 1715 | 1739 | 1755 |
| | 1772 | 1791 | 1815 | 1831 | 1848 | 1867 | 1901 | 1934 | 1966 | 1996 | 2011 | 2050 | 2075 | 2095 | 2115 |
| | 2141 | 2164 | 2184 | 2204 | 2230 | 2254 | 2274 | 2294 | 2319 | 2342 | 2362 | 2382 | 2410 | 2443 | 2461 |
| | 2470 | 2487 | 2510 | 2544 | 2568 | 2591 | 2614 | 2651 | 2673 | 2697 | 2749 | 2829 | 2886 | 2906 | 2928 |
| | 2870 | 2886 | 2906 | 2928 | 2946 | 2967 | 2971 | 2974 | 2994 | 3011 | 3066 | 3084 | 3105 | 3133 | 3148 |
| | 3174 | 3183 | 3199 | 3224 | 3227 | 3248 | 3256 | 3386 | 3390 | 3428 | 3522 | 3526 | 3560 | 3596 | 3600 |
| | 3664 | 3713 | 3742 | 3768 | 3813 | 3847 | 3933 | 3975 | 4012 | 4016 | 4033 | 4064 | 4095 | 4103 | 4188 |
| | 4202 | 4234 | 4280 | 4320 | 4328 | 4417 | 4420 | | | | | | | | |
| \$COUNT | 10 | 1157 | 2434 | 2535 | 2563 | 2586 | 2646 | 2668 | 2718 | 2761 | 2802 | 2861 | 3045 | 3055 | 3127 |
| | 3379 | 3423 | 3501 | 3513 | 3589 | 3655 | 3676 | 3689 | 3761 | 3780 | 3792 | 3856 | 4087 | 4219 | 4428 |
| \$DO | 10 | 2967 | 3224 | | | | | | | | | | | | |
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| \$ERRMS | 10 | | | | | | | | | | | | | | |
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| \$EXIFO | 10 | | | | | | | | | | | | | | |
| \$EXIF2 | 10 | 4211 | | | | | | | | | | | | | |
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| \$GENBR | 10 | 1218 | 1232 | 1261 | 1273 | 1289 | 1306 | 1325 | 1349 | 1365 | 1382 | 1401 | 1431 | 1447 | 1464 |
| | 1483 | 1508 | 1522 | 1538 | 1554 | 1575 | 1588 | 1604 | 1621 | 1640 | 1664 | 1680 | 1697 | 1716 | 1740 |
| | 1756 | 1773 | 1792 | 1816 | 1832 | 1849 | 1868 | 1902 | 1935 | 1967 | 1997 | 2012 | 2051 | 2076 | 2096 |

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| | | | | | | | | | | | | | | | |
|---------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | 2116 | 2142 | 2165 | 2185 | 2205 | 2231 | 2255 | 2275 | 2295 | 2320 | 2343 | 2363 | 2383 | 2411 | 2444 |
| | 2462 | 2471 | 2488 | 2511 | 2545 | 2569 | 2592 | 2615 | 2652 | 2674 | 2698 | 2728 | 2750 | 2769 | 2812 |
| | 2830 | 2870 | 2887 | 2907 | 2929 | 2933 | 2941 | 2943 | 2947 | 2968 | 2972 | 2975 | 2989 | 2995 | 3012 |
| | 3067 | 3085 | 3106 | 3134 | 3149 | 3175 | 3184 | 3200 | 3205 | 3225 | 3228 | 3233 | 3244 | 3249 | 3252 |
| | 3257 | 3259 | 3262 | 3281 | 3387 | 3391 | 3396 | 3429 | 3523 | 3527 | 3533 | 3561 | 3597 | 3601 | 3607 |
| | 3665 | 3670 | 3714 | 3724 | 3743 | 3769 | 3774 | 3814 | 3825 | 3848 | 3926 | 3928 | 3934 | 3976 | 4013 |
| | 4017 | 4034 | 4065 | 4095 | 4104 | 4189 | 4193 | 4203 | 4212 | 4214 | 4226 | 4235 | 4237 | 4242 | 4281 |
| | 4286 | 4292 | 4297 | 4321 | 4326 | 4329 | 4334 | 4336 | 4339 | 4418 | 4421 | 4425 | 4444 | 4458 | 4465 |
| \$GENTA | 10 | 1207 | 1223 | 1266 | 1278 | 1294 | 1311 | 1330 | 1354 | 1370 | 1387 | 1406 | 1436 | 1452 | 1469 |
| | 1488 | 1513 | 1527 | 1543 | 1559 | 1580 | 1593 | 1609 | 1626 | 1645 | 1669 | 1685 | 1702 | 1721 | 1745 |
| | 1761 | 1778 | 1797 | 1821 | 1837 | 1854 | 1873 | 1912 | 1945 | 1979 | 2003 | 2026 | 2059 | 2083 | 2103 |
| | 2123 | 2148 | 2172 | 2192 | 2212 | 2238 | 2262 | 2282 | 2302 | 2326 | 2350 | 2370 | 2390 | 2418 | 2449 |
| | 2467 | 2476 | 2493 | 2518 | 2550 | 2574 | 2597 | 2621 | 2657 | 2679 | 2703 | 2733 | 2755 | 2774 | 2817 |
| | 2835 | 2875 | 2892 | 2912 | 2926 | 2934 | 2938 | 2944 | 2958 | 2966 | 2985 | 2987 | 2990 | 3001 | 3017 |
| | 3077 | 3097 | 3115 | 3145 | 3155 | 3180 | 3189 | 3201 | 3203 | 3223 | 3234 | 3241 | 3245 | 3253 | 3263 |
| | 3271 | 3273 | 3282 | 3397 | 3403 | 3405 | 3434 | 3534 | 3539 | 3541 | 3567 | 3608 | 3613 | 3615 | 3666 |
| | 3668 | 3722 | 3725 | 3749 | 3770 | 3772 | 3822 | 3826 | 3853 | 3923 | 3929 | 3939 | 3981 | 4024 | 4029 |
| | 4040 | 4070 | 4100 | 4109 | 4185 | 4194 | 4198 | 4208 | 4227 | 4239 | 4250 | 4252 | 4282 | 4284 | 4293 |
| | 4300 | 4301 | 4322 | 4324 | 4330 | 4332 | 4337 | 4340 | 4345 | 4346 | 4401 | 4402 | 4415 | 4426 | 4434 |
| | 4445 | 4455 | 4472 | 4473 | | | | | | | | | | | |
| \$IF | 10 | 1217 | 1260 | 1272 | 1288 | 1305 | 1324 | 1348 | 1364 | 1381 | 1400 | 1430 | 1446 | 1463 | 1482 |
| | 1507 | 1521 | 1537 | 1553 | 1574 | 1587 | 1603 | 1620 | 1639 | 1663 | 1679 | 1696 | 1715 | 1739 | 1755 |
| | 1772 | 1791 | 1815 | 1831 | 1848 | 1867 | 1901 | 1934 | 1966 | 1996 | 2011 | 2050 | 2075 | 2095 | 2115 |
| | 2141 | 2164 | 2184 | 2204 | 2230 | 2254 | 2274 | 2294 | 2319 | 2342 | 2362 | 2382 | 2410 | 2443 | 2461 |
| | 2470 | 2487 | 2510 | 2544 | 2568 | 2591 | 2614 | 2651 | 2673 | 2697 | 2749 | 2829 | 2886 | 2906 | 2928 |
| | 2946 | 2971 | 2974 | 2994 | 3011 | 3066 | 3084 | 3105 | 3133 | 3148 | 3174 | 3183 | 3227 | 3248 | 3256 |
| | 3386 | 3390 | 3428 | 3522 | 3526 | 3560 | 3596 | 3600 | 3713 | 3742 | 3813 | 3847 | 3933 | 3975 | 4012 |
| | 4016 | 4033 | 4064 | 4103 | 4188 | 4202 | 4234 | 4417 | 4420 | | | | | | |
| \$IFCOO | 10 | 1217 | 1231 | 1260 | 1272 | 1288 | 1305 | 1324 | 1348 | 1364 | 1381 | 1400 | 1430 | 1446 | 1463 |
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CVDVAD.P11 12-JUL-84 05:04 CROSS REFERENCE TABLE -- MACRO NAMES

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| | 1772 | 1791 | 1815 | 1831 | 1848 | 1867 | 1901 | 1934 | 1966 | 1996 | 2011 | 2050 | 2075 | 2095 | 2115 |
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| | 2470 | 2487 | 2510 | 2544 | 2568 | 2591 | 2614 | 2651 | 2673 | 2697 | 2749 | 2829 | 2886 | 2906 | 2928 |
| | 2946 | 2971 | 2974 | 2994 | 3011 | 3066 | 3084 | 3105 | 3133 | 3148 | 3174 | 3183 | 3227 | 3248 | 3258 |
| | 3386 | 3390 | 3428 | 3522 | 3526 | 3560 | 3596 | 3600 | 3713 | 3742 | 3813 | 3847 | 3933 | 3975 | 4012 |
| | 4016 | 4033 | 4064 | 4103 | 4188 | 4202 | 4234 | 4417 | 4420 | | | | | | |
| \$TILA | 10 | | | | | | | | | | | | | | |
| \$TILO | 10 | | | | | | | | | | | | | | |
| \$UNTL2 | 10 | 2940 | 3925 | | | | | | | | | | | | |
| \$UNTL3 | 10 | | | | | | | | | | | | | | |
| \$WHILE | 10 | 2966 | 3223 | | | | | | | | | | | | |
| ##CPRE | 9700 | | | | | | | | | | | | | | |
| ##CMTM | 9700 | | | | | | | | | | | | | | |
| ##DEFA | 10 | | | | | | | | | | | | | | |
| ##ENDS | 10 | | | | | | | | | | | | | | |
| ##ERRO | 10 | | | | | | | | | | | | | | |
| ##ESCA | 10 | 8110 | | | | | | | | | | | | | |
| ##GEN | 10 | 1207 | 1223 | 1266 | 1278 | 1294 | 1311 | 1330 | 1354 | 1370 | 1387 | 1406 | 1436 | 1452 | 1469 |
| | 1488 | 1513 | 1527 | 1543 | 1559 | 1580 | 1593 | 1609 | 1626 | 1645 | 1669 | 1685 | 1702 | 1721 | 1745 |
| | 1761 | 1778 | 1797 | 1821 | 1837 | 1854 | 1873 | 1912 | 1945 | 1979 | 2003 | 2026 | 2059 | 2083 | 2103 |
| | 2123 | 2148 | 2172 | 2192 | 2212 | 2238 | 2262 | 2282 | 2302 | 2326 | 2350 | 2370 | 2390 | 2418 | 2449 |
| | 2467 | 2476 | 2493 | 2518 | 2550 | 2574 | 2597 | 2621 | 2657 | 2679 | 2703 | 2733 | 2755 | 2774 | 2817 |
| | 2835 | 2875 | 2892 | 2912 | 2926 | 2934 | 2938 | 2944 | 2958 | 2966 | 2985 | 2987 | 2990 | 3001 | 3017 |
| | 3077 | 3097 | 3115 | 3145 | 3155 | 3180 | 3189 | 3201 | 3203 | 3223 | 3234 | 3241 | 3245 | 3253 | 3263 |

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| | | | | | | | | | | | | | | | |
|--------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | 3271 | 3273 | 3282 | 3397 | 3403 | 3405 | 3434 | 3534 | 3539 | 3541 | 3567 | 3608 | 3613 | 3615 | 3666 |
| | 3668 | 3722 | 3725 | 3749 | 3770 | 3772 | 3822 | 3826 | 3853 | 3923 | 3929 | 3939 | 3981 | 4024 | 4029 |
| | 4040 | 4070 | 4100 | 4109 | 4150 | 4185 | 4194 | 4198 | 4208 | 4227 | 4239 | 4250 | 4252 | 4257 | 4282 |
| | 4284 | 4293 | 4300 | 4301 | 4306 | 4322 | 4324 | 4330 | 4332 | 4337 | 4340 | 4345 | 4346 | 4367 | 4401 |
| | 4402 | 4405 | 4415 | 4426 | 4434 | 4445 | 4455 | 4472 | 4473 | | | | | | |
| ##GETS | 10 | 1223 | 1231 | 1266 | 1278 | 1294 | 1311 | 1330 | 1354 | 1370 | 1387 | 1406 | 1436 | 1452 | 1469 |
| | 1488 | 1513 | 1527 | 1543 | 1559 | 1580 | 1593 | 1609 | 1626 | 1645 | 1669 | 1685 | 1702 | 1721 | 1745 |
| | 1761 | 1778 | 1797 | 1821 | 1837 | 1854 | 1873 | 1912 | 1945 | 1979 | 2003 | 2026 | 2059 | 2083 | 2103 |
| | 2123 | 2148 | 2172 | 2192 | 2212 | 2238 | 2262 | 2282 | 2302 | 2326 | 2350 | 2370 | 2390 | 2418 | 2449 |
| | 2467 | 2476 | 2493 | 2518 | 2550 | 2574 | 2597 | 2621 | 2657 | 2679 | 2703 | 2733 | 2755 | 2774 | 2817 |
| | 2835 | 2875 | 2892 | 2912 | 2933 | 2934 | 2938 | 2940 | 2958 | 2985 | 2987 | 2989 | 2990 | 3001 | 3017 |
| | 3077 | 3097 | 3115 | 3145 | 3155 | 3180 | 3189 | 3203 | 3206 | 3233 | 3234 | 3241 | 3244 | 3245 | 3252 |
| | 3253 | 3262 | 3263 | 3271 | 3273 | 3281 | 3282 | 3396 | 3397 | 3403 | 3405 | 3434 | 3533 | 3534 | 3539 |
| | 3541 | 3567 | 3607 | 3608 | 3613 | 3615 | 3668 | 3671 | 3722 | 3724 | 3725 | 3749 | 3772 | 3775 | 3822 |
| | 3825 | 3826 | 3853 | 3925 | 3939 | 3981 | 4024 | 4029 | 4040 | 4070 | 4100 | 4109 | 4193 | 4194 | 4198 |
| | 4208 | 4211 | 4226 | 4227 | 4239 | 4250 | 4284 | 4287 | 4292 | 4293 | 4300 | 4324 | 4327 | 4332 | 4335 |
| | 4336 | 4337 | 4339 | 4340 | 4345 | 4401 | 4425 | 4426 | 4434 | 4444 | 4445 | 4455 | 4457 | 4472 | |
| ##GETT | 10 | 2933 | 3233 | 3252 | 3262 | 3396 | 3533 | 3607 | 4193 | 4211 | 4425 | 4444 | | | |
| ##LPCN | 10 | 3202 | 3667 | 3771 | 4283 | 4323 | 4331 | | | | | | | | |
| ##NEWT | 10 | 8110 | 1186 | 1250 | 1336 | 1413 | 1495 | 1566 | 1652 | 1728 | 1804 | 1887 | 1920 | 1953 | 1987 |
| | 2040 | 2131 | 2220 | 2310 | 2398 | 2500 | 2606 | 2686 | 2778 | 2839 | 2895 | 3027 | 3164 | 3333 | 3459 |
| | 3636 | 3735 | 3836 | 4055 | 4121 | | | | | | | | | | |
| ##POP | 10 | 1223 | 1231 | 1266 | 1278 | 1294 | 1311 | 1330 | 1354 | 1370 | 1387 | 1406 | 1436 | 1452 | 1469 |
| | 1488 | 1513 | 1527 | 1543 | 1559 | 1580 | 1593 | 1609 | 1626 | 1645 | 1669 | 1685 | 1702 | 1721 | 1745 |
| | 1761 | 1778 | 1797 | 1821 | 1837 | 1854 | 1873 | 1912 | 1945 | 1979 | 2003 | 2026 | 2059 | 2083 | 2103 |
| | 2123 | 2148 | 2172 | 2192 | 2212 | 2238 | 2262 | 2282 | 2302 | 2326 | 2350 | 2370 | 2390 | 2418 | 2449 |
| | 2467 | 2476 | 2493 | 2518 | 2550 | 2574 | 2597 | 2621 | 2657 | 2679 | 2703 | 2733 | 2755 | 2774 | 2817 |
| | 2835 | 2875 | 2892 | 2912 | 2934 | 2938 | 2940 | 2958 | 2985 | 2987 | 2989 | 2990 | 3001 | 3017 | 3077 |
| | 3097 | 3115 | 3145 | 3155 | 3180 | 3189 | 3203 | 3206 | 3234 | 3241 | 3244 | 3245 | 3253 | 3263 | 3271 |
| | 3273 | 3281 | 3282 | 3397 | 3403 | 3405 | 3434 | 3534 | 3535 | 3541 | 3567 | 3608 | 3613 | 3615 | 3668 |
| | 3671 | 3722 | 3724 | 3725 | 3749 | 3772 | 3775 | 3822 | 3825 | 3826 | 3853 | 3925 | 3939 | 3981 | 4024 |
| | 4029 | 4040 | 4070 | 4100 | 4109 | 4194 | 4198 | 4208 | 4226 | 4227 | 4239 | 4250 | 4284 | 4287 | 4292 |
| | 4293 | 4300 | 4324 | 4327 | 4332 | 4335 | 4336 | 4337 | 4339 | 4340 | 4345 | 4401 | 4426 | 4434 | 4445 |
| | 4455 | 4457 | 4472 | | | | | | | | | | | | |
| ##PUSH | 10 | 1207 | 1208 | 1217 | 1219 | 1260 | 1262 | 1272 | 1274 | 1288 | 1290 | 1305 | 1307 | 1324 | 1326 |
| | 1348 | 1350 | 1364 | 1366 | 1381 | 1383 | 1400 | 1402 | 1430 | 1432 | 1446 | 1448 | 1463 | 1465 | 1482 |
| | 1484 | 1507 | 1509 | 1521 | 1523 | 1537 | 1539 | 1553 | 1555 | 1574 | 1576 | 1587 | 1589 | 1603 | 1605 |
| | 1620 | 1622 | 1639 | 1641 | 1663 | 1665 | 1679 | 1681 | 1696 | 1698 | 1715 | 1717 | 1739 | 1741 | 1755 |
| | 1757 | 1772 | 1774 | 1791 | 1793 | 1815 | 1817 | 1831 | 1833 | 1848 | 1850 | 1867 | 1869 | 1901 | 1903 |
| | 1934 | 1936 | 1966 | 1968 | 1996 | 1998 | 2011 | 2013 | 2050 | 2052 | 2075 | 2077 | 2095 | 2097 | 2115 |
| | 2117 | 2141 | 2143 | 2164 | 2166 | 2184 | 2186 | 2204 | 2206 | 2230 | 2232 | 2254 | 2256 | 2274 | 2276 |
| | 2294 | 2296 | 2319 | 2321 | 2342 | 2344 | 2362 | 2364 | 2382 | 2384 | 2410 | 2412 | 2443 | 2445 | 2461 |
| | 2463 | 2470 | 2472 | 2487 | 2489 | 2510 | 2512 | 2544 | 2546 | 2568 | 2570 | 2591 | 2593 | 2614 | 2616 |
| | 2651 | 2653 | 2673 | 2675 | 2697 | 2699 | 2728 | 2729 | 2749 | 2751 | 2769 | 2770 | 2812 | 2813 | 2829 |
| | 2831 | 2870 | 2871 | 2886 | 2888 | 2906 | 2908 | 2926 | 2927 | 2928 | 2930 | 2935 | 2946 | 2948 | 2966 |
| | 2967 | 2969 | 2971 | 2973 | 2974 | 2976 | 2989 | 2994 | 2996 | 3011 | 3013 | 3066 | 3068 | 3084 | 3086 |
| | 3105 | 3107 | 3133 | 3135 | 3148 | 3150 | 3174 | 3176 | 3183 | 3185 | 3199 | 3201 | 3202 | 3206 | 3223 |
| | 3224 | 3226 | 3227 | 3229 | 3235 | 3244 | 3248 | 3250 | 3254 | 3256 | 3260 | 3264 | 3386 | 3388 | 3390 |
| | 3392 | 3398 | 3428 | 3430 | 3522 | 3524 | 3526 | 3528 | 3535 | 3560 | 3562 | 3596 | 3598 | 3600 | 3602 |
| | 3609 | 3664 | 3666 | 3667 | 3671 | 3713 | 3715 | 3742 | 3744 | 3768 | 3770 | 3771 | 3775 | 3813 | 3815 |
| | 3847 | 3849 | 3923 | 3924 | 3933 | 3935 | 3975 | 3977 | 4012 | 4014 | 4016 | 4018 | 4033 | 4035 | 4064 |
| | 4066 | 4095 | 4096 | 4103 | 4105 | 4151 | 4185 | 4186 | 4188 | 4190 | 4195 | 4202 | 4204 | 4226 | 4234 |
| | 4236 | 4258 | 4280 | 4282 | 4283 | 4287 | 4307 | 4320 | 4322 | 4323 | 4327 | 4328 | 4330 | 4331 | 4335 |
| | 4368 | 4406 | 4415 | 4416 | 4417 | 4419 | 4420 | 4422 | 4427 | 4446 | | | | | |
| ##SELE | 10 | | | | | | | | | | | | | | |
| ##SET | 51210 | 5130 | 5131 | 5132 | 5133 | 5135 | 5137 | 5138 | 5139 | | | | | | |

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| | | | | | | | | | | | | | | | |
|---------|-------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| ##SETH | 11270 | | | | | | | | | | | | | | |
| ##SETS | 10 | 1207 | 1208 | 1217 | 1219 | 1260 | 1262 | 1272 | 1274 | 1288 | 1290 | 1305 | 1307 | 1324 | 1326 |
| | 1348 | 1350 | 1364 | 1366 | 1381 | 1383 | 1400 | 1402 | 1430 | 1432 | 1446 | 1448 | 1463 | 1465 | 1482 |
| | 1484 | 1507 | 1509 | 1521 | 1523 | 1537 | 1539 | 1553 | 1555 | 1574 | 1576 | 1587 | 1589 | 1603 | 1605 |
| | 1620 | 1622 | 1639 | 1641 | 1663 | 1665 | 1679 | 1681 | 1696 | 1698 | 1715 | 1717 | 1739 | 1741 | 1755 |
| | 1757 | 1772 | 1774 | 1791 | 1793 | 1815 | 1817 | 1831 | 1833 | 1848 | 1850 | 1867 | 1869 | 1901 | 1903 |
| | 1934 | 1936 | 1966 | 1968 | 1996 | 1998 | 2011 | 2013 | 2050 | 2052 | 2075 | 2077 | 2095 | 2097 | 2115 |
| | 2117 | 2141 | 2143 | 2164 | 2166 | 2184 | 2186 | 2204 | 2206 | 2230 | 2232 | 2254 | 2256 | 2274 | 2276 |
| | 2294 | 2296 | 2319 | 2321 | 2342 | 2344 | 2362 | 2364 | 2382 | 2384 | 2410 | 2412 | 2443 | 2445 | 2461 |
| | 2463 | 2470 | 2472 | 2487 | 2489 | 2510 | 2512 | 2544 | 2546 | 2568 | 2570 | 2591 | 2593 | 2614 | 2616 |
| | 2651 | 2653 | 2673 | 2675 | 2697 | 2699 | 2728 | 2729 | 2749 | 2751 | 2769 | 2770 | 2812 | 2813 | 2829 |
| | 2831 | 2870 | 281 | 2886 | 2888 | 2906 | 2908 | 2926 | 2927 | 2928 | 2930 | 2935 | 2946 | 2948 | 2966 |
| | 2967 | 2969 | 2971 | 2973 | 2974 | 2976 | 2989 | 2994 | 2996 | 3011 | 3013 | 3066 | 3068 | 3084 | 3086 |
| | 3105 | 3107 | 3133 | 3135 | 3148 | 3150 | 3174 | 3176 | 3183 | 3185 | 3197 | 3201 | 3202 | 3206 | 3223 |
| | 3224 | 3226 | 3227 | 3229 | 3235 | 3244 | 3248 | 3250 | 3254 | 3256 | 3260 | 3264 | 3386 | 3388 | 3390 |
| | 3392 | 3398 | 3428 | 3430 | 3522 | 3524 | 3526 | 3528 | 3535 | 3560 | 3562 | 3596 | 3598 | 3600 | 3602 |
| | 3609 | 3664 | 3666 | 3667 | 3671 | 3713 | 3715 | 3742 | 3744 | 3768 | 3770 | 3771 | 3775 | 3813 | 3815 |
| | 3847 | 3849 | 3923 | 3924 | 3933 | 3935 | 3975 | 3977 | 4012 | 4014 | 4016 | 4018 | 4033 | 4035 | 4064 |
| | 4066 | 4095 | 4096 | 4103 | 4105 | 4151 | 4185 | 4186 | 4188 | 4190 | 4195 | 4202 | 4204 | 4226 | 4234 |
| | 4236 | 4258 | 4280 | 4282 | 4283 | 4287 | 4307 | 4320 | 4322 | 4323 | 4327 | 4328 | 4330 | 4331 | 4335 |
| | 4368 | 4406 | 4415 | 4416 | 4417 | 4419 | 4420 | 4422 | 4427 | 4446 | | | | | |
| ##SETT | 10 | | | | | | | | | | | | | | |
| ##SKIP | 10 | 8110 | 1264 | 1511 | 1578 | 2001 | 2057 | 2146 | 2236 | 2324 | 2416 | 2516 | 2600 | 2619 | 2701 |
| | 2910 | 2956 | 2983 | 3020 | 3075 | 3095 | 3113 | 3143 | 3158 | 3178 | 3187 | 3292 | 3565 | 3720 | 3747 |
| | 3820 | 3851 | 3947 | 4068 | 4113 | | | | | | | | | | |
| .EQUAT | 10 | 701 | | | | | | | | | | | | | |
| .HEADE | 10 | 679 | | | | | | | | | | | | | |
| .KT11 | 10 | | | | | | | | | | | | | | |
| .SETUP | 10 | 1088 | | | | | | | | | | | | | |
| .SWRHI | 10 | 689 | | | | | | | | | | | | | |
| .SWRLO | 7000 | | | | | | | | | | | | | | |
| .\$ACT1 | 10 | 937 | | | | | | | | | | | | | |
| .\$APT8 | 10 | 10140 | | | | | | | | | | | | | |
| .\$APTH | 10 | 948 | | | | | | | | | | | | | |
| .\$APTY | 10 | 4779 | | | | | | | | | | | | | |
| .\$ASTA | 10 | | | | | | | | | | | | | | |
| .\$CATC | 10 | 926 | | | | | | | | | | | | | |
| .\$CMTA | 10 | 970 | | | | | | | | | | | | | |
| .\$DB20 | 10 | | | | | | | | | | | | | | |
| .\$DB20 | 10 | | | | | | | | | | | | | | |
| .\$DIV | 10 | | | | | | | | | | | | | | |
| .\$EOP | 10 | 4477 | | | | | | | | | | | | | |
| .\$ERRO | 10 | 4836 | | | | | | | | | | | | | |
| .\$ERRT | 10 | | | | | | | | | | | | | | |
| .\$MULT | 10 | | | | | | | | | | | | | | |
| .\$POME | 10 | 4516 | | | | | | | | | | | | | |
| .\$RAND | 10 | | | | | | | | | | | | | | |
| .\$RDDE | 10 | | | | | | | | | | | | | | |
| .\$RDOC | 10 | | | | | | | | | | | | | | |
| .\$READ | 10 | 4640 | | | | | | | | | | | | | |
| .\$R2AZ | 10 | | | | | | | | | | | | | | |
| .\$SAVE | 10 | | | | | | | | | | | | | | |
| .\$SB20 | 10 | | | | | | | | | | | | | | |
| .\$SB20 | 10 | | | | | | | | | | | | | | |
| .\$SCOP | 10 | 4890 | | | | | | | | | | | | | |
| .\$SIZE | 10 | | | | | | | | | | | | | | |

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.\$SUPR 10
.\$TRAP 10 5098
.\$TYPB 10
.\$TYPO 10 4954
.\$TYPE 10 4561
.\$TYPO 10 5021
.\$AOCA 10
.\$1170 10

. ABS. 015406 000

ERRORS DETECTED: 0

CVDVAD.CVDVAD/SOL/CRF=CVDVAD.SML,CVDVAD.MAC,CVDVAD.P11
RUN-TIME: 84 90 6 SECONDS
RUN-TIME RATIO: 287/181=1.5
CORE USED: 43K (85 PAGES)