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IDENTIFICATION

PRODUCT CODE: AC-E006C-MC
PRODUCT NAME: DVDVCCO DLV11-F OFFLINE TEST
PRODUCT DATE: AUGUST 1984
AUTHOR: ODES CHOATE
MAINTAINER: DIAGNOSTIC ENGINEERING GROUP

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1.0 GENERAL PROGRAM INFORMATION.

1.1 PROGRAM PURPOSE (ABSTRACT).

THIS DIAGNOSTIC IS A LOGIC TEST TO VERIFY THE OPERATION OF THE DLV11-F SERIAL LINE INTERFACE. THE USER CAN SELECTIVELY ENABLE AND DISABLE TESTING OF THE OPTIONS BY ALTERING THE CONTENTS OF 'USER'. THE DIAGNOSTIC IS DESIGNED TO TEST AND DETECT FAULTS TO THE LOGIC LEVEL (NOT TO THE CHIP LEVEL). THIS TEST OPERATES ON UP TO SIXTEEN(16) IDENTICALLY CONFIGURED DLV11-F SERIAL LINE INTERFACES. THE DEFAULT ADDRESSES ARE:

177560 -CONSOLE INTERFACE DEVICE ADDRESS
 175610 -FIRST SERIAL LINE ADDRESS OF 15 CONSECUTIVE SERIAL LINE DEVICES.

60 - VECTOR FOR CONSOLE DEVICE INTERFACE.
 300 - VECTOR FOR FIRST OF 15 DEVICES.

THIS PROGRAM IS DESIGNED TO RUN ON ANY PDP-11 WITH 4K OF MEMORY AND A DLV11-F (LSI-BUS) MODULE. IT CAN RUN UNDER XXDP, APT, AND ACT MONITORS, AND ON PROCESSORS WITH NO HARDWARE SWITCH REGISTER. A POWER FAILURE WILL CAUSE THE DIAGNOSTIC TO RESTART.

1.2 SYSTEM REQUIREMENTS.

HARDWARE REQUIREMENTS:

ANY PDP-11 FAMILY PROCESSOR
 4K MEMORY - MINIMUM
 A SPECIAL WRAP CONNECTOR OR EQUIVALENT (OPTIONAL)

SOFTWARE REQUIREMENTS:

THIS DIAGNOSTIC IS DESIGNED TO RUN IN ANY OF THE FOLLOWING WAYS:
 STAND ALONE
 WITH APT MONITOR
 WITH ACT MONITOR
 WITH XXDP MONITOR (CHAINABLE)

1.3 RELATED DOCUMENTS AND STANDARDS.

DIAGNOSTIC ENGINEERING STANDARDS AND CONVENTIONS	175-003-009-02
APT	MD-11-DZZMA
ACT	AUTOCAT-11-QZAUB
SYSMAC	MD-11-DZGAC

1.4 DIAGNOSTIC HIERARCHY PREREQUISITES.

126 NO SPECIAL DIAGNOSTICS ARE REQUIRED TO RUN BEFORE THIS, BUT
 127 THE PROCESSOR, MEMORY, AND BUS ARE ASSUMED TO BE FULLY
 128 OPERATIONAL.
 129
 130
 131 1.5 ASSUMPTIONS.
 132
 133 THIS DIAGNOSTIC ASSUMES THAT THE OPERATOR HAS INITIALIZED
 134 LOCATION '0USMR' AND '0DEVN' TO THE PROPER VALUES.
 135
 136
 137 2.0 OPERATING INSTRUCTIONS.
 138 -----
 139
 140
 141 2.1 LOADING AND STARTING PROCEDURES.
 142
 143 USE STANDARD PROCEDURE FOR PDP-11 ABSOLUTE BINARY FORMATTED
 144 MEDIA.
 145
 146 THIS DIAGNOSTIC HAS ONLY ONE (1) STARTING ADDRESS. 200 FOR
 147 START AND RESTART.
 148
 149 THE USER CAN SELECT A SPECIFIC TEST TO BE EXECUTED BY SETTING
 150 SWITCH 8 IN THE SWITCH REGISTER AND THE TEST NUMBER (IN OCTAL)
 151 IN THE LOWER BYTE. (NOTE: ALL TESTS PREVIOUS TO THE SELECTED
 152 ONE ARE EXECUTED WITHOUT ITERATIONS.)
 153
 154
 155 2.2 SPECIAL ENVIRONMENTS.
 156
 157 THIS DIAGNOSTIC FOLLOWS THE STANDARD PROCEDURE FOR RUNNING
 158 USER APT,ACT,XQDP MONITORS, AS DESCRIBED IN THEIR RESPECTIVE
 159 PROCEDURES MANUAL AND SYSMAC PACKAGE.
 160
 161 2.3 OPERATIONAL SWITCH SETTINGS
 162
 163 IF THE DIAGNOSTIC IS RUN ON A CPU WITHOUT A SWITCH
 164 REGISTER THEN A SOFTWARE SWITCH REGISTER IS USED WHICH
 165 ALLOWS THE USER THE SAME SWITCH OPTIONS AS THE
 166 HARDWARE SWITCH REGISTER. IF THE HARDWARE SWITCH
 167 REGISTER DOES NOT EXIST OR IF ONE DOES AND IT CONTAINS
 168 ALL ONES (177777) THEN THE SOFTWARE SWITCH REGISTER
 169 (LOC. 176) IS USED.
 170
 171
 172 CONTROL:
 173
 174 THIS PROGRAM ALSO SUPPORTS THE DYNAMIC LOADING OF THE SOFTWARE
 175 SWITCH REGISTER (LOC. 176) FROM THE TTY. THIS CAN BE
 176 ACCOMPLISHED BY DOING THE FOLLOWING:
 177
 178 1) TYPE CONTROL G <↑G>; THIS WILL ALLOW THE TTY TO ENTER
 179 DATA INTO LOC. 176 AT SELECTED POINTS WITHIN THE
 180

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PROGRAM.

- 2) THE MACHINE WILL THEN TYPE: 'SMR=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 SEQUENCE 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 SMR<7:0>
 7:0 - TEST NUMBER TO LOOP ON (USED WITH BIT 8)

2.4 PROGRAM OPTIONS.

THIS PROGRAM WILL SUPPORT TESTING OF MULTIPLE DLV11-F'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-F 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-F WITHIN THE ADDRESS RANGE 175610 --> 176000

#BASE AND #VECT1 DEFAULT TO 175610 AND 300 RESPECTIVELY.

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233 THE PROGRAM ASSOCIATES UNIT NUMBERS AS FOLLOWS: (NUMBERS IN
 234 PARENTHESIS ARE OCTAL)
 235 UNIT#0 -- BASE ADDRESS STORED AT '#BASE'
 236 ASSOCIATED BASE VECTOR STORED AT '#VECT1'
 237 UNIT#1 -- BASE ADDRESS * (10)
 238 BASE VECTOR * (10)
 239
 240 |
 241 | UP TO
 242 |
 243 UNIT#14 -- BASE ADDRESS * (160)
 244 BASE VECTOR * (160)

245 LOCATION '#DEVH' IS USED AS A BIT MAP TO INDICATE WHICH UNIT
 246 NUMBERS ARE PRESENT AND WILL BE TESTED.

247 BIT 15 BIT 14 - - - BIT 1 BIT 0
 248 -----
 249 ! CON- ! UNIT ! ! UNIT ! UNIT !
 250 ! SOLE ! 14 ! ! 01 ! 00 !
 251 -----
 252

253 A BIT MAP CAN BE ENTERED AT '#DEVH' PRIOR TO STARTING THE
 254 PROGRAM.

255 EXAMPLE:

256 #BASE: 175610
 257 #VECTOR: 300
 258 #DEVH: 100013

259 THE PROGRAM WILL TEST-

260 UNIT#0 175610 300
 261 UNIT#1 175620 310
 262 UNIT#3 175640 330
 263 CONSOLE 177560 60

264 OPTIONS
 265 -----

266 LOCATION #USMR CONTAINS ALL THE USER SELECTABLE OPTIONS. THE
 267 VALUES IN THIS WORD MUST CONFORM TO THE ACTUAL BOARD
 268 CONFIGURATION.
 269
 270
 271
 272
 273
 274
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THE DEFAULT VALUE OF #USMR IS AS FOLLOWS:

BIT POSITION	DEFINITION	DEFAULT VALUE
0-3	# OF DATA BITS	10(8) = 8
4	PARITY ENABLED -(SEE	0 = NO
5	EVEN ODD PARITY-/ NOTE)	0 = ODD
6	COMMON SPEED	1 = YES
7	PROGRAMMABLE BAUD RATE	0 = NO
8-11	BAUD RATE OFFSET (SEE FOLLOWING NOTE)	02(8) = 110 BAUD
12	BREAK GENERATION ENABLED	1 = YES
13	WRAP CONNECTOR INSTALLED	0 = NO
14	MAINT JUMPER (SEE NOTE)	0 = NO
15	ERROR BITS ENABLED	0 = NO

NOTE ON BITS <4:5>
THIS DIAGNOSTIC DOES NOT TEST THE PARITY LOGIC.

NOTE ON BITS <7:11>

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.(TEST #16)

NOTE ON BIT 14

THIS SWITCH WHEN ON WILL ALLOW THE DIAGNOSTIC
TO TEST IN MAINTAINCE MODE. IT IS ASSUMED THAT
THE MAINTAINCE JUMPER IS INSTALLED ON ALL OF
THE DLV11-F MODULES WHEN THIS BIT IS SET.

DLV11-F INDIVIDUAL TEST REQUIREMENTS TABLE

TEST #	1	2	3	4	5	6	7	10	11	12	13	14	15	16	17	20	21	22	23	24
CONSOLE DEVICE	:	:	..	:	:	:	..	:
APT ENVIRONMENT	:	..	:	:	:	:	..	:
(MAINT) BIT SET	:	:	..	:	:	:	..	:
(WRAP CON) BIT SET	:	:	..	:	:	:	..	:
(ERROR BITS) BIT SET	:	:	..	:	:	:	..	:
(COM SPD) BIT SET	:	:	..	:	:	:	..	:
(BREAK) BIT SET	:	..	:	:	:	:	..	:
(PROG BAUD RATE) BIT SET	:	..	:	:	:	:	..	:

.. TEST WILL NOT RUN IF THIS CONDITION IS TRUE.
-- TEST WILL NOT RUN IF THIS CONDITION IS FALSE.
** TEST WILL NOT RUN IF ALL OF THE CONDITIONS IN THIS COLUMN ARE FALSE.

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2.5 EXECUTION TIMES.

EXECUTION TIMES ARE FOR AN LSI-11 PROCESSOR WITH ALL OPTIONS ENABLED ON THE DLV11-F (EXCEPT FOR PROGRAMMABLE BAUD RATE), AT 110 BAUD, AND NOT AT THE CONSOLE ADDRESS.

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.

IF THE DIAGNOSTIC IS RUN AT THE CONSOLE ADDRESS THE RUNNING TIME IS 5 SECONDS PER PASS.

3.0 ERROR INFORMATION.

3.1 ERROR REPORTING PROCEDURE.

SINCE THIS DIAGNOSTIC WAS DESIGNED TO FIT IN 4-K OF MEMORY THE ERROR TYPEOUT IS VERY BRIEF. THE FORMAT OF THE ERROR TYPEOUT IS AS FOLLOWS:

TEST#_____.ERROR#_____.PC=_____.ADDRESS=_____.VECTOR=_____

WHERE ALL VALUES TYPED ARE OCTAL.
 THE ADDRESS AND VECTOR REFER TO THE FAILING SLU'S.
 FOR FURTHER INFORMATION THE LISTING MUST BE CONSULTED.
 BITS 15,13,10 AND 9 OF THE SWITCH REGISTER CONTROL THE SEQUENCE OF EVENTS AFTER AN ERROR IS CAUGHT.

BIT 15 - CAUSES THE PROGRAM TO HALT IN THE ERROR ROUTINE. CONTINUEING THE PROGRAM CAUSES IT TO PROCEED.

BIT 13 - DISABLES THE PRINTING OF THE ERROR MESSAGE.

BIT 10 - CAUSES THE BELL TO RING ON ERROR.

BIT 9 - CAUSES THE DIAGNOSTIC TO LOOP FROM BEGINNING OF TEST TO ERROR.

THE ERROR ROUTINE SUPPORTS THE CONTROL G FUNCTION.

3.2 ERROR HALTS.

THE ONLY HALT IN THIS DIAGNOSTIC IS IN THE ERROR ROUTINE, AND IS EXECUTED ONLY IF BIT 15 OF THE SWITCH REGISTER IS A ONE WHEN AN ERROR OCCURS.

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4 0 PERFORMANCE AND PROGRESS REPORTS.

4 1 PERFORMANCE REPORTS.

AS EACH DEVICE COMPLETES ONE PASS OF THE DIAGNOSTIC THE FOLLOWING WILL BE TYPED:

CSR:-----,VECTOR:-----,ERRORS:-----

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#-----"
DEVICE INFORMATION TABLES.

	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
RCSR:	!	!	!	!	!RCVR!	!	!	!	!RCVR!	!RCVR!	!	!	!	!	!	!RDR!
	!	!	!	!	!ACT!	!	!	!	!DONE!	!IE!	!	!	!	!	!	!END!
RBUF:	!ERRO!	!OR!	!FR!	!P!	!	!	!	!	!	!	!	!	!	!	!	!
	!R!	!ERR!	!ERR!	!ERR!	!	!	!	!	!	!	!	!	!	!	!	!
TCSR:	!	!	!	!	!	!	!	!	!	!	!	!	!	!	!	!
	!	!	!	!	!	!	!	!	!	!	!	!	!	!	!	!
TBUF:	!	!	!	!	!	!	!	!	!	!	!	!	!	!	!	!
	!	!	!	!	!	!	!	!	!	!	!	!	!	!	!	!

NOTE

BLANK BOXFS 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-F
 RESPONDS TO THAT ADDRESS SPACE.

TEST 2 BREAK - TCSR0 SET, CLEAR, RESET

TEST 3 MAINT - TCSR2 SET, CLEAR, RESET

TEST 4 XMITIE - TCSR6 SET, CLEAR, RESET

TEST 5 RCVRIE - RCSR6 SET, CLEAR, RESET

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

TEST 6 RCVRDONE - RCSR 7 - IS CLEARED BY INIT

TEST 7 RCVRACT - RCSR 11 - 15 CLEARED BY INIT

TEST 10 XMITRDY - TCSR 7 - IS SET BY INIT

TEST 11 XMIT RDY - TCSR 7 - CLEARS WHEN TBUF IS LOADED

WITH A CHARACTER AND THAT IT SETS WITHIN A
 REASONABLE AMOUNT OF TIME.

TEST 12 OUTPUTTING A CHAR FROM TBUF (WITH MAINT SET)

RESULTS IN RCVRDONE SETTING WITHIN A
 REASONABLE AMOUNT OF TIME AND THAT RESET
 CLEARS THE BIT.

492 TEST 13 RCVRDONE IS CLEARED BY READING RBUF
493 ---- --
494 TEST 14 RCVRACT - RCSR 11 - SETS WHEN A START BIT IS
495 ---- --
496 RECEIVED AND CLEARS WHEN RCVRDONE - RCSR 7 -
497 SETS
498
499
500 TEST 15 OVERRUN BIT - RBUF 14
501 ---- --
502
503
504 TEST 16 PROGRAMMABLE BAUD RATE TEST TEST AT ALL SPEEDS
505 ---- --
506 AVAILABLE A COMPARISON WILL BE MADE TO SEE IF
507 NEW TIME IS LESS THAN PREVIOUS.
508
509
510 TEST 17 TRANSMITTER INTERRUPT LOGIC TEST
511 ---- --
512 LOGICALLY THIS IS 4 SEPARATE TESTS
513 A) DOES TRANSMITTER INTERRUPT LOGIC WORK
514 B) AT PRIORITY OF 0
515 C) AND ONLY ONCE
516 D) BUT NOT WITH INTERRUPT ENABLE CLEAR
517
518
519 TEST 20 RECEIVER INTERRUPT LOGIC TEST THIS TEST COVERS ALL
520 ---- --
521 OF THE RECEIVER SIDE OF THE INTERRUPT LOGIC IN
522 CHARACTER MODE.
523
524
525 TEST 21 TEST ACTUAL DATA TRANSFERED NON-INTERRUPT
526 ---- --
527 MAINTENANCE BIT SET
528
529
530 TEST 22 TEST DATA THROUGH WRAP
531 ---- --
532
533
534 TEST 23 FULL DATA TRANSFER WITH INTERRUPTS AND MAINTENANCE
535 ---- --
536 MODE.
537
538
539 TEST 24 TEST BREAK GENERATION LOGIC TRANSMIT KNOWN CHAR
540 ---- --
541 WITH BREAK SET AND COMPARE RECEIVED WITH 0.
542
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544 TEST 25 NOT A TEST - SEND BACK TO LOOP
545 ---- --
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NOTE

FOR ALL OF THE FOLLOWING ROUTINES THE USE OF (RS) 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
 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.

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 MICRO SEC.

SERVICE ROUTINE: INTSRV

THIS GLOBAL ROUTINE DOES NOTHING BUT INCREMENT

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'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-F UNDER TEST, ADRS +2 TO
POINT TO THE VECTOR OF THE DLV11-F UNDER TEST.
IT KEEPS TRACK OF THE CURRENT DEVICE AND BIT
MASKS.

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@
.TITLE MAINDEC-11-DVDVC-C
*COPYRIGHT (C) 1977
*DIGITAL EQUIPMENT CORP.
*MAYNARD, MASS. 01754
*
*PROGRAM BY ODES CHOATE
*
*THIS PROGRAM WAS ASSEMBLED USING THE PDP-11 MAINDEC SYSMAC
*PACKAGE (MAINDEC-11-DZGAC-C3), JAN 19, 1977.
*
.SBTTL OPERATIONAL SWITCH SETTINGS
*
*      SWITCH          USE
*      -----          -
*      15             HALT ON ERROR
*      14             LOOP ON TEST
*      13             INHIBIT ERROR TYPEOUTS
*      11             INHIBIT ITERATIONS
*      10             BELL ON ERROR
*      9              LOOP ON ERROR
*      8              LOOP ON TEST IN SHR<7:0>
*
.SBTTL BASIC DEFINITIONS
*
*INITIAL ADDRESS OF THE STACK POINTER *** 1100 ***
STACK= 1100
.EQUIV ENT,ERROR      ;;BASIC DEFINITION OF ERROR CALL
.EQUIV IOT,SCOPE      ;;BASIC DEFINITION OF SCOPE CALL
*
*MISCELLANEOUS DEFINITIONS
MT= 11                ;;CODE FOR HORIZONTAL TAB
LF= 12                ;;CODE FOR LINE FEED
CR= 15                ;;CODE FOR CARRIAGE RETURN
CRLF= 200             ;;CODE FOR CARRIAGE RETURN-LINE FEED
PS= 177776            ;;PROCESSOR STATUS WORD
.EQUIV PS,PSM
STKLMT= 177774        ;;STACK LIMIT REGISTER
PIRQ= 177772          ;;PROGRAM INTERRUPT REQUEST REGISTER
DSMR= 177570          ;;HARDWARE SWITCH REGISTER
DOISP= 177570         ;;HARDWARE DISPLAY REGISTER
*
*GENERAL PURPOSE REGISTER DEFINITIONS
R0= #0                ;;GENERAL REGISTER
R1= #1                ;;GENERAL REGISTER
R2= #2                ;;GENERAL REGISTER
R3= #3                ;;GENERAL REGISTER
R4= #4                ;;GENERAL REGISTER
R5= #5                ;;GENERAL REGISTER
R6= #6                ;;GENERAL REGISTER
R7= #7                ;;GENERAL REGISTER
SP= #6                ;;STACK POINTER
PC= #7                ;;PROGRAM COUNTER
*
*PRIORITY LEVEL DEFINITIONS
PRO= 0                ;;PRIORITY LEVEL 0

```

001100

000011
000012
000015
000200
177776

177774
177772
177570
177570

000000
000001
000002
000003
000004
000005
000006
000007
000006
000007

000000

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672	000040	PR1-	40	::PRIORITY LEVEL 1
673	000100	PR2-	100	::PRIORITY LEVEL 2
674	000140	PR3-	140	::PRIORITY LEVEL 3
675	000200	PR4-	200	::PRIORITY LEVEL 4
676	000240	PR5-	240	::PRIORITY LEVEL 5
677	000300	PR6-	300	::PRIORITY LEVEL 6
678	000340	PR7-	340	::PRIORITY LEVEL 7

679 ;*SWITCH REGISTER* SWITCH DEFINITIONS

680		SW15-	100000	
681	100000	SW14-	40000	
682	040000	SW13-	20000	
683	020000	SW12-	10000	
684	010000	SW11-	4000	
685	004000	SW10-	2000	
686	002000	SW09-	1000	
687	001000	SW08-	400	
688	000400	SW07-	200	
689	000200	SW06-	100	
690	000100	SW05-	40	
691	000040	SW04-	20	
692	000020	SW03-	10	
693	000010	SW02-	4	
694	000004	SW01-	2	
695	000002	SW00-	1	
696	000001	.EQUIV	SW09,SW9	
697		.EQUIV	SW08,SW8	
698		.EQUIV	SW07,SW7	
699		.EQUIV	SW06,SW6	
700		.EQUIV	SW05,SW5	
701		.EQUIV	SW04,SW4	
702		.EQUIV	SW03,SW3	
703		.EQUIV	SW02,SW2	
704		.EQUIV	SW01,SW1	
705		.EQUIV	SW00,SW0	
706				
707				

708 ;*DATA BIT DEFINITIONS (BIT00 TO BIT15)

709	100000	BIT15-	100000	
710	040000	BIT14-	40000	
711	020000	BIT13-	20000	
712	010000	BIT12-	10000	
713	004000	BIT11-	4000	
714	002000	BIT10-	2000	
715	001000	BIT09-	1000	
716	000400	BIT08-	400	
717	000200	BIT07-	200	
718	000100	BIT06-	100	
719	000040	BIT05-	40	
720	000020	BIT04-	20	
721	000010	BIT03-	10	
722	000004	BIT02-	4	
723	000002	BIT01-	2	
724	000001	BIT00-	1	
725		.EQUIV	BIT09,BIT9	
726		.EQUIV	BIT08,BIT8	
727		.EQUIV	BIT07,BIT7	

```

728 .EQUIV BIT06,BIT6
729 .EQUIV BIT05,BIT5
730 .EQUIV BIT04,BIT4
731 .EQUIV BIT03,BIT3
732 .EQUIV BIT02,BIT2
733 .EQUIV BIT01,BIT1
734 .EQUIV BIT00,BIT0

```

```

735 ;*BASIC "CPU" TRAP VECTOR ADDRESSES
736 ERRVEC= 4 ;: TIME OUT AND OTHER ERRORS
737 RESVEC= 10 ;: RESERVED AND ILLEGAL INSTRUCTIONS
738 TBITVEC=14 ;: "T" BIT
739 TRIVEC= 14 ;: TRACE TRAP
740 BPTVEC= 14 ;: BREAKPOINT TRAP (BPT)
741 IOTVEC= 20 ;: INPUT/OUTPUT TRAP (IOT) **SCOPE**
742 PMRVEC= 24 ;: POWER FAIL
743 EMTVEC= 30 ;: EMULATOR TRAP (EMT) **ERROR**
744 TRAPVEC=34 ;: "TRAP" TRAP
745 TKVEC= 60 ;: TTY KEYBOARD VECTOR
746 TPVEC= 64 ;: TTY PRINTER VECTOR
747 PIRQVEC=240 ;: PROGRAM INTERRUPT REQUEST VECTOR

```

```

748 ILLMEM= 4
749 ADRS= R1
750 GOOD= R2
751 BAD= R3
752 REGISTER=R1
753 BIT= R2
754 FUNCT= R3
755 LEAD= R2
756 FOLLOW= R4
757 DLADDR= 175610

```

```

758 ; THE FOLLOWING DEFINITIONS APPLY TO THE GLOBAL SUBS
759 SET= -1
760 CLR= 0

```

```

761 177777
762 000000
763
764
765 ;:*****
766 ; RCSR REGISTER BIT NAMES
767 ;:*****
768 ; UNUSED BIT15
769 ; UNUSED BIT14
770 ; UNUSED BIT13
771 ; UNUSED BIT12
772 004000 RCVRACT= BIT11 ; RECEIVER ACTIVE INDICATOR
773 ; UNUSED BIT10
774 ; UNUSED BIT09
775 ; UNUSED BIT08
776 000200 RCVRDONE= BIT07 ; RECEIVER DONE
777 000100 RCVRIE= BIT06 ; RECEIVER INTERRUPT ENABLE
778 ; UNUSED BIT05
779 ; UNUSED BIT04
780 ; UNUSED BIT03
781 ; UNUSED BIT02
782 ; UNUSED BIT01
783 000001 RDRRUN= BIT00 ; READER RUN

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811
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823
824
825
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833
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835
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837
838
839

100000
040000
020000
010000

000200
000100
000040
000020
000010
000004
000002
000001

100000
040000
020000
010000
004000

000200
000100

000004
000001

000200
000100

;; *****
; RBUF REGISTER BIT NAMES
;; *****

ERROR- BIT15 ; ERROR INDICATOR
OERR- BIT14 ; OVERRUN ERROR
FRERR- BIT13 ; FRAMING ERROR
PERR- BIT12 ; PARITY ERROR
; UNUSED BIT11
; UNUSED BIT10
; UNUSED BIT09
; UNUSED BIT08
RDATA7- BIT07 ; \
RDATA6- BIT06 ; !
RDATA5- BIT05 ; \
RDATA4- BIT04 ; ! RECEIVED DATA BITS
RDATA3- BIT03 ; \
RDATA2- BIT02 ; !
RDATA1- BIT01 ; \
RDATA0- BIT00 ; !

;; *****
; TCSR REGISTER BIT NAMES
;; *****

PBAUD3- BIT15 ; \
PBAUD2- BIT14 ; ! PROGRAMMABLE BAUD
PBAUD1- BIT13 ; ! RATE BITS
PBAUD0- BIT12 ; \
PBAUDSET- BIT11 ; ! ENABLE SETTING OF
; PROGRAMMABLE BAUDE RATE
; UNUSED BIT10
; UNUSED BIT09
; UNUSED BIT08
XMITRDY- BIT07 ; TRANSMITTER READY
XMITIE- BIT06 ; TRANSMITTER INTERRUPT ENABLE
; UNUSED BIT05
; UNUSED BIT04
; UNUSED BIT03
MAINT- BIT02 ; MAINTENANCE SET BIT
; UNUSED BIT01
BREAK- BIT00 ; SEND BREAK (CONTINUOUS SPACE)

;; *****
; TBUF REGISTER BIT NAMES
;; *****

; UNUSED BIT15
; UNUSED BIT14
; UNUSED BIT13
; UNUSED BIT12
; UNUSED BIT11
; UNUSED BIT10
; UNUSED BIT09
; UNUSED BIT08
TDATA7- BIT07 ; \
TDATA6- BIT06 ; !

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```

840      000040      TDATA5-      BIT05      | !
841      000020      TDATA4-      BIT04      | \ TRANSMITTER DATA BUFFER
842      000010      TDATA3-      BIT03      | /
843      000004      TDATA2-      BIT02      | !
844      000002      TDATA1-      BIT01      | !
845      000001      TDATA0-      BIT00      | /
846
847
848      ;*****
849      ; FLAG BITS TO BE USE OR CLEARED IN #USMR.
850
851      000017      DATA      =      17
852      000020      PARITY     =      20
853      000040      EVENODD    =      40
854      000100      COMSPD     =      100
855      000200      PBR        =      200
856
857      ; BAUDE MUST BE ON THE UPPER
858      ; BYTE BOUNDRY OF #USMR.--4 BITS
859      007400      BAUD       =      7400
860      010000      BRK        =      10000
861      020000      WRAP       =      20000
862      040000      MAINTJUMP  =      40000
863      100000      ERBBITS    =      100000
864      ;*****
865      .SBTTL TRAP CATCHER
866
867      .=0
868      ;*ALL UNUSED LOCATIONS FROM 4 - 776 CONTAIN A ".=2,HALT"
869      ;*SEQUENCE TO CATCH ILLEGAL TRAPS AND INTERRUPTS
870      ;*LOCATION 0 CONTAINS 0 TO CATCH IMPROPERLY LOADED VECTORS
871      .=174
872      000174      000000      DISPREG: .WORD 0      ;;SOFTWARE DISPLAY REGISTER
873      000176      000000      SWREG:  .WORD 0      ;;SOFTWARE SWITCH REGISTER
874
875      000200      000137      001336 .SBTTL STARTING ADDRESS(ES)
      JMP      @START ;;JUMP TO STARTING ADDRESS OF PROGRAM
    
```

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```

876 .SBTTL ACT11 HOOKS
877
878
879
880          000204
881          000046
882 000046 011410
883          000052
884 000052 000000
885          000204
886          001000
887
888
889
890
891
892          001000
893          000024
894 000024 000200
895          000044
896 000044 001000
897          001000
898
899
900
901
902 001000
903 001000 000000
904 001002 001174
905 001004 000005
906 001006 000055
907 001010 000036
908 001012 000030

.SBTTL ACT11 HOOKS
;*****
;HOOKS REQUIRED BY ACT11
;SAVE PC
;=46
;ENDAD ;(1)SET LOC.46 TO ADDRESS OF #ENDAD IN .#EOP
;=52
;WORD 0 ;(2)SET LOC.52 TO ZERO
;=#SVC ; RESTORE PC
;=1000
.SBTTL APT PARAMETER BLOCK
;*****
;SET LOCATIONS 24 AND 44 AS REQUIRED FOR APT
;*****
;#X= ;SAVE CURRENT LOCATION
;=24 ;SET POWER FAIL TO POINT TO START OF PROGRAM
200 ;FOR APT START UP
;=44 ;POINT TO APT INDIRECT ADDRESS PNTR.
;#APTHR ;POINT TO APT HEADER BLOCK
;=#X ;RESET LOCATION COUNTER
;*****
;SETUP APT PARAMETER BLOCK AS DEFINED IN THE APT-PDP11 DIAGNOSTIC
;INTERFACE SPEC.
;#APTHD:
;#HIBTS: .WORD 0 ;TWO HIGH BITS OF 18 BIT MAILBOX ADDR.
;#MBADR: .WORD #MAIL ;ADDRESS OF APT MAILBOX (BITS 0-15)
;#TSTM: .WORD 5 ;RUN TIM OF LONGEST TEST
;#PASTH: .WORD 45. ;RUN TIME IN SECS. OF 1ST PASS ON 1 UNIT (QUICK VERIFY)
;#UNITM: .WORD 30. ;ADDITIONAL RUN TIME (SECS) OF A PASS FOR EACH ADDITIONAL UNIT
;#ETEND-#MAIL/2 ;LENGTH MAILBOX-ETABLE(WORDS)

```

```

909      .SBTTL COMMON TAGS
910
911      ;;*****
912      ; THIS TABLE CONTAINS VARIOUS COMMON STORAGE LOCATIONS
913      ; USED IN THE PROGRAM.
914
915      001100      .-1100
916      001100      %CHTAG:      ;; START OF COMMON TAGS
917      001100      000000      .WORD      0      ;; CONTAINS THE TEST NUMBER
918      001102      000      %TSTNM: .BYTE      0      ;; CONTAINS ERROR FLAG
919      001103      000      %ERFLG: .BYTE      0      ;; CONTAINS SUBTEST ITERATION COUNT
920      001104      000000      %ICNT:  .WORD      0      ;; CONTAINS SCOPE LOOP ADDRESS
921      001106      000000      %LPADR: .WORD      0      ;; CONTAINS SCOPE RETURN FOR ERRORS
922      001110      000000      %LPERR: .WORD      0      ;; CONTAINS TOTAL ERRORS DETECTED
923      001112      000000      %ERTTL: .WORD      0      ;; CONTAINS ITEM CONTROL BYTE
924      001114      000      %ITEMB: .BYTE      0      ;; CONTAINS MAX. ERRORS PER TEST
925      001115      001      %ERMAX: .BYTE      1      ;; CONTAINS PC OF LAST ERROR INSTRUCTION
926      001116      000000      %ERRPC: .WORD      0      ;; CONTAINS ADDRESS OF 'GOOD' DATA
927      001120      000000      %GDADR: .WORD      0      ;; CONTAINS ADDRESS OF 'BAD' DATA
928      001122      000000      %BDADR: .WORD      0      ;; CONTAINS 'GOOD' DATA
929      001124      000000      %GDDAT: .WORD      0      ;; CONTAINS 'BAD' DATA
930      001126      000000      %BDDAT: .WORD      0      ;; RESERVED--NOT TO BE USED
931      001130      000000      .WORD      0
932      001132      000000      .WORD      0
933      001134      000      %AUTOB: .BYTE      0      ;; AUTOMATIC MODE INDICATOR
934      001135      000      %INTAG:  .BYTE      0      ;; INTERRUPT MODE INDICATOR
935      001136      000000      .WORD      0
936      001140      177570      %SMR:   .WORD      DSWR      ;; ADDRESS OF SWITCH REGISTER
937      001142      177570      %DISPLAY: .WORD      DDISP      ;; ADDRESS OF DISPLAY REGISTER
938      001144      177560      %TKS:   177560      ;; TTY KBD STATUS
939      001146      177562      %TKB:   177562      ;; TTY KBD BUFFER
940      001150      177564      %TPS:   177564      ;; TTY PRINTER STATUS REG. ADDRESS
941      001152      177566      %TPB:   177566      ;; TTY PRINTER BUFFER REG. ADDRESS
942      001154      000      %NULL: .BYTE      0      ;; CONTAINS NULL CHARACTER FOR FILLS
943      001155      002      %FILLS: .BYTE      2      ;; CONTAINS # OF FILLER CHARACTERS REQUIRED
944      001156      012      %FILLC: .BYTE      12      ;; INSERT FILL CHARS. AFTER A "LINE FEED"
945      001157      000      %TPFLG: .BYTE      0      ;; "TERMINAL AVAILABLE" FLAG (BIT<07>=0=YES)
946      001160      000000      %TIMES: 0      ;; MAX. NUMBER OF ITERATIONS
947      001162      000000      %ESCAPE: 0      ;; ESCAPE ON ERROR ADDRESS
948      001164      177607      000377 %BELL:  .ASCIZ <207><377><377> ;; CODE FOR BELL
949      001170      077      %QUES:  .ASCII  '?'      ;; QUESTION MARK
950      001171      015      %CRLF:  .ASCII <15>      ;; CARRIAGE RETURN
951      001172      000012      %LF:   .ASCIZ <12>      ;; LINE FEED
952      ;;*****
953      .SBTTL APT MAILBOX-ETABLE
954
955      ;;*****
956      .EVEN
957      001174      %MAIL:      ;; APT MAILBOX
958      001174      000C00      %MSGTY: .WORD      MSGTY      ;; MESSAGE TYPE CODE
959      001176      000000      %FATAL: .WORD      AFATAL      ;; FATAL ERROR NUMBER
960      001200      000000      %TESTN: .WORD      ATESTN      ;; TEST NUMBER
961      001202      000000      %PASS:  .WORD      APASS      ;; PASS COUNT
962      001204      000000      %DEVCT: .WORD      ADEVCT      ;; DEVICE COUNT
963      001206      000000      %UNIT:  .WORD      AUNIT      ;; I/O UNIT NUMBER
964      001210      000000      %MSGAD: .WORD      AMSGAD      ;; MESSAGE ADDRESS

```

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 CVDVCC.P11 12-SEP-84 08:55 APT MAILBOX-ETABLE

965	001212	000000	MSGLG: .WORD	AMSGLG	MESSAGE LENGTH
966	001214		ETABLE:		APT ENVIRONMENT TABLE
967	001214	000	ENV: .BYTE	AENV	ENVIRONMENT BYTE
968	001215	000	ENVH: .BYTE	AENVH	ENVIRONMENT MODE BITS
969	001216	000000	SMREG: .WORD	ASWREG	APT SWITCH REGISTER
970	001220	011110	USMR: .WORD	AUSMR	USER SWITCHES
971	001222	000000	CPUOP: .WORD	ACPUOP	CPU TYPE, OPTIONS
972			;		BITS 15-11-CPU TYPE
973			;		11/04=01,11/05=02,11/20=03,11/40=04,11/45=05
974			;		11/70=06,PDQ=07,Q=10
975			;		BIT 10-REAL TIME CLOCK
976			;		BIT 9-FLOATING POINT PROCESSOR
977			;		BIT 8-MEMORY MANAGEMENT
978	001224	000	MAMS1: .BYTE	AMAMS1	HIGH ADDRESS, M.S. BYTE
979	001225	000	MTYP1: .BYTE	AMTYP1	MEM. TYPE, BLK#1
980			;		MEM. TYPE BYTE -- (HIGH BYTE)
981			;		900 NSEC CORE=001
982			;		300 NSEC BIPOLAR=002
983			;		500 NSEC MOS=003
984	001226	000000	MADR1: .WORD	AMADR1	HIGH ADDRESS, BLK#1
985			;		MEM. LAST ADDR. =3 BYTES, THIS WORD AND LOW OF "TYPE" ABOVE
986	001230	000	MAMS2: .BYTE	AMAMS2	HIGH ADDRESS, M.S. BYTE
987	001231	000	MTYP2: .BYTE	AMTYP2	MEM. TYPE, BLK#2
988	001232	000000	MADR2: .WORD	AMADR2	MEM. LAST ADDRESS, BLK#2
989	001234	000	MAMS3: .BYTE	AMAMS3	HIGH ADDRESS, M.S. BYTE
990	001235	000	MTYP3: .BYTE	AMTYP3	MEM. TYPE, BLK#3
991	001236	000000	MADR3: .WORD	AMADR3	MEM. LAST ADDRESS, BLK#3
992	001240	000	MAMS4: .BYTE	AMAMS4	HIGH ADDRESS, M.S. BYTE
993	001241	000	MTYP4: .BYTE	AMTYP4	MEM. TYPE, BLK#4
994	001242	000000	MADR4: .WORD	AMADR4	MEM. LAST ADDRESS, BLK#4
995	001244	000300	VECT1: .WORD	AVECT1	INTERRUPT VECTOR#1, BUS PRIORITY#1
996	001246	000000	VECT2: .WORD	AVECT2	INTERRUPT VECTOR#2, BUS PRIORITY#2
997	001250	175610	BASE: .WORD	ABASE	BASE ADDRESS OF EQUIPMENT UNDER TEST
998	001252	100000	DEVH: .WORD	ADEVH	DEVICE MAP
999	001254		ETEND:		
1000			.MEXIT		

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.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
 ;* DH ;;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
; TCSRHI: DLADDR * 5
; TBUF: DLADDR * 6
; I: 0
; .BLKW 20 ;FOR R5 STACK
; RSSTACK: .WORD 0
    
```

1001
 1002
 1003
 1004
 1005
 1006
 1007
 1008
 1009
 1010
 1011
 1012
 1013
 1014
 1015 001254
 1016
 1017 001254 175610
 1018 001256 000300
 1019 001260 175610
 1020 001262 175612
 1021 001264 175614
 1022 001266 175615
 1023 001270 175616
 1024 001272 000000
 1025 001274 000020
 1026 001334 000000

```

1027 001336 START:
1028 .SBTTL INITIALIZE THE COMMON TAGS
1029 ;;CLEAR THE COMMON TAGS (ICHTAG) AREA
1030 001336 012706 001100 MOV #ICHTAG,R6 ;;FIRST LOCATION TO BE CLEARED
1031 001342 005026 CLR (R6)+ ;;CLEAR MEMORY LOCATION
1032 001344 022706 001140 CMP #SMR,R6 ;;DONE?
1033 001350 001374 BNE .-6 ;;LOOP BACK IF NO
1034 001352 012706 001100 MOV #STACK,SP ;;SETUP THE STACK POINTER
1035 ;;INITIALIZE A FEW VECTORS
1036 001356 012737 013404 000020 MOV #SCOPE,#IOTVEC ;;IOT VECTOR FOR SCOPE ROUTINE
1037 001364 012737 000340 000022 MOV #340,#IOTVEC+2 ;;LEVEL 7
1038 001372 012737 013204 000030 MOV #ERROR,#EINTVEC ;;EINT VECTOR FOR ERROR ROUTINE
1039 001400 012737 000340 000032 MOV #340,#EINTVEC+2 ;;LEVEL 7
1040 001406 012737 014336 000034 MOV #TRAP,#TRAPVEC ;;TRAP VECTOR FOR TRAP CALLS
1041 001414 012737 000340 000036 MOV #340,#TRAPVEC+2,LEVEL 7
1042 001422 012737 011444 000024 MOV #PWRDN,#PWRVEC ;;POWER FAILURE VECTOR
1043 001430 012737 000340 000026 MOV #340,#PWRVEC+2 ;;LEVEL 7
1044 001436 016767 007714 007704 MOV #ENDCT,#EOPCT ;;SETUP END-OF-PROGRAM COUNTER
1045 001444 005067 177510 CLR #TIMES ;;INITIALIZE NUMBER OF ITERATIONS
1046 001450 005067 177506 CLR #ESCAPE ;;CLEAR THE ESCAPE ON ERROR ADDRESS
1047 001454 112767 000001 177433 MOVB #1,#ERMAX ;;ALLOW ONE ERROR PER TEST
1048 001462 012767 001462 177416 MOV #.,#LPADR ;;INITIALIZE THE LOOP ADDRESS FOR SCOPE
1049 001470 012767 001470 177412 MOV #.,#LPERR ;;SETUP THE ERROR LOOP ADDRESS
1050 ;;SIZE FOR A HARDWARE SWITCH REGISTER. IF NOT FOUND OR IT IS
1051 ;;EQUAL TO A "-1", SETUP FOR A SOFTWARE SWITCH REGISTER.
1052 001476 013746 000004 MOV #ERRVEC,-(SP) ;;SAVE ERROR VECTOR
1053 001502 012737 001536 000004 MOV #64,#ERRVEC ;;SET UP ERROR VECTOR
1054 001510 012767 177570 177422 MOV #SMR,SMR ;;SETUP FOR A HARDWARE SWICH REGISTER
1055 001516 012767 177570 177416 MCV #DISP,DISPLAY ;;AND A HARDWARE DISPLAY REGISTER
1056 001524 022777 177777 177406 CMP #-1,SMR ;;TRY TO REFERENCE HARDWARE SMR
1057 001532 001012 BNE 66# ;;BRANCH IF NO TIMEOUT TRAP OCCURRED
1058 ;;AND THE HARDWARE SMR IS NOT -1
1059 001534 000403 BR 65# ;;BRANCH IF NO TIMEOUT
1060 001536 012716 001544 64# MOV #65#,(SP) ;;SET UP FOR TRAP RETURN
1061 001542 000002 RTI
1062 001544 012767 000176 177366 65# MOV #SMREG,SMR ;;POINT TO SOFTWARE SMR
1063 001552 012767 000174 177362 MOV #DISPREG,DISPLAY
1064 001560 012637 000004 66# MOV (SP)+,#ERRVEC ;;RESTORE ERROR VECTOR
1065
1066 001564 005067 177412 CLR #PASS ;;CLEAR PASS COUNT
1067 001570 132767 000200 177417 BITB #APTSIZE,#ENVH ;;TEST USER SIZE UNDER APT
1068 001576 001403 BEQ 67# ;;YES,USE NON-APT SWITCH
1069 001600 012767 001216 177332 MOV #SMREG,SMR ;;NO,USE APT SWITCH REGISTER
1070
1071 .SBTTL TYPE PROGRAM NAME
1072 ;;TYPE THE NAME OF THE PROGRAM IF FIRST PASS
1073 001606 005227 177777 INC #-1 ;;FIRST TIME?
1074 001612 001037 BNE 68# ;;BRANCH IF NO
1075 001614 022737 011410 000042 CMP #ENDAD,#M42 ;;ACT-11?
1076 001622 001433 BEQ 68# ;;BRANCH IF YES
1077 001624 104401 001672 TYPE ,69# ;;TYPE ASCIZ STRING
1078 .SBTTL GET VALUE FOR SOFTWARE SWITCH REGISTER
1079 001630 005737 000042 TST #M42 ;;ARE WE RUNNING UNDER XXDP/ACT?
1080 001634 001012 BNE 70# ;;BRANCH IF YES
1081 001636 126727 177352 000001 CMPB #ENV,#1 ;;ARE WE RUNNING UNDER APT?
1082 001644 001406 BEQ 70# ;;BRANCH IF YES

```

MAINDEC-11-DVUVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 25
 CVDVCC.P11 12-SEP-84 08:55 GET VALUE FOR SOFTWARE SWITCH REGISTER

1083	001646	026727	177266	000176		CMP	SWR,#SWREG	::SOFTWARE SWITCH REG SELECTED?
1084	001654	001005				BNE	71:	::BRANCH IF NO
1085	001656	104406				GTSWR		::GET SOFT-SWR SETTINGS
1086	001660	000403				BR	71:	
1087	001662	112767	000001	177244	70:	MOVB	#1,#AUTOB	::SET AUTO-MODE INDICATOR
1088	001670				71:			
1089	001670	000410				BR	68:	::GET OVER THE ASCIZ
1090					::69:	.ASCIZ	<CRLF>*MD-11-DVDVC-C*<CRLF>	
1091	001712				68:			

MAINDEC-11-DVDC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 26
 CVDVCC.P11 12-SEP-84 08:55 GET VALUE FOR SOFTWARE SWITCH REGISTER

```

1092 001712                               WHILE #DEVH EQ #0 DO
1093 001712                               50000$:
1094 001712 005767 177334                   TST   #DEVH
1095 001716 001101                       BNE   50001$
1096 001720                               TYPTXT <<CRLF>!I HAVE NO DEVICE TO TEST.!>
1097 001762                               TYPTXT <<CRLF>!SET UP #DEVH TO INDICATE ACTUAL CONFIGURATION.!>
1098 002050                               TYPTXT <<CRLF>!TYPE PROCEED (P) TO CONTINUE.!>
1099 002116 000000                       HALT
1100 002120                               ENDDO
1101 002120 000674                       BR    50000$
1102 002122                               50001$:
1103 002122                               LET  INITFLAG := #1
1104 002122 012767 000001 006760         MOV   #1,INITFLAG
1105 002130                               LET  BITMASK := #BIT15 ; START AT CONSOLE
1106 002130 012767 100000 006750         MOV   #BIT15,BITMASK
1107 002136                               LOOP:
1108 002136                               CALL  CYCLE ; NO ARGUMENTS--ADRS -> NEXT ADDRESS
1109 002136 004767 006524                 JSR   PC,CYCLE
1110 002136                               ;
1111 002142                               ;ADRS+2 -> NEXT VECTOR
1112 002142                               ;GET UNIT ADDRESS
1113 002142 012167 177106                 MOV   (ADRS)+,DLADD
1114 002146                               ;GET UNIT VECTOR
1115 002146                               LET   DLVEC := (ADRS)
1116 002146 011167 177104                 MOV   (ADRS),DLVEC
1117 002152                               LET   ADRS := DLADD
1118 002152 016701 177076                 MOV   DLADD,ADRS
1119 002156                               ;RCSR = DLADD * 0
1120 002156 016767 177072 177074         LET   RCSR := DLADD
1121 002164                               LET   RBUF := DLADD * #2
1122 002164 016767 177064 177070         LET   TCSR := DLADD * #4
1123 002172 062767 000002 177062         LET   TCSRHI := DLADD * #5
1124 002200                               LET   TBUF := DLADD * #6
1125 002200 016767 177050 177056         LET   R5 := #R5STACK
1126 002206 062767 000004 177050         ;;BRESET
1127 002214                               RESET
1128 002214 016767 177034 177044         ;
1129 002222 062767 000005 177036         ;
1130 002230                               ;
1131 002230 016767 177020 177032         ;
1132 002236 062767 000006 177024         ;
1133 002244                               ;
1134 002244 012705 001334                 ;
1135 002250 000005                       ;
1136
1137

```

MAINDEC-11-DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 27
 CVDVCC.P11 12-SEP-84 08:55 T1 ADDRESSABILITY

```

1138 ;*****
1139 ;*TEST 1 ADDRESSABILITY
1140 ;* THIS TEST VERIFIES THAT THE ADDRESS AS PLACED IN
1141 ;* THE HARDWARE P-TABLE TO BE CORRECT AND THE DLV11-F RESPONDS
1142 ;* TO THAT ADDRESS SPACE
1143 ;*****
1144 002252 000004 TST1: SCOPE
1145 002254 012767 000002 176676 MOV #2,#TIMES ;DO 2 ITERATIONS
1146 002262 012767 000001 176710 MOV #1,#TESTN ;SET TEST NUMBER IN APT MAIL BOX
1147 002270 LET ADRS := DLADD
1148 002270 016701 176760 MOV DLADD,ADRS
1149 ; SET UP INTERRUPT
1150 002274 SETVEC #ILLMEM,#INTSRV,#PR7
1151 002274 010146 MOV R1,-(SP)
1152 002276 012701 000004 MOV #ILLMEM,R1
1153 002302 012721 010656 MOV #INTSRV,(R1)+
1154 002306 012711 000340 MOV #PR7,(R1)+
1155 002312 012601 MOV (SP)+,R1
1156 002314 LET I := #0
1157 002314 005067 176752 CLR I
1158 002320 REPEAT
1159 002320 50002#:
1160 002320 BGNSUB
1161 002320 012767 002326 176562 MOV #64,#LPERR
1162 ;CLEAR FLAG
1163 002326 LET INTFLAG := #0
1164 002326 005067 006332 CLR INTF %G
1165 ;READ FLAG
1166 002332 005711 TST #ADRS
1167 002334 IF INTFLAG NE #0 THEN
1168 002334 TST INTFLAG
1169 002334 005767 006324 BEQ 50003#
1170 002340 001401 ; FATAL ERROR
1171 ; ERROF 1,,NOOL
1172 002342 ERROR 1
1173 002342 104001 ENDF
1174 002344 50003#:
1175 002344 ENDSUB
1176 002344 LET I := I + #2
1177 002344 LET ADRS := DLADD + I
1178 002344 062767 000002 176720 ADD #2,I
1179 002352 MOV DLADD,ADRS
1180 002352 016701 176676 ADD I,ADRS
1181 002356 066701 176710 UNTIL I EQ #6.
1182 002362
1183 002362 026727 176704 000010 CMP I,#6.
1184 002370 001353 BNE 50002#
1185 002372 CLRVEC ILLMEM
1186 002372 010146 MOV R1,-(SP) ;PUSH R1 ON STACK
    
```

MAINDEC 11 DVDVC C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 28
CVDVCC.P11 12 SEP-84 08:55 T1 ADDRESSABILITY

```
1187 002374 010246      MOV      R2, -(SP)      ;; PUSH R2 ON STACK
1188 002376 012701 000004  MOV      @ILLMEM, R1
1189 002402 010102      MOV      R1, R2
1190 002404 062702 000002  ADD      @2, R2
1191 002410 010221      MOV      R2, (R1)+
1192 002412 005011      CLR      (R1)
1193 002414 012602      MOV      (SP)+, R2      ;; POP STACK INTO R2
1194 002416 012601      MOV      (SP)+, R1      ;; POP STACK INTO R1
1195
1196 002420                                ,END OF TEST
                                ENDTST
```

MAINDEC-11-DVDC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 29
 CVDVCC.P11 12-SEP-84 08:55 T1 ADDRESSABILITY

```

1197
1198
1199
1200
1201
1202
1203
1204
1205
1206
1207
1208
1209
1210 002420 000004
1211 002422 012767 000010 176530
1212 002430 012767 000002 176542
1213
1214 002436
1215 002436 032767 010000 176554
1216 002444 001404
1217 002446 032767 000001 176540
1218 002454 001404
1219 002456
1220 002456
1221 002456 012767 000001 176474
1222 002464 000452
1223 002466
1224 002466
1225
1226
1227 002466
1228 002466 012767 002474 176414
1229
1230 002474
1231 002474 032777 000001 176562
1232 002502 001401
1233
1234 002504
1235 002504 104002
1236 002506
1237 002506
1238 002506
1239
1240
1241 002506
1242 002506 012767 002514 176374
1243 002514
1244 002514 052777 000001 176542
1245
1246 002522
1247 002522 032777 000001 176534
1248 002530 001001
1249
1250 002532
1251 002532 104003
1252 002534
    
```

```

||.....
|| THE FOLLOWING 8 TESTS TEST ALL 'READ WRITE' BITS
||.....

||.....
||TEST 2          BREAK - TCSR0 SET, CLEAR, RESET
||              THE BREAK BIT IS USUALLY USED ON THE CONSOLE
||              DEVICE. IF ADDITIONAL DLV OPTIONS ARE USED
||              IT IS RECOMMENDED TO REMOVE THE 'BG' JUMPER AND
||              CLEAR BIT 12 IN #USMR WHICH WILL CAUSE THIS
||              TEST TO BE SKIPPED.
||.....
TST2:  SCOPE
      MOV    #10,#TIMES      ;DO 10 ITERATIONS
      MOV    #2,#TESTN      ;SET TEST NUMBER IN APT MAIL BOX
                                IF #BRK NOTSETIN #USMR OR #APTENV SETIN #ENV THE
      BIT    #BRK,#USMR
      BEQ    50004#
      BIT    #APTENV,#ENV
      BEQ    50005#
50004#:
                                EXIT TEST ; BREAK NOT INSTALLED
      MOV    #1,#TIMES
      BR     TST3            ;EXIT THIS TES.
                                ENDF
50005#:
                                ; SEE IF IT IS CLEAR
                                BGNSUB
      MOV    #64#,#LPERR
                                IF #BREAK SETIN #TCSR THEN
      BIT    #BREAK,#TCSR
      BEQ    50006#
                                ; BREAK DID NOT RESET IN TCSR
                                ERRHRD 2.,DIDNOT
                                ENDF
50006#:
                                ENDSUB
                                ; TRY TO SET BREAK BIT
                                BGNSUB
      MOV    #65#,#LPERR
      LET    #TCSR := #TCSR SET.BY #BREAK
      BIS    #BREAK,#TCSR
                                ; STUCK TO 0
                                IF #BREAK NOTSETIN #TCSR THEN
                                ; BREAK DID NOT SET IN TCSR
                                ERRHRD 3.,DIDNOT
                                ENDF
    
```

MAINDEC-11-DVDC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 30
 CVDVCC.P11 12-SEP-84 08:55 T2 BREAK - TCSRO SET, CLEAR, RESET

```

1253 002534          500074:
1254 002534
1255
1256
1257 002534          ; TRY TO CLEAR A SET BIT
1258 002534 012767 002542 176346      MOV    #661, #LPERR          BGN SUB
1259
1260 002542          LET    @TCSR := @TCSR CLR.BY @BREAK
1261 002542 042777 000001 176514      BIC    @BREAK, @TCSR
1262
1263 002550          ; SHOULD HAVE CLEARED
1264 002550 032777 000001 176506      BIT    @BREAK, @TCSR
1265 002556 001401
1266
1267 002560          ; BREAK DID NOT CLEAR IN TCSR
1268 002560 104004          ERROR 4          ERRHRD 4, .DIDNOT
1269 002562
1270 002562          500104:
1271 002562          ENDSUB
1272
1273          ; NOW SEE IF RESET CLEARS IT
1274 002562          BGN SUB
1275 002562 012767 002570 176320      MOV    #671, #LPERR
1276
1277 002570          LET    @TCSR := @TCSR SET.BY @BREAK
1278 002570 052777 000001 176466      BIS    @BREAK, @TCSR
1279
1280 002576          ; ISSUE BUS RESET
1281 002576 000005          RESET          BRESET
1282 002600          IF    @BREAK SET IN @TCSR THEN
1283 002600 032777 000001 176456      BIT    @BREAK, @TCSR
1284 002606 001401
1285
1286 002610          ; BREAK DID NOT RESET IN TCSR
1287 002610 104005          ERROR 5          ERRHRD 5, .DIDNOT
1288 002612
1289 002612          500114:
1290 002612          ENDSUB
1291 002612          ENDTST
1292
1293

```

MAINDEC-11-DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 31
 CVDVCC.P11 12-SEP-84 08:55 12 BREAK - TCSR0 SET, CLEAR, RESET

```

1294
1295
1296
1297
1298 002612 000004
1299 002614 012767 000010 176336
1300 002622 012767 000003 176350
1301
1302 002630
1303 002630 032767 040000 176362
1304 002636 001404
1305 002640 126727 006261 000001
1306 002646 001004
1307 002650
1308 002650
1309 002650 012767 000001 176302
1310 002656 000452
1311 002660
1312 002660
1313
1314
1315 002660
1316 002660 012767 002666 176222
1317
1318 002666
1319 002666 032777 000004 176370
1320 002674 001401
1321
1322 002676
1323 002676 104006
1324 002700
1325 002700
1326 002700
1327
1328
1329 002700
1330 002700 012767 002706 176202
1331 002706
1332 002706 052777 000004 176350
1333
1334 002714
1335 002714 032777 000004 176342
1336 002722 001001
1337
1338 002724
1339 002724 104007
1340 002726
1341 002726
1342 002726
1343
1344
1345 002726
1346 002726 012767 002734 176154
1347
1348 002734
1349 002734 042777 000004 176322

```

```

;*****
;*****
;TEST 3      MAINT - TCSR2 SET, CLEAR, RESET
;*****
TST3:  SCOPE
      MOV    #10,#TIMES      ;DO 10 ITERATIONS
      MOV    #3,#TESTN      ;SET TEST NUMBER IN APT MAIL BOX
                                IF #MAINTJUMP NOTSETIN #USMR ORB CONSOLE EQ #TRU
      BIT    #MAINTJUMP,#USMR
      BEQ    50012#
      CMPB   CONSOLE,#TRUE
      BNE    50013#
50012#:
                                EXIT TEST
      MOV    #1,#TIMES
      BR     TST4              ;EXIT THIS TEST
                                ENDIF
50013#:
                                ; SEE IF IT IS CLEAR
                                BGNSUB
      MOV    #64,#LPERR
                                IF #MAINT SETIN #TCSR THEN
      BIT    #MAINT,#TCSR
      BEQ    50014#
                                ; MAINT DID NOT RESET IN TCSR
                                ERRHRD 6,,DIDNOT
      ERROR  6
                                ENDIF
50014#:
                                ENDSUB
                                ; TRY TO SET MAINT BIT
                                BGNSUB
      MOV    #65,#LPERR
      LET    #TCSR := #TCSR SET.BY #MAINT
      BIS    #MAINT,#TCSR
                                ; STUCK TO 0
                                IF #MAINT NOTSETIN #TCSR THEN
      BIT    #MAINT,#TCSR
      BNE    50015#
                                ; MAINT DID NOT SET IN TCSR
                                ERRHRD 7,,DIDNOT
      ERROR  7
                                ENDIF
50015#:
                                ENDSUB
                                ; TRY TO CLEAR A SET BIT
                                BGNSUB
      MOV    #66,#LPERR
      LET    #TCSR .. #TCSR CLR.BY #MAINT
      BIC    #MAINT,#TCSR

```

MAINDEC-11-DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 32
 CVDVCC.P11 12-SEP-84 08:55 T3 MAIN7 - TCSR2 SET, CLEAR, RESET

```

1350
1351 002742
1352 002742 032777 000004 176314 BIT @MAINT,@TCSR
1353 002750 001401 BEQ 500164
1354
1355 002752
1356 002752 104010 ERROR 10
1357 002754
1358 002754 500164:
1359 002754 ENDSUB
1360
1361 ; NOW SEE IF RESET CLEARS IT
1362 002754 BGNSUB
1363 002754 012767 002762 176126 MOV @67@,@LPERR
1364
1365 002762 LET @TCSR := @TCSR SET.BY @MAINT
1366 002762 052777 000004 176274 BIS @MAINT,@TCSR
1367
1368 002770 ; ISSUE BUS RESET
1369 002770 000005 RESET BRESET
1370 002772 IF @MAINT SETIN @TCSR THEN
1371 002772 032777 000004 176264 BIT @MAINT,@TCSR
1372 003000 001401 BEQ 500174
1373
1374 003002 ; MAINT DID NOT RESET IN TCSR
1375 003002 104011 ERROR 11 ERRHRD 11..DIDNOT
1376 003004
1377 003004 500174:
1378 003004 ENDSUB
1379 003004 ENDTST
1380
1381
1382

```

MAINDEC-11-DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 33
 CVDVCC.P11 12-SEP-84 08:55 T3 MAINT - TCSR2 SET, CLEAR, RESET

```

1383
1384
1385
1386
1387 003004 000004
1388 003006 012767 000010 176144
1389 003014 012767 000004 176156
1390
1391 003022 012746 000340
1392 003026 012746 003034
1393 003032 000002
1394 003034
1395
1396
1397 003034
1398 003034 012767 003042 176046
1399
1400 003042
1401 003042 032777 000100 176214
1402 003050 001401
1403
1404 003052
1405 003052 104012
1406 003054
1407 003054
1408 003054
1409
1410
1411 003054
1412 003054 012767 003062 176026
1413 003062
1414 003062 052777 000100 176174
1415
1416 003070
1417 003070 032777 000100 176166
1418 003076 001001
1419
1420 003100
1421 003100 104013
1422 003102
1423 003102
1424 003102
1425
1426
1427 003102
1428 003102 012767 003110 176000
1429
1430 003110
1431 003110 042777 000100 176146
1432
1433 003116
1434 003116 032777 000100 176140
1435 003124 001401
1436
1437 003126
1438 003126 104014

```

```

;*****
;*****
;TEST 4 XMITIE - TCSR6 SET, CLEAR, RESET
;*****
TST4: SCOPE
MOV @10,@TIMES ;DO 10 ITERATIONS
MOV @4,@TESTN ;SET TEST NUMBER IN APT MAIL BOX
; USE PRIORITY OF 7
MOV @PR7,-(SP) ;PUT NEW PS ON STACK
MOV @64,-(SP) ;PUT NEW PC ON STACK
RTI ;POP NEW PC AND PS

64:
; SEE IF IT IS CLEAR
BGNSUB
MOV @65,@LPERR
IF @XMITIE SETIN @TCSR THEN
BIT @XMITIE,@TCSR
BEQ 50020;
; XMITIE DID NOT RESET IN TCSR
ERRHRD 12,,DIDNOT
ENDIF
50020:
ENDSUB
; TRY TO SET XMITIE BIT
BGNSUB
MOV @66,@LPERR
LET @TCSR := @TCSR SET.BY @XMITIE
BIS @XMITIE,@TCSR
IF ; STUCK TO 0
@XMITIE NOTSETIN @TCSR THEN
BIT @XMITIE,@TCSR
BNE 50021;
; XMIT DID NOT RESET IN TCSR
ERRHRD 13,,DIDNOT
ENDIF
50021:
ENDSUB
; TRY TO CLEAR A SET BIT
BGNSUB
MOV @67,@LPERR
LET @TCSR := @TCSR CLR.BY @XMITIE
BIC @XMITIE,@TCSR
IF ; SHOULD HAVE CLEARED
@XMITIE SETIN @TCSR THEN
BIT @XMITIE,@TCSR
BEQ 50022;
; XMIT DID NOT CLEAR IN TCSR
ERRHRD 14,,DIDNOT
ERROR 14

```


MAINDEC-11-DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 35
 CVDVCC.P11 12-SEP-84 08:35 T4 XMITIE - TCSR6 SET, CLEAR, RESET

```

1465
1466
1467
1468
1469 003160 000004
1470 003162 012767 000010 175770
1471 003170 012767 000005 176002
1472
1473 003176
1474 003176 012767 003204 175704
1475
1476 003204
1477 003204 032777 000100 176046
1478 003212 001401
1479
1480 003214
1481 003214 104035
1482 003216
1483 003216
1484 003216
1485
1486
1487 003216
1488 003216 012767 003224 175664
1489 003224
1490 003224 052777 000100 176026
1491
1492 003232
1493 003232 032777 000100 176020
1494 003240 001001
1495
1496 003242
1497 003242 104036
1498 003244
1499 003244
1500 003244
1501
1502
1503 003244
1504 003244 012767 003252 175636
1505
1506 003252
1507 003252 042777 000100 176000
1508
1509 003260
1510 003260 032777 000100 175772
1511 003266 001401
1512
1513 003270
1514 003270 104037
1515 003272
1516 003272
1517 003272
1518
1519
1520 003272

```

```

*****
*****
*TEST 5 RCVRIE - RCSR6 SET, CLEAR, RESET
*****
TST5: SCOPE
      MOV #10,#TIMES ;DO 10 ITERATIONS
      MOV #5,#TESTN ;SET TEST NUMBER IN APT MAIL BOX
                        ; SEE IF IT IS CLEAR
                        BGNSUB
      MOV #64,#LPERR
                        IF #RCVRIE SETIN #RCSR THEN
      BIT #RCVRIE,#RCSR
      BEQ 500241
                        ; RCVRIE DID NOT RESET IN RCSR
                        ERRHRD 35,,DIDNOT
                        ENDIF
500241:
                        ENDSUB
                        ; TRY TO SET RCVRIE BIT
                        BGNSUB
      MOV #65,#LPERR
                        LET #RCSR := #RCSR SET.BY #RCVRIE
      BIS #RCVRIE,#RCSR
                        ; STUCK TO 0
                        IF #RCVRIE NOTSETIN #RCSR THEN
                        ; RCVRIE DID NOT SET IN RCSR
                        ERRHRD 36,,DIDNOT
                        ENDIF
500251:
                        ENDSUB
                        ; TRY TO CLEAR A SET BIT
                        BGNSUB
      MOV #66,#LPERR
                        LET #RCSR := #RCSR CLR.BY #RCVRIE
      BIC #RCVRIE,#RCSR
                        ; SHOULD HAVE CLEARED
                        IF #RCVRIE SETIN #RCSR THEN
                        ; RCVRIE DID NOT CLEAR IN RCSR
                        ERRHRD 37,,DIDNOT
                        ENDIF
500261:
                        ENDSUB
                        ; NOW SEE IF RESET CLEARS IT
                        BGNSUB

```

MAINDEC-11-DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 36
CVDVCC P:1 12-SEP-84 08:55 75 RCVRIE - RCSR6 SET, CLEAR, RESET

1521 003272 012767 003300 175610
1522
1523 003300
1524 003300 052777 000100 175752
1525
1526 003306
1527 003306 000005
1528 003310
1529 003310 032777 000100 175742
1530 003316 001401
1531
1532 003320
1533 003320 104040
1534 003322
1535 003322
1536 003322
1537 003322
1538 003322
1539
1540
1541
1542

500274:

MOV #674, #LPERR
BIS #RCVRIE, @RCSR
RESET
BIT #RCVRIE, @RCSR
BEQ 500274

ERROR 40

LET @RCSR := @RCSR SET.BY #RCVRIE
; ISSUE BUS RESET
BRESET
IF #RCVRIE SET IN @RCSR THEN
; RCVRIE DID NOT RESET IN RCSR
ERRHRD 40., DIDNOT

ENDIF

CKLOOP

ENDSUB

ENDTST

MAINDEC-11-DVDC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 37
CVDVCC.P11 12-SEP-84 08:55 TS RCVRIE - RCSR6 SET, CLEAR, RESET

```

1543 ;*****
1544 ;* THE FOLLOWING 4 TESTS VERIFY
1545 ;* THAT RESET (INIT) INITIALIZES READ ONLY BITS.
1546 ;*****
1547 ;*****
1548 ;*TEST 6 TEST THAT RCVRDONE - RCSR 7 - IS CLEARED BY INIT
1549 ;*****
1550 003322 000004 TST6: SCOPE
1551 003324 012767 000010 175626 MOV #10,#TIMES ;DO 10 ITERATIONS
1552 003332 012767 000006 175640 MOV #6,#TESTN ;SET TEST NUMBER IN APT MAIL BOX
1553
1554
1555
1556
1557 003340 BGNSUB
1558 003340 012767 003346 175542 MOV #64#,#LPERR
1559 003346 IF #RCVRDONE SETIN #RCSR THEN
1560 003346 032777 000200 175704 BIT #RCVRDONE,#RCSR
1561 003354 001402 BEQ 50030#
1562
1563 ;RCVRDONE SHOULD HAVE CLEARED BY INIT
1564 ; RCVRDONE DID NOT CLEAR IN RCSR
1565 003356 ERROR 41 ERRHRD 41,#RESET, DIDNOT
1566 003356 104041 ;REISSUE RESET
1567 BRESET
1568 003360 RESET
1569 003360 000005
1570 003362 ENDIF
1571 003362 50030# ;ALLOW LOOPING AFTER ERROR
1572 CKLOOP
1573 003362 ENDSUB
1574 003362 ENDST
1575 003362
1576
1577
1578

```

MAINDEC-11-DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 38
CVDVCC.P11 12-SEP-84 08:55 T6 TEST THAT RCVRDONE - RCSR 7 - IS CLEARED BY INIT

```

1579 ; ;*****
1580 ; ;*****
1581 ; ;*****
1582 ; ;*****
1583 003362 000004 TST7: SCOPE ; ;*****
1584 003364 012767 000010 175566 MOV #10,#TIMES ; ;*****
1585 003372 012767 000007 175600 MOV #7,#T%STN ; ;*****
1586 ; ;*****
1587 ; ;*****
1588 ; ;*****
1589 ; ;*****
1590 003400 ; ;***** IFB CONSOLE EQ #TRUE THEN
1591 003400 126727 005521 000001 CMPB CONSOLE,#TRUE
1592 003406 001001 BNE 50031#
1593 ; ;*****
1594 003410 ; ;*****
1595 003410 000416 BR 50032# ; ;*****
1596 003412 50031# ; ;*****
1597 003412 ; ;***** IF #WRAP SETIN #USMR THEN
1598 003412 032767 020000 175600 BIT #WRAP,#USMR
1599 003420 001401 BEQ 50033#
1600 ; ;*****
1601 003422 ; ;*****
1602 003422 000411 BR 50034# ; ;*****
1603 003424 50033# ; ;*****
1604 003424 ; ;***** IF #MAINT SETIN #USMR THEN
1605 003424 032767 000004 175566 BIT #MAINT,#USMR
1606 003432 001401 BEQ 50035#
1607 ; ;*****
1608 003434 ; ;*****
1609 003434 000404 BR 50036# ; ;*****
1610 003436 50035# ; ;*****
1611 003436 ; ;***** EXIT TEST ; LINE MUST BE TERMINATED
1612 003436 012767 000001 175514 MOV #1,#TIMES
1613 003444 000414 BR TST10 ; ;*****
1614 003446 ; ;*****
1615 003446 50036# ; ;*****
1616 003446 ; ;*****
1617 003446 50034# ; ;*****
1618 003446 ; ;*****
1619 003446 50032# ; ;*****
1620 ; ;*****
1621 003446 ; ;***** BGNSUB
1622 003446 012767 003454 175434 MOV #64#,#LPERR
1623 ; ;*****
1624 003454 ; ;***** IF #RCVRACT SETIN #RCSR THEN
1625 003454 032777 004000 175576 BIT #RCVRACT,#RCSR
1626 003462 001405 BEQ 50037#
1627 ; ;*****
1628 ; ;***** ;RESET SHOULD HAVE CLEARED RCVRACT
1629 003464 ; ;***** LET #TCSR := #TCSR CLR.BY #MAIN#
1630 003464 042777 000004 175572 BIC #MAINT,#TCSR
1631 003472 ; ;***** ERRMRD 44, #RESET, DIDNOT
1632 003472 104044 ERROR 44
1633 ; ;*****
1634 ; ;***** ;TESTING EFFECT OF RESET ON BIT

```

MAINDEC-11-DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 39
CVDVCC.P11 12-SEP-84 08:55 T7 TEST THAT RCVRACT - RCSR 11 - IS CLEARED BY INIT

```
1635  
1636  
1637  
1638  
1639 003474  
1640 003474 000005  
1641 003476  
1642 003476  
1643  
1644 003476  
1645 003476  
1646 003476  
1647
```

RESET
500374:

RCVRACT DID NOT CLEAR IN RCSR
ALLOW ANOTHER TRY
BRESET
ENDIF
ALLOW LOOPING ON ERROR
CKLOOP
ENDSUB
ENDTST

MAINDEC-11-DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 40
CVDVCC.P11 12-SEP-84 08:55 T7 TEST THAT RCVRACT - RCSR 11 - IS CLEARED BY INIT

```

1648      ;|*****
1649      ;|*****
1650      ;|*****
1651      ;|*****
1652      003476 000004      TST10: SCOPE
1653      003500 012767 000010 175452      MOV      @10,4TIMES      ;DO 10 ITERATIONS
1654      003506 012767 000010 175464      MOV      @10,4TESTN      ;SET TEST NUMBER IN APT MAIL BOX
1655
1656
1657
1658
1659      003514      BGNSUB
1660      003514 012767 003522 175366      MOV      @64,4LPERR
1661
1662      003522      IF      @XMITRDY NOTSETIN @TCSR THEN
1663      003522 032777 000200 175534      BIT      @XMITRDY,@TCSR
1664      003530 001002      BNE      500404
1665
1666      ;RESET SHOULD HAVE SET BIT.
1667      ;XMITRDY DID NOT SET IN TCSR (AFTER RESE
1668      ;ERR=RD 42,4RESET,DIDNOT
1669      003532 104042      ERROR 42
1670
1671      003534      ;ISSUE ANOTHER RESET
1672      003534 000005      RESET      BRESET
1673      003536      ENDIF
1674      003536      500404:
1675
1676      003536      ;ALLOW LOOPING ON ERROR
1677      003536      CKLOOP
1678      003536      ENDSUB
1679
1680      ENDTST
1681

```


MAINDEC-11 DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 42
 CVDVCC.P11 12-SEP-84 08:55 T11 TEST THAT XMIT RDY TCSR 7 CLEARS

```

1738 003664 104066          ERROR 66
1739 003666
1740 003666          500451:
1741
1742                      ; LOAD TBUF WITH A SECOND CHARACTER
1743                      ; CHECK IMMEDIATELY THAT XMITRDY IS CLEAR
1744                      ; AND THEN WAIT FOR IT TO SET
1745
1746                      ; SEND SECOND CHARACTER
1747 003666          LET @TBUF ,B= #0
1748 003666 105077 175376    CLR @TBUF
1749 003672 000240          NOP
1750
1751                      ; GIVE IT TIME TO CLEAR
1752                      ; XMITRDY SHOULD HAVE CLEARED UPON
1753                      ; RECEIPT OF A CHARACTER
1754 003702 001404          IF @XMITRDY SET IN @TCSR THEN
1755
1756                      ; XMITRDY DID NOT CLEAR IN TCSR
1757 003704 012767 177777 000114  MOV @SET,ERRORFLAG
1758
1759                      ; DEFER ERROR TYPEOUT
1760 003712
1761 003712 000416          BR 500471
1762 003714          500461:
1763
1764                      ; WAIT A MAXIMUM
1765                      ; OF 500 MSEC FOR
1766                      ; XMIT RDY TO SET IN TCSR
1767 003714 010546          MOV R5,-(SP)
1768 003716 012745 177777    MOV @SET,-(R5)
1769 003722 016745 175336    MOV TCSR,-(R5)
1770 003726 012745 000200    MOV @XMITRDY,-(R5)
1771 003732 012745 000500    MOV @500,-(R5)
1772 003736 004767 004356    JSR PC,TIMER
1773 003742 012605          MOV (SP),R5
1774 003744
1775 003744 103001          BCC 500501
1776
1777                      ; XMIT RDY DID NOT SET IN TCSR
1778 003746 104070          ERROR 70
1779 003750
1780 003750          500501:
1781 003750          500471:
1782 003750
1783 003750
1784 003750 026727 000052 177777    CMP ERRORFLAG,@SET
1785 003756 001011          BNE 500511
1786 003760
1787 003760 026727 000040 000001    CMP PASS,@1
1788 003766 003404          BLE 500521
1789
1790                      ; CALL ERROR IF 2ND TRY
1791 003770 104067          ERROR 67
1792 003772
1793 003772 012767 177777 000030    MOV @SET,EXITFLAG
1794
1795                      ; CALL ERROR IF 2ND TRY
1796                      ; EXITFLAG DID NOT SET
1797                      ; IN TCSR
1798                      ; DID NOT
1799                      ; IN TCSR
1800                      ; DID NOT
1801                      ; IN TCSR
1802                      ; DID NOT
1803                      ; IN TCSR
1804                      ; DID NOT
1805                      ; IN TCSR
1806                      ; DID NOT
1807                      ; IN TCSR
1808                      ; DID NOT
1809                      ; IN TCSR
1810                      ; DID NOT
1811                      ; IN TCSR
1812                      ; DID NOT
1813                      ; IN TCSR
1814                      ; DID NOT
1815                      ; IN TCSR
1816                      ; DID NOT
1817                      ; IN TCSR
1818                      ; DID NOT
1819                      ; IN TCSR
1820                      ; DID NOT
1821                      ; IN TCSR
1822                      ; DID NOT
1823                      ; IN TCSR
1824                      ; DID NOT
1825                      ; IN TCSR
1826                      ; DID NOT
1827                      ; IN TCSR
1828                      ; DID NOT
1829                      ; IN TCSR
1830                      ; DID NOT
1831                      ; IN TCSR
1832                      ; DID NOT
1833                      ; IN TCSR
1834                      ; DID NOT
1835                      ; IN TCSR
1836                      ; DID NOT
1837                      ; IN TCSR
1838                      ; DID NOT
1839                      ; IN TCSR
1840                      ; DID NOT
1841                      ; IN TCSR
1842                      ; DID NOT
1843                      ; IN TCSR
1844                      ; DID NOT
1845                      ; IN TCSR
1846                      ; DID NOT
1847                      ; IN TCSR
1848                      ; DID NOT
1849                      ; IN TCSR
1850                      ; DID NOT
1851                      ; IN TCSR
1852                      ; DID NOT
1853                      ; IN TCSR
1854                      ; DID NOT
1855                      ; IN TCSR
1856                      ; DID NOT
1857                      ; IN TCSR
1858                      ; DID NOT
1859                      ; IN TCSR
1860                      ; DID NOT
1861                      ; IN TCSR
1862                      ; DID NOT
1863                      ; IN TCSR
1864                      ; DID NOT
1865                      ; IN TCSR
1866                      ; DID NOT
1867                      ; IN TCSR
1868                      ; DID NOT
1869                      ; IN TCSR
1870                      ; DID NOT
1871                      ; IN TCSR
1872                      ; DID NOT
1873                      ; IN TCSR
1874                      ; DID NOT
1875                      ; IN TCSR
1876                      ; DID NOT
1877                      ; IN TCSR
1878                      ; DID NOT
1879                      ; IN TCSR
1880                      ; DID NOT
1881                      ; IN TCSR
1882                      ; DID NOT
1883                      ; IN TCSR
1884                      ; DID NOT
1885                      ; IN TCSR
1886                      ; DID NOT
1887                      ; IN TCSR
1888                      ; DID NOT
1889                      ; IN TCSR
1890                      ; DID NOT
1891                      ; IN TCSR
1892                      ; DID NOT
1893                      ; IN TCSR
1894                      ; DID NOT
1895                      ; IN TCSR
1896                      ; DID NOT
1897                      ; IN TCSR
1898                      ; DID NOT
1899                      ; IN TCSR
1900                      ; DID NOT
1901                      ; IN TCSR
1902                      ; DID NOT
1903                      ; IN TCSR
1904                      ; DID NOT
1905                      ; IN TCSR
1906                      ; DID NOT
1907                      ; IN TCSR
1908                      ; DID NOT
1909                      ; IN TCSR
1910                      ; DID NOT
1911                      ; IN TCSR
1912                      ; DID NOT
1913                      ; IN TCSR
1914                      ; DID NOT
1915                      ; IN TCSR
1916                      ; DID NOT
1917                      ; IN TCSR
1918                      ; DID NOT
1919                      ; IN TCSR
1920                      ; DID NOT
1921                      ; IN TCSR
1922                      ; DID NOT
1923                      ; IN TCSR
1924                      ; DID NOT
1925                      ; IN TCSR
1926                      ; DID NOT
1927                      ; IN TCSR
1928                      ; DID NOT
1929                      ; IN TCSR
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1931                      ; IN TCSR
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1933                      ; IN TCSR
1934                      ; DID NOT
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1936                      ; DID NOT
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1940                      ; DID NOT
1941                      ; IN TCSR
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1944                      ; DID NOT
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1948                      ; DID NOT
1949                      ; IN TCSR
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1952                      ; DID NOT
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1966                      ; DID NOT
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1970                      ; DID NOT
1971                      ; IN TCSR
1972                      ; DID NOT
1973                      ; IN TCSR
1974                      ; DID NOT
1975                      ; IN TCSR
1976                      ; DID NOT
1977                      ; IN TCSR
1978                      ; DID NOT
1979                      ; IN TCSR
1980                      ; DID NOT
1981                      ; IN TCSR
1982                      ; DID NOT
1983                      ; IN TCSR
1984                      ; DID NOT
1985                      ; IN TCSR
1986                      ; DID NOT
1987                      ; IN TCSR
1988                      ; DID NOT
1989                      ; IN TCSR
1990                      ; DID NOT
1991                      ; IN TCSR
1992                      ; DID NOT
1993                      ; IN TCSR
1994                      ; DID NOT
1995                      ; IN TCSR
1996                      ; DID NOT
1997                      ; IN TCSR
1998                      ; DID NOT
1999                      ; IN TCSR
2000                      ; DID NOT

```

MAINDEC-11-DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 43
 CVDVCC.P11 12-SEP-84 08:55 T11 TEST THAT XMIT RDY - TCSR 7 - CLEARS

```

1794 004000                                ENDIF
1795 004000                                500521:
1796 004000                                ELSE                                ; NO ERROR
1797 004000 000403                          BR                                500531
1798 004002                                500511:
1799 004002                                LET EXITFLAG := #SET
1800 004002 012767 177777 000020          MOV                                #SET,EXITFLAG
1801 004010                                ENDIF
1802 004010                                500531:
1803 004010                                EXIF                                EXITFLAG EQ #SET
1804 004010 026727 000014 177777          CMP                                EXITFLAG,#SET
1805 004016 001401                          BEQ                                500441
1806 004020                                ENDLOOP
1807 004020 000674                          BR                                500431
1808 004022                                500441:
1809 004022                                EXIT ; SKIP AROUND FLAG WORDS
1810 004022 000403                          BR                                TST12
1811 004024 000000                                ;EXIT THIS TEST
1812 004026 000000                                PASS:                                0
1813 004030 000000                                ERRORFLAG:                          0
1814 004032                                EXITFLAG:                            0
                                ENDTST

```

MAINDEC-11 DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 44
 CVDVCC.P11 12-SEP-84 08:55 T11 TEST THAT XMIT RDY - TCSR 7 CLEARS

```

1815 ;*****
1816 ;*****
1817 ;*TEST 12      TEST THAT OUTPUTTING A CHAR FROM TBUF (WITH MAINT SET)
1818 ;*           RESULTS IN RCVRDONE SETTING WITHIN A REASONABLE AMOUNT OF TIME
1819 ;*           AND THAT RESET CLEARS THE BIT.
1820 ;*****
1821 004032 000004 TST12: SCOPE
1822 004034 012767 000001 175116   MOV   #1,ITIMES      ;;DO 1 ITERATION
1823 004042 012767 000012 175130   MOV   #12,ITESTN    ;;SET TEST NUMBER IN APT MAIL BOX
1824
1825 004050                                IF #MAINTJUMP NOTSETIN #USMR ORB CONSOLE EQ #TRU
1826 004050 032767 040000 175142   BIT   #MAINTJUMP,#USMR
1827 004056 001404                                BEQ   50054;
1828 004060 126727 005041 000001   CMPB  CONSOLE,#TRUE
1829 004066 001004                                BNE   50055;
1830 004070                                50054:
1831 004070                                EXIT TEST
1832 004070 012767 000001 175062   MOV   #1,ITIMES
1833 004076 000442                                BR    TST13          ;;EXIT THIS TEST
1834 004100                                ENDF
1835 004100                                50055:
1836
1837 ; SET THE MAINTENANCE BIT
1838 004100                                LET  BTCSR := BTCSR SET.BY #MAINT
1839 004100 052777 000004 175156   BIS   #MAINT,BTCSR
1840
1841                                BGNSUB
1842 004106 012767 004114 174774   MOV   #64,#LPERR
1843                                ; SEND A CHARACTER AND LET IT WRAP AROUND
1844
1845                                LET  BTBUF :B= #0
1846 004114 105077 175150   CLRB  BTBUF
1847
1848                                ; WAIT A MAXIMUM OF 50 MSEC
1849                                ; FOR RCVR DONE TO SET IN
1850                                ; RCSR
1851                                CALL TIMER IN <#500,#RCVRDONE,RCSR,#SET>
1852 004120                                MOV   R5,-(SP)
1853 004122 012745 177777   MOV   #SET,-(R5)
1854 004126 016745 175126   MOV   RCSR,-(R5)
1855 004132 012745 000200   MOV   #RCVRDONE,-(R5)
1856 004136 012745 000500   MOV   #500,-(R5)
1857 004142 004767 004152   JSR   PC,TIMER
1858 004146 012605   MOV   (SP)+,R5
1859
1860                                ;DIDN'T SET IN TIME
1861                                IF.ERROR THEN
1862 004150 103004   BCC   50056;
1863
1864                                ; RCVRDONE DID NOT SET IN RCSR
1865                                ; CAN NOT LEAVE WITH MAINT SET
1866 004152 042777 000004 175104   BIC   #MAINT,BTCSR
1867 004160                                LET  BTCSR := BTCSR CLR.BY #MAINT
1868 004160 1040~1   ERROR 71
1869 004162                                ERRHRD 71,,DIDNOT
1870 004162                                ENDF
1871                                50056:

```

MAINDEC-11 DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 45
 CVDVCC.P11 12-SEP-84 08:55 T12 TEST THAT OUTPUTTING A CHAR FROM TBUF (WITH MAINT SET)

```

1871
1872 004162                                ENDSUB
1873
1874 004162                                BGNSUB
1875 004162 012767 004170 174720          MOV    #65#,#LPERR
1876                                     ; NOW THAT IT IS SET SEE IF IT CAN BE RESET
1877                                     ; THIS ALSO WILL CLEAR THE MAINT. BIT
1878 004170                                BRESET
1879 004170 000005                          RESET
1880
1881 004172                                IF #RCVRDONE SETIN #RCSR THEN
1882 004172 032777 000200 175060          BIT    #RCVRDONE,#RCSR
1883 004200 001401                          BEQ    50057#
1884
1885 004202                                ; RCVRDONE DID NOT RESET IN RCSR.
1886 004202 104072                          ERROR 72
1887 004204                                ENDF
1888 004204                                50057#
1889 004204                                ENDSUB
1890 004204                                ENDTST
  
```

MAINDEC-11-DVOC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 46
 CVDVCC.P11 12-SEP-84 08:55 T12 TEST THAT OUTPUTTING A CHAR FROM TBUF (WITH MAINT SET)

```

1891
1892
1893
1894
1895 004204 000004
1896 004206 012767 000010 174744
1897 004214 012767 000013 174756
1898
1899 004222
1900 004222 032767 040000 174770
1901 004230 001404
1902 004232 126727 004667 000001
1903 004240 001004
1904 004242
1905 004242
1906 004242 012767 000001 174710
1907 004250 000440
1908 004252
1909 004252
1910
1911
1912 004252
1913 004252 052777 000004 175004
1914 004260
1915 004260 012767 004266 174622
1916
1917
1918
1919
1920 004266
1921 004266 105077 174776
1922
1923
1924
1925 004272
1926 004272 010546
1927 004274 012745 177777
1928 004300 016745 174754
1929 004304 012745 000200
1930 004310 012745 000500
1931 004314 004767 004000
1932 004320 012605
1933 004322
1934 004322 042777 000004 174734
1935
1936 004330
1937 004330 103001
1938
1939 004332
1940 004332 104073
1941 004334
1942 004334
1943 004334
1944
1945
1946

```

```

;*****
;*****
;TEST 13 TEST THAT RCVRDONE IS CLEARED BY READING RBUF
;*****
TST13: SCOPE
MOV #10,#TIMES ;DO 10 ITERATIONS
MOV #13,#TESTN ;SET TEST NUMBER IN APT MAIL BOX

IF #MAINTJUMP NOTSETIN #USMR ORB CONSOLE EQ #TRU
BIT #MAINTJUMP,#USMR
BEQ 50060#
CMPB CONSOLE,#TRUE
BNE 50061#
50060#:
EXIT TEST
MOV #1,#TIMES
BR TST14 ;EXIT THIS TEST
50061#:
ENDIF

; SET MAINT. BIT
LET #TCSR := #TCSR SET.BY #MAINT
BGNSUB
MOV #64,#LPERR
; OUTPUT A CHARACTER WITH MAINTENANCE
; SET, AND WAIT FOR XMITRDY TO SET.

; OUTPUT A CHARACTER
LET #TBUF :B= #0
; WAIT MAXIMUM OF 500 MSEC
; FOR RCVRDONE TO SET IN
; RCSR
CALL TIMER IN <#500,#RCVRDONE,RCSR,#SET>
MOV R5,-(SP)
MOV #SET,-(R5)
MOV RCSR,-(R5)
MOV #RCVRDONE,-(R5)
MOV #500,-(R5)
JSR PC,TIMER
MOV (SP),R5
LET #TCSR := #TCSR CLR.BY #MAINT
; DID IT BECAME READY?
IF.ERROR THEN
;RCVRDONE DID NOT SET IN RCSR
ERRMRD 73., DIDNOT
ENDIF
50062#:
ENDSUB
; NOW THAT IT IS SET LETS SEE IF READING THE
; BUFFER CLEARS RCVRDONE.

```

MAINDEC 11-DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 47
CVDVCC.P11 12-SEP 84 08:55 T13 TEST THAT RCVRDONE IS CLEARED BY READING RBUF

```

1947
1948
1949 004334
1950 004334 117700 174722          MOVB  BRBUF,RO
1951
1952 004340
1953 004340 032777 000200 174712    BIT   #RCVRDONE,BRCSR
1954 004346 001401                BEQ   500631
1955
1956 004350
1957 004350 104074                ERROR 74
1958 004352
1959 004352          500631:
1960 004352

```

```

;READ BUFFER
LET RO ;B= BRBUF

IF #RCVRDONE SETIN BRCSR THEN

;RCVRDONE DID NOT CLEAR IN RCSR
ERRMRD 74,.DIDNOT

ENDIF

ENDTST

```

MAINDEC-11-DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 48
 CVOVCC.P11 12-SEP-84 08:55 T13 TEST THAT RCVRDONE IS CLEARED BY READING RBUF

```

1961 ;|*****
1962 ;|*****
1963 ;|*****
1964 ;|*TEST 14 TEST THAT RCVRACT - RCSR 11 - SETS
1965 ;|* WHEN A START BIT IS RECEIVED AND
1966 ;|* CLEARS WHEN RCVRDONE - RCSR 7 - SETS
1967 ;|*****
1967 004352 000004 TST14: SCOPE
1968 004354 012767 000010 174576 MOV #10,#TIMES ;DO 10 ITERATIONS
1969 004362 012767 000014 174610 MOV #14,#TESTN ;SET TEST NUMBER IN APT MAIL BOX
1970 004370 ; IFB CONSOLE EQ #TRUE OR #MAINTJUMP NOTSETIN #USM
1971 004370 126727 004531 000001 CMPB CONSOLE,#TRUE
1972 004376 001404 BEQ 50064#
1973 004400 032767 040000 174612 BIT #MAINTJUMP,#USM
1974 004406 001004 BNE 50065#
1975 004410 50064#:
1976 004410 ; EXIT TEST
1977 004410 012767 000001 174542 MOV #1,#TIMES
1978 004416 000526 BR TST15 ;EXIT THIS TEST
1979 004420 ; ENDF
1980 004420 50065#:
1981 004420 ; IF #APTENV SETIN #ENV THEN
1982 004420 032767 000001 174566 BIT #APTENV,#ENV
1983 004426 001404 BEQ 50066#
1984 004430 ; EXIT TEST
1985 004430 012767 000001 174522 MOV #1,#TIMES
1986 004436 000516 BR TST15 ;EXIT THIS TEST
1987 004440 ; ENDF
1988 004440 50066#:
1989
1990
1991
1992 004440 ; LET #TCSR := #TCSR SET BY #MAINT
1993 004440 052777 000004 174616 BIS #MAINT,#TCSR
1994 004446 ; LET R0 := #CLR
1995 004446 012700 000000 MOV #CLR,R0
1996 004452 ; LET R1 := #0
1997 004452 005001 CLR R1
1998 ;LOAD A CHARACTER INTO TBUF
1999 ;WAIT FOR RCVRACT TO SET
2000
2001 ;SEND A CHARACTER
2002 004454 ; LET #TBUF := #0
2003 004454 105077 174610 CLRB #TBUF
2004 004460 ; REPEAT
2005 004460 50067#:
2006 004460 ; IF #RCVRACT SETIN #RCSR THEN
2007 004460 032777 004000 174572 BIT #RCVRACT,#RCSR
2008 004466 001403 BEQ 50070#
2009 004470 ; LET R0 := #SET
2010 004470 012700 177777 MOV #SET,R0
2011 004474 ; ELSE
2012 004474 000401 BR 50071#
2013 004476 50070#:
2014 004476 ; LET R1 := R1 + #1
2015 004476 005201 INC R1
2016 004500 ; ENDF

```

MAINDEC-11-DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 49
CVDVCC.P11 12-SEP-84 08:55 T14 TEST THAT RCVRACT - RCSR 11 - SETS

```

2017 004500          500711:
2018 004500
2019 004500 020027 177777          CMP      RC,#SET
2020 004504 001403          BEQ      500721
2021 004506 020167 000160          CMP      R1,MAX
2022 004512 101762          BLOS     500671
2023 004514          500721:
2024 004514
2025 004514 020167 000152          CMP      R1,MAX
2026 004520 101410          BLOS     500731
2027
2028
2029
2030 004522
2031 004522 042777 000004 174534          BIC      @MAINT,@TCSR
2032 004530
2033 004530 104075          ERROR    75
2034 004532
2035 004532 012767 000001 174420          MOV      #1,@TIMES
2036 004540 000455          BR       TST15          ;;;EXIT THIS TEST
2037 004542
2038 004542          500731:
2039
2040
2041
2042
2043
2044
2045 004542
2046 004542
2047 004542 020777 004000 174510          BIT      @RCVRACT,@RCSR
2048 004550 001421          BEQ      500751
2049
2050 004552
2051 004552 032777 000200 174500          BIT      @RCVRDONE,@RCSR
2052 004560 001414          BEQ      500761
2053 004562
2054 004562 032777 004000 174470          BIT      @RCVRACT,@RCSR
2055 004570 001410          BEQ      500771
2056
2057
2058
2059 004572
2060 004572 042777 000004 174464          BIC      @MAINT,@TCSR
2061 004600
2062 004600 104076          ERROR    76
2063
2064 004602
2065 004602 012767 000001 174350          MOV      #1,@TIMES
2066 004610 000431          BR       TST15          ;;;EXIT THIS TEST
2067 004612
2068 004612          500771:
2069 004612
2070 004612          500761:
2071 004612
2072 004612 000753          BR       500741

```

UNTIL RO EQ #SET OR R1 HI MAX

IF R1 HI MAX THEN

;IT NEVER SET
;RCVRACT DID NOT SET IN RCSR.
; CAN NOT LEAVE WITH MAINT SET
LET @TCSR := @TCSR CLR.BY @MAINT

ERRHRD 75,, DIDNOT

EXIT TEST

;;;EXIT THIS TEST
ENDIF

;CHECK FOR TIMING OF RCVRACT. CLEARING
;VS RCVRDONE SETTING

WHILE @RCVRACT SETIN @RCSR DO

IF @RCVRDONE SETIN @RCSR THEN

IF @RCVRACT SETIN @RCSR THEN

;RCVRDONE AND RCVRACT
;BOTH SET
; CAN NOT LEAVE WITH MAINT SET
LET @TCSR := @TCSR CLR.BY @MAINT

ERRHRD 76. DONEACT

;NO USE CONTINUING
EXIT TST

ENDIF

ENDIF

ENDDO

MAINDEC-11-DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 50
 CVDVCC.P11 12-SEP-84 08:55 T14 TEST THAT RCVRACT - RCSR 11 - SETS

```

2073 004614          500750:
2074
2075
2076 004614          ;RCVRACT = 0 NOW.
2077 004614 032777 000200 174436      BIT   #RCVRDONE, @RCSR      IF #RCVRDONE NOTSETIN @RCSR THEN
2078 004622 001010      BNE   501000
2079
2080
2081 004624          ;RCVRDONE DID NOT SET IN RCSR
2082 004624 042777 000004 174432      BIC   @MAINT, @TCSR      ; CAN NOT LEAVE WITH MAINT SET
2083 004632          LET   @TCSR := @TCSR CLR.BY @MAINT
2084 004632 104077      ERROR  77      ERRHRD 77., DIDNOT
2085 004634          EXIT TEST
2086 004634 012767 000001 174316      MOV   #1, @TIMES
2087 004642 000414      BR    TST15      ;;;EXIT THIS TEST
2088 004644
2089 004644          501000:      ENDIF
2090
2091          ;TEST THAT READING THE RECEIVER
2092          ;BUFFER CLEARS RCVRDONE
2093
2094
2095 004644          ;READ CHAR.
2096 004644 017700 174412      MOV   @RBUF, @R0      LET @R0 := @RBUF
2097
2098 004650          IF #RCVRDONE SETIN @RCSR THEN
2099 004650 032777 000200 174402      BIT   #RCVRDONE, @RCSR
2100 004656 001404      BEQ   501010
2101
2102          ;RCVRDONE DID NOT CLEAR IN RCSR
2103          ; CAN NOT LEAVE WITH MAINT SET
2104 004660          LET   @TCSR := @TCSR CLR.BY @MAINT
2105 004666          ERRHRD 100., DIDNOT
2106 004666 104100      ERROR  100
2107 004670          ENDIF
2108 004670          501010:
2109
2110 004670          EXIT
2111 004670 000401      BR    TST15      ;;;EXIT THIS TEST
2112 004672 070000      MAX: 70000
2113
2114 004674          ENDTST
2115

```

MAINDEC-11-DVDC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 51
 CVDVCC.P11 12-SEP-84 08:55 T14 TEST THAT RCVRCT - RCSR 11 - SETS

```

2116
2117
2118
2119
2120
2121 004674 000004
2122 004676 012767 000010 174254
2123 004704 012767 000015 174266
2124
2125 004712
2126 004712 032767 100000 174300
2127 004720 001404
2128 004722 126727 004177 000001
2129 004730 001004
2130 004732
2131 004732
2132 004732 012767 000001 174220
2133 004740 000547
2134 004742
2135 004742
2136 004742
2137 004742 032767 040000 174250
2138 004750 001004
2139 004752
2140 004752 012767 000001 174200
2141 004760 000537
2142 004762
2143 004762
2144
2145 004762
2146 004762 052777 000004 174274
2147
2148
2149
2150 004770
2151 004770 012767 004776 174112
2152
2153
2154
2155
2156
2157 004776
2158 004776 105077 174266
2159
2160 005002
2161 005002 010546
2162 005004 012745 000310
2163 005010 004767 003562
2164 005014 012605
2165
2166
2167 005016
2168 005016 105077 174246
2169
2170 005022
2171 005022 010546

```

```

;*****
;*****
;TEST 15 TEST THE OVERRUN BIT - RBUF 14
;*****
TST15: SCOPE
MOV #10,#TIMES ;DO 10 ITERATIONS
MOV #15,#TESTN ;SET TEST NUMBER IN APT MAIL BOX
;*****
IF #ERRBITS NOTSETIN #USMR ORB CONSOLE EQ #TRUE
BIT #ERRBITS,#USMR
BEQ 50102#
CMPB CONSOLE,#TRUE
BNE 50103#
50102#: EXIT TEST
MOV #1,#TIMES
BR TST16 ;;;EXIT THIS TEST
ENDIF
50103#: IF #MAINTJUMP NOTSETIN #USMR THEN
BIT #MAINTJUMP,#USMR
BNE 50104#
EXIT TEST
MOV #1,#TIMES
BR TST16 ;;;EXIT THIS TEST
ENDIF
50104#: LET #ICSR := #TCSR SET BY #MAINT
BIS #MAINT,#TCSR
;*****
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 200 M SEC
WAITMS 200.
MOV #R5,-(SP)
MOV #200,-(R5)
JSR PC,WAIT
MOV (SP),R5
;*****
;OUTPUT 2ND CHARACTER
LET #TBUF :B= #0
;LET OVERRUN HAPPEN
WAITMS 200.
MOV #R5,-(SP)

```


MAINDEC-11 DVDVC-C MACY:1 30A(1052) 12-SEP-84 15:41 PAGE 53
 CVDVCC.P11 12-SEP-84 08:55 T15 TEST THE OVERRUN BIT - RBUF 14

```

2228 005140 001010          BNE      501074
2229
2230                                ;READING RBUF CLEARED ORERR.
2231                                ; CAN NOT LEAVE WITH MAINT SET
2232 005142                                LET   BTCSR := BTCSR CLR.BY @MAINT
2233 005142 042777 000004 174114        BIC   @MAINT,BTCSR
2234 005150                                ERRHRD 103,ITCLRED
2235 005150 104103          ERROR    103
2236                                ;SKIP REST OF TEST
2237 005152                                EXIT TEST
2238 005152 012767 000001 174000        MOV   @1,@TIMES
2239 005160 000437          BR      TST16          ;;;EXIT THIS TEST
2240 005162                                ENDIF
2241 005162          501074:
2242 005162                                ENDSUB
2243                                BGNSUB
2244 005162 012767 005170 173720        MOV   @674,@LPERR
2245 005162                                ;NOW SEE IF THEY CLEAR WHEN ANOTHER CHAR. IS RECEIVED
2246
2247
2248                                ;SEND A CHARACTER AROUND.
2249 005170                                LET   @TBUF :B= #0
2250 005170 105077 174074          CLRB  @TBUF
2251                                ;LET IT CIRCULATE
2252 005174                                WAITS 200.
2253 005174 010546          MOV   R5,-(SP)
2254 005176 012745 000310          MOV   @200,-(R5)
2255 005202 004767 003370          JSR   PC,WAIT
2256 005206 012605          MOV   (SP)+,R5
2257
2258 005210                                IF @ORERR SET IN @RBUF THEN
2259 005210 032777 040000 174044        BIT   @ORERR,@RBUF
2260 005216 001410          BEQ   501104
2261
2262                                ;ORERR DID NOT CLEAR IN RBUF
2263                                ; CAN NOT LEAVE WITH MAINT SET
2264 005220                                LET   BTCSR := BTCSR CLR.BY @MAINT
2265 005220 042777 000004 174036        BIC   @MAINT,BTCSR
2266 005226 104104          ERROR    104
2267                                ERRHRD 104,,DIDNOT
2268
2269                                ;-AFTER RECEIVING ANOTHER CHAR
2270 005230                                ;SKIP AROUND REST
2271 005230 012767 000001 173722        MOV   @1,@TIMES
2272 005236 000410          BR      TST16          ;;;EXIT THIS TEST
2273 005240                                ENDIF
2274 005240          501104:
2275

```

MAINDEC-11 DVDVC C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 54
 DVDVCC.P11 12-SEP-84 08:55 T15 TEST THE OVERRUN BIT - RBUF 14

```

2276 005240
2277 005240 032777 100000 174014      BIT      @ERROR,@RBUF
2278 005246 001404      BEG      501114
2279
2280
2281 005250
2282 005250 042777 000004 174006      BIC      @MAINT,@TCSR
2283 005256
2284 005256 104105      ERROR      105
2285
2286 005260
2287 005260      501114:
2288 005260
2289 005260
2290

IF @ERROR SET IN @RBUF THEN
;ERROR DID NOT CLEAR IN RBUF
; CAN NOT LEAVE WITH MAINT SET
LET    @TCSR := @TCSR CLR.BY @MAINT
ERRMID 105..DIDNOT

ENDIF

ENDSUB
ENDTST
  
```

```

2291
2292
2293
2294
2295
2296
2297
2298
2299 005260 000004
2300 005262 012767 000010 173670
2301 005270 012767 000016 173702
2302
2303
2304
2305
2306 005276 032767 000200 173714
2307 005304 001404
2308 005306 032767 040000 173704
2309 005314 001004
2310 005316
2311 005316
2312 005316 012767 000001 173634
2313 005324 000553
2314 005326
2315 005326
2316
2317 005326
2318 005326 132767 000001 173660
2319 005334 001404
2320 005336
2321 005336 012767 000001 173614
2322 005344 000543
2323 005346
2324 005346
2325
2326 005346
2327 005346 005067 002620
2328 005352
2329 005352 012767 177777 000270
2330 005360
2331 005360 012767 177777 000264
2332 005366
2333 005366 052777 000004 173670
2334
2335 005374
2336 005374 005003
2337 005376 000401
2338 005400
2339 005400 005203
2340 005402
2341 005402 020327 000017
2342 005406 003062
2343 005410
2344 005410 017700 173646
2345
2346 005414

```

```

.....
TEST 16 PROGRAMMABLE BAUD RATE TEST
TEST AT ALL SPEEDS AVAILABLE
A COMPARISON WILL BE MADE TO SEE
IF NEW TIME IS LESS THAN PREVIOUS.
.....
TST16: SCOPE
MOV #01,ITIMES ;DO 10 ITERATIONS
MOV #016,ITESTN ;SET TEST NUMBER IN APT MAIL BOX

IF #PBR NOTSET IN #USMR OR #MAINTJUMP NOTSET IN #U
BIT #PBR,#USMR
BEQ 50112#
BIT #MAINTJUMP,#USMR
BNE 50113#

50112: EXIT TEST
MOV #01,ITIMES
BR TST17 ;EXIT THIS TEST
ENDIF

50113: IFB #APTEW SET IN #ENV THEN
BITB #APTEW,#ENV
BEQ 50114#

EXIT TST
MOV #01,ITIMES
BR TST17 ;EXIT THIS TEST
ENDIF

50114: LET ENRCHK := #0 ; CLEAR ERROR WORD
CLR ENRCHK
LET OLD := #-1
LET OLD+2 := # 1
LET #TCSR := #TCSR SET BY #MAINT
;EACH BAUD RATE
INCR R3 FROM #0 TO #15. BY #1

50116: CLR R3
BR 50115#

50115: INC R3
CMP R3,#15.
BGT 50117#

LET #R0 := #RBUF
;CHANGE BAUD RATE
LET #TCSRMI := #RATES(R3)

```

```

MAINDEC-11-DVDVC-C      MACY11 30A(1052) 12-SEP-84 15:41 PAGE 56
CVDVCC.P11      12-SEP-84 08:55      T16      PROGRAMMABLE BAUD RATE TEST

2347 005414 116377 005624 173644      MOVB      RATES(R3),BTCSRMI
2348
2349 005422
2350 005422 005002      CLR      BIT
2351
2352 005424
2353 005424 005077 173640      CLR      BTBUF
2354
2355 005430
2356 005430 005067 000210      CLR      NEW
2357 005434
2358 005434 005067 000206      CLR      NEW+2
2359 005440
2360 005440      501201:
2361 005440 005702      TST      BIT
2362 005442 001014      BNE      501211
2363 005444
2364 005444 032777 000200 173606      BIT      @RCVRODNE,BRCR
2365 005452 001403      BEQ      501221
2366
2367 005454
2368 005454 012702 000001      MOV      #1,BIT
2369 005460
2370 005460 000404      BR      501231
2371 005462      501221:
2372
2373 005462
2374 005462 005267 000156      INC      NEW
2375 005466
2376 005466 005567 000154      ADC      NEW+2
2377 005472
2378 005472      501231:
2379
2380 005472
2381 005472 000762      BR      501201
2382 005474      501211:
2383
2384 005474
2385 005474 026767 000146 000150      CMP      NEW+2,OLD+2
2386 005502 103001      BHTS    501241
2387
2388 005504
2389 005504 000414      BR      501251
2390 005506      501241:
2391
2392 005506
2393 005506 026767 000134 000136      CMP      NEW+2,OLD+2
2394 005514 001005      BNE      501261
2395 005516 026767 000122 000124      CMP      NEW,OLD
2396 005524 103001      BHTS    501261
2397
2398 005526
2399 005526 000403      BR      501271
2400 005530      501261:
2401
2402

```

```

;FLAG
LET BIT := #0

;OUTPUT THE CHARACTER
LET BTBUF := #0

;INITIALIZE COUNTER
LET NEW := #0
LET NEW+2 := #0
WHILE BIT EQ #0 DO

IF @RCVRODNE SETIN @BRCR THEN

;DONE - ITS READY
LET BIT := #1

ELSE

;OTHERWISE-INCREMENT TIME
LET NEW := NEW + #1
LET NEW+2 := NEW+2 + CARRY

ENDIF

;SIGNALS DONE
ENDDO

IF NEW+2 LO OLD+2 THEN

; OK
ELSE

; NEW+2 >= OLD+2
IF NEW+2 EQ OLD+2 AND NEW LO OLD THEN

;OK
ELSE

;NEW+2 > OLD+2 OR
;(NEW+2 = OLD+2 AND

```

MAINDEC-11-DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 57
 CVDVCC.P11 12-SEP-84 08:55 T16 PROGRAMMABLE BAUD RATE TEST

```

2403                                     ; NEW >= OLD)
2404                                     ;BAUD RATE DIDN'T CHANGE
2405 005530 012767 000004 002434      MOV     #BIT2,ERRCHK      LET ERRCHK := #BIT2 ; SET ERROR INDICATOR
2406 005530                                     ENDIF
2407 005536                                     501276:
2408 005536                                     ENDIF
2409 005536                                     "01256:
2410 005536                                     ;UPDATE OLD TIME
2411                                     LET OLD := NEW
2412 005536 016767 000102 000104      MOV     NEW,OLD
2413 005536                                     LET OLD*2 := NEW*2
2414 005544
2415 005544 016767 000076 000100      MOV     NEW*2,OLD*2
2416
2417 005552                                     ENDINC ;BAUD RATE
2418 005552 000712                                     BR      501166
2419 005554                                     501174:
2420 005554                                     LET R3 := #USMR*1 AND #17 ; PUT BAUD BACK
2421 005554 116703 173441      MOV     #USMR*1,R3
2422 005560 110346      MOV     R3,-(SP)
2423 005562 142716 000017      BIC    #17,(SP)
2424 005566 142603      BIC    (SP),R3
2425 005570                                     LET R3 := R3 CLR.BY #177400
2426 005570 042703 177400      BIC    #177400,R3
2427 005574                                     LET #TCSRMI := RATES(R3) ; LIKE HE WANTED IT
2428 005574 116377 005624 173464      MOV     RATES(R3),#TCSRMI
2429
2430                                     ; CAN NOT LEAVE WITH MAINT SET
2431 005602                                     LET     #TCSR := #TCSR CLR.BY #MAINT
2432 005602 042777 000004 173454      BIC    #MAINT,#TCSR
2433 005610
2434 005610 032767 000004 002354      BIT    #BIT2,ERRCHK
2435 005616 001401      BEQ    501306
2436
2437 005620                                     ; REPORT DEFERED ERROR
2438 005620 104126      ERROR  126
2439 005622                                     ERRMRD 126
2440 005622                                     ENDIF
2441 005622                                     501306:
2442 005622 000414      BR      TST17
2443
2444 005624      EXIT ;SKIP TABLE
2445                                     ;;;EXIT THIS TEST
2446
2447      RATES: ;A TABLE OF THE ACTUAL BYTES TO MOVE INTO THE
2448      ;UPPER BYTE OF XCSR FOR EACH BAUD RATE
2449      ;** NOTE:: THE VALUE INDICATED IN THE COLUMN 'OFFSET
2450      ;** INTO TABLE' CAN BE PLACED INTO BITS<11:8>
2451      ;** OF LOCATION '#USMR' TO CAUSE THE CORRESPONDING
2452      ;** BAUD TO BE SELECTED IN THE DLV11-F UPON
2453      ;** COMPLETION OF THIS TEST.
2454
2455      R0050: .BYTE 010 ; BAUD 50 OFFSET INTO TABLE
2456      R0070: .BYTE 030 ; BAUD 70 OFFSET INTO TABLE
2457      R0110: .BYTE 050 ; BAUD 110 OFFSET INTO TABLE
2458      R0135: .BYTE 070 ; BAUD 135 OFFSET INTO TABLE
2459      R0150: .BYTE 110 ; BAUD 150 OFFSET INTO TABLE
2460      R0300: .BYTE 130 ; BAUD 300 OFFSET INTO TABLE
    
```


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2459	005632	150	R0600:	.BYTE	150	:	600	6
2460	005633	170	R0200:	.BYTE	170	:	1200	7
2461	005634	210	R1800:	.BYTE	210	:	1800	10
2462	005635	230	R2000:	.BYTE	230	:	2000	11
2463	005636	250	R2400:	.BYTE	250	:	2400	12
2464	005637	270	R3600:	.BYTE	270	:	3600	13
2465	005640	310	R4800:	.BYTE	310	:	4800	14
2466	005641	330	R7200:	.BYTE	330	:	7200	15
2467	005642	350	R9600:	.BYTE	350	:	9600	16
2468	005643	370	R10000:	.BYTE	370	:	19200	17
2469								
2470	005644	000000	000000	NEW:	0.0			
2471	005650	000000	000000	OLD:	0.0			
2472	005654							ENDTST
2473								
2474								
2475								

MAINDEC-11 DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 59
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```

2476
2477
2478
2479
2480
2481
2482
2483
2484
2485 005654 000004
2486 005656 012767 000010 173274
2487 005664 012767 000017 173306
2488
2489
2490
2491 005672
2492 005672 032767 000001 173314
2493 005700 001404
2494 005702
2495 005702 012767 000001 173250
2496 005710 000534
2497 005712
2498 005712
2499
2500
2501
2502 005712
2503 005712 005067 002746
2504
2505
2506 005716
2507 005716 016703 173334
2508
2509 005722
2510 005722 062703 000004
2511
2512 005726
2513 005726 010146
2514 005730 010301
2515 005732 012721 010656
2516 005736 012711 000340
2517 005742 012601
2518 005744
2519 005744 012767 005752 173136
2520
2521 005752
2522 005752 010546
2523 005754 012745 177777
2524 005760 016745 173300
2525 005764 012745 000200
2526 005770 012745 000500
2527 005774 004767 002320
2528 006000 012605
2529
2530
2531 006002

```

```

;*****
;*****
;TEST 17 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
;*****
TST17: SCOPE
MOV #10,#TIMES ;DO 10 ITERATIONS
MOV #17,#TESTN ;SET TEST NUMBER IN APT MAIL BOX

;*****
IF #APTENV SETIN #ENV THEN
BIT #APTENV,#ENV
BEQ 501314
EXIT TEST
MOV #1,#TIMES
BR TST20 ;EXIT THIS TEST
ENDIF
501314:
;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

BGNSUB
; MAKE SURE THAT TRANSMITTER READY IS SET
CALL TIMER IN <#500,#XMITROY,TCSR,#SET>

MOV R5,-(SP)
MOV #SET,-(R5)
MOV TCSR,-(R5)
MOV #XMITROY,-(R5)
MOV #500,-(R5)
JSR PC,TIMER
MOV (SP),R5

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

```

MAINDEC-11 DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 60
 CVDVCC.P11 12-SEP-84 08:55 T17 TRANSMITTER INTERRUPT LOGIC TEST

```

2532 006002 042777 000100 173254      BIC      #XMITIE,#TCSR
2533
2534                                     ;SET IT TO 0
2535 006010 012746 000000      MOV      #PRO,-(SP)      ;;PUT NEW PS ON STACK
2536 006014 012746 006022      MOV      #65,-(SP)      ;;PUT NEW PC ON STACK
2537 006020 000002                                     ;POP NEW PC AND PS
2538 006022                                     65:
2539
2540                                     ;NOW SET I.E. BIT
2541 006022                                     LET #TCSR := #TCSR SET.BY #XMITIE
2542 006022 052777 000100 173254      BIS      #XMITIE,#TCSR
2543
2544                                     ;LET INTERRUPT HAVE TIME TO OCCUR
2545 006030                                     WAITMS 200.
2546 006030 010546      MOV      R5,-(SP)
2547 006032 012745 000310      MOV      #200,-(R5)
2548 006034 004767 002534      JSR      PC,WAIT
2549 006042 012605      MOV      (SP)+,R5
2550
2551                                     ;DID EXACTLY 1 INTERRUPT OCCUR
2552 006044                                     IF INTFLAG NE #1 THEN
2553 006044 026727 002614 000001      CMP      INTFLAG,#1
2554 006052 0C1406      BEQ      501320
2555
2556                                     ;NO - WAS IT 0 OR MORE THAN ONCE
2557 006054                                     IF INTFLAG EQ #0 THEN
2558 006054 005767 002604      TST      INTFLAG
2559 006060 001002      BNE      501330
2560                                     ;TRANSMITTER DID NOT INTERRUPT IN TIME
2561 006062 104106      ERROR   106
2562 006064                                     ERRHRD 106.,DIDNOT
2563 006064 000401      BR      ELSE
2564 006066                                     501330:
2565
2566                                     ;TWICE
2567 006066                                     ;TRANSMITTER INTERRUPTED TWICE
2568 006066 104107      ERROR   107
2569 006070                                     ERRHRD 107.,TWICE
2570 006070                                     501340:
2571 006070                                     501320:
2572 006070                                     501320:
2573 006070                                     ENDSUB
2574                                     ;INTERRUPT WITHOUT INTERRUPT ENABLE SET
2575 006070                                     BGNSUB
2576 006070 012767 006076 173012      MOV      #66,#LPERR
2577                                     ;CLEAR 'INTERRUPT OCCURED' FLAG
2578 006076                                     LET INTFLAG := #0
2579 006076 005067 002562      CLR      INTFLAG
2580
2581                                     ;CLEAR INTERRUPT ENABLE
2582 006102                                     LET #TCSR := #TCSR CLR.BY #XMITIE
2583
2584                                     ;NO INTERRUPTS SHOULD OCCUR.
2585 006110 012746 000000      MOV      #PRO,-(SP)      ;;PUT NEW PS ON STACK
2586 006114 012746 006122      MOV      #67,-(SP)      ;;PUT NEW PC ON STACK
2587 006120 000002      RTI
2588 006122                                     67:

```

MAINDEC-11-DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 61
 CVDVCC.P11 12-SEP-84 08:55 T17 TRANSMITTER INTERRUPT LOGIC TEST

```

2588
2589 006122
2590 006122 010546
2591 006124 012745 000002
2592 006130 004767 002442
2593 006134 012605
2594 006136
2595 006136 005767 002522
2596 006142 001401
2597
2598 006144
2599 006144 104110
2600 006146
2601 006146
2602 006146
2603 006146 000005
2604 006150
2605
2606 006150
2607 006150 017704 173102
2608 006154
2609 006154 010146
2610 006156 010246
2611 006160 012701 000004
2612 006164 010102
2613 006166 062702 000002
2614 006172 010221
2615 006174 005011
2616 006176 012602
2617 006200 012601
2618 006202
2619
2620
2621
2622
2623
2624

```

```

;DARE IT TO HAPPEN
WAITMS 2

MOV R5,-(SP)
MOV #2,-(R5)
JSR PC,WAIT
MOV (SP)+,R5

IF INTFLAG NE #0 THEN

;INTERRUPT OCCURED WITH I E CLEARED
ERRPRD 110,NOTENAB

ERROR 110

ENDIF

50135$:
BRESET

ENDSUB

;RESTORE VECTOR AREA
LET R4 := @DLVEC

MOV @DLVEC,R4

CLRVEC R4
;;PUSH R1 ON STACK
;;PUSH R2 ON STACK

MOV R1,-(SP)
MOV R2,-(SP)
MOV @R4,R1
MOV R1,R2
ADD #2,R2
MOV R2,(R1)+
CLR (R1)
MOV (SP)+,R2
MOV (SP)+,R1
;;POP STACK INTO R2
;;POP STACK INTO R1
ENDTST

```

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```

2625                                     ;*****
2626                                     ;*****
2627 *TEST 20          RECEIVER INTERRUPT LOGIC TEST
2628 *                THIS TEST COVERS ALL OF THE RECEIVER
2629 *                SIDE OF THE INTERRUPT LOGIC IN
2630 *                CHARACTER MODE.
2631                                     ;*****
2632 006202 000004          TST20: SCOPE
2633 006204 012767 000010 172746      MOV     #10,#TIMES          ;;DO 10 ITERATIONS
2634 006212 012767 000020 172760      MOV     #20,#TESTN        ;;SET TEST NUMBER IN APT MAIL BOX
2635 006220                                     IF #MAINTJUMP NOTSETIN #USMR ORB CONSOLE EQ #TRU
2636 006220 032767 040000 172772      BIT     #MAINTJUMP,#USMR
2637 006226 001404          BEQ     50136#
2638 006230 126727 002671 000001      CMPB   CONSOLE,#TRUE
2639 006236 001002          BNE     50137#
2640 006240          50136#:
2641 006240 000167 000242          JMP     TST21              ; EXIT TEST
2642 006244          50137#:          ENDF
2643 006244
2644
2645                                     ;CLEAR INTERRUPT OCCURED FLAG
2646                                     ;SET UP RECEIVER INTER.VECTOR
2647 006244          SETVEC DLVEC,#INTSRV,#PR7
2648 006244 010146          MOV     R1,-(SP)
2649 006246 016701 173004          MOV     DLVEC,R1
2650 006252 012721 010656          MOV     #INTSRV,(R1)+
2651 006256 012711 000340          MOV     #PR7,(R1)
2652 006262 012601          MOV     (SP)+,R1
2653                                     ;PRIORITY 0 AND MULTIPLE INTERRUPT TEST.-RCVRIE
2654 006264          BGNSUB
2655 006264 012767 006272 172616      MOV     #64#,#LPERR
2656 006272          LET INTFLAG := #0
2657 006272 005067 002366          CLR     INTFLAG
2658                                     ;SET MAINT. BIT
2659 006276          LET #TCSR := #TCSR SET.BY #MAINT
2660 006276 052777 000004 172760      BIS     #MAINT,#TCSR
2661                                     ;CLEAR INTERRUPTS
2662 006304          LET #RCSR := #RCSR CLR.BY #RCVRIE
2663 006304 042777 000100 172746      BIC     #RCVRIE,#RCSR
2664                                     ;CHANGE PRIORITY
2665                                     ;...TO 0
2666 006312 012746 000000          MOV     #PRO,-(SP)        ;;PUT NEW PS ON STACK
2667 006316 012746 006324          MOV     #65#,-(SP)      ;;PUT NEW PC ON STACK
2668 006322 000002          RTI     ;;POP NEW PC AND PS
2669 006324          65#:
2670
2671                                     ;SEND A CHARACTER
2672 006324          LET #TBUF := #0
2673 006324 105077 172740          CLRB   #TBUF
2674
2675                                     ;WAIT A MAXIMUM
2676                                     ;OF 500 MSEC FOR
2677 006330          ;RCVR DONE TO SET IN RCSR
2678 006330 010546          CALL TIMER IN (<#500,#RCVRDONE,RCSR,#SET>)
2679 006332 012745 177777          MOV     #SET,-(R5)
2680 006336 016745 172716          MOV     RCSR,-(R5)
    
```

MAINDEC-11 DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 63
 CVDVCC.P11 12-SEP-84 08:55 T20 RECEIVER INTERRUPT LOGIC TEST

```

2681 006342 012745 000200      MOV      @RCVRDONE, -(R5)
2682 006346 012745 000500      MOV      @500, -(R5)
2683 006352 004767 001742      JSR      PC, TIMER
2684 006356 012605      MOV      (SF)+, R5
2685
2686 006360      ;SET INTERRUPT ENABLE
2687 006360 052777 000100 172672      BIS      @RCVRIE, @RCSR
2688
2689 006366      ;LET IT COME IN.
2690 006366 010546      MOV      R5, -(SP)
2691 006370 012745 000001      MOV      @1, -(R5)
2692 006374 004767 002176      JSR      PC, WAIT
2693 006400 012605      MOV      (SP)+, R5
2694
2695 006402      LET R0 := @RBUF ; CLEAR RCVRDONE
2696 006402 017700 172654      MOV      @RBUF, R0
2697
2698 006406      ;DID HE DO IT RIGHT?
2699 006406 026727 002252 000001      CMP      INTFLAG, @1
2700 006414 001411      BEQ      501404
2701
2702      ;NONE OCCURED
2703 006416      ; CAN NOT LEAVE WITH MAINT SET
2704 006416 042777 000004 172640      BIC      @MAINT, @TCSR
2705 006424
2706 006424 005767 002234      TST      INTFLAG
2707 006430 001002      BNE      501414
2708
2709 006432      ;RECEIVER DID NOT INTERRUPT IN TIME
2710 006432 104111      ERROR    111
2711
2712 006434      ;TWICE OR MORE
2713 006434 000401      BR       501424
2714 006436      501414:
2715
2716 006436      ;RECEIVER INTERRUPTED TWICE
2717 006436 104112      ERROR    112
2718 006440
2719 006440      501424:
2720 006440
2721 006440      501404:
2722 006440      ENDSUB
2723
2724
2725      ; CLEAR THE WORLD
2726 006440      LET @RCSR := @RCSR CLR.BY @RCVRIE
2727 006440 042777 000100 172612      BIC      @RCVRIE, @RCSR
2728
2729
2730      ;RESET MAINT. BIT.
2731 006446      LET @TCSR := @TCSR CLR.BY @MAINT
2732 006446 042777 000004 172610      BIC      @MAINT, @TCSR
2733
2734 006454      LET R4 := @DLVEC
2735 006454 017704 172576      MOV      @DLVEC, R4
2736 006460      CLRVEC R4

```

MAINDEC-11 DVOVC-C
CVOVCC.P11 12-SEP-8

*Y11 30A(1052) 12-SEP-84 15:41 PAGE 64
+ 55 T20 RECEIVER INTERRUPT LOGIC TEST

2737	006460	010146		MOV	R1,-(SP)	::PUSH R1 ON STACK
2738	006462	010246		MOV	R2,-(SP)	::PUSH R2 ON STACK
2739	006464	012701	000004	MOV	#R4,R1	
2740	006470	010102		MOV	R1,R2	
2741	006472	062702	000002	ADD	#2,R2	
2742	006476	010221		MOV	R2,(R1)+	
2743	006500	005011		CLR	(R1)	
2744	006502	012602		MOV	(SP)+,R2	::POP STACK INTO R2
2745	006504	012601		MOV	(SP)+,R1	::POP STACK INTO R1
2746	006506					ENDTST

MAINDEC-11-DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 65
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```

2747
2748
2749
2750
2751
2752 006506 000004
2753 006510 012767 000001 172442
2754 006516 012767 000021 172454
2755 006524
2756 006524 032767 040000 172466
2757 006532 001404
2758 006534 126727 002365 000001
2759 006542 001004
2760 006544
2761 006544
2762 006544 012767 000001 172406
2763 006552 000526
2764 006554
2765 006554
2766
2767 006554
2768 006554 005067 001412
2769
2770 006560
2771 006560 052777 000004 172476
2772
2773
2774
2775 006566 012746 000000
2776 006572 012746 006600
2777 006576 000002
2778 006600
2779
2780 006600
2781 006600 162705 000002
2782 006604 004767 001666
2783 006610 012501
2784 006612
2785 006612 017700 172444
2786
2787
2788 006616
2789 006616 005002
2790 006620 000401
2791 006622
2792 006622 005202
2793 006624
2794 006624 020227 000377
2795 006630 003062
2796
2797
2798
2799
2800 006632
2801 006632 010546
2802 006634 012745 177777
  
```

```

;*****
;*****
;TEST 21 TEST ACTUAL DATA TRANSFERED
;NON-INTERRUPT MAINTENANCE BIT SET
;*****
TST21: SCOPE
MOV #1,#TIMES ;DO 1 ITERATION
MOV #21,#TESTN ;SET TEST NUMBER IN APT MAIL BOX
; IF #MAINTJUMP NOTSET IN #USMR ORB CONSOLE EQ #TRU
BIT #MAINTJUMP,#USMR
BEQ 50143;
CMPB CONSOLE,#TRUE
BNE 50144;
50143:
; EXIT TEST
MOV #1,#TIMES
BR TST22 ;EXIT THIS TEST
;ENDIF
50144:
;LET ERRCHK := #0
CLR ERRCHK
;SET MAINT. BIT
LET #TCSR := #TCSR SET BY #MAINT
50145:
;CHANGE PRIORITY
;...TO 0
MOV #PRO,-(SP) ;PUT NEW PS ON STACK
MOV #64,-(SP) ;PUT NEW PC ON STACK
RTI ;POP NEW PC AND PS
64:
;GET DATA MASK.
CALL DATLNG OUT <R1>
SUB #1*2,R5
JSR PC,DATLNG
MOV (R5),R1
LET R0 := #RBUF ; START CLEAR
;ALL BINARY CHAR.
INCR R2 FROM #0 TO #377 BY #1
50146:
BR 50145;
50145:
INC R2
50145:
CMP R2,#377
BGT 50147;
;TRANSMIT CHAR IN R2
CALL TIMER IN <#500,#XMITRDY,TCSR,#SET>
MOV R5,-(SP)
MOV #SET,-(R5)
  
```


MAINDEC 11-DVDC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 66
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2803	006640	016745	172420		MOV	TCSR, -(R5)	
2804	006644	012745	000200		MOV	@XMITRDY, -(R5)	
2805	006650	012745	000500		MOV	#500, -(R5)	
2806	006654	004767	001440		JSR	PC, TIMER	
2807	006660	012605			MOV	(SP)+, R5	
2808	006662						IF .ERROR THEN
2809	006662	103003			BCC	501504	
2810	006664						LET ERRCHK := ERRCHK SET.BY #BIT3
2811	006664	052767	000010	001300	BIS	#BIT3, ERRCHK	
2812	006672						ENDIF
2813	006672					501504:	
2814							
2815							; TRANSMIT IT
2816	006672						LET BTBUF :B= R2
2817	006672	110277	172372		MOVB	R2, BTBUF	
2818							
2819	006676						CALL TIMER IN <#500, @RCVDRONE, RCSR, #SET>
2820	006676	010546			MOV	R5, -(SP)	
2821	006700	012745	177777		MOV	#SET, -(R5)	
2822	006704	016745	172350		MOV	RCSR, -(R5)	
2823	006710	012745	000200		MOV	@RCVDRONE, -(R5)	
2824	006714	012745	000500		MOV	#500, -(R5)	
2825	006720	004767	001374		JSR	PC, TIMER	
2826	006724	012605			MOV	(SP)+, R5	
2827	006726						IF .ERROR THEN
2828	006726	103003			BCC	501514	
2829	006730						LET ERRCHK := ERRCHK SET.BY #BIT4
2830	006730	052767	000020	001234	BIS	#BIT4, ERRCHK	
2831	006736						ENDIF
2832	006736					501514:	
2833							
2834	006736						; AND SAVE IT
2835	006736	017703	172320		MOV	@RBUF, R3	LET R3 := @RBUF
2836							
2837							
2838							; COMPARE TO SEE IF WE RECEIVED IT ALL
2839							
2840							; CLEAN OFF NON-DATA BITS
2841							; ON BOTH TRANSMITTED AND
2842	006742						LET R4 := R2 CLR.BY R1
2843	006742	010204			MOV	R2, R4	
2844	006744	040104			BIC	R1, R4	
2845	006746						LET R3 := R3 CLR.BY R1
2846	006746	040103			BIC	R1, R3	
2847							
2848							; RECEIVED DATA
2849	006750						IF R4 NE R3 THEN
2850	006750	020403			CHP	R4, R3	
2851	006752	001410			BEG	501524	
2852							; DATA COMPARE ERROR
2853							; CAN NOT LEAVE WITH MAINT SET
2854	006754						LET @TCSR := @TCSR CLR.BY @MAINT
2855	006754	042777	000004	172302	BIC	@MAINT, @TCSR	
2856	006762						ERRHRD 116, COMP, SBWAS
2857	006762	104116			ERROR	116	
2858	006764						EXIT TEST ; ON ERROR

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 CVDVCC.P11 12 SEP 84 08:55 T21 TEST ACTUAL DATA TRANSFERED

```

2859 006764 012767 000001 172166      MOV      #1, BITES
2860 006772 000416      BR       TST22          ;;;EXIT THIS TEST
2861 006774      501521:                ENDIF
2862 006774      501521:                ENDINC 1, R2
2863 006774      501461:                BR       501461
2864 006774 000712      501471:
2865 006776
2866
2867
2868 006776      ;RESET MAINT. BIT.
2869 006776 042777 000004 172260      BIC      @MAINT, @TCSR  LET @TCSR := @TCSR CLR. BY @MAINT
2870 007004      IF @BIT3 SET IN ERRCHK THEN
2871 007004 032767 000010 001160      BIT      @BIT3, ERRCHK
2872 007012 001401      BEQ      501531
2873 007014      ERRMSG 130
2874 007014 104130      ERROR   130
2875 007016      ENDIF
2876 007016      501531:                IF @BIT4 SET IN ERRCHK THEN
2877 007016      BIT      @BIT4, ERRCHK
2878 007016 032767 000020 001146      BEQ      501541
2879 007024 001401      ERROR   131
2880 007026      ERRMSG 131
2881 007026 104131      ERROR   131
2882 007030      ENDIF
2883 007030      501541:                ENDTST
2884 007030
2885
2886
2887

```

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```

2888
2889
2890
2891
2892 007030 000004
2893 007032 012767 000001 172120
2894 007040 012767 000022 172132
2895 007046
2896 007046 032767 020000 172144
2897 007054 001404
2898 007056 032767 000100 172134
2899 007064 001004
2900 007066
2901
2902 007066
2903 007066 012767 000001 172064
2904 007074 000516
2905 007076
2906 007076
2907
2908 007076
2909 007076 042777 000004 172160
2910
2911
2912
2913
2914
2915
2916
2917
2918
2919 007104
2920 007104 052777 000011 172146
2921
2922
2923 007112 012746 000000
2924 007116 012746 007124
2925 007122 000002
2926 007124
2927
2928 007124
2929 007124 162705 000002
2930 007130 004767 001342
2931 007134 012501
2932 007136
2933 007136 017700 172120
2934
2935 007142
2936 007142 005002
2937 007144 000401
2938 007146
2939 007146 005202
2940 007150
2941 007150 020227 000377
2942 007154 003063
  
```

```

;*****
;*****
;TEST 22 TEST DATA THROUGH WRAP
;*****
TST22: SCOPE
      MOV #1,#TIMES ;DO 1 ITERATION
      MOV #22,#TESTN ;SET TEST NUMBER IN APT MAIL BOX
                          IF #WRAP NOTSET IN #USMR OR #COMSPD NOTSET IN #USM
      BIT #WRAP,#USMR
      BEQ 50155;
      BIT #COMSPD,#USMR
      BNE 50156;
                          ;CAN'T TEST WITHOUT A WRAP
                          EXIT TST
      MOV #1,#TIMES
      BR TST23 ;EXIT THIS TEST
                          ENDIF
50156:
                          ;DON'T USE MAINT.
      LET #TCSR := #TCSR CLR BY #MAINT
                          ; IF A SPECIAL TURN AROUND CARD IS
                          ; CONNECTED IN PLACE OF THE WRAP
                          ; SETTING READER RUN WILL ENABLE IT.
                          ; THIS MODULE IS ONLY USED IN MANUFACTUR
                          ; AND ONLY ON THE CONSOLE OLV11-F.
                          ; IF NO SPECIAL MODULE IS AVAILABLE.
                          ; AND THE WRAP BIT IS SET IN #USMR
                          ; THEN THIS TEST WILL ERROR ON THE CONSO
      LET #RCSR := #RCSR SET BY #11
                          ;CHANGE PRIORITY
                          ;..TO 0
      MOV #PRO,-(SP) ;PUT NEW PS ON STACK
      MOV #64,-(SP) ;PUT NEW PC ON STACK
      RTI ;POP NEW PC AND PS
                          ;GET DATA MASK
      CALL DATLNG OUT <R1>
      LET R0 := #RBUF ; START CLEAN
                          ;BINARY COUNT PATTERN
      INCR R2 FROM #0 TO #377 BY #1
50155:
50160:
50157:
      CMP R2,#377
      BGT 50161;
  
```

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```

2944
2945
2946
2947
2948 007156
2949 007156 010546      MOV      R5,-(SP)
2950 007160 012745 177777      MOV      #SET,-(R5)
2951 007164 016745 172074      MOV      TCSR,-(R5)
2952 007170 012745 000200      MOV      @XMITRDY,-(R5)
2953 007174 012745 000500      MOV      #500,-(R5)
2954 007200 004767 001114      JSR      PC,TIMER
2955 007204 012605      MOV      (SP),R5
2956 007206
2957 007206 103005      BCC      501624
2958 007210 104123      ERROR    123
2959 007212
2960 007212 012767 000001 171740      MOV      #1,#TIMES
2961 007220 000444      BR       TST23          ;;;EXIT THIS TEST
2962 007222
2963 007222          501624:          ENDIF
2964
2965
2966 007222
2967 007222 110277 172042      MOVB     R2,@TBUF
2968
2969 007226
2970 007226 010546      MOV      R5,-(SP)
2971 007230 012745 177777      MOV      #SET,-(R5)
2972 007234 016745 172020      MOV      RCSR,-(R5)
2973 007240 012745 000200      MOV      @RCVROONE,-(R5)
2974 007244 012745 000500      MOV      #500,-(R5)
2975 007250 004767 001044      JSR      PC,TIMER
2976 007254 012605      MOV      (SP),R5
2977 007256
2978 007256 103005      BCC      501634
2979 007260
2980 007260 104124      ERROR    124
2981
2982 007262
2983 007262 012767 000001 171670      MOV      #1,#TIMES
2984 007270 000420      BR       TST23          ;;;EXIT THIS TEST
2985 007272
2986 007272          501634:          ENDIF
2987
2988
2989 007272
2990 007272 017703 171764      MOV      @RBUF,R3
2991
2992
2993 007276
2994 007276 010204      MOV      R2,R4
2995 007300 040104      BIC      R1,R4
2996 007302
2997 007302 040103      BIC      R1,R3
2998
2999

```

;TRANSMIT THE CHAR. IN R2.
; MAKE SURE IT'S READY
CALL TIMER IN (<#500,@XMITRDY,TCSR,#SET>

IF.ERROR THEN
; TRANSMITTER NEVER BECAME READY
EXIT TEST

; START IT ON ITS WAY
LET @TBUF := R2
; NOW WAIT FOR RECIEVER DONE
CALL TIMER IN (<#500,@RCVROONE,RCSR,#SET>

IF.ERROR THEN
ERRNO 124
; RECIEVER NEVER BECAME READY
EXIT TEST

; RETRIEVE
LET R3 := @RBUF

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

LET R3 := R3 CLR.BY R1

; WE HAVE TROUBLE

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 CVDVCC P11 12-SEP-84 08:55 T22 TEST DATA THROUGH WRAP

```

3000 007304
3001 007304 020403      CMP      R4,R3
3002 007306 001405      BEQ      501641
3003
3004 007310
3005 007310 104117      ERROR    117
3006 007312
3007 007312 012767 000001 171640  MOV      #1,#TIMES
3008 007320 000404      BR       TST23
3009 007322
3010 007322
3011
3012 007322
3013 007322 000711      BR       501601
3014 007324
3015
3016
3017
3018 007324
3019 007324 052777 000011 171726  BIS      #11,#RCSR
3020
3021
3022
3023 007332
3024
3025
3026
3027

```

IF R4 NE R3 THEN

; DATA COMPARE ERROR
 ERRNRD 117,COMP.SB WAS

EXIT TEST ; ON ERROR

;;;EXIT THIS TEST
 ENDIF

501641:

ENDINC ; R2

501611:

; NOW THAT THE TEST IS DONE
 ; WE WILL TOGGLE READER RUN
 ; TO TURN OFF THE SPECIAL MODULE.
 LET BRCSR := BRCSR SET BY #11

ENDTST

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 CVDVCC.P11 12 SEP-84 08:55 T22 TEST DATA THROUGH WRAP

```

3028 ;:*****
3029 ;:*****
3030 ;*TEST 23 FULL DATA TRANSFER WITH INTERRUPTS
3031 ;* AND MAINTENANCE MODE.
3032 ;:*****
3033 TST23: SCOPE
3034 MOV #1,#TIMES ;:DO 1 ITERATION
3035 MOV #23,#TESTN ;:SET TEST NUMBER IN APT MAIL BOX
3036
3037 IF #MAINTJUMP NOTSETIN #USMR ORB CONSOLE EQ #TRU
3038
3039 BIT #MAINTJUMP,#USMR
3040 BEQ 50165#
3041 CMPB CONSOLE,#TRUE
3042 BNE 50166#
3043
3044 MOV #1,#TIMES EXIT TEST
3045 BR TST24 ;:EXIT THIS TEST
3046 ;:ENDIF
3047
3048
3049 ;:GET DATA MASK
3050 CALL DATLNG OUT <R3>
3051
3052 SUB #1+2,R5
3053 JSR PC,DATLNG
3054 MOV (R5),R3
3055
3056 ; THIS TEST WILL RUN BOTH TRANSMITTER AND
3057 ; RECIEVER AT FULL SPEED TESTING
3058 ; THE ABILITY OF THE MODULE
3059 ; TO HANDLE INTERRUPTS FROM BOTH SIDES
3060 ; AT ONCE. ALSO, THE DOUBLE BUFFERING LOGIC
3061 ; OF THE UART WILL BE FULLY TESTED.
3062 ; THIS TEST WILL TRANSFER A MAXIMUM OF 400(8)
3063 ; CHARACTERS THROUGH THE MODULE, BUT IF AN ERROR
3064 ; IS DETECTED BY THE TEST A PREMATURE SHUTDOWN OCCURS.
3065
3066 ;CHANGE PRIORITY
3067 ;...TO 0
3068 MOV #PRO,-(SP) ;:PUT NEW PS ON STACK
3069 MOV #64,-(SP) ;:PUT NEW PC ON STACK
3070 RTI ;:POP NEW PC AND PS
3071
3072 641:
3073 ;:GET VECTOR ADDRESS
3074 LET R1 := DLVEC
3075
3076 ;RCVR VECTOR
3077 LET (R1)+ := #REC
3078 LET (R1)+ := #PR7
3079 MOV #PR7,(R1)+
3080
3081 ;POINT TO TRANSMITTER VECTOR
3082 ;AND SET IT UP ALSO
3083 LET (R1)+ := #TRAN
    
```

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 CVOVCC.P11 12-SEP-84 08:55 T23 FULL DATA TRANSFER WITH INTERRUPTS

```

3084 007444
3085 007444 012711 000340      MOV      @PR7,(R1)      LET (R1) := @PR7
3086
3087
3088 007450
3089 007450 005067 000106      CLR      ERRCNT        ; CLEAR ERROR COUNTER
3090
3091 007454
3092 007454 012701 177777      MOV      @-1,R1        LET ERRCNT := @0
3093
3094 007460
3095 007460 005002
3096
3097 007462
3098 007462 012704 177777      MOV      @-1,R4        ; INITIALIZE COUNTERS
3099
3100 007466
3101 007466 000005
3102
3103 007470
3104 007470 052777 000004 171566  BIS      @MAINT,@TCSR  ;RECEIVER STORAGE
3105
3106
3107 007476
3108 007476 052777 000100 171560  BIS      @XMITIE,@TCSR ; OF RECEIVED CHAR. COUNT.
3109
3110 007504
3111 007504 052777 000100 171546  BIS      @RCVRIE,@RCSR ;SET UP ALL REGISTERS
3112
3113
3114
3115 007512
3116 007512
3117 007512
3118 007512 020467 000046      CMP      R4,NUMBER    ;SET UP MAINTENANCE
3119 007516 001403
3120 007520 005767 000036      BEQ     501704        LET @TCSR := @TCSR SET.BY @MAINT
3121 007524 003772
3122 007526
3123
3124 007526
3125 007526 042777 000004 171530  BIC      @MAINT,@TCSR  ;SET I.E. IN TRANSMITTER
3126
3127 007534
3128 007534 005767 000022      TST     ERRCNT        LET @TCSR := @TCSR SET.BY @XMITIE
3129 007540 001401
3130
3131 007542
3132 007542 104120
3133 007544
3134 007544
3135
3136 007544
3137 007544 042777 000100 171512  BIC      @XMITIE,@TCSR ;AND RECEIVER
3138 007552
3139 007552 042777 000100 171500  BIC      @RCVRIE,@RCSR LET @RCSR := @RCSR SET.BY @RCVRIE

;NOW WE WAIT UNTIL R4 COUNT (RECEIVED) IS EQUAL
REPEAT
UNTIL R4 EQ NUMBER OR ERRCNT GT @0

501674:
CMP      R4,NUMBER
BEQ     501704
TST     ERRCNT
BLE     501674

501704:
LET @TCSR := @TCSR CLR.BY @MAINT
; CHECK FOR DATA COMPARE ERRORS.
IF ERRCNT NE @0 THEN
;DATA COMPARE ERROR
ERRHRD 120,COMP.FIRST
ENDIF

501714:
LET @TCSR := @TCSR CLR.BY @XMITIE
LET @RCSR := @RCSR CLR.BY @RCVRIE

```

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 CVDVCC.P11 12-SEP-84 08:55 T23 FULL DATA TRANSFER WITH INTERRUPTS

```

3140 007560
3141 007560 000462          BR      TST24          EXIT      ;SKIP OVER SUPPORT ROUTINES & STORAGE
3142                                     ;EXIT THIS TEST
3143 007562 000000          ERRCNT: 0
3144 007564 001000          NUMBER: 1000
3145 007566      000          SB:      .BYTE 0
3146 007567      000          WAS:     .BYTE 0
3147
3148
3149                                     ;*****
3150                                     ;TRANSMIT INTERRUPT HANDLER
3151 007570                                     BGNSRV TRAN
3152 007570
3153                                     ;*****
3154
3155                                     ;INCREMENT CHAR COUNT
3156 007570                                     LET R1 := R1 + #1
3157 007570 005201          INC      R1
3158                                     ;SET UP FOR TRANSFER
3159 007572                                     LET HOLD := R1 CLR.BY R3
3160 007572 010167 000030          MOV      R1,HOLD
3161 007576 040367 000024          BIC      R3,HOLD
3162                                     ;AND SEND.
3163 007602                                     LET @TBUF := HOLD
3164 007602 016777 000020 171460          MOV      HOLD,@TBUF
3165                                     ;ALL DONE
3166 007610                                     IF R1 EQ NUMBER THEN
3167 007610 020167 177750          CMP      R1,NUMBER
3168 007614 001003          BNE      501724
3169                                     ;STOP INTERRUPT PROCESSING
3170 007616                                     LET @TCSR := @TCSR CLR.BY @XMITIE
3171 007616 042777 000100 171440          BIC      @XMITIE,@TCSR
3172 007624                                     ENDIF
3173 007624          501724:
3174
3175 007624 000401          BR      ZZZ          ; EXIT SRV
3176
3177          HOLD:0
3178
3179 007630          ZZZ:          ENDSRV
3180 007630 000002
3181          RTI
3182
3183                                     ;*****
3184                                     ;RECEIVER INTERRUPT HANDLER
3185                                     BGNSRV REC
3186 007632
3187 007632
3188                                     ;*****
3189
3190                                     ;COUNT THIS CHAR.
3191 007632                                     LET R4 := R4 + #1
3192 007632 005204          INC      R4
3193                                     ;GET CHAR IN + MASK IT
3194 007634                                     LET R2 := @RBUF CLR.BY R3
3195 007634 017702 171422          MOV      @RBUF,R2

```


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 CVOVCC.P11 12-SEP-84 08:55 T23 FULL DATA TRANSFER WITH INTERRUPTS

```

3196 007640 040302          BIC      R3,R2
3197
3198 007642
3199 007642 010467 000054    MOV      R4,RHLD
3200 007646 040367 000050    BIC      R3,RHLD
3201
3202
3203 007652
3204 007652 020267 000044    CMP      R2,RHLD
3205 007656 001412          BEQ      501734
3206
3207 007660
3208 007660 005767 177676    TST     ERRCNT
3209 007664 001005          BNE     501744
3210
3211 007666
3212 007666 116767 000030 177672    MOVB    RHLD,SB
3213 007674
3214 007674 110267 177667    MOVB    R2,WAS
3215 007700
3216 007700          501744:
3217
3218 007700
3219 007700 005267 177656    INC     ERRCNT
3220 007704
3221 007704          501734:
3222
3223
3224 007704
3225 007704 020467 177654    CMP     R4,NUMBER
3226 007710 001003          BNE     501754
3227
3228 007712
3229 007712 042777 000100 171340    BIC     @RCVRIE,@RCSR
3230
3231
3232
3233 007720
3234 007720          501754:
3235
3236 007720 000401          BR      ZZZZ
3237
3238 007722 000000
3239 007724          ZZZZ:
3240 007724
3241 007724 000002          RTI
3242
3243 007726
3244
3245
3246

```

;RHLD WILL CONTAIN EXPECTED INPUT
 LET RHLD := R4 CLR.BY R3

;DO THEY COMPARE
 IF R2 NE RHLD THEN

;FIRST ERROR
 IF ERRCNT EQ #0 THEN

;SAVE RECORD OF FIRST MISS
 LET SB :B= RHLD
 LET WAS :B= R2

ENDIF

;COUNT IT.
 LET ERRCNT := ERRCNT + #1

ENDIF

;ALL DONE?
 IF R4 EQ NUMBER THEN

;STOP RECEIVER INTERRUPTS
 LET @RCSR := @RCSR CLR.BY @RCVRIE

;INDICATE ALL DONE TO TIMER
 ;MAIN REPEAT LOOP IS CHECKING
 ;FOR 'R4 = NUMBER' ALSO

ENDIF

; EXIT SRV
 RHLD:0

ENDSRV

ENDTST

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CVDVCC.P11 12-SEP-84 08:55 T23 FULL DATA TRANSFER WITH INTERRUPTS

```

3247
3248
3249
3250
3251
3252
3253
3254
3255 007726 000004
3256 007730 012767 000010 171222
3257 007736 012767 000024 171234
3258 007744
3259 007744 032767 040000 171246
3260 007752 001404
3261 007754 032767 010000 171236
3262 007762 001004
3263 007764
3264 007764
3265 007764 012767 000001 171166
3266 007772 000500
3267 007774
3268 007774
3269 007774
3270 007774 126727 001125 000001
3271 010002 001004
3272 010004
3273 010004 012767 000001 171146
3274 010012 000470
3275 010014
3276 010014
3277
3278 010014
3279 010014 005067 000152
3280
3281 010020
3282 010020 052777 000004 171236
3283
3284 010026
3285 010026 052777 000001 171230
3286
3287 010034
3288 010034 012777 000252 171226
3289
3290 010042
3291 010042 010546
3292 010044 012745 177777
3293 010050 016745 171204
3294 010054 012745 000200
3295 010060 012745 000500
3296 010064 004767 000230
3297 010070 012605
3298 010072
3299 010072 103001
3300
3301 010074
3302 010074 104115

```

```

;*****
;*****
;TEST 24 TEST BREAK GENERATION LOGIC
; TRANSMIT KNOWN CHAR WITH BREAK SET
; AND COMPARE RECEIVED WITH 0.
; FRAMING ERROR WILL ALSO BE CHECKED
; IF ERROR BITS ARE ENABLED.
;*****
TST24: SCOPE
MOV #10,#TIMES ;DO 10 ITERATIONS
MOV #24,#TESTN ;SET TEST NUMBER IN APT MAIL BOX
; IF #MAINTJUMP NOTSETIN #USMR OR #BRK NOTSETIN #U
BIT #MAINTJUMP,#USMR
BEQ 501764
BIT #BRK,#USMR
BNE 501774

501764:
EXIT TEST
MOV #1,#TIMES
BR TST25 ;EXIT THIS TEST
ENDIF

501774:
IFB CONSOLE EQ #TRUE THEN
CMPB CONSOLE,#TRUE
BNE 502004
EXIT TEST
MOV #1,#TIMES
BR TS125 ;EXIT THIS TEST
ENDIF

502004:
LET ERRCHK := #0 ; CLEAR ERROR WORD
;SET MAINTENANCE BIT
LET #TCSR := #TCSR SET.BY #MAINT
;SET BREAK BIT
LET #TCSR := #TCSR SET.BY #BREAK
;NON-ZERO CHAR. '*'
LET #TBUF := #252
;WAIT FOR DONE
CALL TIMER IN (#500,#RCVRDONE,#RCSR,#SET)

MOV R5, -(SP)
MOV #SET, -(R5)
MOV #RCSR, -(R5)
MOV #RCVRDONE, -(R5)
MOV #500, -(R5)
JSR PC, TIMER
MOV (SP)+, R5

IF.ERROR THEN
BCC 502014
; RECIEVER DONE DID NOT SET
ERRHRU 115
ERROR 115

```

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 CVDVCC P11 12-SEP-84 08:55 T24 TEST BREAK GENERATION LOGIC

```

3303 010076
3304 010076          50201:
3305
3306 010076
3307 010076 105777 171160      TSTB  BRBUF
3308 010102 001404          BEQ    50202:
3309
3310 010104
3311 010104 052767 000001 000060      BIS    #BIT0,ERRCHK
3312 010112
3313 010112 000413          BR    50203:
3314 010114          50202:
3315 010114
3316 010114 052767 100000 171076      BIT    #ERRBITS,#USMR
3317 010122 001407          BEQ    50204:
3318 010124
3319 010124 052777 020000 171130      BIT    #FRERR, BRBUF
3320 010132 001603          BNE    50205:
3321 010134
3322 010134 052767 000002 000030      BIS    #BIT1,ERRCHK
3323 010142
3324 010142          50205:
3325 010142
3326 010142          50204:
3327 010142
3328 010142          50203:
3329
3330 010142
3331 010142 000005          RESET
3332
3333 010144
3334 010144 052767 000001 000020      BIT    #BIT0,ERRCHK
3335 010152 001401          BEQ    50206:
3336 010154
3337 010154 104121          ERROR  121
3338 010156
3339 010156          50206:
3340 010156
3341 010156 052767 000002 000006      BIT    #BIT1,ERRCHK
3342 010164 001401          BEQ    50207:
3343 010166
3344 010166 104122          ERROR  122
3345 010170
3346 010170          50207:
3347 010170
3348 010170 000401          BR    TST25
3349 010172 000000      ERRCHK: .WORD 0
3350 010174
3351

```

ENDTF

IFB BRBUF NE #0 THEN

; BREAK DID NOT EQUAL 0
 LET ERRCHK := ERRCHK SET.BY #BIT0

ELSE

IF #ERRBITS SETIN #USMR THEN

IF #FRERR NOTSETIN BRBUF THEN

LET ERRCHK := ERRCHK SET.BY #BIT1

ENDIF

ENDIF

ENDIF

BRESET ;CLEAN UP

IF #BIT0 SETIN ERRCHK THEN

ERRHRD 121 ;BREAK ERROR

ENDIF

IF #BIT1 SETIN ERRCHK THEN

ERRHRD 122 ; FRAMING ERROR

ENDIF

EXIT

;;;EXIT THIS TEST

ENDTST

MA: NDEC-11-DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 77
 CVDVCC.P11 12-SEP-84 08:55 T24 TEST BREAK GENERATION LOGIC

```

3352
3353
3354
3355
3356 010174 000004
3357 010176 012767 000001 170754
3358 010204 104401 010212
3359 010210 000404
3360
3361 010222
3362 010222 016746 171026
3363 010226 104402
3364 010230 104401 010236
3365 010234 000405
3366
3367 010250
3368 010250 016746 171002
3369 010254 104402
3370 010256 104401 010264
3371 010262 000405
3372
3373 010276
3374 010276 016746 170610
3375 010302 104405
3376 010304 005067 170602
3377 010310 104401 001171
3378 010314 000167 171616

;*****
;TEST 25 NOT A TEST - SEND BACK TO LOOP
;*****
TST25: SCOPE
MOV #1,#TIMES ;DO 1 ITERATION
TYPE ,65H ;TYPE ASCIZ STRING
BR 64H ;GET OVER THE ASCIZ
;65H: .ASCIZ <CRLF>*CSR: *
64H:
MOV DLADD,-(SP) ;SAVE DLADD FOR TYPEOUT
TYPOC ;GO TYPE--OCTAL ASCII(ALL DIGITS)
TYPE ,67H ;TYPE ASCIZ STRING
PR 66H ;GET OVER THE ASCIZ
;67H: .ASCIZ *.VECTOR: *
66H:
MOV DLVEC,-(SP) ;SAVE DLVEC FOR TYPEOUT
TYPOC ;GO TYPE--OCTAL ASCII(ALL DIGITS)
TYPE ,69H ;TYPE ASCIZ STRING
BR 68H ;GET OVER THE ASCIZ
;69H: .ASCIZ *.ERRORS: *
68H:
MOV #ERTTL,-(SP) ;SAVE #ERTTL FOR TYPEOUT
TYPOS ;GO TYPE--DECIMAL ASCII WITH SIGN
CLR #ERTTL ; RESET FOR NEXT DEVICE/PASS
TYPE ,#CRLF
JMP LOOP ; BACK UP TO THE BEGINNING

```

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 CVDVCC.P11 12-SEP-84 08:55 T25 NOT A TEST - SEND BACK TO LOOP

```

3379
3380          ; BGNMOD          SUBS
3381          ; *****
3382 010320          ROUTINE TIMER <HOMLONG,WHICHBIT,REG,SETCLR>
3383 010320          TIMER:
3384          * ROUTINE:TIMER
3385          * THIS ROUTINE IS USED TO TEST THE STATUS OF ANY BIT
3386          * IN ANY REGISTER.
3387          * INPUTS:
3388          * HOMLONG      THE MAXIMUM AMOUNT OF TIME TO SPEND IN
3389          *                THIS ROUTINE.
3390          * WHICHBIT    A MASK WITH THE BIT(S) SET THAT ARE
3391          *                TO BE CHECKED.
3392          * REG         A POINTER TO THE REGISTER TO BE CHECKED
3393          * SETCLR     THE DESIRED RESULTS
3394          *                EITHER #SET OR #CLEAR
3395          * OUTPUT:
3396          * THE 'C' BIT IS SET TO INDICATE AN ERROR
3397          * BUT IT IS TESTED BY THE IF.ERROR STATEMENT
3398          *
3399          *
3400          * NOTE:: THE USE OF (RS) IS PART OF THE LINKAGE
3401          *                MECHANISM BETWEEN THE CALLER AND THE CALLED
3402          ; *****
3403          .ENABL LSB
3404          000001          TRUE= 1
3405          000000          FALSE= 0
3406
3407 010320          LET      REGSAV := REG(R5) ; GET POINTER TO REGIST
3408 010320 016567 000004 000136          MOV      REG(R5),REGSAV
3409 010326          LET      TMSAV := HOMLONG(R5) ; SAVE HOMLONG FOR
3410 010326 016567 000000 000132          MOV      HOMLONG(R5),TMSAV
3411 010334          LET      FLAG :B= #FALSE ; INITIALIZE THE EXIT FLA
3412 010334 112767 000000 000126          MOVB   #FALSE,FLAG
3413
3414
3415          ;          START OF AN INFINITE LOOP
3416          LOOP
3417 010342          500021:
3418 010342
3419
3420 010342          IF      ; TEST TO SEE IF WHICHBIT IS SET
3421 010342 036577 000002 000114          BIT      WHICHBIT(R5),BREGSAV
3422 010350 001004          BNE      500041
3423 010352          LET      HOLDSC :B= #CLR
3424 010352 112767 000000 000111          MOVB   #CLR,HOLDSC
3425 010360          ELSE
3426 010360 000403          BR      500051
3427 010362          500041:
3428 010362          LET      HOLDSC :B= #SET ; REMEMBER THIS
3429 010362 112767 177777 000101          MOVB   #SET,HOLDSC
3430 010370          ENDF
3431 010370          500051:
3432
3433          ; NOW SEE IF THAT WAS WHAT WE WANTED
3434 010370          IFB     HOLDSC EQ SETCLR(R5) THEN
    
```

```

MAINDEC-11-DVDVC-C      MACY11 30A(1052) 12-SEP-84 15:41 PAGE 79
CYDVCC.P11      12-SEP-84 08:55      T25      NOT A TEST - SEND BACK TO LOOP
3435 010370 126765 000075 000006      CMPB      HOLDSC,SETCLR(R5)
3436 010376 001003      BNE      500061
3437      ; JUST THE THING WE NEEDED
3438 010400      LET      FLAG :B= #TRUE
3439 010400 112767 000001 000062      MOVB      #TRUE,FLAG
3440 010406      ENDF
3441 010406      500061:
3442
3443 010406      EXIFB     FLAG EQ #TRUE OR TMSAV LE #0
3444 010406 126727 000056 000001      CMPB      FLAG,#TRUE
3445 010414 001414      BEQ      500031
3446 010416 005767 000044      TST      TMSAV
3447 010422 003411      BLE      500031
3448      ; ONE WAY OR THE OTHER, WE ARE DONE
3449      ; IF WE ARE STILL HERE THEN HANG AROUND A WHILE
3450
3451 010424      WAITMS 1      ;WAIT FOR 1 MILLI-SECONDS
3452 010424 010546      MOV      R5,-(SP)
3453 010426 012745 000001      MOV      #1,-(R5)
3454 010432 004767 000140      JSR      PC,WAIT
3455 010436 012605      MOV      (SP)+,R5
3456 010440      LET      TMSAV := TMSAV - #1 ; COUNTING DOWN
3457 010440 005367 000022      DEC      TMSAV
3458 010444      ENDF
3459 010444 000736      BR      500021
3460 010446      500031:
3461
3462      ; ONLY 2 WAYS TO GET HERE
3463      ; 1). WE RAN OUT OF TIME---ERROR !!
3464      ; 2). THE BIT IS IN THE CORRECT CONDITION--GOOD !!
3465
3466 010446      IFB      FLAG EQ #TRUE THEN
3467 010446 126727 000016 000001      CMPB      FLAG,#TRUE
3468 010454 001001      BNE      500071
3469 010456      RETURN NO.ERROR      ; GOOD
3470 010456 000405      BR      500001
3471 010460      ENDF
3472 010460      500071:
3473 010460      RETURN ERROR      ; BAD
3474 010460 000261      SEC
3475 010462 000404      BR      500011
3476
3477 010464 000000      REGSAV: .WORD 0
3478 010466 000000      TMSAV: .WORD 0
3479 010470 000      FLAG: .BYTE 0
3480 010471 000      HOLDSC: .BYTE 0
3481      ; WE ARE DONE GO BACK HOME
3482 010472      ENDRTN
3483 010472      500001:
3484 010472 000241      CLC
3485 010474      500011:
3486 010474 000207      RTS      PC
3487      .DSABL LSB

```

MAINDEC-11 DVDVC-C MACY11 30A(1052) 12-SEP 84 15:41 PAGE 80
CVDVCC.P11 12-SEP-84 08:55 T25 NOT A TEST - SEND BACK TO LOOP

```

3488
3489
3490 010476
3491 010476
3492
3493
3494
3495
3496
3497
3498
3499
3500
3501
3502
3503
3504
3505 010476
3506 010476 005065 000000
3507 010502
3508 010502 016767 170512 000062
3509 010510 016746 000056
3510 010514 042716 000017
3511 010520 042667 000046
3512
3513 010524
3514 010524 012767 000001 170540
3515 010532 000402
3516 010534
3517 010534 005267 170532
3518 010540
3519 010540 026767 170526 000024
3520 010546 003006
3521 010550
3522 010550 006365 000000
3523 010554
3524 010554 052765 000001 000000
3525 010562
3526 010562 000764
3527 010564
3528 010564
3529 010564 005165 000000
3530 010570
3531 010570 000401
3532 010572 000000
3533 010574
3534 010574
3535 010574
3536 010574 000207
3537

```

```

;*****
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:
; IUSMR-- 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 IUSMR WORD.
;*****
.ENABL LSB
          CLR      MASK(R5)
          LET MASK(R5) := #0 ; START
          LET NUMBR := IUSMR AND #DATA
          MOV      IUSMR, NUMBR
          MOV      NUMBR, -(SP)
          BIC      #DATA, (SP)
          BIC      (SP), NUMBR
          INCR I FROM #1 TO NUMBR BY #1
          MOV      #1, I
          BR       50003#
          INC      I
          50002#: CMP      I, NUMBR
          BGT      50004#
          LET MASK(R5) := MASK(R5) SHIFT 1
          LET MASK(R5) := MASK(R5) SET.BY #1
          ENDINC
          BR       50003#
          50004#: LET MASK(R5) := COMP MASK(R5)
          COM      MASK(R5)
          RETURN
          BR       50000#
          BR       50001#
          50000#:
          50001#:
          RTS      PC
.DSABL LSB

```

```

3538
3539
3540 010576
3541 010576
3542
3543
3544
3545
3546
3547
3548
3549 010576 010146
3550 010600 010246
3551 010602 010346
3552 010604
3553 010604 016501 000000
3554 010610
3555 010610 012702 000001
3556 010614 000402
3557 010616
3558 010616 062702 000001
3559 010622
3560 010622 020201
3561 010624 101010
3562 010626
3563 010626 005003
3564 010630 000401
3565 010632
3566 010632 005203
3567 010634
3568 010634 020327 000100
3569 010640 003001
3570 010642
3571 010642 000773
3572 010644
3573 010644
3574 010644 000764
3575 010646
3576 010646 012603
3577 010650 012602
3578 010652 012601
3579 010654
3580 010654
3581 010654
3582 010654 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
50003: BR 50002
50002: ADD #01,R2
50004: CMP R2,R1
50004: BHI 50004
INCR R3 FROM #0 TO #100 BY #1
50005: CLR R3
50005: BR 50005
50006: INC R3
50007: CMP R3,#100
50007: BGT 50007
50007: ENDINC
50007: BR 50006
50004: ENDINC
50004: BR 50003
50004: MOV (SP),R3 ;POP STACK INTO R3
50004: MOV (SP),R2 ;POP STACK INTO R2
50004: MOV (SP),R1 ;POP STACK INTO R1
ENDRTN
50000:
50001:
RTS PC

```


MAINDEC-11 DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 82
CVDVCC.P11 12-SEP-84 08:55 T25 NOT A TEST - SEND BACK TO LOOP

```

3583
3584 .SBTTL INTSRV INTERRUPT SERVICE ROUTINE
3585 ;:.....
3586 010656 INTSRV:
3587 ;* SERVICE ROUTINE; INTSRV
3588 ;* THIS GLOBAL ROUTINE DOES NOTHING BUT INCREMENT
3589 ;* 'INTFLAG' EACH TIME IT IS CALLED. IT ASSUMES
3590 ;* THAT THE MAIN CALLING ROUTINE WILL KNOW WHAT
3591 ;* TO LOOK FOR.
3592 ;:.....
3593
3594 ;ADD 1 TO 'INTERRUPT OCCURED' FLAG
3595 010656 INC INTFLAG LET INTFLAG := INTFLAG . #1
3596 010656 005267 000002 ENDSRV ;THAT'S ALL
3597 010662 RTI
3598 010662 000002 INTFLAG: 0
3599 010664 000000

```

MAINDEC-11-DVDC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 83
 CVDVCC.P11 12-SEP-84 08:55 INTSRV INTERRUPT SERVICE ROUTINE

```

3600 010666          ROUTINE CYCLE
3601 010666          CYCLE:
3602                ;*****
3603                ;* ROUTINE:    CYCLE
3604                ;* THIS ROUTINE CAUSES ADRS TO POINT TO THE
3605                ;* ADDRESS OF DLV11-F UNDER TEST, ADRS +2 TO
3606                ;* POINT TO THE VECTOR OF THE DLV11-F UNDER TEST.
3607                ;* IT KEEPS TRACK OF THE CURRENT DEVICE AND BIT
3608                ;* MASKS. THE CONSOLE IS TREATED SPECIAL BY THIS ROUTINE.
3609                ;* IT IS ONLY TESTED ONCE IF UNDER APT. IF NOT UNDER APT
3610                ;* ALL TESTS THAT REQUIRE THE MAINT BIT ARE NOT RUN.
3611                ;*****
3612                ;ENABL LSB
3613 010666          LET APTCON :B= #FALSE ; SET DEFAULT VALUE
3614 010666 112767 000000 000230      MOVB  #FALSE,APTCON
3615 010674          LET CONSOLE :B= #FALSE
3616 010674 112767 000000 000223      MOVB  #FALSE,CONSOLE
3617 010702          REPEAT          ; UNTIL BITMASK SETIN #DEVN
3618 010702          50002:          IF BITMASK EQ #0 THEN
3619 010702          IF BITMASK EQ #0 THEN
3620 010702 005767 000200      TST   BITMASK
3621 010706 001027          BNE   50003:
3622 010710          IF INITFLAG EQ #1 THEN
3623 010710 026727 000174 000001      CMP   INITFLAG,#1
3624 010716 001003          BNE   50004:
3625 010720          LET INITFLAG := #0
3626 010720 005067 000164          CLR   INITFLAG
3627 010724          ELSE
3628 010724 000403          BR    50005:
3629 010726          50004:
3630 010726          CALL #EOP ; AS A SUBROUTINE
3631 010726 004767 000370      JSR   PC,#EOP
3632                ; BECAUSE #EOP RETURNS AS A JUMP
3633 010732          SPECIALADDRESS: ; BECAUSE #EOP RETURNS AS A JUMP
3634 010732          LET RO := POP
3635 010732 012600          MOV   (SP),RO
3636 010734          ENDF
3637 010734          50005:
3638 010734          LET BITMASK := #1
3639 010734 012767 000001 000144      MOV   #1,BITMASK
3640 010742          LET #DEVCT := #1
3641 010742 012767 000001 170234      MOV   #1,#DEVCT
3642 010750          LET ADDRESS := #BASE
3643 010750 016767 170274 000134      MOV   #BASE,ADDRESS
3644 010756          LET VECTOR := #VECT1
3645 010756 016767 170262 000130      MOV   #VECT1,VECTOR
3646 010764          ELSE
3647 010764 000410          BR    50006:
3648 010766          50003:
3649 010756          LET R4 := #10
3650 010766 012704 000010      MOV   #10,R4
3651 010772          LET BITMASK := BITMASK ROTATE 1
3652 010772 006167 000110      ROL   BITMASK
3653 010776          LET ADDRESS := ADDRESS + R4
3654 010776 060467 000110      ADD   R4,ADDRESS
3655 011002          LET VECTOR := VECTOR + R4

```

MAINDEC-11 DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 84
 CVDVCC.P11 12-SEP-84 08:55 INTSRV INTERRUPT SERVICE ROUTINE

```

3656 011002 060467 000106          ADD      R4,VECTOR
3657 011006                          ENDIF
3658 011006          500061:
3659 011006                          UNTIL  BITMASK SETIN #DEVH
3660 011006 036767 000074 170236    BIT      BITMASK,#DEVH
3661 011014 001732                      BEQ      500021
3662 011016                          IF BITMASK EQ #BIT15 THEN
3663 011016 026727 000064 100000    CMP      BITMASK,#BIT15
3664 011024 001023                      BNE      500071
3665 011026                          LET CONSOLE ;B= #TRUE
3666 011026 112767 000001 000071    MOVB     #TRUE,CONSOLE
3667 011034                          LET ADDRESS := CONADR
3668 011034 016767 000060 000050    MOV      CONADR,ADDRESS
3669 011042                          LET VECTOR := CONVECT
3670 011042 016767 000054 000044    MOV      CONVECT,VECTOR
3671                          ;
3672                          ;
3673                          ;
3674 011050                          IF #COMPLAIN NOTSETIN #USMR THEN
3675 011050 032767 000001 170136    BIT      #APTENV,#ENV
3676 011056 001406                      BEQ      500101
3677 011060                          IF #PASS NE #J THEN ; NOT FIRST PASS
3678 011060 005767 170116    TST      #PASS
3679 011064 001403                      BEQ      500111
3680                          ; DEFINE DEVICE AS APT CONSOLE
3681 011066                          LET APTCON ;B= #TRUE
3682 011066 112767 000001 000030    MOVB     #TRUE,APTCON
3683 011074                          ENDIF ; FIRST PASS
3684 011074          500111:
3685 011074                          ENDIF ; APT
3686 011074          500101:
3687 011074                          ENDIF ; BITMASK
3688 011074          500071:
3689
3690 011074                          LET ADRS := #ADDRESS
3691 011074 012701 011112    MOV      #ADDRESS,ADRS
3692 011100                          LET #DEVCT := #DEVCT + #1
3693 011100 005267 170100    INC      #DEVCT
3694 011104                          RETURN
3695 011104 000411          BR      500001
3696 011106 100000          BITMASK: 100000 ; CONSOLE FIRST
3697 011110 000001          INITFLAG: 1
3698 011112 000000          ADDRESS: 0
3699 011114 000000          VECTOR: 0
3700 011116 000000          OK: 0
3701 011120 177560          CONADR: 177560 ; CONSOLE ADDRESS
3702 011122 000060          CONVECT: 60 ; CONSOLE VECTOR

```

MAINDEC-11 DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 85
CVDVCC.P11 12-SEP-84 08:55 INTSRV INTERRUPT SERVICE ROUTINE

3703	011124	000	APTCN:	.BYTE 0
3704	011125	000	CONSOLE:	.BYTE 0
3705	011126	000	NOCONMANT:	.BYTE 0
3706		011130		.EVEN
3707				
3708	011130			ENDRTN
3709	011130		500001:	
3710	011130		500011:	
3711	011130	000207	RTS	PC
3712				
3713			.DSABL	LSB

MAINDEC-11-DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 86
 CVDVCC.P11 12-SEP-84 08:55 INTSRV INTERRUPT SERVICE ROUTINE

```

3714
3715 011132          ROUTINE MYTYPE
3716 011132          MYTYPE:
3717 *****
3718 011132 104401 011140          TYPE      ,650          ;;TYPE ASCIZ STRING
3719 011136 000405          BR          640          ;;GET OVER THE ASCIZ
3720          11650: .ASCIZ <CRLF>*TEST *
3721 011152          640:
3722 011152 016746 170022          MOV      @TESTN,-(SP)      ;;SAVE @TESTN FOR TYPEOUT
3723 011156 104402          TYPOC          ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
3724 011160 104401 011166          TYPE      ,670          ;;TYPE ASCIZ STRING
3725 011164 000405          BR          660          ;;GET OVER THE ASCIZ
3726          11670: .ASCIZ *ERROR *
3727 011200          660:
3728 011200 116767 167710 167770          MOV      @ITEMB,@FATAL      ; APT FATAL ERROR NUMBER
3729 011206 016746 167764          MOV      @FATAL,-(SP)      ;;SAVE @FATAL FOR TYPEOUT
3730 011212 104403          TYPOS          ;;GO TYPE--OCTAL ASCII
3731 011214      006          .BYTE      6          ;;TYPE 6 DIGITS
3732 011215      000          .BYTE      0          ;;SUPPRESS LEADING ZEROS
3733 011216 104401 011224          TYPE      ,690          ;;TYPE ASCIZ STRING
3734 011222 000404          BR          680          ;;GET OVER THE ASCIZ
3735          11690: .ASCIZ *PC *
3736 011234          680:
3737 011234 016746 167656          MOV      @ERRPC,-(SP)      ;;SAVE @ERRPC FOR TYPEOUT
3738 011240 104402          TYPOC          ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
3739 011242 104401 011250          TYPE      ,710          ;;TYPE ASCIZ STRING
3740 011246 000404          BR          700          ;;GET OVER THE ASCIZ
3741          11710: .ASCIZ *.CSR: *
3742 011260          700:
3743 011260 016746 167770          MOV      DLADD,-(SP)      ;;SAVE DLADD FOR TYPEOUT
3744 011264 104402          TYPOC          ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
3745 011266 104401 011274          TYPE      ,730          ;;TYPE ASCIZ STRING
3746 011272 000405          BR          720          ;;GET OVER THE ASCIZ
3747          11730: .ASCIZ *.VECTOR: *
3748 011306          720:
3749 011306 016746 167744          MOV      DLVEC,-(SP)      ;;SAVE DLVEC FOR TYPEOUT
3750 011312 104402          TYPOC          ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
3751 011314 104401 001171          TYPE      ,@CRLF
3752 011320          ENDRTN
3753 011320          500000:
3754 011320          500010:
3755 011320 000207          RTS      PC

```

```

3756
3757
3758
3759
3760
3761
3762
3763
3764
3765 011322
3766 011322 000004
3767 011324 005067 167552
3768 011330 005067 167624
3769 011334 005267 167642
3770 011340 042767 100000 167634
3771 011346 005327
3772 011350 000001
3773 011352 003022
3774 011354 012737
3775 011356 000001
3776 011360 011350
3777 011362 104401 011427
3778 011366 016746 167610
3779 011372 104405
3780 011374 104401 011424
3781 011400 013700 000042
3782 011404 001405
3783 011406 000005
3784 011410 004710
3785 011412 000240
3786 011414 000240
3787 011416 000240
3788 011420
3789 011420 000137
3790 011422 010732
3791 011424 377 377 000
3792 011427 015 042412 042116
3793 011434 050040 051501 020123
3794 011442 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

#EUP:
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
BEG #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-11-DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 88
 CVDVCC.P11 12-SEP-84 08:55 POWER DOWN AND UP ROUTINES

.SBTTL POWER DOWN AND UP ROUTINES

```

3795
3796
3797
3798
3799 011444 012737 011610 000024
3800 011452 012737 000340 000026
3801 011460 010046
3802 011462 010146
3803 011464 010246
3804 011466 010346
3805 011470 010446
3806 011472 010546
3807 011474 017746 167440
3808 011500 010667 000110
3809 011504 012737 011516 000024
3810 011512 000000
3811 011514 000776
3812
3813
3814
3815 011516 012737 011610 000024
3816 011524 016706 000064
3817 011530 005067 000060
3818 011534 005267 000054
3819 011540 001375
3820 011542 012677 167372
3821 011546 012605
3822 011550 012604
3823 011552 012603
3824 011554 012602
3825 011556 012601
3826 011560 012600
3827 011562 012737 011444 000024
3828 011570 012737 000340 000026
3829 011576 104401
3830 011600 011616
3831 011602 012716
3832 011604 001336
3833 011606 000002
3834 011610 000000
3835 011612 000776
3836 011614 000000
3837 011616 005015 047520 042527
3838 011624 C00122
3839

;*****
;POWER DOWN ROUTINE
#PWRDN: MOV    @#ILLUP,@#PWRVEC ;;SET FOR FAST UP
        MOV    @340,@#PWRVEC+2 ;;PRIO:7
        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    R4,-(SP)      ;;PUSH R4 ON STACK
        MOV    R5,-(SP)      ;;PUSH R5 ON STACK
        MOV    @SMR,-(SP)    ;;PUSH @SMR ON STACK
        MOV    SP,@SAVR6    ;;SAVE SP
        MOV    @#PWRUP,@#PWRVEC ;;SET UP VECTOR
        HALT
        BR     .-2          ;;HANG UP

;*****
;POWER UP ROUTINE
#PWRUP: MOV    @#ILLUP,@#PWRVEC ;;SET FOR FAST DOWN
        MOV    @SAVR6,SP    ;;GET SP
        CLR    @SAVR6      ;;WAIT LOOP FOR THE TTY
        INC    @SAVR6      ;;WAIT FOR THE INC
        BNE   @SMR        ;;OF WORD
        MOV    (SP)+,@SMR  ;;POP STACK INTO @SMR
        MOV    (SP)+,R5    ;;POP STACK INTO R5
        MOV    (SP)+,R4    ;;POP STACK INTO R4
        MOV    (SP)+,R3    ;;POP STACK INTO R3
        MOV    (SP)+,R2    ;;POP STACK INTO R2
        MOV    (SP)+,R1    ;;POP STACK INTO R1
        MOV    (SP)+,R0    ;;POP STACK INTO R0
        MOV    @#PWRDN,@#PWRVEC ;;SET UP THE POWER DOWN VECTOR
        MOV    @340,@#PWRVEC+2 ;;PRIO:7
        TYPE   @POWER      ;;REPORT THE POWER FAILURE
        #PWRMG: .WORD @POWER ;;POWER FAIL MESSAGE POINTER
        MOV    (PC)+,(SP)  ;;RESTART AT START
        #PWRAD: .WORD START ;;RESTART ADDRESS
        RTI
        #ILLUP: HALT      ;;THE POWER UP SEQUENCE WAS STARTED
        BR     .-2          ;; BEFORE THE POWER DOWN WAS COMPLETE
        #SAVR6: 0          ;;PUT THE SP HERE
        #POWER: .ASCIZ <15><12>"POWER"
                .EVEN

```

```

3840 .SBTTL TYPE ROUTINE
3841
3842 ;*****
3843 ;ROUTINE TO TYPE ASCIZ MESSAGE. MESSAGE MUST TERMINATE WITH A 0 BYTE
3844 ;THE ROUTINE WILL INSERT A NUMBER OF NULL CHARACTERS AFTER A LINE FEED.
3845 ;NOTE1: #NULL CONTAINS THE CHARACTER TO BE USED AS THE FILLER CHARACTER.
3846 ;NOTE2: #FILLS CONTAINS THE NUMBER OF FILLER CHARACTERS REQUIRED.
3847 ;NOTE3: #FILLC CONTAINS THE CHARACTER TO FILL AFTER.
3848 ;
3849 ;CALL:
3850 ;1) USING A TRAP INSTRUCTION
3851 ;# TYPE #MESADR ;MESADR IS FIRST ADDRESS OF AN ASCIZ STRING
3852 ;OR
3853 ;# TYPE
3854 ;# MESADR
3855 ;#
3856
3857 011626 105767 167325 #TYPE: TSTB #TPFLG ;IS THERE A TERMINAL?
3858 011632 100002 BPL 1# ;BR IF YES
3859 011634 000000 HALT ;HALT HERE IF NO TERMINAL
3860 011636 000430 BR 3# ;LEAVE
3861 011640 010046 1#: MOV RO,-(SP) ;SAVE RO
3862 011642 017600 000002 MOV #2(SP),RO ;GET ADDRESS OF ASCIZ STRING
3863 011646 122767 000001 167340 CNPB #APTNV,#ENV ;RUNNING IN APT MODE
3864 011654 001011 BNE 62# ;NO,GO CHECK FOR APT CONSOLE
3865 011656 132767 000100 167331 BITB #APTSPOOL,#ENVH ;SPOOL MESSAGE TO APT
3866 011664 001405 BEQ 62# ;NO,GO CHECK FOR CONSOLE
3867 011666 010067 000004 MOV RO,61# ;SETUP MESSAGE ADDRESS FOR APT
3868 011672 004767 001046 JSR PC,#ATY3 ;SPOOL MESSAGE TO APT
3869 011676 000000 61#: .WORD 0 ;MESSAGE ADDRESS
3870 011700 132767 000040 167307 62#: BITB #APTCSUP,#ENVH ;APT CONSOLE SUPPRESSED
3871 011706 001003 BNE 60# ;YES,SKIP TYPE OUT
3872 011710 112046 2#: MOVB (RO)+,-(SP) ;PUSH CHARACTER TO BE TYPED ONTO STACK
3873 011712 001005 BNE 4# ;BR IF IT ISN'T THE TERMINATOR
3874 011714 005726 TST (SP)+ ;IF TERMINATOR POP IT OFF THE STACK
3875 011716 012600 60#: MOV (SP)+,RO ;RESTORE RO
3876 011720 062716 000002 3#: ADD #2,(SP) ;ADJUST RETURN PC
3877 011724 000002 RTI ;RETURN
3878 011726 122716 000011 4#: CNPB #HT,(SP) ;BRANCH IF <HT>
3879 011732 001430 BEQ 8#
3880 011734 122716 000200 CNPB #CRLF,(SP) ;BRANCH IF NOT <CRLF>
3881 011740 001006 BNE 5#
3882 011742 005726 TST (SP)+ ;POP <CR><LF> EQUIV
3883 011744 104401 TYPE ;TYPE A CR AND LF
3884 011746 001171 #CRLF
3885 011750 105067 000202 CLRB #CHARCNT ;CLEAR CHARACTER COUNT
3886 011754 000755 BR 2# ;GET NEXT CHARACTER
3887 011756 004767 000056 5#: JSR PC,#TYPEC ;GO TYPE THIS CHARACTER
3888 011762 126726 167170 6#: CNPB #FILLC,(SP)+ ;IS IT TIME FOR FILLER CHARS ?
3889 011766 001350 BNE 2# ;IF NO GO GET NEXT CHAR.
3890 011770 016746 67160 MOV #NULL,-(SP) ;GET # OF FILLER CHARS. NEEDED
3891 ;AND THE NULL CHAR.
3892 011774 105366 000001 7#: DECB 1(SP) ;DOES A NULL NEED TO BE TYPED?
3893 012000 002770 BLT 6# ;BR IF NO--GO POP THE NULL OFF OF STACK
3894 012002 004767 000032 JSR PC,#TYPEC ;GO TYPE A NULL
3895 012006 105367 000144 DECB #CHARCNT ;DO NOT COUNT AS A COUNT

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3896 012012 000770          BR      7#          ;;LOOP
3897
3898          ;HORIZONTAL TAB PROCESSOR
3899
3900 012014 112716 000040      8#:      MOVB      #' ,(SP)          ;;REPLACE TAB WITH SPACE
3901 012020 004767 000014      9#:      JSR      PC,#TYPEC          ;;TYPE A SPACE
3902 012024 132767 000007 000124      BITB      #7,#CHARCNT          ;;BRANCH IF NOT AT
3903 012032 001372          BNE      9#          ;;TAB STOP
3904 012034 005726          TST      (SP)+          ;;POP SPACE OFF STACK
3905 012036 000724          BR      2#          ;;GET NEXT CHARACTER
3906 012040
3907 012040 105777 167100      #TYPEC:  TSTB      @#TKS          ;;CHAR IN KYBD BUFFER?
3908 012044 100022          BPL      10#          ;;BR IF NOT
3909 012046 017746 167074      MOV      @#TKB,-(SP)          ;;GET CHAR
3910 012052 042716 177600      BIC      @177600,(SP)          ;;STRIP EXTRANEIOUS BITS
3911 012056 122716 000023      CMPB      @#XOFF,(SP)          ;;WAS CHAR XOFF
3912 012062 001012          BNE      102#          ;;BR IF NOT
3913 012064
3914 012064 105777 167054      101#:   TSTB      @#TKS          ;;WAIT FOR CHAR
3915 012070 100375          BPL      101#          ;;
3916 012072 117716 167050      MOVB      @#TKB,(SP)          ;;GET CHAR
3917 012076 042716 177600      BIC      @177600,(SP)          ;;STRIP IT
3918 012102 122716 000021      CMPB      @#XON,(SP)          ;;WAS IT XON?
3919 012106 001366          BNE      101#          ;;BR IF NOT
3920 012110
3921 012110 005726      102#:   TST      (SP)+          ;;FIX STACK
3922 012112
3923 012112 105777 167032      10#:   TSTB      @#TPS          ;;WAIT UNTIL PRINTER IS READY
3924 012116 100375          BPL      10#          ;;
3925 012120 116677 000002 167024      MOVB      2(SP),@#TPB          ;;LOAD CHAR TO BE TYPED INTO DATA REG.
3926 012126 122766 000015 000002      CMPB      @CR,2(SP)          ;;IS CHARACTER A CARRIAGE RETURN?
3927 012134 001003          BNE      1#          ;;BRANCH IF NO
3928 012136 105067 000014          CLAB      #CHARCNT          ;;YES--CLEAR CHARACTER COUNT
3929 012142 000406          BR      #TYPEX          ;;EXIT
3930 012144 122766 000012 000002 1#:      CMPB      @LF,2(SP)          ;;IS CHARACTER A LINE FEED?
3931 012152 001402          BNE      #TYPEX          ;;BRANCH IF YES
3932 012154 105227          BEQ      INCB          ;;COUNT THE CHARACTER
3933 012156 000000          #CHARCNT: .WORD      0          ;;CHARACTER COUNT STORAGE
3934 012160 000207      #TYPEX: RTS      PC
3935

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 CVDVCC.P11 12-SEP-84 08:55 TTY INPUT ROUTINE

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3936 .SBTTL TTY INPUT ROUTINE
3937
3938 ;*****
3939 .ENABL LSB
3940
3941 ;*****
3942 ;*SOFTWARE SWITCH REGISTER CHANGE ROUTINE.
3943 ;*ROUTINE IS ENTERED FROM THE TRAP HANDLER, AND WILL
3944 ;*SERVICE THE TEST FOR CHANGE IN SOFTWARE SWITCH REGISTER TRAP CALL
3945 ;*WHEN OPERATING IN TTY FLAG MODE.
3946 012162 022767 000176 166750 0CKSMR: CMP #SMREG,SMR ;:IS THE SOFT-SMR SELECTED?
3947 012170 001074 BNE 150 ;:BRANCH IF NO
3948 012172 105777 166746 TSTB #TKS ;:CHAR THERE?
3949 012176 100071 BPL 150 ;:IF NO, DON'T WAIT AROUND
3950 012200 117746 166742 MOVB #TKB, -(SP) ;:SAVE THE CHAR
3951 012204 042716 177600 BIC #C177,(SP) ;:STRIP-OFF THE ASCII
3952 012210 022726 000007 CMP #7,(SP) ;:IS IT A CONTROL G?
3953 012214 001062 BNE 150 ;:NO, RETURN TO USER
3954 012216 126727 166712 000001 CMPS #AUTOB,#1 ;:ARE WE RUNNING IN AUTO-MODE?
3955 012224 001456 BEQ 150 ;:BRANCH IF YES
3956
3957 012226 104401 012707 0GTSMR: TYPE ,#CNTLG ;:ECHO THE CONTROL-G (+G)
3958 012232 104401 012714 TYPE ,#MSMR ;:TYPE CURRENT CONTENTS
3959 012236 016746 165734 MOV SMREG, -(SP) ;:SAVE SMREG FOR TYPEOUT
3960 012242 104402 TYPOC ;:GO TYPE--OCTAL ASCII(ALL DIGITS)
3961 012244 104401 012725 TYPE ,#NEW ;:PROMPT FOR NEW SMR
3962 012250 005046 190: CLR -(SP) ;:CLEAR COUNTER
3963 012252 005046 CLR -(SP) ;:THE NEW SMR
3964 012254 105777 166664 70: TSTB #TKS ;:CHAR THERE?
3965 012260 100375 BPL 70 ;:IF NOT TRY AGAIN
3966
3967 012262 117746 166660 MOVB #TKB, -(SP) ;:PICK UP CHAR
3968 012266 042716 177600 BIC #C177,(SP) ;:MAKE IT 7-BIT ASCII
3969
3970
3971
3972 012272 021627 000025 90: CMP (SP),#25 ;:IS IT A CONTROL-U?
3973 012276 001005 BNE 100 ;:BRANCH IF NOT
3974 012300 104401 012702 TYPE ,#CNTLU ;:YES, ECHO CONTROL-U (+U)
3975 012304 062706 000006 200: ADD #6,SP ;:IGNORE PREVIOUS INPUT
3976 012310 000757 BR 190 ;:LET'S TRY IT AGAIN
3977
3978
3979 012312 021627 000015 100: CMP (SP),#15 ;:IS IT A <CR>?
3980 012316 001022 BNE 160 ;:BRANCH IF NO
3981 012320 005766 000004 TST 4(SP) ;:YES, IS IT THE FIRST CHAR?
3982 012324 001403 BEQ 110 ;:BRANCH IF YES
3983 012326 016677 000002 166604 MOV 2(SP),#SMR ;:SAVE NEW SMR
3984 012334 062706 000006 110: ADD #6,SP ;:CLEAR UP STACK
3985 012340 104401 001171 140: TYPE ,#CRLF ;:ECHO <CR> AND <LF>
3986 012344 126727 166565 000001 CMPS #INTAG,#1 ;:RE-ENABLE TTY KBD INTERRUPTS?
3987 012352 001003 BNE 150 ;:BRANCH IF NOT
3988 012354 012777 000100 166562 MOV #100,#TKS ;:RE-ENABLE TTY KBD INTERRUPTS
3989 012362 000002 150: RTI ;:RETURN
3990 012364 004767 177450 160: JSR PC,#TYPEC ;:ECHO CHAR
3991 012370 021627 000060 CMP (SP),#60 ;:CHAR < 0?

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3992 012374 002420          BLT      18#           ;; BRANCH IF YES
3993 012376 021627 000067    CMP      (SP),#67     ;; CHAR > 7?
3994 012402 003015          BGT      18#           ;; BRANCH IF YES
3995 012404 042726 000040    BIC      #60,(SP)    ;; STRIP-OFF ASCII
3996 012410 005766 000002    TST     2(SP)        ;; IS THIS THE FIRST CHAR
3997 012414 001403          BEQ      17#           ;; BRANCH IF YES
3998 012416 006316          ASL     (SP)         ;; NO, SHIFT PRESENT
3999 012420 006316          ASL     (SP)         ;; CHAR OVER TO MAKE
4000 012422 006316          ASL     (SP)         ;; ROOM FOR NEW ONE.
4001 012424 005266 000002    17#:    INC     2(SP)        ;; KEEP COUNT OF CHAR
4002 012430 056616 177776    BR      -2(SP),(SP)  ;; SET IN NEW CHAR
4003 012434 000707          BR      7#           ;; GET THE NEXT ONE
4004 012436 104401 001170    18#:    TYPE   ,#QUES     ;; TYPE ?<CR><LF>
4005 012442 000720          BR      20#          ;; SIMULATE CONTROL-U
4006
4007
4008
4009
4010
4011
4012
4013
4014
4015
4016
4017 012444 011646          #RDCHR: MOV     (SP),-(SP)  ;; PUSH DOWN THE PC
4018 012446 016666 000004 000002    MOV     4(SP),2(SP)  ;; SAVE THE PS
4019 012454 105777 166464    1#:    TSTB   #4TKS       ;; WAIT FOR
4020 012460 100375          BPL     1#           ;; A CHARACTER
4021 012462 117766 166460 000004    MOVB   #4TKB,4(SP)  ;; READ THE TTY
4022 012470 042766 177600 0000C1    BIC    #C<177>,4(SP) ;; GET RID OF JUNK IF ANY
4023 012476 026627 000004 000023    CMP    4(SP),#23    ;; IS IT A CONTROL-S?
4024 012504 001013          BNE     3#           ;; BRANCH IF NO
4025 012506 105777 166432    2#:    TSTB   #4TKS       ;; WAIT FOR A CHARACTER
4026 012512 100375          BPL     2#           ;; LOOP UNTIL ITS THERE
4027 012514 117746 166426    MOVB   #4TKB, -(SP) ;; GET CHARACTER
4028 012520 042716 177600    BIC    #C177,(SP)  ;; MAKE IT 7-BIT ASCII
4029 012524 022627 000021    CMP    (SP),#21    ;; IS IT A CONTROL-Q?
4030 012530 001366          BNE     2#           ;; IF NOT DISCARD IT
4031 012532 000750          BR      1#           ;; YES, RESUME
4032 012534 026627 000004 000140    3#:    CMP    4(SP),#140  ;; IS IT UPPER CASE?
4033 012542 002407          BLT     4#           ;; BRANCH IF YES
4034 012544 026627 000004 000175    CMP    4(SP),#175  ;; IS IT A SPECIAL CHAR?
4035 012552 003003          BGT     4#           ;; BRANCH IF YES
4036 012554 042766 000040 000004    BIC    #40,4(SP)   ;; MAKE IT UPPER CASE
4037 012562 000002    4#:    RTI                    ;; GO BACK TO USER
4038
4039
4040
4041
4042
4043
4044
4045 012564 010346          #RDLIN: MOV     R3, -(SP)  ;; SAVE R3
4046 012566 012703 012672    1#:    MOV     #TTYIN,R3   ;; GET ADDRESS
4047 012572 022703 012702    2#:    CMP     #TTYIN+8,R3  ;; BUFFER FULL?

```

;; *****
;; THIS ROUTINE WILL INPUT A SINGLE CHARACTER FROM THE TTY

;; CALL:
;; RDCHR RETURN HERE ;; INPUT A SINGLE CHARACTER FROM THE TTY
;; CHARACTER IS ON THE STACK
;; WITH PARITY BIT STRIPPED OFF

;; *****
;; THIS ROUTINE WILL INPUT A STRING FROM THE TTY

;; CALL:
;; RDLIN RETURN HERE ;; INPUT A STRING FROM THE TTY
;; ADDRESS OF FIRST CHARACTER WILL BE ON THE STACK
;; TERMINATOR WILL BE A BYTE OF ALL 0'S

4048	012576	101405				BLOS	40		;;BR IF YES
4049	012600	104410				RDCMR			;;GO READ ONE CHARACTER FROM THE TTY
4050	012502	112613				MOVB	(SP), (R3)		;;GET CHARACTER
4051	012604	122713	000177		100:	CPB	#177, (R3)		;;IS IT A RUBOUT
4052	012610	001003				BNE	30		;;SKIP IF NOT
4053	012612	104401	001170		40:	TYPE	, #QUES		;;TYPE A '?'
4054	012616	000763				BR	10		;;CLEAR THE BUFFER AND LOOP
4055	012620	111367	000044		30:	MOVB	(R3), 90		;;ECHO THE CHARACTER
4056	012624	104401	012670			TYPE	, 90		
4057	012630	122723	000015			CPB	#15, (R3)		;;CHECK FOR RETURN
4058	012634	001336				BNE	20		;;LOOP IF NOT RETURN
4059	012636	105063	177777			CLRB	-1(R3)		;;CLEAR RETURN (THE 15)
4060	012642	104401	001172			TYPE	, #LF		;;TYPE A LINE FEED
4061	012646	012603				MOV	(SP), R3		;;RESTORE R3
4062	012650	011646				MOV	(SP), -(SP)		;;ADJUST THE STACK AND PUT ADDRESS OF THE
4063	012652	016666	000004	000002		MOV	4(SP), 2(SP)		;; FIRST ASCII CHARACTER ON IT
4064	012660	012766	012672	030004		MOV	#TTYIN, 4(SP)		
4065	012666	000002				RTI			;;RETURN
4066	012670	000			90:	.BYTE	0		;;STORAGE FOR ASCII CHAR. TO TYPE
4067	012671	000				.BYTE	0		;;TERMINATOR
4068	012672	000010				#TTYIN:	.BLKB	8.	;;RESERVE 8 BYTES FOR TTY INPUT
4069	012702	052536	005015	000		#CNTLU:	.ASCIZ	/+U/<15><12>	;;CONTROL "U"
4070	012707	136	006507	000012		#CNTLG:	.ASCIZ	/+G/<15><12>	;;CONTROL "G"
4071	012714	005015	033523	020122		#SMR:	.ASCIZ	<15><12>/SMR . /	
4072	012722	020075	000						
4073	012725	040	047040	053505		#NEW:	.ASCIZ	/ NEW = /	
4074	012732	056440	000040						

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.SBTTL APT COMMUNICATIONS ROUTINE

```

4075
4076
4077
4078 012736 112767 000001 000236 0ATY1: MOV 01,0FFLG ;:TO REPORT FATAL ERROR
4079 012744 112767 000001 000226 0ATY3: MOV 01,0FFLG ;:TO TYPE A MESSAGE
4080 012752 000403
4081 012754 112767 000001 000220 0ATY4: MOV 01,0FFLG ;:TO ONLY REPORT FATAL ERROR
4082 012762 0ATYC:
4083 012762 010046 MOV R0,-(SP) ;:PUSH R0 ON STACK
4084 012764 010146 MOV R1,-(SP) ;:PUSH R1 ON STACK
4085 012766 105767 000206 TST 0FFLG ;:SHOULD TYPE A MESSAGE?
4086 012772 001450 BEQ 50 ;:IF NOT: BR
4087 012774 122767 000001 166212 CFPB 0APTEW,0ENW ;:OPERATING UNDER APT?
4088 013002 001031 BNE 50 ;:IF NOT: BR
4089 013004 132767 000100 166203 BITB 0APTSPOOL,0ENW ;:SHOULD SPOOL MESSAGES?
4090 013012 001425 BEQ 50 ;:IF NOT: BR
4091 013014 017600 000004 MOV 04(SP),R0 ;:GET MESSAGE ADDR.
4092 013020 062766 000002 000004 ADD 02,4(SP) ;:BUMP RETURN ADDR.
4093 013026 005767 166142 10: TST 0MSGTYPE ;:SEE IF DONE W/ LAST MMISSION?
4094 013032 001575 BNE 10 ;:IF NOT: WAIT
4095 013034 010067 166150 MOV R0,0MSGAD ;:PUT ADDR IN MAILBOX
4096 013040 105720 20: TSTB (R0). ;:FIND END OF MESSAGE
4097 013042 001575 BNE 20
4098 013044 166700 166140 SUB 0MSGAD,R0 ;:SUB START OF MESSAGE
4099 013050 006200 ASR R0 ;:GET MESSAGE LGTH IN WORDS
4100 013052 010067 166134 MOV R0,0MSGLG ;:PUT LENGTH IN MAILBOX
4101 013056 012767 000004 166110 MOV 04,0MSGTYPE ;:TELL APT TO TAKE MSG.
4102 013064 000413 BR 50
4103 013066 017667 000004 000016 30: MOV 04(SP),40 ;:PUT MSG ADDR IN JSR LINKAGE
4104 013074 062766 000002 000004 ADD 02,4(SP) ;:BUMP RETURN ADDRESS
4105 013102 016746 166670 MOV 177776,-(SP) ;:PUSH 177776 ON STACK
4106 013106 004767 176514 JSR PC,0TYPE ;:CALL TYPE MACRO
4107 013112 000000 40: .WORD 0
4108 013114 50:
4109 013114 105767 000062 100: TSTB 0FFLG ;:SHOULD REPORT FATAL ERROR?
4110 013120 001416 BEQ 120 ;:IF NOT: BR
4111 013122 005767 166066 TST 0ENW ;:RUNNING UNDER APT?
4112 013126 001413 BEQ 120 ;:IF NOT: BR
4113 013130 005767 166040 110: TST 0MSGTYPE ;:FINISHED LAST MESSAGE?
4114 013134 001575 BNE 110 ;:IF NOT: WAIT
4115 013136 017667 000004 166032 MOV 04(SP),0FATAL ;:GET ERROR 0
4116 013144 062766 000002 000004 ADD 02,4(SP) ;:BUMP RETURN ADDR.
4117 013152 005267 166016 INC 0MSGTYPE ;:TELL APT TO TAKE ERROR
4118 013156 105067 000020 120: CLRB 0FFLG ;:CLEAR FATAL FLAG
4119 013162 105067 000013 CLRB 0LFLG ;:CLEAR LOG FLAG
4120 013166 105067 000006 CLRB 0MFLG ;:CLEAR MESSAGE FLAG

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4121	013172	012601	MOV	(SP),R1	::POP STACK INTO R1
4122	013174	012600	MOV	(SP),R0	::POP STACK INTO R0
4123	013176	000207	RTS	PC	::RETURN
4124	013200	000	%IFLG: .BYTE	0	::MESSG. FLAG
4125	013201	000	%LFLG: .BYTE	0	::LOG FLAG
4126	013202	000	%FFLG: .BYTE	0	::FATAL FLAG
4127		013204		.EVEN	
4128		000200	APTSIZE=200		
4129		000001	APTENV=001		
4130		000100	APTSPOOL=100		
4131		000040	APTCSUP=040		

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4132 .SBTTL ERROR HANDLER ROUTINE
4133
4134 ;*****
4135 ;THIS ROUTINE WILL INCREMENT THE ERROR FLAG AND THE ERROR COUNT.
4136 ;SAVE THE ERROR ITEM NUMBER AND THE ADDRESS OF THE ERROR CALL
4137 ;AND GO TO MYTYPE ON ERROR
4138 ;THE SWITCH OPTIONS PROVIDED BY THIS ROUTINE ARE:
4139 ;SW15=1 HALT ON ERROR
4140 ;SW13=1 INHIBIT ERROR TIMEOUTS
4141 ;SW10=1 BELL ON ERROR
4142 ;SW09=1 LOOP ON ERROR
4143 ;CALL
4144 ;* ERROR N ;ERROR=ENT AND N=ERROR ITEM NUMBER
4145
4146 ;ERROR:
4147 013204 104407          CKSWR          ;TEST FOR CHANGE IN SOFT-SWR
4148 013206 105267 165671 70: INCB          $ERFLG          ;SET THE ERROR FLAG
4149 013212 001775          BEQ          70          ;DON'T LET THE FLAG GO TO ZERO
4150 013214 016777 165662 165720 MOV          $STNM,$DISPLAY ;DISPLAY TEST NUMBER AND ERROR FLAG.
4151 013222 032777 002000 165710 BIT          @BIT10,$SWR    ;BELL ON ERROR?
4152 013230 001402          BEQ          10          ;NO - SKIP
4153 013232 104401 001164          TYPE          ,BELL          ;RING BELL
4154 013236 005267 165650          10: INC          $ERTTL          ;COUNT THE NUMBER OF ERRORS
4155 013242 011667 165650          MOV          ($SP),$ERRPC ;GET ADDRESS OF ERROR INSTRUCTION
4156 013246 162767 000002 165642 SUB          #2,$ERRPC
4157 013254 117767 165636 165632 MOVB        @ERRPC,$ITEMB ;STRIP AND SAVE THE ERROR ITEM CODE
4158 013262 032777 020000 165650 BIT          @BIT13,$SWR    ;SKIP TIMEOUT IF SET
4159 013270 001004          BNE          20          ;SKIP TIMEOUTS
4160 013272 004767 175634          JSR          PC,MYTYPE     ;GO TO USER ERROR ROUTINE
4161 013276 104401 001171          TYPE          ,CRLF
4162 013302
4163 013302 122767 000001 165704 20: CMPB        @APTENV,$ENV    ;RUNNING IN APT MODE
4164 013310 001007          BNE          20          ;NO, SKIP APT ERROR REPORT
4165 013312 116767 165576 000004 MOVB        $ITEMB,21      ;SET ITEM NUMBER AS ERROR NUMBER
4166 013320 004767 177430          JSR          PC,$ATY4     ;REPORT FATAL ERROR TO APT
4167 013324 000          21: .BYTE          0
4168 013325 000          .BYTE          0
4169 013326 000777          22: BR          22          ;APT ERROR LOOP
4170 013330 005777 165604          20: TST          $SWR          ;HALT ON ERROR
4171 013334 100002          BPL          30          ;SKIP IF CONTINUE
4172 013336 000000          HALT          ;HALT ON ERROR!
4173 013340 104407          CKSWR          ;TEST FOR CHANGE IN SOFT-SWR
4174 013342 032777 001000 165570 30: BIT          @BIT09,$SWR    ;LOOP ON ERROR SWITCH SET?
4175 013350 001402          BEQ          40          ;BR IF NO
4176 013352 016716 165532          MOV          $LPERR,($SP) ;FUDGE RETURN FOR LOOPING
4177 013356 005767 165600          40: TST          $ESCAPE     ;CHECK FOR AN ESCAPE ADDRESS
4178 013362 001402          BEQ          50          ;BR IF NONE
4179 013364 016716 165572          MOV          $ESCAPE,($SP) ;FUDGE RETURN ADDRESS FOR ESCAPE
4180 013370
4181 013370 022737 011410 000042 50: CMP          @ENDAD,$M42   ;ACT-11 AUTO-ACCEPT?
4182 013376 001001          BNE          60          ;BRANCH IF NO
4183 013400 000000          HALT          ;YES
4184 013402
4185 013402 000002          60: RTI          ;RETURN

```

```

4186 .SBTTL SCOPE HANDLER ROUTINE
4187
4188 ;*****
4189 ;*THIS ROUTINE CONTROLS THE LOOPING OF SUBTESTS. IT WILL INCREMENT
4190 ;*AND LOAD THE TEST NUMBER(%TSTNM) INTO THE DISPLAY REG.(DISPLAY<7:0>)
4191 ;*AND LOAD THE ERROR FLAG (%ERFLG) INTO DISPLAY<15:08>
4192 ;*THE SWITCH OPTIONS PROVIDED BY THIS ROUTINE ARE:
4193 ;*SM14=1 LOOP ON TEST
4194 ;*SM11=1 INHIBIT ITERATIONS
4195 ;*SM09=1 LOOP ON ERROR
4196 ;*SM08=1 LOOP ON TEST IN SMR<7:0>
4197 ;*CALL
4198 ;* SCOPE ;:SCOPE=10T
4199
4200 %SCOPE:
4201 013404 104407 CKSMR ;:TEST FOR CHANGE IN SOFT-SMR
4202 013406 032777 040000 165524 10: BIT %BIT14,%BSMR ;:LOOP ON PRESENT TEST?
4203 013414 001114 BNE %OVER ;:YES IF SM14=1
4204 ;*****START OF CODE FOR THE XOR TESTER*****
4205 013416 000416 %XTSTR: BR 60 ;:IF RUNNING ON THE "XOR" TESTER CHANGE
4206 ;:THIS INSTRUCTION TO A "NOP" (NOP=240)
4207 013420 013746 000004 MOV %ERRVEC,-(%SP) ;:SAVE THE CONTENTS OF THE ERROR VECTOR
4208 013424 012737 013444 000004 MOV %5,%ERRVEC ;:SET FOR TIMEOUT
4209 013432 005737 177060 TST %177060 ;:TIME OUT ON XOR?
4210 013436 012637 000004 MOV (%SP)+,%ERRVEC ;:RESTORE THE ERROR VECTOR
4211 013442 000463 BR %SVLAD ;:GO TO THE NEXT TEST
4212 013444 022626 50: CMP (%SP)+,(%SP)+ ;:CLEAR THE STACK AFTER A TIME OUT
4213 013446 012637 000004 MOV (%SP)+,%ERRVEC ;:RESTORE THE ERROR VECTOR
4214 013452 000423 BR 70 ;:LOOP ON THE PRESENT TEST
4215 013454 ;:*****END OF CODE FOR THE XOR TESTER*****
4216 013454 032777 000400 165456 60: BIT %BIT08,%BSMR ;:LOOP ON SPEC. TEST?
4217 013462 001404 BEQ 20 ;:BR IF NO
4218 013464 127767 165450 165410 CMPEB %SMR,%TSTNM ;:ON THE RIGHT TEST? SMR<7:0>
4219 013472 001465 BEQ %OVER ;:BR IF YES
4220 013474 105767 165403 20: TSTB %ERFLG ;:HAS AN ERROR OCCURRED?
4221 013500 001421 BEQ 30 ;:BR IF NO
4222 013502 126767 163407 165373 CMPEB %ERMAX,%ERFLG ;:MAX. ERRORS FOR THIS TEST OCCURRED?
4223 013510 101015 BHI 30 ;:BR IF NO
4224 013512 032777 001000 165420 BIT %BIT09,%BSMR ;:LOOP ON ERROR?
4225 013520 001404 BEQ 40 ;:BR IF NO
4226 013522 016767 165362 165356 70: MOV %LPERR,%LPADR ;:SET LOOP ADDRESS TO LAST SCOPE
4227 013530 000446 BR %OVER
4228 013532 105067 165345 40: CLRB %ERFLG ;:ZERO THE ERROR FLAG
4229 013536 005067 165416 CLR %TIMES ;:CLEAR THE NUMBER OF ITERATIONS TO MAKE
4230 013542 000415 BR 10 ;:ESCAPE TO THE NEXT TEST
4231 013544 032777 004000 165366 30: BIT %BIT11,%BSMR ;:INHIBIT ITERATIONS?
4232 013552 001011 BNE 10 ;:BR IF YES
4233 013554 005767 165422 TST %PASS ;:IF FIRST PASS OF PROGRAM
4234 013560 001406 BEQ 10 ;: INHIBIT ITERATIONS
4235 013562 005267 165316 INC %ICNT ;:INCREMENT ITERATION COUNT
4236 013566 026767 165366 165310 CMP %TIMES,%ICNT ;:CHECK THE NUMBER OF ITERATIONS MADE
4237 013574 002024 BGE %OVER ;:BR IF MORE ITERATION REQUIRED
4238 013576 012767 000001 165300 10: MOV %1,%ICNT ;:REINITIALIZE THE ITERATION COUNTER
4239 013604 016767 000052 165346 MOV %MXCNT,%TIMES ;:SET NUMBER OF ITERATIONS TO DO
4240 013612 105267 165264 %SVLAD: INCB %TSTNM ;:COUNT TEST NUMBERS
4241 013616 116767 165260 165354 MOVB %TSTNM,%TESTN ;:SET TEST NUMBER IN APT MAILBOX

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MAINDEC-11 DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 98
 CVDVCC.P11 12-SEP-84 08:55 SCOPE HANDLER ROUTINE

4242	013624	011667	165256		MOV	(SP),#LPADR	::SAVE SCOPE LOOP ADDRESS
4243	013630	011667	165254		MOV	(SP),#LPERR	::SAVE ERROR LOOP ADDRESS
4244	013634	005067	165322		CLR	#ESCAPE	::CLEAR THE ESCAPE FROM ERROR ADDRESS
4245	013640	112767	000001	165247	MOV	#1,#ERMAX	::ONLY ALLOW ONE(1) ERROR ON NEXT TEST
4246	013646	016777	165230	165266	OVER: MOV	#TSTNM,#DISPLAY	::DISPLAY TEST NUMBER
4247	013654	016716	165226		MOV	#LPADR,(SP)	::FUDGE RETURN ADDRESS
4248	013660	000002			RTI		::FIXES PS
4249	013662	003720			MXCNT: 2000.		::MAX. NUMBER OF ITERATIONS

MAINDEC-11-DVDC-C
CVOVCC.P11 12-SEP-84 08:55

MACY11 30A(1052) 12-SEP-84 15:41 PAGE 99
CONVERT BINARY TO DECIMAL AND TYPE ROUTINE

.SBTTL CONVERT BINARY TO DECIMAL AND TYPE ROUTINE

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4262 013664
4263 013664 010046
4264 013666 010146
4265 013670 010246
4266 013672 010346
4267 013674 010546
4268 013676 012746 020200
4269 013702 016605 000020
4270 013706 100004
4271 013710 005405
4272 013712 112766 000055 000001
4273 013720 005000
4274 013722 012703 014100
4275 013726 112723 000040
4276 013732 005002
4277 013734 016001 014070
4278 013740 160105
4279 013742 002402
4280 013744 005202
4281 013746 000774
4282 013750 060105
4283 013752 005702
4284 013754 001002
4285 013756 105716
4286 013760 100407
4287 013762 106316
4288 013764 103003
4289 013766 116663 000001 177777
4290 013774 052702 000060
4291 014000 052702 000040
4292 014004 110223
4293 014006 005720
4294 014010 020027 000010
4295 014014 002746
4296 014016 003002
4297 014020 010502
4298 014022 000764
4299 014024 105726
4300 014026 100003
4301 014030 116663 177777 177776
4302 014036 105013
4303 014040 012605
4304 014042 012603
4305 014044 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 11 ;BR IF INPUT IS POS.
NEG R5 ;MAKE THE BINARY NUMBER POS.
MOV #'-,1(SP) ;MAKE THE ASCII NUMBER NEG.
CLR R0 ;ZERO THE CONSTANTS INDEX
MOV #10BLK,R3 ;SETUP THE OUTPUT POINTER
MOVB #' ,(R3)+ ;SET THE FIRST CHARACTER TO A BLANK
CLR R2 ;CLEAR THE BCD NUMBER
MOV #DTBL(R0),R1 ;GET THE CONSTANT
SUB R1,R5 ;FORM THIS BCD DIGIT
BLT 41 ;BR IF DONE
INC R2 ;INCREASE THE BCD DIGIT BY 1
BR 31
ADD R1,R5 ;ADD BACK THE CONSTANT
TST R2 ;CHECK IF BCD DIGIT=0
BNE 51 ;FALL THROUGH IF 0
TSTB (SP) ;STILL DOING LEADING 0'S?
BMI 71 ;BR IF YES
ASLB (SP) ;MSD?
BR IF NO
MOVB 1(SP),-1(R3) ;YES--SET THE SIGN
BIS #'0,R2 ;MAKE THE BCD DIGIT ASCII
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 21 ;GO DO THE NEXT DIGIT
BGT 81 ;GO TO EXIT
MOV R5,R2 ;GET THE LSD
BR 61 ;GO CHANGE TO ASCII
TSTB (SP)+ ;WAS THE LSD THE FIRST NON-ZERO?
BPL 91 ;BR IF NO
MOVB -1(SP),-2(R3) ;YES--SET THE SIGN FOR TYPING
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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MAINDEC-11 DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 100
 CVDVCC.P11 12-SEP-84 08:55 CONVERT BINARY TO DECIMAL AND TYPE ROUTINE

4306	014046	012601			MOV	(SP),R1	;;POP STACK INTO R1
4307	014050	012600			MOV	(SP),R0	;;POP STACK INTO R0
4308	014052	104401	014100		TYPE	.#DBLK	;;NOW TYPE THE NUMBER
4309	014056	016666	000002	000004	MOV	2(SP),4(SP)	;;ADJUST THE STACK
4310	014064	012616			MOV	(SP), (SP)	
4311	014066	000002			RTI		;;RETURN TO USER
4312	014070	023420			#DTBL:	10000.	
4313	014072	001750				1000.	
4314	014074	000144				100.	
4315	014076	000012				10.	
4316	014100	000004			#DBLK:	.BLKW 4	

MAINDEC-11-DVQVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 101
CVDVCC.P11 12-SEP-84 08:55 BINARY TO OCTAL (ASCII) AND TYPE

.SBTTL BINARY TO OCTAL (ASCII) AND TYPE

THIS ROUTINE IS USED TO CHANGE A 16-BIT BINARY NUMBER TO A 6-DIGIT
OCTAL (ASCII) NUMBER AND TYPE IT.
#TYPOS---ENTER HERE TO SETUP SUPPRESS ZEROS AND NUMBER OF DIGITS TO TYPE
CALL:
MOV NUM, -(SP) ; NUMBER TO BE TYPED
TYPOS ; CALL FOR TYPEOUT
.BYTE N ; N=1 TO 6 FOR NUMBER OF DIGITS TO TYPE
.BYTE M ; M=1 OR 0
 ; ; 1=TYPE LEADING ZEROS
 ; ; 0=SUPPRESS LEADING ZEROS

#TYPON---ENTER HERE TO TYPE OUT WITH THE SAME PARAMETERS AS TH. LAST
#TYPOS OR #TYPOC

CALL:
MOV NUM, -(SP) ; NUMBER TO BE TYPED
TYPON ; CALL FOR TYPEOUT

#TYPOC---ENTER HERE FOR TYPEOUT OF A 16 BIT NUMBER

CALL:
MOV NUM, -(SP) ; NUMBER TO BE TYPED
TYPOC ; CALL FOR TYPEOUT

#TYPOS: MOV B(SP), -(SP) ; PICKUP THE MODE
MOVB I(SP), #OFILL ; LOAD ZERO FILL SWITCH
MOVB (SP), #OMODE+1 ; NUMBER OF DIGITS TO TYPE
ADD #2, (SP) ; ADJUST RETURN ADDRESS
BR #TYPON
#TYPOC: MOVB #1, #OFILL ; SET THE ZERO FILL SWITCH
MOVB #6, #OMODE+1 ; SET FOR SIX(6) DIGITS
#TYPON: MOVB #5, #OCNT ; SET THE ITERATION COUNT
MOV R3, -(SP) ; SAVE R3
MOV R4, -(SP) ; SAVE R4
MOV R5, -(SP) ; SAVE R5
MOVB #OMODE+1, R4 ; GET THE NUMBER OF DIGITS TO TYPE
NEG R4
ADD #6, R4 ; SUBTRACT IT FOR MAX. ALLOWED
MOVB R4, #OMODE ; SAVE IT FOR USE
MOVB #OFILL, R4 ; GET THE ZERO FILL SWITCH
MOV I2(SP), R5 ; PICKUP THE INPUT NUMBER
CLR R3 ; CLEAR THE OUTPUT WORD
1#: ROL R5 ; ROTATE MSB INTO "C"
BR 3# ; GO DO MSB
2#: RCL R5 ; FORM THIS DIGIT
ROL R5
ROL R5
MOV R5, R3
3#: ROL R3 ; GET LSB OF THIS DIGIT
DECB #OMODE ; TYPE THIS DIGIT?
BPL 7# ; BR IF NO
BIC #177770, R3 ; GET RID OF JUNK
BNE 4# ; TEST FOR 0
TST R4 ; SUPPRESS THIS 0?
BEQ 5# ; BR IF YES

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4342 014110 017646 000000
4343 014114 116667 000001 000211
4344 014122 112667 000207
4345 014126 062716 000002
4346 014132 000406
4347 014134 112767 000001 000171
4348 014142 112767 000006 000165
4349 014150 112767 000005 000154
4350 014156 010346
4351 014160 010446
4352 014162 010346
4353 014164 116704 000145
4354 014170 005404
4355 014172 062704 000006
4356 014176 110467 000132
4357 014202 116704 000125
4358 014206 016605 000012
4359 014212 005003
4360 014214 006105 1#:
4361 014216 000404
4362 014220 006105 2#:
4363 014222 006105
4364 014224 006105
4365 014226 010503
4366 014230 006103 3#:
4367 014232 105367 000076
4368 014236 100016
4369 014240 042703 177770
4370 014244 001002
4371 014246 005704
4372 014250 001403

4373	014252	005204		44:	INC	R4	;;DON'T SUPPRESS ANYMORE 0'S
4374	014254	052703	000060		BIS	#'0,R3	;;MAKE THIS DIGIT ASCII
4375	014260	052703	000040	54:	BIS	#' ,R3	;;MAKE ASCII IF NOT ALREADY
4376	014264	110367	000040		MOVB	R3,R4	;;SAVE FOR TYPING
4377	014270	104401	014330		TYPE	,R4	;;GO TYPE THIS DIGIT
4378	014274	105367	000032	74:	DECB	#OCNT	;;COUNT BY 1
4379	014300	003347			BCT	24	;;BR IF MORE TO DO
4380	014302	002402			BLT	64	;;BR IF DONE
4381	014304	005204			INC	R4	;;INSURE LAST DIGIT ISN'T A BLANK
4382	014306	000744			BR	24	;;GO DO THE LAST DIGIT
4383	014310	012605		64:	MOV	(SP)+,R5	;;RESTORE R5
4384	014312	012604			MOV	(SP)+,R4	;;RESTORE R4
4385	014314	012603			MOV	(SP)+,R3	;;RESTORE R3
4386	014316	016666	000002 000004		MOV	2(SP),4(SP)	;;SET THE STACK FOR RETURNING
4387	014324	012616			MOV	(SP)+,(SP)	
4388	014326	000002			RTI		;;RETURN
4389	014330	000		84:	.BYTE	0	;;STORAGE FOR ASCII DIGIT
4390	014331	000			.BYTE	0	;;TERMINATOR FOR TYPE ROUTINE
4391	014332	000		#OCNT:	.BYTE	0	;;OCTAL DIGIT COUNTER
4392	014333	000		#OFILL:	.BYTE	0	;;ZERO FILL SWITCH
4393	014334	000000		#OMODE:	.WORD	0	;;NUMBER OF DIGITS TO TYPE

MAINDEC-11-DVDC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 103
 CVDVCC.P11 12-SEP 84 08:55 TRAP DECODER

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4394 .SBTTL TRAP DECODER
4395
4396 ;*****
4397 ;*THIS ROUTINE WILL PICKUP THE LOWER BYTE OF THE "TRAP" INSTRUCTION
4398 ;*AND USE IT TO INDEX THROUGH THE TRAP TABLE FOR THE STARTING ADDRESS
4399 ;*OF THE DESIRED ROUTINE. THEN USING THE ADDRESS OBTAINED IT WILL
4400 ;*GO TO THAT ROUTINE.
4401
4402 014336 010046          §TRAP:  MOV    RO,-(SP)          ;;SAVE RO
4403 014340 016600 000002  MOV    2(SP),RO          ;;GET TRAP ADDRESS
4404 014344 005740          TST    -(RO)            ;;BACKUP BY 2
4405 014346 111000          MOVB   (RO),RO          ;;GET RIGHT BYTE OF TRAP
4406 014350 006300          ASL   RO                ;;POSITION FOR INDEXING
4407 014352 016000 014372  MOV    §TRPAD(RO),RO     ;;INDEX TO TABLE
4408 014356 000200          RTS    RO              ;;GO TO ROUTINE
4409
4410
4411 ;;THIS IS USE TO HANDLE THE "GETPRI" MACRO
4412
4413 014360 011646          §TRAP2: MOV   (SP),-(SP)    ;;MOVE THE PC DOWN
4414 014362 016666 000004 000002  MOV   4(SP),2(SP)       ;;MOVE THE PSW DOWN
4415 014370 000002          RTI                    ;;RESTORE THE PSW
4416
4417 .SBTTL TRAP TABLE
4418
4419 ;*THIS TABLE CONTAINS THE STARTING ADDRESSES OF THE ROUTINES CALLED
4420 ;*BY THE "TRAP" INSTRUCTION.
4421
4422 ; ROUTINE
4423 ; -----
4424 014372 014360          §TRPAD: .WORD  §TRAP2
4425 014374 011626          §TYPE  ;;CALL=TYPE      TRAP.1(104401) TTY TYPEOUT ROUTINE
4426 014376 014134          §TYPOC ;;CALL=TYPOC    TRAP.2(104402) TYPE OCTAL NUMBER (WITH LEADING ZEROS)
4427 014400 014110          §TYPOS ;;CALL=TYPOS    TRAP.3(104403) TYPE OCTAL NUMBER (NO LEADING ZEROS)
4428 014402 014150          §TYPON ;;CALL=TYPON     TRAP.4(104404) TYPE OCTAL NUMBER (AS PER LAST CALL)
4429 014404 013664          §TYPOS ;;CALL=TYPOS    TRAP.5(104405) TYPE DECIMAL NUMBER (WITH SIGN)
4430
4431 014406 012232          §GTSMR ;;CALL=GTSMR    TRAP.6(104406) GET SOFT-SMR SETTING
4432
4433 014410 012162          §CKSMR ;;CALL=CKSMR    TRAP.7(104407) TEST FOR CHANGE IN SOFT-SMR
4434 014412 012444          §RDCHR ;;CALL=RDCHR    TRAP.10(104410) TTY TYPEIN CHARACTER ROUTINE
4435 014414 012564          §RDLIN ;;CALL=RDLIN    TRAP.11(104411) TTY TYPEIN STRING ROUTINE
4436 000001          .END

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PSM	= 177776	6520												
PURVEC-	000024	7430	10420	10430	37990	38000	38090	38150	38270	38280				
RATES	005624	2347	2420	24440										
RBUF	001262	10200	11230	11240	1950	2096	2178	2227	2259	2277	2344	2696	2785	2835
		2933	2990	3195	3307	3319								
RCSR	001260	10190	11210	1477	14900	1493	15070	1510	15240	1529	1560	1625	1854	1882
		1928	1953	2007	2047	2051	2054	2077	2099	2364	26630	2680	26870	27270
		2822	29200	2972	30190	31110	31390	32290	3293					
RCVRAC-	004000	7720	1625	2007	2047	2054								
RCVRDO-	000200	7760	1560	1855	1882	1929	1953	2051	2077	2099	2364	2631	2823	2973
		3294												
RCVRIE-	000100	7770	1477	1490	1493	1507	1510	1524	1529	2663	2687	2727	3111	3130
		3229												
RDATA0-	000001	8030												
RDATA1-	000002	8020												
RDATA2-	000004	8010												
RDATA3-	000010	8000												
RDATA4-	000020	7990												
RDATA5-	000040	7980												
RDATA6-	000100	7970												
RDATA7-	000200	7960												
RDCR	= 104410	4049	44340											
RDLIN	= 104411	44350												
RDRULN-	000001	7830												
REC	007632	3077	31870											
REG	= 000004	33840	3408											
REGSAV	010464	34080	3421	34770										
RESVEC-	000010	7380												
RFLD	007722	31990	32000	3204	3212	32380								
R0050	005624	24530												
R0070	005625	24540												
R0110	005626	24550												
R0135	005627	24560												
R0150	005630	24570												
R0200	005633	24600												
R0300	005631	24580												
R0600	005632	24590												
R10000	005643	24680												
R1800	005634	24610												
R2000	005635	24620												
R2400	005636	24630												
R3600	005637	24640												
R4800	005640	24650												
R5STAC	001334	10260	1135											
R7200	005641	24660												
R9600	005642	24670												
SB	007566	31450	32120											
SET	= 177777	7610	1726	1757	1768	1784	1793	1800	1804	1853	1927	2010	2019	2523
		2679	2802	2821	2950	2971	3292	3429						
SETCLR-	000006	33840	3435											
SPECIA	010732	36330	3790											
STACK	= 001100	6420	1034											
START	001336	875	10270	3832										
STKLMT-	177774	6530												
SWR	001140	9360	1032	10540	1056	10620	10690	1083	3807	38200	3946	39830	4151	4158
		4170	4174	4202	4216	4218	4224	4231						

#F1DEC= 000220
#F1DO = 000340
#F1FAL= 000405
#F1G00= 000400

10													
10	1096	2049	2363										
10	1093	1094	1104	1105	1106	1107	1109	1113	1114	1116	1117	1118	
1119	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	
1133	1134	1135	1136	1148	1149	1151	1152	1153	1154	1155	1156	1157	
1158	1161	1162	1164	1165	1169	1178	1179	1180	1181	1182	1186	1189	
1190	1191	1192	1193	1215	1221	1222	1228	1229	1231	1242	1243	1244	
1245	1247	1258	1259	1261	1262	1264	1275	1276	1278	1279	1283	1303	
1309	1310	1316	1317	1319	1330	1331	1332	1333	1335	1346	1347	1349	
1350	1352	1363	1364	1366	1367	1371	1398	1399	1401	1412	1413	1414	
1415	1417	1428	1429	1431	1432	1434	1445	1446	1448	1449	1453	1474	
1475	1477	1488	1489	1490	1491	1493	1504	1505	1507	1508	1510	1521	
1522	1524	1525	1529	1558	1559	1560	1591	1598	1605	1612	1613	1622	
1623	1625	1630	1631	1660	1661	1663	1693	1699	1700	1705	1706	1710	
1711	1712	1713	1720	1721	1725	1735	1748	1749	1753	1757	1758	1767	
1775	1784	1787	1793	1794	1800	1801	1826	1832	1833	1859	1840	1842	
1843	1846	1847	1852	1862	1866	1867	1875	1876	1882	1900	1906	1907	
1913	1914	1915	1916	1921	1922	1926	1934	1935	1937	1950	1951	1953	
1971	1977	1978	1982	1985	1986	1993	1994	1995	1996	1997	1998	2003	
2004	2007	2010	2011	2015	2016	2025	2031	2032	2035	2036	2046	2047	
2051	2054	2060	2061	2065	2066	2077	2082	2083	2086	2087	2096	2097	
2099	2104	2105	2126	2132	2133	2137	2140	2141	2146	2147	2151	2152	
2158	2159	2161	2168	2169	2171	2178	2179	2182	2187	2188	2193	2194	
2201	2202	2203	2209	2210	2216	2217	2223	2224	2227	2233	2234	2238	
2239	2245	2246	2250	2251	2253	2259	2264	2265	2271	2272	2277	2282	
2283	2306	2312	2313	2318	2321	2322	2327	2328	2329	2330	2331	2332	
2333	2334	2336	2337	2339	2340	2343	2344	2345	2347	2348	2350	2351	
2353	2354	2356	2357	2358	2359	2360	2361	2364	2368	2369	2374	2375	
2376	2377	2385	2393	2406	2407	2413	2414	2415	2416	2421	2422	2425	
2426	2427	2428	2429	2432	2433	2434	2492	2495	2496	2503	2504	2507	
2508	2510	2511	2513	2514	2515	2516	2517	2518	2519	2520	2522	2532	
2533	2542	2543	2546	2553	2557	2576	2577	2579	2580	2582	2583	2590	
2595	2607	2608	2611	2612	2613	2614	2615	2616	2636	2648	2649	2650	
2651	2652	2653	2655	2656	2657	2658	2660	2661	2663	2664	2673	2674	
2678	2687	2688	2690	2696	2697	2699	2704	2705	2706	2727	2728	2732	
2733	2735	2736	2739	2740	2741	2742	2743	2744	2756	2762	2763	2768	
2769	2771	2772	2781	2785	2786	2789	2790	2792	2793	2796	2801	2809	
2811	2812	2817	2818	2820	2828	2830	2831	2835	2836	2843	2844	2845	
2846	2847	2850	2855	2856	2859	2860	2869	2870	2871	2878	2896	2903	
2904	2909	2910	2920	2921	2929	2933	2934	2936	2937	2939	2940	2943	
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MAINDEC-11-DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 114
CVDVCC.P1: 12-SEP-84 08:55 CROSS REFERENCE TABLE -- USER SYMBOLS

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MAINDEC-11 DVDVC C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 119
CVDVCC.P11 12-SEP 84 08:55 CROSS REFERENCE TABLE - USER SYMBOLS

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 4163 4241
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#PWRG	011600	3830												
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#SCOPE	013404	1036	4200											
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		1373	1377	1403	1407	1419	1423	1436	1440	1455	1459	1479	1483	1495
		1499	1512	1516	1531	1535	1542	1571	1593	1596	1597	1600	1603	1604
		1607	1610	1611	1615	1617	1619	1627	1642	1665	1674	1698	1702	1708
		1736	1740	1755	1762	1763	1776	1780	1782	1786	1789	1795	1796	1799
		1802	1804	1807	1831	1835	1863	1870	1884	1888	1905	1909	1938	1942
		1935	1939	1976	1980	1984	1988	2006	2009	2013	2014	2017	2019	2027
		2038	2047	2049	2053	2056	2068	2070	2072	2079	2089	2101	2108	2131
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		2311	2315	2320	2324	2338	2340	2343	2361	2363	2366	2371	2372	2378
		2381	2387	2390	2391	2397	2400	2401	2408	2410	2418	2419	2436	2440
		2444	2488	2535	2539	2544	2545	2570	2572	2597	2601	2610	2643	2701
		2708	2714	2715	2719	2721	2761	2765	2791	2793	2796	2810	2813	2829
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		2943	2958	2963	2979	2986	3003	3010	3013	3014	3043	3047	3117	3118
		3130	3134	3169	3173	3206	3210	3216	3221	3227	3234	3244	3268	3272
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STAGNU- 050002

33430	33460	34190	34230	34270	34280	34310	34370	34410	3444	34590	34690	34720
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2100	21010	2127	2129	2130	21310	2138	21390	2183	21840	2204	22050	2228
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ITEMP - 000300

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\$TPB	001152	9410	99250	9936										
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\$TRAP	014336	1040	44020											
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		1535	15620	1571	15930	1596	15970	1619	16270	1642	15650	1674	16980	1702
		17080	1807	18310	1835	18630	1870	18840	1888	19050	1909	19380	1942	19550

	1959	1976	1980	1984	1988	2006	2019	2027	2038	2047	2072	2079	2089
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	3526	3562	3574	3622	3648	3649	3658	3677	3686				
ITSK2 - 050011	1607	1610	1611	1615	1736	1740	1755	1762	1763	1782	1786	1798	1799
	1802	2053	2070	2361	2381	2387	2390	2391	2410	2810	2813	2829	2832
	2832	2862	2958	2963	2979	2986	3003	3010	3321	3324	3423	3427	3428
	3431	3437	3441	3565	3567	3570	3572	3625	3629	3630	3637	3680	3684
ITSK3 - 050006	1776	1780	1789	1795	2056	2068	2363	2381	2397	2400	2401	2408	3570
	3571												
ITSK4 - 050123	2366	2371	2372	2378									
ITSTM 001004	905												
ITSTM 001102	918	3767	4150	4186	4191	4218	4240	4241	4246	4250			
ITTYIN 012672	4046	4047	4064	4068									
ITYPBN- ***** U	4430												
ITYPDS 013664	4262	4429											
ITYPE 011626	3857	4106	4417	4425									
ITYPEC 012040	3887	3894	3901	3906	3990								
ITYPEX 012160	3929	3931	3934										
ITYPOC 014134	4347	4426											
ITYPON 014150	4346	4349	4428										
ITYPOS 014110	4342	4427											
IUNIT 001206	963												
IUNITM 001010	907												
IUSMR 001220	970	1215	1303	1598	1605	1826	1900	1973	2126	2137	2306	2308	2421
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IJECT1 001244	995	3645											
IJECT2 001246	996												
IXOFF - 000023	3911	3936											
IXON - 000021	3918	3936											
IXTSTR 013416	4205												
IARGC- 000000	1	3384	3492	3542	3602	3717							
IIBYTE- 000403	1	1094	1169	1215	1217	1231	1247	1264	1283	1303	1305	1319	1335
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	3675	3678											
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13120	13190	13210	13250	13350	13370	13410	13520	13540	13580	13710	13730	13770
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14790	14830	14930	14950	14990	15100	15120	15160	15290	15310	15350	15600	15620
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31690	31730	32040	32060	32080	32100	32160	32210	32250	32270	32340	32590	32610
32640	32680	32700	32720	32760	32990	33040	33070	33090	33160	33180	33190	33210
33240	33260	33280	33340	33360	33390	33410	33430	33460	34210	34230	34310	34350
34370	34410	34670	34690	34720	36200	36220	36230	36250	36370	36580	36630	36650
36750	36770	36780	36800	36840	36860	36880						

##FROM= 000000
 ##GET4= 000000
 ##LOC = 011064

10	11090	17250	17670	18520	19260	21610	21710	22530	25220	25460	25900	26780
26900	27810	28010	28200	29290	29490	29700	30510	32910	34520	36310		
37830												
10	10950	1096	11700	1171	11840	1185	12180	1219	12320	1233	12480	1249
12650	1266	12840	1285	13060	1307	13200	1321	13360	1337	13530	1354	13720
1373	14020	1403	14180	1419	14350	1436	14540	1455	14780	1479	14940	1495
15110	1512	15300	1531	15610	1562	15920	1593	15990	1600	16060	1607	16260
1627	16640	1665	16960	1697	17350	1736	17540	1755	17750	1776	17850	1786
17880	1789	18290	1830	18620	1863	18830	1884	19030	1904	19370	1938	19540
1955	19740	1975	19830	1984	20080	2009	20220	2023	20260	2027	20480	2049
20520	2053	20550	2056	20780	2079	21000	2101	21290	2130	21380	2139	21830
2184	22040	2205	22280	2229	22600	2261	22780	2279	23090	2310	23190	2320
23620	2363	23650	2366	23860	2387	23940	2395	23960	2397	24350	2436	24930
2494	25340	2535	25580	2559	25960	2597	26390	2640	27000	2701	27070	2708
27590	2760	28090	2810	28280	2829	28510	2852	28720	2873	28790	2880	28990
2900	29570	2958	29780	2979	30020	3003	30410	3042	31210	3122	31290	3130
31680	3169	32050	3206	32090	3210	32260	3227	32620	3263	32710	3272	32990
3300	33080	3309	33170	3318	33200	3321	33350	3336	33420	3343	34220	3423

BGNRD	10														
BGNRM	10														
BGNINI	10														
BGNMOD	10	3380													
BGNMSG	10														
BGNSFT	10														
BGNSRV	10	3151	3186	3586											
BGNSUB	10	1160	1227	1241	1257	1274	1315	1329	1345	1362	1397	1411	1427	1444	1473
	1487	1503	1520	1557	1621	1659	1841	1874	1914	2150	2200	2222	2244	2518	2575
	2654														
BGNMW	10														
BRESET	10	1136	1280	1368	1450	1526	1568	1639	1671	1878	2602	3100	3330		
CALL	1108	1724	1766	1851	1925	2161	2171	2253	2521	2546	2590	2677	2690	2780	2800
	2819	2928	2948	2969	3050	3290	3452	3630							
CLLOOP	10	1536	1573	1644	1676										
CLRYEC	10	1185	2608	2736											
COMMEN	10	7490													
DEALLO	34830	35340	35800	37090	37530										
DEVREG	10														
DEVTP	10														
DISPAT	10														
ELSE	1594	1601	1608	1760	1796	2011	2369	2388	2398	2562	2712	3312	3425	3627	3646
ENDCLN	10														
ENDCOM	10	7490													
ENDDO	1100	2071	2380												
ENDHRD	10														
ENDHW	10														
ENDIF	1174	1223	1236	1252	1269	1288	1311	1324	1340	1357	1376	1406	1422	1439	1458
	1482	1498	1515	1534	1570	1614	1616	1618	1641	1673	1701	1739	1779	1781	1794
	1801	1834	1869	1887	1908	1941	1958	1979	1987	2016	2037	2067	2069	2088	2107
	2134	2142	2195	2218	2240	2273	2286	2314	2323	2377	2407	2409	2439	2497	2569
	2571	2600	2642	2718	2720	2764	2812	2831	2861	2875	2882	2905	2962	2985	3009
	3046	3133	3172	3215	3220	3233	3267	3275	3303	3323	3325	3327	3338	3345	3430
	3440	3471	3636	3657	3683	3685	3687								
ENDINC	2417	2863	3012	3525	3570	3573									
ENDINI	10														
ENDLOO	1806	3458													
ENDMOD	10														
ENDMSG	10														
ENDRTN	3482	3533	3579	3708	3752										
ENDSFT	10														
ENDSRV	10	3179	3240	3597											
ENDSUB	10	1176	1238	1254	1271	1290	1326	1342	1359	1378	1408	1424	1441	1460	1484
	1500	1517	1537	1574	1645	1677	1872	1889	1943	2197	2220	2242	2288	2573	2604
	2722														
ENDSW	10														
ENDTST	10	1196	1291	1379	1461	1538	1575	1646	1678	1814	1890	1960	2114	2289	2472
	2618	2746	2884	3023	3243	3350									
EQUALS	10														
ERRDF	10	1172													
ERRHRD	10	1234	1250	1267	1286	1322	1338	1355	1374	1404	1420	1437	1456	1480	1496
	1513	1532	1565	1631	1668	1737	1777	1790	1867	1885	1939	1956	2032	2061	2083
	2105	2188	2210	2234	2265	2283	2437	2560	2567	2598	2709	2716	2856	2873	2880
	2979	3004	3131	3301	3336	3343									
ERROR	6430	1173	1235	1251	1268	1287	1323	1339	1356	1375	1405	1421	1438	1457	1481
	1497	1514	1533	1566	1632	1669	1738	1778	1791	1868	1886	1940	1957	2033	2062

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VDVCC P11 12-SEP-84 08:55 CROSS REFERENCE TABLE -- MACRO NAMES

LAND	10940	11690	12150	12170	12310	12470	12640	12830	13030	13050	13190	13350	13520	13710	14010
	14170	14340	14530	14770	14930	15100	15290	15600	15910	15980	16050	16250	16630	16930	16950
	17530	17840	17870	18260	18200	18820	19000	19020	19330	19710	19730	19820	20070	20250	20470
	20510	20540	20770	20990	21260	21280	21370	21820	22030	22270	22590	22770	23060	23080	23180
	23610	23640	23850	23930	23930	24340	24920	25330	25370	25930	26360	26380	26990	27060	27560
	27580	28500	28710	28780	28960	28980	30010	30380	30400	31200	31670	32040	32080	32250	32590
	32610	32700	33070	33160	33190	33340	33410	34210	34330	34670	36200	36230	36630	36750	36780
IBRANC	10950	11010	11700	11840	12150	1216	12180	12320	12480	12650	12840	13030	1304	13060	13200
	13360	13530	13720	14020	14180	14350	14540	14780	14940	15110	15300	15610	15920	15950	15990
	16020	16060	16090	16260	16640	16930	1694	16960	17330	17540	17610	17730	17830	17880	17970
	18040	1805	18070	18260	1827	18290	18620	18830	19000	1901	19030	19370	19540	19710	1972
	19740	19830	20080	20120	20190	2020	20220	20260	20480	20520	20530	20720	20780	21000	21260
	2127	21290	21380	21830	22040	22200	22600	22780	23060	2307	23090	23190	23360	2337	23410
	2342	23620	23650	23700	23810	23860	23890	23940	23960	23990	24180	24350	24930	25340	25580
	25630	25960	26360	2637	26390	27000	27070	27130	27360	2757	27590	27890	2790	27940	2795
	28090	28280	28510	28640	28720	28790	28960	2897	28990	29360	2937	29410	2942	29570	29780
	30020	30130	30380	3039	30410	31180	3119	31210	31290	31680	32050	32090	32260	32590	3260
	32620	32710	32990	33080	33130	33170	33200	33350	33420	34220	34260	34360	34440	3445	34460
	3447	34590	34680	34700	34740	3475	35140	3515	35190	3520	35260	35310	35350	3536	35600
	3561	35630	3564	35680	3569	35710	35740	36210	36240	36280	36470	36610	36640	36760	36790
	36950														
IBRCOD	12150	13030	16930	18040	18260	19000	19710	20190	21260	23060	23390	23410	26360	27360	27920
	27940	28960	29390	29410	30380	31180	32590	34440	34460	35170	35190	35380	35600	35660	35680
ICALL	11090	17250	17670	18320	19260	21610	21710	22530	23220	25460	25900	26780	26900	27810	28010
	28200	29290	29490	29700	30510	32910	34520	36310							
ICHECK	10930	1094	11690	12150	12310	12470	12640	12830	13030	13190	13350	13520	13710	14010	14170
	14340	14530	14770	14930	15100	15290	15600	15910	15980	16050	16250	16630	16930	17330	17840
	17870	18260	18820	19000	19330	19710	19820	20070	20230	20460	2047	20510	20540	20770	20990
	21260	21370	21820	22030	22270	22590	22770	23060	23180	23600	2361	23640	23850	23930	24340
	24920	25330	25370	25930	26360	26990	27060	27360	28300	28710	28780	28960	30010	30380	31280
	31670	32040	32080	32250	32590	32700	33070	33160	33190	33340	33410	34210	34330	34670	36200
	36230	36430	36750	36780											
ICKOP1	11040	11060	11130	11160	11180	11210	11330	11480	11510	11520	11530	11540	11550	11570	11610
	11640	11880	11910	11920	12210	12280	12420	12580	12750	13090	13160	13300	13460	13630	13980
	14120	14280	14430	14740	14880	15040	15210	15380	16120	16220	16600	16990	17050	17100	17120
	17200	17480	17570	17930	18000	18320	18420	18460	18730	19060	19150	19210	19500	19770	19830
	19950	19970	20030	20100	20330	20650	20860	20960	21320	21400	21510	21580	21680	21780	21930
	22010	22160	22230	22380	22450	22500	22710	23120	23210	23270	23290	23310	23360	23440	23470
	23500	23530	23560	23580	23680	24060	24130	24150	24280	24930	25030	25070	25130	25140	25150
	25160	25170	25190	25760	25790	26070	26110	26140	26150	26480	26490	26500	26510	26520	26550
	26570	26730	26960	27330	27390	27420	27430	27620	27680	27850	27890	28170	28330	28390	29030
	29330	29360	29600	29670	29830	29900	30070	30440	30740	30770	30790	30830	30850	30890	30920
	30950	30980	31640	32120	32140	32650	32730	32790	32880	34080	34100	34120	34240	34290	34390
	35060	35140	35290	35330	35550	35630	36140	36160	36260	36330	36390	36410	36430	36450	36500
	36660	36680	36700	36820	36910										
ICKOP2	11230	11260	11290	11320	11780	11890	11890	12440	12610	12780	13320	13490	13660	14140	14310
	14480	14900	15070	15240	16300	18390	18660	19130	19340	19930	20150	20310	20600	20820	21040
	21460	21870	22090	22330	22640	22820	23330	23390	23740	23760	24210	24260	24320	25100	25320
	25420	25820	26120	26600	26630	26870	27040	27270	27320	27400	27710	27920	28110	28300	28430
	28460	28530	28690	29090	29200	29390	29940	29970	30190	31040	31080	31110	31250	31370	31390
	31570	31600	31710	31920	31930	31990	32190	32290	32820	32850	33110	33220	34370	35040	35170
	35220	35240	35380	35660	35960	36520	36540	36560	36930						
ICOR6	24220	35090													
ICOND	10930	1094	11690	12150	1217	12310	12470	12640	12830	13030	1305	13190	13350	13520	13710
	14010	14170	14340	14530	14770	14930	15100	15290	15600	15910	15980	16050	16250	16630	16930
	1695	17530	17840	17870	18260	1828	18820	19000	1902	19530	19710	1973	19820	20070	20250

	20460	2047	20510	20540	20770	20990	21260	2128	21370	21820	22030	22270	22590	22770	23060
	2308	23180	23600	2361	23640	23850	23930	2395	24340	24920	25530	25570	25950	26360	2638
	26990	27060	27560	2758	28500	28710	28780	28960	2898	30010	30380	3040	31280	31670	32010
	32080	32250	32590	3261	32700	33070	33160	33190	33340	33410	34210	34350	34670	36200	36230
ICOMPA	36630	36750	36780												
	10940	11690	12150	12310	12470	12640	12830	13030	13190	13350	13520	13710	14010	14170	14340
	14530	14770	14930	15100	15290	15600	15910	15980	16050	16250	16630	16930	17350	17530	17750
	17840	17870	18260	18620	18820	19000	19370	19530	19710	19820	20070	20250	20470	20510	20540
	20770	20990	21260	21370	21820	22030	22270	22590	22770	23060	23180	23360	23610	23640	23850
	25930	24340	24920	25530	25570	25950	26360	26990	27060	27560	27890	28090	28280	28500	28710
	28780	28960	29360	29570	29780	30010	30380	31280	31670	32040	32080	32250	32590	32700	32990
	33070	33160	33190	33340	33410	34210	34350	34670	35140	35350	35630	36200	36230	36630	36750
ICOUNT	36780														
	11090	17250	17670	18520	19260	21610	21710	22530	25220	25460	25900	26780	26900	27810	28010
ICOUNT	28200	29290	29490	29700	30510	32910	34520	36310							
ICOUNT	10940	11690	12150	12170	12310	12470	12640	12830	13030	13050	13190	13350	13520	13710	14010
	14170	14340	14530	14770	14930	15100	15290	15600	15910	15980	16050	16250	16630	16930	16950
	17530	17840	17870	18260	18280	18820	19000	19020	19530	19710	19730	19820	20070	20250	20470
	20510	20540	20770	20990	21260	21280	21370	21820	22030	22270	22590	22770	23060	23080	23180
	23610	23640	23850	23930	23950	24340	24920	25530	25570	25950	26360	26380	26990	27060	27560
	27580	28500	28710	28780	28960	28980	30010	30380	30400	31280	31670	32040	32080	32250	32590
	32610	32700	33070	33160	33190	33340	33410	34210	34350	34670	36200	36230	36630	36750	36780
IEL SE	15950	16020	16090	17610	17970	20120	23700	23890	23990	25630	27130	33130	34260	36280	36470
IEL SE	10930	10940	10950	11010	11020	11040	11060	11090	11130	11160	11180	11210	11230	11240	11260
	11270	11290	11300	11320	11330	11350	11480	11510	11520	11530	11540	11550	11570	11610	11640
	11690	11700	11750	11780	11800	11810	11830	11840	11880	11890	11900	11910	11920	12150	12170
	12180	12210	12240	12280	12310	12320	12370	12420	12440	12470	12480	12530	12580	12610	12640
	12650	12700	12750	12780	12830	12840	12890	13030	13050	13060	13090	13120	13160	13190	13200
	13250	13300	13320	13350	13360	13410	13460	13490	13520	13530	13580	13630	13660	13710	13720
	13770	13980	14010	14020	14070	14120	14140	14170	14180	14230	14280	14310	14340	14350	14400
	14450	14480	14530	14540	14590	14740	14770	14780	14830	14880	14900	14930	14940	14990	15040
	15070	15100	15110	15160	15210	15240	15290	15300	15350	15380	15600	15610	15710	15910	15920
	15950	15960	15980	15990	16020	16030	16050	16060	16090	16100	16120	16150	16170	16190	16220
	16250	16260	16300	16420	16400	16430	16440	16740	16930	16950	16960	16990	17020	17050	17100
	17120	17200	17250	17350	17400	17480	17530	17540	17570	17610	17620	17670	17750	17800	17820
	17840	17850	17870	17880	17930	17950	17970	17980	18000	18020	18040	18070	18080	18260	18280
	18290	18320	18350	18390	18420	18440	18520	18620	18660	18700	18750	18820	18830	18880	19000
	19020	19030	19060	19090	19130	19150	19210	19260	19340	19370	19420	19500	19530	19540	19590
	19710	19730	19740	19770	19800	19820	19830	19850	19880	19930	19950	19970	20030	20070	20080
	20100	20120	20130	20150	20170	20190	20210	20220	20250	20260	20310	20350	20380	20460	20470
	20480	20510	20520	20540	20550	20600	20650	20680	20700	20720	20730	20770	20780	20820	20860
	20890	20960	20990	21000	21040	21080	21260	21280	21290	21320	21350	21370	21380	21400	21430
	21460	21510	21580	21610	21680	21710	21780	21820	21830	21870	21930	21960	22010	22030	22040
	22090	22160	22190	22230	22270	22280	22330	22380	22410	22450	22500	22530	22590	22600	22640
	22710	22740	22770	22780	22820	22870	23060	23080	23090	23120	23150	23180	23190	23210	23240
	23270	23290	23310	23330	23360	23390	23400	23410	23430	23440	23470	23500	23530	23560	23580
	23600	23610	23620	23640	23650	23680	23700	23710	23740	23760	23780	23810	23820	23850	23860
	23890	23900	23930	23940	23950	23960	23990	24000	24060	24080	24100	24130	24150	24180	24190
	24210	24220	24260	24280	24320	24340	24350	24400	24920	24930	24950	24980	25030	25070	25100
	25130	25140	25150	25160	25170	25190	25220	25320	25420	25460	25530	25540	25570	25580	25630
	25640	25700	25720	25760	25790	25820	25900	25950	25960	26010	26070	26110	26120	26130	26140
	26150	26360	26380	26390	26430	26480	26490	26500	26510	26520	26550	26570	26600	26630	26730
	26780	26870	26900	26960	26990	27000	27040	27060	27070	27130	27140	27190	27210	27270	27320
	27350	27390	27400	27410	27420	27430	27560	27580	27590	27620	27650	27680	27710	27810	27850
	27890	27920	27930	27940	27960	28010	28090	28110	28130	28170	28200	28280	28300	28320	28350
	28430	28440	28460	28500	28510	28550	28590	28620	28640	28650	28690	28710	28720	28760	28780

MAINDEC 11 DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 133
CVDVCC.P11 12-SEP-84 08:55 CROSS REFERENCE TABLE -- MACRO NAMES

	28790	28830	28960	28980	28990	29030	29060	29090	29200	29290	29330	29360	29390	29400	29410
	29430	29490	29570	29600	29630	29670	29700	29780	29830	29860	29900	29940	29950	29970	30010
	30020	30070	30100	30130	30140	30190	30380	30400	30410	30440	30470	30510	30740	30770	30790
	30830	30850	30890	30920	30950	30980	31040	31080	31110	31180	31200	31210	31250	31280	31290
	31340	31370	31390	31570	31600	31610	31640	31670	31680	31710	31730	31920	31950	31960	31990
	32000	32040	32050	32080	32090	32120	32140	32160	32190	32210	32250	32260	32290	32340	32590
	32610	32620	32650	32680	32700	32710	32730	32760	32790	32820	32850	32880	32910	32990	33040
	33070	33080	33110	33130	33140	33160	33170	33190	33200	33220	33240	33260	33280	33340	33350
	33390	33410	33420	33460	34080	34100	34120	34210	34220	34240	34260	34270	34290	34310	34350
	34360	34390	34410	34440	34460	34520	34570	34590	34600	34670	34680	34700	34720	34740	34830
	35060	35080	35090	35140	35170	35180	35190	35210	35220	35240	35260	35270	35290	35310	35340
	35530	35550	35580	35590	35600	35620	35630	35660	35670	35680	35700	35710	35720	35740	35750
	35800	35960	36140	36160	36200	36210	36230	36240	36260	36280	36290	36310	36350	36370	36390
	36410	36430	36450	36470	36480	36500	36520	36540	36560	36580	36600	36610	36630	36640	36660
	36680	36700	36750	36760	36780	36790	36820	36840	36860	36880	36910	36930	36950	37090	37530
EXIF 2	18040	34440													
EXIF 3	18040	34440													
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 .HEADE 10 617
 .KT11 10
 .SETUP 10 1027
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 .STYPE 10 3840

MAINDEC 11 DVDVC-C MACY11 30A(1052) 12-SEP-84 15:41 PAGE 141
CVDVCC.P11 12 SEP 84 08:55 CROSS REFERENCE TABLE -- MACRO NAMES

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ABS. 014416 000

ERRORS DETECTED: 0

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RUN TIME: 77 77 6 SECONDS
RUN TIME RATIO: 246/162=1.5
CORE USED: 43K (85 PAGES)