

BDV11-AA

BOOTSTRAP DIAGNOSTIC
MD-11-DVM8A-A

EP-DVM8A-A-DL

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FICHE 1 OF 1

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This microfiche card contains a grid of frames, each displaying technical data for the Bootstrap Diagnostic MD-11-DVM8A-A. The frames are organized into columns and rows, with each frame containing a specific set of data, likely related to the diagnostic process. The data is presented in a structured, tabular format, with headers and body sections. The frames are arranged in a grid that is approximately 10 columns wide and 15 rows high. The data in the frames is too small to read clearly, but it appears to be organized into a systematic layout. The frames are separated by thin lines, and the overall layout is consistent throughout the card.

TITLE USER DOCUMENTATION
SBTTL IDENTIFICATION

; PRODUCT CODE: MAINDEC-11-DVM8A-A-D

; PRODUCT NAME: BDV11-AA BOOTSTRAP DIAGNOSTIC

; MAINTAINER: COST CENTER 301

; AUTHOR: MARY McNALLY 18-AUG-77

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; FUNCTIONAL DESCRIPTION: THE BDV11-AA BOOTSTRAP/TERMINATOR/
; DIAGNOSTIC MODULE PROVIDES THE
; FOLLOWING FUNCTIONS:
; 1. ROM RESIDENT HARDWARE DIAGNOSTIC
; TESTS.
; 2. PADS FOR ROM RESIDENT BOOTSTRAP
; ROUTINES FOR THOSE DEVICES WHICH
; ARE SUPPORTED BY THE LSI-11 SYSTEM.
; 3. A READ/WRITE STORAGE REGISTER FOR
; USE BY THE RESIDENT DIAGNOSTIC TESTS.
; 4. TWELVE DIP ROCKER SWITCHES TO SELECT
; TESTING AND BOOTSTRAP OPTIONS AT
; POWER UP.
; 5. AN ARRAY OF FOUR LED'S TO PROVIDE
; STATUS INFORMATION.
; 6. HALT AND REBOOT TOGGLE SWITCHES FOR
; USE IN SYSTEMS WITHOUT A CONSOLE.
; 7. SOCKETS FOR 2K WORDS OF EPROM.
; 8. OPTIONAL REPLACEMENT OF SYSTEM ROM
; BY 8K WORDS OF EPROM.

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; VERSION: 00

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; ASSUMPTIONS:
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; --WHEN RUNNING UNDER APT, ALL ROCKER
; SWITCHES ARE IN THE "ON" POSITION.
; THE EXCEPTION TO THIS OCCURS ONLY
; WHEN AN OPERATOR CHANGES THE HARD-
; WARE P-TABLE TO CORRESPOND TO THE NEW
; SWITCH SETTINGS.
;
; --THE ADDRESS JUMPERS ARE CONFIGURED
; AND MEMORY CHIPS INSTALLED PROPERLY.
; NO TWO CHIPS CAN RESPOND TO THE SAME
; ADDRESS.
;
; --THE MODULE UNDER TEST RESIDES IN THE
; SAME BACKPLANE AS THAT FROM WHICH THE
; LINE TIME CLOCK IS GENERATED.
;
; --THE CPU IS WORKING PROPERLY.

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.SBTTL OPERATING INSTRUCTIONS

;1. LOADING AND STARTING PROCEDURES

; IN SYSTEMS OTHER THAN APT, BOTH THE DIAGNOSTIC PROGRAM
; AND THE DIAGNOSTIC SUPERVISOR WILL BE LOADED BY EITHER PAPER
; TAPE OR XXDP MEDIA. THE COMBINED FILE WILL BE CALLED DVM8AA,
; AND IS LOADED BY THE FOLLOWING COMMANDS:

I. PAPER TAPE

TO LOAD, PLACE AN ABSOLUTE LOADER IN THE PAPER
TAPE READER, AND TYPE "177550L". THEN PLACE THE
DVM8AA TAPE IN THE READER AND TYPE "P".

TO CALL THE SUPERVISOR, TYPE "200G". THE SUPERVISOR
WILL RESPOND WITH A FEW QUESTIONS AND A PROMPT CHARACTER.
SEE THE SUPERVISOR COMMANDS BELOW FOR FURTHER INSTRUCTIONS.

II. XXDP MEDIA

TO LOAD, TYPE "L DVM8AA". TO CALL THE
SUPERVISOR, TYPE "S 200" WHEN THE PROGRAM IS LOADED.

III. SUPERVISOR COMMANDS

ONCE THE SUPERVISOR HAS BEEN INVOKED AT LOCATION 200,
THE FOLLOWING COMMANDS SHOULD BE USED SELECTIVELY TO
CONTROL THE RUNNING OF THE DIAGNOSTIC:

;2. TO START

START/TEST: <TESTNOS>/PASS: <PASSCNT>/UNIT: <DEVN>/FLAG: <CF>: <CF>

WHERE:

TEST ::=(DEFINES WHICH TESTS TO EXECUTE, IF NO
SPECIFICATION EXECUTE ALL TESTS)
PASS ::=(INDICATES HOW MANY PASSES TO RUN, IF NO SPEC-
IFICATION RUN UNTIL DIAGNOSTIC ESCAPE SEQUENCE)
UNIT ::=(SPECIFIES WHICH UNIT ENTRIES TO GET FROM THE
CONFIGURATION FILE, IF NO SPECIFICATION USE ALL
APPLICABLE UNIT ENTRIES)
FLAG ::=(SPECIFIES THE ERROR CONTROL/REPORT FLAG OPTIONS
TO BE USED)
<TESTNOS> ::=(LIST FOR UP TO 16 TESTS TO BE EXECUTED IN AN
ASCENDING ORDER.
<PASSCNT> ::=(NUMBER OF PROGRAM PASSES TO EXECUTE)
<DEVN> ::=(UNIQUE, DEC STANDARD, DEVICE SPECIFIER AND
UNIT NUMBER)
<CF> ::=(ANY OF THE FOLLOWING CONTROL FLAGS:
HOE-HALT ON ERROR
LOE-LOOP ON ERROR AND ATTEMPT REPORT
IER-INHIBIT ALL ERROR REPORTS
IBE-INHIBIT BASIC AND EXTENDED ERROR REPORTS
IEE-INHIBIT EXTENDED ERROR REPORTS
PRI-DIRECT ALL ERROR, PASS, AND STATISTICAL
REPORTS TO THE LINE PRINTER.
BOE-AUDIO ERROR INDICATION
UAM-UNATTENDED MODE, NO OPERATOR INTERVENTION
PNT-PRINT NUMBER OF TEST BEING EXECUTED.)

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;3. TO RESTART
;   THE RESTART COMMAND IS SIMILAR TO THE START COMMAND EXCEPT
;   THAT ALL PARAMETERS ARE ASSUMED TO BE ALREADY DEFINED, AND NO
;   OPERATOR DIALOGUE IS PERFORMED PRIOR TO RUNNING THE DIAGNOSTIC.
;   IF THE OPERATOR WISHES TO ALTER THE TYPE OF ADDITIONAL MEMORY
;   TO TEST, OR CHANGE THE ADDRESSES, LOCATION "PASS" MUST BE
;   CLEARED MANUALLY PRIOR TO RESTARTING, SINCE THIS INFORMATION
;   IS SET UP ON THE FIRST PASS OF THE DIAGNOSTIC.
;
;   RESTART/TEST: <TESTNOS>/PASS: <PASSCNT>/FLAG: <CF>: <CF>...
;
;4. TO RETURN TO PROGRAM
;
;   TO RESUME EXECUTION OF THE DIAGNOSTIC AT THE FIRST INSTRUCTION
;   FOLLOWING THE CURRENT SUPERVISOR CALL, AT WHICH TIME NEW FLAGS
;   MAY BE ASSIGNED.
;
;   CONTINUE/FLAG: <CF>: <CF>:...
;
;5. TO LOAD AND START THE DIAGNOSTIC
;   TO LOAD AND START THE DIAGNOSTIC USING DEFAULT PARAMETERS
;
;   RUN<FILESPEC>/TEST: <TESTNOS>/PASS: <PASSCNT>/UNIT: <DEVN>/FLAG: <CF>...
;
;6. TO RETURN TO SUPERVISOR
;
;   EXIT
;
;NOTE: TEST NUMBERS AND UNIT NUMBERS MAY BE SPECIFIED
;      AS SINGLE NUMBERS, RANGES OF NUMBERS (I.E. 1-6 ),
;      OR COMBINATIONS OF BOTH.
;
;SPECIAL ENVIRONMENTS: APT
;   TEST 7, THE TEST OF ALL RESIDENT MEMORY, WILL NOT RUN
;   UNDER APT, AS IT REQUIRES USER INTERVENTION.
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226 ; PROGRAM OPTIONS:
227 ; THE HARDWARE PARAMETERS ARE STORED IN A PARAMETER TABLE WITH
228 ; DEFAULT VALUES. THE OPERATOR WILL HAVE THE OPTION OF CHANGING
229 ; THESE PARAMETERS BY RESPONDING TO THE APPROPRIATE QUESTIONS
230 ; GENERATED BY THE DIAGNOSTIC SUPERVISOR. THESE PARAMETERS
231 ; INCLUDE THE UNIT NUMBER, INTERRUPT VECTOR, PRIORITY LEVEL, AND
232 ; ROCKER SWITCH SETTINGS. THE DEFAULT VALUES WILL BE TYPED ALONG
233 ; WITH THE QUESTIONS.
234 ; THE ROCKER SWITCH SETTINGS ARE EXAMINED IN THE FOLLOWING
235 ; ORDER:
236 ; B4 B3 B2 B1 A8 A7 A6 A5 A4 A3 A2 A1
237 ; FOR EXAMPLE, IF SWITCHES A1, A2, A6, AND B1 WERE ON, THE SWITCH
238 ; SETTING WOULD BE:
239 ; B4 B3 B2 B1 A8 A7 A6 A5 A4 A3 A2 A1
240 ; 1 1 1 1
241 ; WHICH HAS AN OCTAL VALUE OF 0443.
242 ; THE SOFTWARE P-TABLE CONTAINS THE CHECKWORDS FOR THE 2K
243 ; OF DIAGNOSTIC ROM WHICH IS RESIDENT ON THE BDV11A. TO CHANGE
244 ; THESE CHECKWORDS, THE OPERATOR MUST RESPOND WITH A YES TO THE
245 ; SUPERVISOR'S QUESTION "CHANGE SW (Y/N)?". THE DEFAULT VALUES WILL
246 ; THEN BE PRINTED AS THE QUESTIONS ARE ASKED.
247
248 ; TEST 7 CHECKS ALL THE ADDITIONAL MEMORY THAT IT IS
249 ; INSTRUCTED TO TEST. THIS TEST IS SET UP BY THE OPERATOR ON THE
250 ; FIRST PASS OF THE DIAGNOSTIC. THE DIAGNOSTIC WILL ASK IF THERE
251 ; IS ANY ADDITIONAL MEMORY TO TEST, AND IF SO WILL ASK WHICH
252 ; TYPE OF MEMORY IT IS. (THE OPERATOR CAN ANSWER THESE QUESTIONS
253 ; WITH LOGICAL Y/N ANSWERS.) IF ANY ADDITIONAL MEMORY IS TO BE
254 ; TESTED, THE OPERATOR MUST SUPPLY THE CHECKWORDS FOR THOSE
255 ; ROMS/EPROMS. IN THE CASE OF SYSTEM ROM/EPROM, THE OPERATOR WILL
256 ; ALSO HAVE TO INDICATE HOW MANY CHECKWORDS WILL BE INPUT (IN DECIMAL).
257 ; NOTE THAT ONCE THIS DATA IS SET UP, THIS MEMORY WILL ALWAYS BE
258 ; TESTED, EVEN IF THE DIAGNOSTIC IS RESTARTED, UNLESS THE LOCATION
259 ; "PASS" IS CLEARED (SEE SEC. 3 OF LOADING AND STARTING PROCEDURES).
260
261 ; EXECUTION TIMES: A SINGLE ERROR-FREE PASS WILL REQUIRE
262 ; LESS THAN 1 SEC. TO RUN UNDER APT. WHEN RUN
263 ; IN STAND-ALONE MODE, IT WILL REQUIRE LESS
264 ; THAN 3 SECS. TO RUN.
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.SBTTL ERROR INFORMATION

- ; ERROR REPORTING PROCEDURES:
; IN GENERAL, ALL ERROR REPORTS WILL CONTAIN THE FOLLOWING
; INFORMATION:
; 1. A HEADER OF TEST IDENTIFICATION INFORMATION.
; THIS INCLUDES THE PROGRAM NAME, TYPE OF ERROR,
; ERROR NUMBER, TEST AND SUBTEST NUMBERS, UNIT
; NUMBER, AND AN OPTIONAL ADDITIONAL MESSAGE.
; 2. BASIC ERROR INFORMATION.
; THIS IS A SPECIFIC STATEMENT OF WHAT THE ERROR
; IS AND WHICH REGISTER OR ROM WAS INVOLVED.
; 3. EXTENDED ERROR INFORMATION.
; THIS IS OPTIONAL INFORMATION WHICH IS USED
; PRIMARILY TO GIVE THE EXPECTED AND ACTUAL
; CONTENTS OF THE APPROPRIATE DEVICE REGISTER
; DURING REGISTER TESTS.

SBTTL SUBTEST SUMMARIES

	TEST NO.	SUBTEST NO.	PURPOSE
286	1	1	TO VERIFY THAT THE READ/WRITE REGISTER CAN HOLD ALL ZEROES.
287			TO VERIFY THAT THE READ/WRITE REGISTER CAN HOLD ALL ONES.
288		2	TO VERIFY THAT THE READ/WRITE REGISTER CAN HOLD AN ALTER-
289		3	NATING 1'S AND 0'S BIT PATTERN.
290			TO VERIFY THAT THE READ/WRITE REGISTER IS BYTE ADDRESSABLE.
291		4	TO VERIFY THAT THE READ/WRITE REGISTER CAN SWAP BYTES.
292		5	TO VERIFY THAT THE READ/WRITE REGISTER CAN HOLD AN ALTER-
293		6	NATING 0' AND 1'S BIT PATTERN.
294		7	TO VERIFY THAT THE READ/WRITE REGISTER IS BYTE ADDRESSABLE.
295		8	TO VERIFY THAT THE READ/WRITE REGISTER CAN SWAP BYTES.
296		9	TO VERIFY THAT THE READ/WRITE REGISTER CAN ROTATE A SET
297			BIT WITHOUT PICKING UP ANY BITS.
298		10	TO VERIFY THAT THE READ/WRITE REGISTER CAN ROTATE A CLEAR
299			BIT WITHOUT PICKING UP ANY BITS.
300	2	1	TEST 2 IS THE SAME AS TEST 1 EXCEPT THAT THE PAGE CONTROL REGISTER IS THE REGISTER UNDER TEST.
301		2	SAME AS TEST 1.
302		3	SAME AS TEST 1.
303		4	SAME AS TEST 1.
304		5	SAME AS TEST 1.
305		6	SAME AS TEST 1.
306		7	SAME AS TEST 1.
307		8	SAME AS TEST 1.
308		9	SAME AS TEST 1.
309		10	SAME AS TEST 1.
310	3	1	TO VERIFY THAT THE BEVENT CLAMP DISABLE ALLOWS INTERRUPTS WHEN OFF.
311		2	TO VERIFY THAT THE BEVENT CLAMP DISABLE INHIBITS INTERRUPTS WHEN ON.
312	6	1	TO VERIFY THAT THE LOW BYTE DIAGNOSTIC ROM HAS GOOD DATA.
313		2	TO VERIFY THAT THE HIGH BYTE DIAGNOSTIC ROM HAS GOOD DATA.
314		3	TO INSURE THAT THE DIAGNOSTIC ROMS HAVE NOT BEEN INTERCHANGED.
315		4	TO DETERMINE IF THERE IS ANY ADDITIONAL MEMORY TO TEST.
316	7	1	THIS INFORMATION IS OBTAINED
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343	:	2	THROUGH USER DIALOGUE.
344	:		TO TEST THE EXPANDED DIAGNOSTIC
345	:		ROM. FIRST THE REQUIRED CHECK-
346	:		WORDS MUST BE INPUT, AND THE
347	:		STARTING LOCATION IN MEMORY.
348	:		CHECKSUMS AND CHECKWORD
349	:		VERIFICATION CONFIRMS GOOD
350	:	3	DATA IN ROMS.
351	:		TO TEST THE EPROM IN THE
352	:		SOCKETS. TEST PROCEDURE IS AS
353	:	4	IN SUBTEST 2.
354	:		TO TEST SYSTEM ROM. SAME
355	:	5	TEST PROCEDURE AS IN SUBTEST 2.
356	:		TO TEST SYSTEM EPROM. SAME
357	:		TEST PROCEDURE AS IN SUBTEST 2.

358	002000		SVC
359		000000	SVCINS=0
360		000000	SVCGBL=0
361		000000	SVCTAG=0
362			.TITLE PROGRAM HEADER AND TABLES
363			.SBTTL IDENTIFICATION
364			
365			
366			.SBTTL PROGRAM HEADER
367			
368	002000		BGNMOD MDHEDR
369	002000		MDHEDR: :
370			
371			; ++
372			; THE PROGRAM HEADER IS THE INTERFACE BETWEEN
373			; THE DIAGNOSTIC PROGRAM AND THE SUPERVISOR.
374			; --
375			
376	002000		POINTER BGNSW, BGNSFT
377			
378			
379	002000		HEADER DVM8AA, A, 0, 5
380	002000		LSNAME: :
381	002000	104	.ASCII 000
382	002001	126	.ASCII 000
383	002002	115	.ASCII 000
384	002003	070	.ASCII 000
385	002004	101	.ASCII 000
386	002005	101	.ASCII 000
387	002006	000	.BYTE 0
388	002007	000	.BYTE 0
389	002010		LSREV: :
390	002010	101	.ASCII 000
391	002011		LSDEPO: :
392	002011	060	.ASCII 000
393	002012		LSMREV: :
394	002012	001	.BYTE CSREVISION
395	002013	006	.BYTE CSEDIT
396	002014		LSUNIT: :
397	002014	000000	.WORD 0
398	002016		LSTIM1: :
399	002016	000005	.WORD 5
400	002020		LSTIMU: :
401	002020	000000	.WORD
402	002022		LSTIML: :
403	002022	000000	.WORD
404	002024		LSEF: :
405	002024	000000	.WORD 0
406	002026	000000	.WORD 0
407	002030		LSGPC: :
408	002030	000000	.WORD 0
409	002032		LSEXP1: :
410	002032	000000	.WORD 0
411	002034		LSEXP2: :
412	002034	000000	.WORD 0
413	002036		LSEXP3: :

414	002036	000000			
415	002040		LSDTP:.	WORD	0
416	002040	002102		WORD	LSDISPATCH
417	002042		LSICP:.		
418	002042	005024		WORD	LSINIT
419	002044		LSCCP:.		
420	002044	005170		WORD	LSCLEAN
421	002046		LSHPCP:.		
422	002046	014322		WORD	LSHARD
423	002050		LSSPCP:.		
424	002050	014512		WORD	LSSOFT
425	002052		LSDEVP:.		
426	002052	003026		WORD	LSDVTYP
427	002054		LSREPP:.		
428	002054	000000		WORD	0
429	002056		LSHPTP:.		
430	002056	002122		WORD	LSHW
431	002060		LSSTP:.		
432	002060	002134		WORD	LSW
433	002062		LSDRCT:.		
434	002062	002476		WORD	LSDR
435	002064		LSDRS:.		
436	002064	002502		WORD	LSDRST
437	002066		LSSTA:.		
438	002066	000000		WORD	0
439	002070		LSAUT:.		
440	002070	000000		WORD	0
441	002072		LSOUT:.		
442	002072	000000		WORD	0
443	002074		LSSTID:.		
444	002074	000000		WORD	0
445	002076		LSLADP:.		
446	002076	015054		WORD	LSLAST
447	002100			ENDMOD	
448					

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456 002100
457 002100
458 002100
459 002100 000007
460 002102
461 002102 005250
462 002104 006070
463 002106 006720
464 002110 007452
465 002112 007612
466 002114 010366
467 002116 011516
468 002120
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478 002120
479 002120 000004
480 002122
481 002122
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483
484 002122 000000
485 002124 000100
486 002126 000007
487 002130 007777
488
489 002132
490 002132
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499 002132
500 002132 000010
501 002134
502 002134
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.SBTTL DISPATCH TABLE

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

BGNMOD DSPCODE
DSPCODE: :
DISPATCH 7
.WORD 7
LSDISPATCH: :
.WORD T1
.WORD T2
.WORD T3
.WORD T4
.WORD T5
.WORD T6
.WORD T7
ENDMOD

.SBTTL DEFAULT HARDWARE P-TABLE

;++
; THE DEFAULT HARDWARE P-TABLE CONTAINS DEFAULT VALUES OF
; THE TEST-DEVICE PARAMETERS. THE STRUCTURE OF THIS TABLE
; IS IDENTICAL TO THE STRUCTURE OF THE RUN-TIME P-TABLE.
;--

BGNHW DFPTBL
.WORD L10000-L\$HW/2
L\$HW: :
DFPTBL: :
; DEFAULT VALUES FOR UP TO SIX UNITS
.WORD 0 ; UNIT NUMBER 0
.WORD 100 ; INTERRUPT VECTOR
.WORD 7 ; PRIORITY LEVEL
.WORD 7777 ; ROCKER SWITCH SETTINGS

ENDHW

L10000:

.SBTTL SOFTWARE P-TABLE

;++
; THE SOFTWARE P-TABLE CONTAINS THE VALUES OF THE PROGRAM
; PARAMETERS THAT CAN BE CHANGED BY THE OPERATOR.
;--

BGNSW SFPTBL
.WORD L10001-L\$SW/2
L\$SW: :
SFPTBL: :

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505                                     ; THE SOFTWARE P-TABLE IS USED TO STORE THE CHECKWORDS
506                                     ; FOR THE DIAGNOSTIC ROM WHICH IS TESTED IN TEST 6.
507
508 002134 031547 . WORD 31547 ; PAGE 0,1
509 002136 014036 . WORD 14036 ; PAGE 2,3
510 002140 065162 . WORD 65162 ; PAGE 4,5
511 002142 124632 . WORD 124632 ; PAGE 6,7
512 002144 032040 . WORD 32040 ; PAGE 10,11
513 002146 167124 . WORD 167124 ; PAGE 12,13
514 002150 155461 . WORD 155461 ; PAGE 14,15
515 002152 032257 . WORD 32257 ; PAGE 16,17
516 002154
517 002154 L10001:
518
519
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520 .TITLE GLOBAL AREAS
521 .SBTTL IDENTIFICATION
522
523
524 .SBTTL GLOBAL EQUATES SECTION
525
526 ;++
527 ; THE GLOBAL EQUATES SECTION CONTAINS PROGRAM EQUATES THAT
528 ; ARE USED IN MORE THAN ONE TEST.
529 ;--
530
531 002154 BGNMOD GLBEQAT
532 002154 GLBEQAT:
533 002154 EQUALS
534
535 ; BIT DIFINITIONS
536
537 100000 BIT15== 100000
538 040000 BIT14== 40000
539 020000 BIT13== 20000
540 010000 BIT12== 10000
541 004000 BIT11== 4000
542 002000 BIT10== 2000
543 001000 BIT09== 1000
544 000400 BIT08== 400
545 000200 BIT07== 200
546 000100 BIT06== 100
547 000040 BIT05== 40
548 000020 BIT04== 20
549 000010 BIT03== 10
550 000004 BIT02== 4
551 000002 BIT01== 2
552 000001 BIT00== 1
553
554 001000 BIT9== BIT09
555 000400 BIT8== BIT08
556 000200 BIT7== BIT07
557 000100 BIT6== BIT06
558 000040 BIT5== BIT05
559 000020 BIT4== BIT04
560 000010 BIT3== BIT03
561 000004 BIT2== BIT02
562 000002 BIT1== BIT01
563 000001 BIT0== BIT00
564
565 ; EVENT FLAG DEFINITIONS
566 ; EF32: EF17 RESERVED FOR SUPERVISOR TO PROGRAM COMMUNICATION
567 ; EF16: EF01 AVAILABLE FOR PROGRAM USE
568
569 000040 EF.START== 32. ; START COMMAND WAS ISSUED
570 000037 EF.RESTART== 31. ; RESTART COMMAND WAS ISSUED
571 000036 EF.CONTINUE== 30. ; CONTINUE COMMAND WAS ISSUED
572 000035 EF.NEW== 29. ; A NEW PASS HAS BEEN STARTED
573 000034 EF.PWR== 28. ; A POWER-FAIL/POWER-UP OCCURRED
574
575 000020 EF16== 16.

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GLOBAL AREAS
DVM8AA.P11MACY11 30(1046)
07-NOV-77 10:4116-NOV-77 16:04 PAGE 17
GLOBAL EQUATES SECTION

SEQ 0015

576	000017	EF15== 15.
577	000016	EF14== 14.
578	000015	EF13== 13.
579	000014	EF12== 12.
580	000013	EF11== 11.
581	000012	EF10== 10.
582	000011	EF09== 9.
583	000010	EF08== 8.
584	000007	EF07== 7.
585	000006	EF06== 6.
586	000005	EF05== 5.
587	000004	EF04== 4.
588	000003	EF03== 3.
589	000002	EF02== 2.
590	000001	EF01== 1.
591		;
592		
593		; PRIORITY LEVEL DEFINITIONS
594		;
595	000340	PRI07== 340
596	000300	PRI06== 300
597	000240	PRI05== 240
598	000200	PRI04== 200
599	000140	PRI03== 140
600	000100	PRI02== 100
601	000040	PRI01== 40
602	000000	PRI00== 0
603		
604	177520	PCR=177520
605	177524	LSREG=177524
606	002154	ENDMOD

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614 002154
615 002154
616 002154 000000
617 002156 000000
618 002160 000000
619 002162 000000
620 002164 000001
621 002166 000000
622 002170 000000
623 002172 000000
624 002174 000000
625 002176 000000
626 002200 000000
627 002202 000000
628 002204 000100
629 002206 000000
630 002210 000000
631 002212 000000
632 002214 000000
633 002216 000000
634 002220 000000
635 002222 000001
636 002224 000000
637 002226 000000
638 002230 000000
639 002232 000000
640 002234 000010
641 002254 000010
642 002274 000100
643 002474
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648 002474
649 002474 000001
650 002476
651 002476
652 002476 177777
653 002500 000004
654 002502
655 002502
656 002502 000004
657

.SBTTL GLOBAL DATA SECTION

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

GLBDAT: : BGNMOD GLBDAT
BCF: .WORD 0
REAL: .WORD 0
LOPAG: .WORD 0
COUNTR: .WORD 0
ANSR: .WORD 1
RFLAG: .WORD 0
EXPSUM: .WORD 0
ACTSUM: .WORD 0
PASS: .WORD 0
PASCT: .WORD 0
ULIMIT: .WORD 0
PAGE: .WORD 0
VECT: .WORD 100
SWSET: .WORD 0
STORE: .WORD 0
WORDCT: .WORD 0
PRIOR: .WORD 0
CKWD: .WORD 0
RESPND: .WORD 0
RSET: .WORD 1
LORANG: .WORD 0
HIRANG: .WORD 0
BYTLOC: .WORD 0
ERRFLG: .WORD 0
EXPDIAG: .BLKW 10
EPROM: .BLKW 10
SYSROM: .BLKW 100
ENDMOD

; EXPANDED DIAG. ROM CHECKWORDS
; EPROM CHECKWORDS
; SYSTEM ROM/EPROM CHECKWORDS

. STORAGE FOR DEVICE REGISTERS

DEVREG 4, 177777, DEVDAT, REGMSK
.WORD 1
LSDR: :
REGMSK: :
.WORD 177777
.WORD 4
LSDRST: :
DEVDAT: :
.BLKW 4

```
658 .SBTTL GLOBAL TEXT SECTION
659
660 ;++
661 ; THE GLOBAL TEXT SECTION CONTAINS FORMAT STATEMENTS,
662 ; MESSAGES, AND ASCII INFORMATION THAT ARE USED IN
663 ; MORE THAN ONE TEST.
664 ;--
665
666 ;GLOBAL MESSAGES
667
668 RWR: .ASCIZ "READ/WRITE REGISTER ADDRESS: 177522"
669 002512 042522 042101 053457
670 002520 044522 042524 051040
671 002526 043505 051511 042524
672 002534 004522 042101 051104
673 002542 051505 035123 030440
674 002550 033467 031065 000062
675
676 PACR: .ASCIZ /PAGE CONTROL REGISTER ADDRESS: 177520/
677 002564 047117 051124 046117
678 002572 051040 043505 051511
679 002600 042524 004522 042101
680 002606 051104 051505 035123
681 002614 030440 033467 031065
682 002622 000060
683
684 CKERR: .ASCIZ /CHECKSUM ERROR/
685 002632 046525 042440 051122
686 002640 051117 000
687
688 CWDERR: .ASCIZ /INCORRECT CHECKWORD/
689 002643 111 041516 051117
690 002650 042522 052103 041440
691 002656 042510 045503 047527
692 002664 042122 000
693
694 LOBYT: .ASCIZ /ERROR OCCURRED IN A LOW BYTE PAGE/
695 002667 105 051122 051117
696 002674 047440 041503 051125
697 002702 042522 020104 047111
698 002710 040440 046040 053517
699 002716 041040 052131 020105
700 002724 040520 042507 000
701
702 HIBYT: .ASCIZ /ERROR OCCURRED IN A HIGH BYTE PAGE/
703 002731 105 051122 051117
704 002736 047440 041503 051125
705 002744 042522 020104 047111
706 002752 040440 044040 043511
707 002760 020110 054502 042524
708 002766 050040 043501 000105
709
710 LOADR: .ASCIZ /START OF MEMORY RANGE (K)/
711 002774 052123 051101 020124
712 003002 043117 046440 046505
713 003010 051117 020131 040522
003016 043516 020105 045450
003024 000051
```

.EVEN


```
714
715
716
717 ; NAMES OF DEVICES SUPPORTED BY PROGRAM
718 ;
719 003026          DEVTYP  <BDV11AA>
720 003026          LSDVTYP:
721 003026 042102 030526 040461 .ASCIZ  @BDV11AA@
722 003034 000101          .EVEN
723
724
725
726 ;
727 ; FORMAT STATEMENTS USED IN PRINT CALLS
728 ;
729
730
731 003036 040445 042522 044507 ZERR: .ASCIZ  /%AREGISTER CANNOT HOLD ALL ZEROES%N/
732 003044 052123 051105 041440
733 003052 047101 047516 020124
734 003060 047510 042114 040440
735 003066 046114 055040 051105
736 003074 042517 022523 000116
737
738 003102 040445 042522 044507 ONERR: .ASCIZ  /%AREGISTER CANNOT HOLD ALL ONES%N/
739 003110 052123 051105 041440
740 003116 047101 047516 020124
741 003124 047510 042114 040440
742 003132 046114 047440 042516
743 003140 022523 000116
744
745 003144 040445 042522 044507 BDDAT: .ASCIZ  /%AREGISTER CANNOT HOLD GOOD DATA%N/
746 003152 052123 051105 041440
747 003160 047101 047516 020124
748 003166 047510 042114 043440
749 003174 047517 020104 040504
750 003202 040524 047045 000
751
752 003207 045 051101 043505 BYTINS: .ASCIZ  /%AREGISTER IS NOT BYTE ADDRESSABLE%N/
753 003214 051511 042524 020122
754 003222 051511 047040 052117
755 003230 041040 052131 020105
756 003236 042101 051104 051505
757 003244 040523 046102 022505
758 003252 000116
759
760 003254 040445 042522 044507 ROT1: .ASCIZ  /%AREGISTER PICKED UP AN EXTRA SET BIT%N/
761 003262 052123 051105 050040
762 003270 041511 042513 020104
763 003276 050125 040440 020116
764 003304 054105 051124 020101
765 003312 042523 020124 044502
766 003320 022524 000116
767
768 003324 040445 042522 044507 ROTO: .ASCIZ  /%AREGISTER PICKED UP AN EXTRA CLEAR BIT%N/
769 003332 052123 051105 050040
```

770 003340 041511 042513 020104
771 003346 050125 040440 020116
772 003354 054105 051124 020101
773 003362 046103 040505 020122
774 003370 044502 022524 000116
775
776 003376 040445 047125 041101
777 003404 042514 052040 020117
778 003412 047514 040503 042524
779 003420 041440 051117 042522
780 003426 052103 046440 046505
781 003434 051117 020131 040520
782 003442 042507 047045 000
783
784 003447 045 046501 046505
785 003454 051117 020131 040522
786 003462 043516 035105 022440
787 003470 031104 040445 026440
788 003476 022440 031104 040445
789 003504 022513 000116
790
791 003510 040445 054105 042520
792 003516 052103 042105 020072
793 003524 047445 022466 032523
794 003532 040445 042522 042503
795 003540 053111 042105 020072
796 003546 047445 022466 000116
797
798

DIAGER: .ASCIZ /%AUNABLE TO LOCATE CORRECT MEMORY PAGE%N/

VIRMSG: .ASCIZ /%AMEMORY RANGE: %D2%A - %D2%AK%N/

REGDT: .ASCIZ /%AEXPECTED: %06%SS%ARECEIVED- %06%N/

.EVEN

.SBTTL GLOBAL ERROR REPORT SECTION

;++
; THE GLOBAL ERROR REPORT SECTION CONTAINS THE PRINTB AND PRINTX CALLS
; THAT ARE USED IN MORE THAN ONE TEST. IT ALSO INCLUDES THE ASCII MESSAGES
; THAT ARE USED BY THE PRINTB AND PRINTX CALLS.
;--

799
800
801
802
803
804
805
806
807
808
809 003554
810 003554
811 003554
812 003554 012746 003036
813 003560 012746 000001
814 003564 010600
815 003566 104014
816 003570 062706 000004
817 003574
818 003574 010246
819 003576 010146
820 003600 012746 003510
821 003604 012746 000003
822 003610 010600
823 003612 104015
824 003614 062706 000010
825 003620
826 003620
827 003620 104023
828
829 003622
830 003622
831 003622
832 003622 012746 003102
833 003626 012746 000001
834 003632 010600
835 003634 104014
836 003636 062706 000004
837 003642
838 003642 010246
839 003644 010146
840 003646 012746 003510
841 003652 012746 000003
842 003656 010600
843 003660 104015
844 003662 062706 000010
845 003666
846 003666
847 003666 104023
848
849 003670
850 003670
851 003670
852 003670 012746 003144
853 003674 012746 000001
854 003700 010600

BGNMSG RERR1
RERR1:
PRINTB #ZERR
MOV #ZERR, -(SP)
MOV #1, -(SP)
MOV SP, R0
EMT C\$PNTB
ADD #4, SP
PRINTX #REGDT, R1, R2
MOV R2, -(SP)
MOV R1, -(SP)
MOV #REGDT, -(SP)
MOV #3, -(SP)
MOV SP, R0
EMT C\$PNTX
ADD #10, SP
ENDMSG
L10002:
EMT C\$MSG
BGNMSG RERR2
RERR2:
PRINTB #ONERR
MOV #ONERR, -(SP)
MOV #1, -(SP)
MOV SP, R0
EMT C\$PNTB
ADD #4, SP
PPRINTX #REGDT, R1, R2
MOV R2, -(SP)
MOV R1, -(SP)
MOV #REGDT, -(SP)
MOV #3, -(SP)
MOV SP, R0
EMT C\$PNTX
ADD #10, SP
ENDMSG
L10003:
EMT C\$MSG
BGNMSG RERR3
RERR3:
PRRINTB #BDDAT
MOV #BDDAT, -(SP)
MOV #1, -(SP)
MOV SP, R0

855	003702	104014		EMT	C\$PNTB
856	003704	062706	000004	ADD	#4, SP
857	003710			PRINTX	#REGDT, R1, R2
858	003710	010246		MOV	R2, -(SP)
859	003712	010146		MOV	R1, -(SP)
860	003714	012746	003510	MOV	#REGDT, -(SP)
861	003720	012746	000003	MOV	#3, -(SP)
862	003724	010600		MOV	SP, R0
863	003726	104015		EMT	C\$PNTX
864	003730	062706	000010	ADD	#10, SP
865	003734			ENDMSG	
866	003734			L10004:	
867	003734	104023		EMT	C\$MSG
868					
869	003736			BGNMSG	RERR4
870	003736			RERR4:	
871	003736			PRINTB	#BYTINS
872	003736	012746	003207	MOV	#BYTINS, -(SP)
873	003742	012746	000001	MOV	#1, -(SP)
874	003746	010600		MOV	SP, R0
875	003750	104014		EMT	C\$PNTB
876	003752	062706	000004	ADD	#4, SP
877	003756			PRINTX	#REGDT, R1, R2
878	003756	010246		MOV	R2, -(SP)
879	003760	010146		MOV	R1, -(SP)
880	003762	012746	003510	MOV	#REGDT, -(SP)
881	003766	012746	000003	MOV	#3, -(SP)
882	003772	010600		MOV	SP, R0
883	003774	104015		EMT	C\$PNTX
884	003776	062706	000010	ADD	#10, SP
885	004002			ENDMSG	
886	004002			L10005:	
887	004002	104023		EMT	C\$MSG
888					
889	004004			BGNMSG	RERR5
890	004004			RERR5:	
891	004004			PRINTB	#ROT1
892	004004	012746	003254	MOV	#ROT1, -(SP)
893	004010	012746	000001	MOV	#1, -(SP)
894	004014	010600		MOV	SP, R0
895	004016	104014		EMT	C\$PNTB
896	004020	062706	000004	ADD	#4, SP
897	004024			ENDMSG	
898	004024			L10006:	
899	004024	104023		EMT	C\$MSG
900					
901	004026			BGNMSG	RERR6
902	004026			RERR6:	
903	004026			PRINTB	#ROTO
904	004026	012746	003324	MOV	#ROTO, -(SP)
905	004032	012746	000001	MOV	#1, -(SP)
906	004036	010600		MOV	SP, R0
907	004040	104014		EMT	C\$PNTB
908	004042	062706	000004	ADD	#4, SP
909	004046			ENDMSG	
910	004046			L10007:	

911	004046	104023	EMT	C\$MSG
912				
913	004050		BGNMSG	PAGERR
914	004050		PAGERR:	
915	004050		PRINTB	#DIAGER
916	004050	012746 003376	MOV	#DIAGER, -(SP)
917	004054	012746 000001	MOV	#1, -(SP)
918	004060	010600	MOV	SP, RO
919	004062	104014	EMT	C\$PNTB
920	004064	062706 000004	ADD	#4, SP
921	004070		ENDMSG	
922	004070		L10010:	
923	004070	104023	EMT	C\$MSG
924				
925				
926				
927	004072		VIPRI:	PRINTF #VIRMSG, LORANG, HIRANG
928	004072	013746 002226	MOV	HIRANG, -(SP)
929	004076	013746 002224	MOV	LORANG, -(SP)
930	004102	012746 003447	MOV	#VIRMSG, -(SP)
931	004106	012746 000003	MOV	#3, -(SP)
932	004112	010600	MOV	SP, RO
933	004114	104017	EMT	C\$PNTF
934	004116	062706 000010	ADD	#10, SP
935				
936			EVEN	
937				
938				
939				
940				
941				

GLOBAL AREAS
DUMSAA. P11MACY11 30(1046)
07-NOV-77 10:41

16-NOV-77 16:04 PAGE 25

GLOBAL SUBROUTINES SECTION

SEQ 0023

```

942
943
944
945
946
947
948
949
950
951
952
953
954
955
956
957
958 004122 012701 173776
959 004126 063701 002154
960 004132 005037 002172
961 004136 012702 173000
962 004142 063702 002154
963 004146 111204
964 004150 060437 002172
965 004154 062702 000002
966 004160 020201
967 004162 002771
968 004164 000207
969

```

.SBTTL GLOBAL SUBROUTINES SECTION

```

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

```

```

; ++
; FUNCTIONAL DESCRIPTION:
; SUBROUTINE TO COMPUTE A CHECKSUM IN A ROM/EPROM
; INPUT: CONTENTS OF BCF
; IMPLICIT INPUTS: CONTENTS OF PCR
; OUTPUT: A CHECKSUM VALUE STORED IN LOCATION ACTSUM
; CALLING SEQUENCE: JSR PC,CHKSUM
; --

```

```

CHKSUM: MOV      #173776,R1      ; STORE THE HIGHEST ADDRESS IN THE ROM
        ADD      BCF,R1        ; FOR EITHER LOW OR HIGH BYTES
        CLR      ACTSUM        ; CLEAR LOCATION WHICH WILL HOLD THE CHECKSUM
        MOV      #173000,R2     ; COMPUTE THE LOWEST ADDRESS IN THE ROM
        ADD      BCF,R2        ; WHERE THE DATA WILL START
1$:      MOVB     (R2),R4        ; GET DATA IN BYTES
        ADD      R4,ACTSUM      ; ADD CONTENTS OF EACH LOCATION TO THE CHECKSUM
        ADD      #2,R2         ; ADJUST ADDRESS
        CMP      R2,P1         ; COMPARE CURRENT ADDRESS WITH HIGHEST ADDRESS
        BLT      1$            ; BR IF LESS THAN
        RTS      PC            ; RETURN

```



```
970      ;++
971      ;SUBROUTINE TO INPUT CHECKWORDS FROM THE OPERATOR
972      ;INPUTS: NUMBER OF CHECKWORDS TO INPUT
973      ;          POINTER TO STORAGE AREA
974      ;OUTPUTS: CHECKWORDS STORED IN PROPER TABLE
975      ;CALLING SEQUENCE: JSR PC, INPUT
976      ;--
977
978      004166      INPUT: PRINTF      #INSTR      ;PRINT INSTRUCTIONS
979      004166      012746      004244      MOV      #INSTR, -(SP)
980      004172      012746      000001      MOV      #1, -(SP)
981      004176      010600      MOV      SP, R0
982      004200      104017      EMT      C$PNTF
983      004202      062706      000004      ADD      #4, SP
984      004206      INLP: GMANID      INWORD, STORE, 0, -1, 0, 177777, NO
985      004206      104043      EMT      C$GMAN
986      004210      000406      BR      10000$
987      004212      002210      .WORD      STORE
988      004214      000022      .WORD      T$CODE
989      004216      004332      .WORD      INWORD
990      004220      177777      .WORD      -1
991      004222      000000      .WORD      T$LOLIM
992      004224      177777      .WORD      T$HILIM
993      004226      10000$:
994      004226      013722      002210      MOV      STOPE, (R2)+      ;PUT CHECKWORD IN TABLE
995      004232      005337      002212      DEC      WORDCT      ;DECREMENT WORD COUNT
996      004236      001401      BEQ      1$      ;BR IF FINISHED
997      004240      000762      BR      INLP      ;LOOP UNTIL TABLE IS COMPLETE
998      004242      000207      1$: RTS      PC      ;RETURN
999
1000      004244      040445      054524      042520      INSTR: .ASCIZ      /%ATYPE IN THE CHECKWORDS AS LISTED IN THE PRINT SET%N/
1001      004252      044440      020116      044124
1002      004260      020105      044103      041505
1003      004266      053513      051117      051504
1004      004274      040440      020123      044514
1005      004302      052123      042105      044440
1006      004310      020116      044124      020105
1007      004316      051120      047111      020124
1008      004324      042523      022524      000116
1009
1010      004332      044103      041505      053513      INWORD: .ASCIZ      /CHECKWORD. /
1011      004340      051117      035104      000040
1012
1013      EVEN
1014
```

```
1015      ;++
1016      ;SUBROUTINE TO COMPUTE THE VIRTUAL ADDRESS OF A BAD
1017      ;PAGE IN MEMORY
1018      ;INPUTS: PAGE IN PAGE CONTROL REGISTER
1019      ;          BYTE CONTROL FLAG (BCF)
1020      ;OUTPUTS: MEMORY RANGE IN WHICH ERROR OCCURRED
1021      ;CALLING SEQUENCE: JSR PC,VIRTAD
1022      ;--
1023
1024      004346 005001      VIRTAD: CLR      R1      ;START AT BOTTOM OF RANGE
1025      004350 012737 000007 002200      MOV      #7,ULIMIT ;SET UPPER LIMIT OF PAGE
1026      004356 113737 177520 002202      MOV      PCR,PAGE ;LOW PAGE ERROR
1027      004364 023737 002202 002200      LPADD: CMP      PAGE,ULIMIT ;IS PAGE <=ULIMIT
1028      004372 003427      BLE      OUTPUT ;BR IF YES
1029      004374 022737 000057 002200      CMP      #57,ULIMIT ;IS ULIMIT = 57
1030      004402 001006      BNE      1$ ;BR IF NO
1031      004404 012737 000207 002200      MOV      #207,ULIMIT ;CHANGE UPPER LIMIT
1032      004412 012701 000020      MOV      #20,R1 ;ADJUST MEMORY POINTER
1033      004416 000762      BR      LPADD ;CHECK PAGE AGAIN
1034      004420 062737 000010 002200 1$: ADD      #10,ULIMIT ;INCREASE UPPER LIMIT
1035      004426 022737 000377 002200      CMP      #377,ULIMIT ;HAS THE UPPER LIMIT EXCEEDED THE MAX. PAGE
1036      004434 002003      BGE      2$ ;BR IF NO
1037      004436      ERDIF 40,,PAGERR ;COULD NOT FIND THE PAGE OF MEMORY
1038      004436 104442      TRAP      TSERCODE
1039      004440 000050      .WORD     40
1040      004442 004050      .WORD     PAGERR
1041      004444      2$: CKLOOP
1042      004444 104006      EMT      CSCLP1
1043      004446 005201      INC      R1 ;ADJUST POINTER
1044      004450 000745      BR      LPADD ;LOOP UNTIL UPPER LIMIT IS FOUND
1045      004452 010137 002224      OUTPUT: MOV      R1,LORANG ;PULL THE LOW RANGE OUT OF THE TABLE
1046      004456 013737 002224 002226      MOV      LORANG,HIRANG ;COPY THE DATA
1047      004464 005237 002226      INC      HIRANG ;INCREMENT TO OBTAIN 1K RANGE
1048      004470 005737 002166      TST      RFLAG ;IS IT ROM (2K SEGMENTS)
1049      004474 001402      BEQ      3$ ;BR IF NO
1050      004476 005237 002226      INC      HIRANG ;OBTAIN 2K RANGE
1051      004502 000207      3$: RTS      PC ;RETURN
1052
```



```
1053      ;++
1054      ;SUBROUTINE TO VERIFY THE CHECKSUM VALUE OF A PAGE
1055      ;OF EXISTENT MEMORY AND ALSO TEST FOR THE PROPER CHECKWORD.
1056      ;INPUTS: PAGE CONTROL REGISTER, PAGE CHECKWORD.
1057      ;OUTPUTS: ERROR FLAGS WHICH POINT TO THE PROPER ERROR MESSAGE
1058      ;SUBORDINATE ROUTINES USED: CHKSUM
1059      ;CALLING SEQUENCE: JSR PC,MENTST
1060      ;--
1061
1062      004504 005037 002156      MENTST: CLR      REAL      ;CLEAR MEMORY INDICATOR
1063      004510 005037 002154      LOBYTE: CLR      BCF      ;SIGNAL LOW BYTES ARE BEING CHECKED
1064      004514 122737 177777 173774      CMPB      #-1, @#173774 ;DOES THE ROM EXIST
1065      004522 001421              BEQ      HIBYTE      ;BR IF NO
1066      004524 005237 002156              INC      REAL      ;INDICATE THAT MEMORY EXISTS
1067      004530 004737 004122              JSR      PC,CHKSUM ;COMPUTE THE ACTUAL CHECKSUM
1068      004534 113737 173776 002170      MOVB      @#173776,EXPSUM ;GET THE STORED CHECKSUM
1069      004542 063737 002172 002170      ADD      ACTSUM,EXPSUM ;ADD THE EXPECTED AND ACTUAL CHECKSUMS
1070      004550 105737 002170              TSTB      EXPSUM      ;TEST RESULTING CHECKBYTE
1071      004554 001404              BEQ      1$          ;BR IF NO ERROR
1072      004556 012737 000001 002232      MOV      #1,ERRFLG ;SET CHECKSUM ERROR FLAG
1073      004564 000207              RTS      PC          ;RETURN
1074      004566
1075      1$:
1076      004566 012737 000001 002154      HIBYTE: MOV      #1,BCF      ;SET BCF TO DENOTE HIGH BYTES
1077      004574 122737 177777 173775      CMPB      #-1, @#173775 ;DOES THE ROM EXIST
1078      004602 001427              BEQ      TSTCKW      ;BR IF NO
1079      004604 005737 002156              TST      REAL      ;WAS THERE A LOW ROM?
1080      004610 001003              BNE      2$          ;BR IF YES
1081      004612 005037 002156              CLR      REAL      ;DENOTE NON-EXISTENT LOW ROM
1082      004616 000207              RTS      PC          ;RETURN FOR ERROR MESSAGE
1083      004620 005237 002156      2$:      INC      REAL      ;INDICATE MEMORY EXISTS
1084      004624 004737 004122              JSR      PC,CHKSUM ;COMPUTE CHECKSUM
1085      004630 113737 173777 002170      MOVB      @#173777,EXPSUM ;GET EXPECTED CHECKSUM
1086      004636 063737 002172 002170      ADD      ACTSUM,EXPSUM ;ADD THE EXPECTED AND ACTUAL CHECKSUMS
1087      004644 105737 002170              TSTB      EXPSUM      ;TEST RESULTING CHECKBYTE
1088      004650 001404              BEQ      TSTCKW      ;BR IF EQUAL
1089      004652 012737 000001 002232      MOV      #1,ERRFLG ;SET CHECKSUM ERROR FLAG
1090      004660 000207              RTS      PC          ;RETURN
1091
1092      004662 005737 002156      TSTCKW: TST      REAL      ;ANY MEMORY?
1093      004666 001420              BEQ      5$          ;BR IF NO
1094      004670 022737 000001 002156      CMP      #1,REAL      ;SINGLE ROM?
1095      004676 001005              BNE      3$          ;BR IF NO
1096      004700 123737 002216 173776      CMPB      CKWD, @#173776 ;COMPARE CHECKBYTE ONLY
1097      004706 001005              BNE      4$          ;BR IF ERROR
1098      004710 000207              RTS      PC          ;RETURN -- NO ERROR
1099      004712 023737 002216 173776      3$:      CMP      CKWD, @#173776 ;COMPARE CHECKWORD
1100      004720 001403              BEQ      5$          ;BR IF NO ERROR
1101      004722 012737 000002 002232      4$:      MOV      #2,ERRFLG ;DENOTE CHECKSUM ERROR
1102      004730 000207              5$:      RTS      PC          ;RETURN
1103
```

```
1104      ;++
1105      ;SUBROUTINE TO COMPUTE THE ACTUAL STARTING PAGE
1106      ;OF MEMORY IN WHICH THE MEMORY CHIP IS TO BE
1107      ;ADDRESSED.
1108      ;INPUTS: THE LOW NUMBER IN THE MEMORY RANGE
1109      ;          (I.E. X IN X-Y K)
1110      ;OUTPUT: PAGE NUMBER IN PCR WHICH DENOTES WHERE TESTING
1111      ;          SHOULD BEGIN.
1112      ;CALLING SEQUENCE: JSR PC,SETADR
1113      ;--
1114
1115      004732 013701 002210      SETADR: MOV      STORE,R1      ;COPY DATA
1116      004736 020127 000005      CMP      R1,#5          ;IS THE NUMBER <=5?
1117      004742 003006              BGT      1$              ;BR IF NO
1118      004744 000241              CLC                      ;CLEAR C-BIT FOR ROTATE
1119      004746 006101              ROL      R1              ;ROTATE TO MULTIPLY
1120      004750 006101              ROL      R1              ; BY 10 (8)
1121      004752 006101              ROL      R1              ;
1122      004754 110104              MOVB     R1,R4          ;COPY DATA
1123      004756 000413              BR      LOAD          ;LOAD THE PCR
1124      004760 012704 000020      1$: MOV      #20,R4      ;START WITH 16 (10)
1125      004764 012705 000200      MOV      #200,R5        ;CORRESPONDIGE PAGE IS 200
1126      004770 020104      LOOP: CMP      R1,R4          ;PAGE FOUND?
1127      004772 001404              BEQ      2$              ;BR IF YES
1128      004774 005204              INC      R4              ;NEXT PAGE
1129      004776 062705 000010      ADD      #10,R5          ;NEXT PAGE
1130      005002 000772              BR      LOOP          ;LOOP UNTIL PAGE IS FOUND
1131      005004 010504      2$: MOV      R5,R4              ;GET PAGE FOR PCR
1132      005006 110437 002160      LOAD: MOVB     R4,LOPAG    ;LOW STARTING PAGE
1133      005012 005204              INC      R4              ;INCREMENT
1134      005014 110437 002161      MOVB     R4,LOPAG+1      ;HIGH STARTING PAGE
1135      005020 000207              RTS      PC
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```


1154 .TITLE MISCELLANEOUS SECTIONS
1155 .SBTTL IDENTIFICATION

1158 .SBTTL REPORT CODING SECTION

1159
1160 005022 BGNRPT
1161 005022 LSRPT: :
1162 005022 ENDRPT
1163 005022 L10011:
1164 005022 104025 EMT CSRPT

1167 .SBTTL INITIALIZE SECTION

1168 ;++
1169 ; THE INITIALIZE SECTION CONTAINS THE CODING THAT IS PERFORMED
1170 ; AT THE BEGINNING OF EACH PASS.
1171 ;--

1174 005024 BGNINIT
1175 005024 LSINIT: :
1176 005024 GPHARD #0,R1 ; GET POINTER TO BASE ADDRESS OF P-TABLE
1177 005024 012700 000000 MOV #0,R0
1178 005030 104042 EMT CSGPHRD
1179 005032 010001 MOV R0,R1
1180 005034 016137 000002 002204 MOV 2(R1),VECT ; GET INTERRUPT VECTOR
1181 005042 016137 000004 002214 MOV 4(R1),PRIOR ; GET PRIORITY LEVEL
1182 005050 016137 000006 002206 MOV 6(R1),SWSET ; GET ROCKER SWITCH SETTINGS
1183 005056 SETPRI #PRI07 ; INHIBIT INTERRUPTS
1184 005056 012700 000340 MOV #PRI07,R0
1185 005062 104041 EMT CSSPRI
1186 005064 MANUAL ; MANUAL INTERVENTION OK?
1187 005064 104051 EMT CSMANI
1188 005066 BNCOMPLETE OUT ; BR IF NO
1189 005066 103010 BCC OUT
1190 005070 PRINTF #IDENT ; PRINT PROGRAM I. D.
1191 005070 012746 005114 MOV #IDENT,-(SP)
1192 005074 012746 000001 MOV #1,-(SP)
1193 005100 010600 MOV SP,R0
1194 005102 104017 EMT CSPNTF
1195 005104 062706 000004 ADD #4,SP

1196 005110 OUT: EXIT INIT
1197 005110 EMT CSEXIT
1198 005110 104032 .WORD L10012-
1199 005112 000054

1200 IDENT: .ASCII "%ABDV11-AA BOOTSTRAP DIAGNOSTIC PROGRAM%N"
1201 005114 040445 042102 030526
1202 005122 026461 040501 041040
1203 005130 047517 051524 051124
1204 005136 050101 042040 040511
1205 005144 047107 051517 044524
1206 005152 020103 051120 043517
1207 005160 040522 022515 000116

1208 .EVEN
1209

1210
1211 005166
1212 005166
1213 005166 104011

ENDINIT
L10012:
EMT CSINIT

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005170
 005170

005037 177520
 005037 177522
 012737 000001
 005037 002220
 005037 013530
 012737 000001
 005237 002174
 005237 002176

002222

002164

002204

104032
 000002

104012

.SBTTL CLEANUP CODING SECTION

;++
 ; THE CLEANUP CODING SECTION CONTAINS THE CODING THAT IS PERFORMED
 ; AT THE END OF EACH PASS.
 ;--

BGNCLN
 LSCLEAN:.

CLR PCR
 CLR RWREG
 MOV #1,RSET
 CLR RESPND
 CLR ADDON
 MOV #1,ANSR
 INC PASS
 INC PASCT
 CLRVEC VECT
 MOV VECT,RD
 EMT CSCVEC

; CLEAR PAGE CONTROL REGISTER
 ; CLEAR READ/WRITE REGISTER
 ; RESTORE DEFAULT VALUE
 ; RESTORE DEFAULT
 ; RESTORE DEFAULT
 ; RESTORE DEFAULT
 ; INCREMENT PASS COUNT
 ; INCREMENT TEST 4 PASS COUNT
 ; CLEAR INTERRUPT VECTOR

EXIT CLN
 EMT CSEXIT
 .WORD L10013-

ENDCLN
 L10013:
 EMT CSCLEAN

```

1246 .TITLE HARDWARE TESTS
1247 .SBTTL IDENTIFICATION
1248
1249
1250 .SBTTL TEST 1: READ/WRITE REGISTER TEST
1251 ;++
1252 ;TEST TO VERIFY THAT THE READ/WRITE REGISTER AT ADDRESS 177522
1253 ;IS WORD AND BYTE ADDRESSABLE.
1254 ;--
1255
1256 177522 RWREG=177522
1257
1258 005250 BGNTST
1259
1260 005250 BGNSUB
1261 005250 104002 EMT CSBSUB
1262 005252 005037 177522 CLR RWREG ;LOAD ALL ZEROS
1263 005256 001411 BEQ 15 ;BR IF CLEAR
1264 005260 005001 CLR R1 ;EXPECTED DATA
1265 005262 013702 177522 MOV RWREG,R2 ;COPY CONTENTS
1266 005266 ERRDF 1,RWR,RERR1,CKLOOP ;REGISTER CANNOT HOLD ALL ZEROS
1267 005266 104562 TRAP TSERCODE
1268 005270 000001 .WORD 1
1269 005272 002512 .WORD RWR
1270 005274 003554 .WORD RERR1
1271 005276 EXIT TST ;ABORT TEST IF LOOP ON ERROR NOT SELECTED
1272 005276 104032 EMT CSEXIT
1273 005300 000566 .WORD L10014-
1274 005302 15: CKLOOP ;LOOP ON ERROR IF SELECTED
1275 005302 104006 EMT CSCLP1
1276 005304
1277 005304 L10015: ENDSUB
1278 005304 104003 EMT CSESUB
1279
1280 005306 BGNSUB
1281 005306 104002 EMT CSBSUB
1282 005310 012737 177777 177522 MOV #-1,RWREG ;LOAD ALL ONES
1283 005316 022737 177777 177522 CMP #177777,RWREG ;CHECK THE REGISTER
1284 005324 001412 BEQ 25 ;BR IF HOLDING GOOD DATA
1285 005326 012701 177777 MOV #-1,R1 ;EXPECTED DATA
1286 005332 013702 177522 MOV RWREG,R2 ;COPY CONTENTS
1287 005336 ERRDF 2,RWR,RERR2,CKLOOP ;REGISTER CANNOT HOLD ALL ONES
1288 005336 104562 TRAP TSERCODE
1289 005340 000002 .WORD 2
1290 005342 002512 .WORD RWR
1291 005344 003622 .WORD RERR2
1292 005346 EXIT TST ;ABORT TEST IF ERROR AND NO LOOPING
1293 005346 104032 EMT CSEXIT
1294 005350 000516 .WORD L10014-
1295 005352 25: CKLOOP ;LOOP ON ERROR IF SELECTED
1296 005352 104006 EMT CSCLP1
1297 005354 ENDSUB
1298 005354 L10016: EMT CSESUB
1299 005354 104003
1300
1301 005356 BGNSUB
  
```


1302	005356	104002		EMT	C\$BSUB	
1303	005360	012737	125252 177522	MOV	#125252, RWREG	; LOAD ALTERNATING 1'S AND 0'S BIT PATTERN
1304	005366	022737	125252 177522	CMP	#125252, RWREG	; CHECK DATA
1305	005374	001412		BEQ	3\$	; BR IF GOOD
1306	005376	012701	125252	MOV	#125252, R1	; EXPECTED DATA
1307	005402	013702	177522	MOV	RWREG, R2	; COPY CONTENTS
1308	005406			ERRDF	3, RWR, RERR3, CKLOOP	; CANNOT HOLD GOOD DATA
1309	005406	104562		TRAP	T\$ERCODE	
1310	005410	000003		. WORD	3	
1311	005412	002512		. WORD	RWR	
1312	005414	003670		. WORD	RERR3	
1313	005416			EXIT	TST	; ABORT TEST IF ERROR DETECTED
1314	005416	104032		EMT	C\$EXIT	
1315	005420	000446		. WORD	L10014-	
1316	005422			CKLOOP		; CHECK FOR LOOP ON ERROR AGAIN
1317	005422	104006		EMT	C\$CLP1	
1318	005424			ENDSUB		
1319	005424					
1320	005424	104003		EMT	C\$ESUB	
1321						
1322	005426			BGNSUB		
1323	005426	104002		EMT	C\$BSUB	
1324	005430	105037	177522	CLRB	RWREG	; CLEAR THE REGISTER'S LOW BYTE
1325	005434	022737	125000 177522	CMP	#125000, RWREG	; DID IT CLEAR PROPERLY?
1326	005442	001412		BEQ	4\$	; BR IF YES
1327	005444	012701	125000	MOV	#125000, R1	; EXPECTED DATA
1328	005450	013702	177522	MOV	RWREG, R2	; COPY CONTENTS
1329	005454			ERRDF	4, RWR, RERR4, CKLOOP	; DID NOT RESPOND PROPERLY TO BYTE INSTRUCTION
1330	005454	104562		TRAP	T\$ERCODE	
1331	005456	000004		. WORD	4	
1332	005460	002512		. WORD	RWR	
1333	005462	003736		. WORD	RERR4	
1334	005464			EXIT	TST	; ABORT TEST IF ERROR DETECTED
1335	005464	104032		EMT	C\$EXIT	
1336	005466	000400		. WORD	L10014-	
1337	005470			CKLOOP		; CHECK FOR LOOP ON ERROR AGAIN
1338	005470	104006		EMT	C\$CLP1	
1339	005472			ENDSUB		
1340	005472					
1341	005472	104003		EMT	C\$ESUB	
1342						
1343	005474			BGNSUB		
1344	005474	104002		EMT	C\$BSUB	
1345	005476	000337	177522	SWAB	RWREG	; SWAP BYTES IN THE REGISTER
1346	005502	022737	000252 177522	CMP	#252, RWREG	; GOOD DATA?
1347	005510	001406		BEQ	5\$	; BR IF YES
1348	005512			ERRDF	5, RWR, RERR4, CKLOOP	; BYTE INSTRUCTION ERROR
1349	005512	104562		TRAP	T\$ERCODE	
1350	005514	000005		. WORD	5	
1351	005516	002512		. WORD	RWR	
1352	005520	003736		. WORD	RERR4	
1353	005522			EXIT	TST	; ABORT TEST IF ERROR DETECTED
1354	005522	104032		EMT	C\$EXIT	
1355	005524	000342		. WORD	L10014-	
1356	005526			CKLOOP		; CHECK FOR LOOP ON ERROR AGAIN
1357	005526	104006		EMT	C\$CLP1	

1358	005530				ENDSUB	
1359	005530				L10021:	
1360	005530	104003			EMT	C\$ESUB
1361						
1362	005532				BGNSUB	
1363	005532	104002			EMT	C\$BSUB
1364	005534	012737	052525	177522	MOV	#052525, RWREG
1365	005542	022737	052525	177522	CMP	#052525, RWREG
1366	005550	001412			BEQ	6\$
1367	005552	012701	052525		MOV	#052525, R1
1368	005556	013702	177522		MOV	RWREG, R2
1369	005562				ERRDF	6, RWR, RERR3, CKLOOP
1370	005562	104562			TRAP	T\$ERCODE
1371	005564	000006			WORD	6
1372	005566	002512			WORD	RWR
1373	005570	003670			WORD	RERR3
1374	005572				EXIT	TST
1375	005572	104032			EMT	C\$EXIT
1376	005574	000272			WORD	L10014-
1377	005576				6\$: CKLOOP	
1378	005576	104006			EMT	C\$CLP1
1379	005600				ENDSUB	
1380	005600				L10022:	
1381	005600	104003			EMT	C\$ESUB
1382						
1383	005602				BGNSUB	
1384	005602	104002			EMT	C\$BSUB
1385	005604	105037	177523		CLRB	RWREG+1
1386	005610	022737	000125	177522	CMP	#125, RWREG
1387	005616	001412			BEQ	7\$
1388	005620	012701	000125		MOV	#125, R1
1389	005624	013702	177522		MOV	RWREG, R2
1390	005630				ERRDF	7, RWR, RERR4, CKLOOP
1391	005630	104562			TRAP	T\$ERCODE
1392	005632	000007			WORD	7
1393	005634	002512			WORD	RWR
1394	005636	003736			WORD	RERR4
1395	005640				EXIT	TST
1396	005640	104032			EMT	C\$EXIT
1397	005642	000224			WORD	L10014-
1398	005644				7\$: CKLOOP	
1399	005644	104006			EMT	C\$CLP1
1400	005646				ENDSUB	
1401	005646				L10023:	
1402	005646	104003			EMT	C\$ESUB
1403						
1404	005650				BGNSUB	
1405	005650	104002			EMT	C\$BSUB
1406	005652	000337	177522		SWAB	RWREG
1407	005656	022737	052400	177522	CMP	#052400, RWREG
1408	005664	001412			BEQ	10\$
1409	005666	012701	052400		MOV	#52400, R1
1410	005672	013702	177522		MOV	RWREG, R2
1411	005676				ERRDF	10, RWR, RERR4, CKLOOP
1412	005676	104562			TRAP	T\$ERCODE
1413	005700	000012			WORD	10

; LOAD AN ALTERNATING 0'S AND 1'S BIT PATTERN
; CHECK IT
; BR IF GOOD DATA
; EXPECTED DATA
; COPY CONTENTS
; CANNOT HOLD GOOD DATA

; ABORT TEST IF ERROR DETECTED

; CHECK FOR LOOP ON ERROR AGAIN

; CLEAR HIGH BYTE OF REGISTER
; CHECK THE RESULTING CONTENTS OF THE REGISTER
; BR IF GOOD DATA
; EXPECTED DATA
; COPY CONTENTS
; BYTE INSTRUCTION ERROR

; ABORT TEST IF ERROR DETECTED

; CHECK FOR LOOP ON ERROR AGAIN

; SWAP BYTES
; DATA GOOD?
; BR IF YES
; EXPECTED DATA
; COPY CONTENTS
; BYTE INSTRUCTION ERROR

1414	005702	002512			WORD	RWR	
1415	005704	003736			WORD	RERR4	
1416	005706				EXIT	TST	:ABORT TEST IF ERROR DETECTED
1417	005706	104032			EMT	C\$EXIT	
1418	005710	000156			WORD	L10014-	
1419	005712		105:		CKLOOP		:CHECK FOR LOOP ON ERROR AGAIN
1420	005712	104006			EMT	C\$CLP1	
1421	005714				ENDSUB		
1422	005714		L10024:				
1423	005714	104003			EMT	C\$ESUB	
1424							
1425	005716				BGNSUB		
1426	005716	104002			EMT	C\$BSUB	
1427	005720	005037	177522		CLR	RWREG	:MAKE SURE THE C-BIT IS CLEAR
1428	005724	052737	100000	177522	BIS	#BIT15, RWREG	:SET MSB
1429	005732	013703	177522		MOV	RWREG, R3	:COPY DATA IN RWREG
1430	005736	023703	177522		ROTLP1: CMP	RWREG, R3	:ARE THEY THE SAME?
1431	005742	001005			BNE	11\$	:BR IF NO
1432	005744	006003			ROR	R3	:ROTATE THE SET BIT
1433	005746	001411			BEQ	12\$	:BR WHEN FINISHED
1434	005750	006037	177522		ROR	RWREG	:REPEAT ROTATE
1435	005754	000770			BR	ROTLP1	:LOOP UNTIL ROTATE IS COMPLETE
1436	005756				ERRDF	11, RWR, RERR5, CKLOOP	
1437	005756	104562			TRAP	T\$ERCODE	
1438	005760	000013			WORD	11	
1439	005762	002512			WORD	RWR	
1440	005764	004004			WORD	RERR5	
1441	005766				EXIT	TST	:SKIP REST OF TEST
1442	005766	104032			EMT	C\$EXIT	
1443	005770	000076			WORD	L10014-	
1444	005772		12\$:		CKLOOP		:CHECK FOR LOOP ON ERROR
1445	005772	104006			EMT	C\$CLP1	
1446	005774				ENDSUB		
1447	005774						
1448	005774	104003			L10025:		
1449					EMT	C\$ESUB	
1450	005776				BGNSUB		
1451	005776	104002			EMT	C\$BSUB	
1452	006000	012737	177777	177522	MOV	#-1, RWREG	:SET ALL ONES
1453	006006	042737	100000	177522	BIC	#BIT15, RWREG	:CLEAR MSB
1454	006014	013703	177522		MOV	RWREG, R3	:COPY DATA
1455	006020	023703	177522		ROTLP2: CMP	RWREG, R3	:ARE THEY THE SAME?
1456	006024	001010			BNE	13\$	:BR IF NO
1457	006026	000261			SEC		:SET C-BIT FOR ROTATE
1458	006030	006037	177522		ROR	RWREG	:ROTATE CLEAR BIT
1459	006034	006003			ROR	R3	:REPEAT
1460	006036	022703	077777		CMP	#077777, R3	:FINISHED?
1461	006042	001366			BNE	ROTLP2	:BR IF NOT YET
1462	006044	000406			BR	14\$	:SUBTEST FINISHED
1463	006046				13\$:		
1464	006046	104562			ERRDF	12, RWR, RERR6, CKLOOP	
1465	006050	000014			TRAP	T\$ERCODE	
1466	006052	002512			WORD	12	
1467	006054	004026			WORD	RWR	
1468	006056				WORD	RERR6	
1469	006056	104032			EXIT TST		
					EMT	C\$EXIT	

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J 3

TEST 1: READ/WRITE REGISTER TEST

SEQ 0035

1470 006060 000006
1471 006062
1472 006062 104006
1473 006064
1474 006064
1475 006064 104003
1476
1477 006066
1478 006066
1479 006066 104001

145: .WORD L10014-
CKLOOP
EMT C\$CLP1
ENDSUB
L10026: EMT C\$ESUB
ENDTST
L10014: EMT C\$ETST


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1480      .SBTTL TEST 2: PAGE CONTROL REGISTER TEST
1481      ;++
1482      ;TEST TO VERIFY THAT THE PAGE CONTROL REGISTER IS WORD
1483      ;AND BYTE ADDRESSABLE.
1484      ;--
1485
1486      006070      BGNTST
1487
1488      006070      BGNSUB
1489      006070      104002      EMT      C$BSUB
1490      006072      005037      177520      CLR      PCR      ;LOAD ALL ZEROS
1491      006076      001411      BEQ      1$      ;BR IF CLEARED
1492      006100      005001      CLR      R1      ;EXPECTED DATA
1493      006102      013702      177520      MOV      PCR,R2      ;COPY CONTENTS
1494      006106      ERRDF      13,PACR,RERR1,CKLOOP      ;REGISTER CANNOT HOLD ALL ZEROS
1495      006106      104562      TRAP      T$ERCODE
1496      006110      000015      .WORD      13
1497      006112      002556      .WORD      PACR
1498      006114      003554      .WORD      RERR1
1499      006116      EXIT      TST      ;ABORT TEST IF ERROR DETECTED
1500      006116      104032      EMT      C$EXIT
1501      006120      000576      .WORD      L10027-
1502      006122      1$      CKLOOP      ;CHECK FOR LOOP ON ERROR AGAIN
1503      006122      104006      EMT      C$CLP1
1504      006124      L10030:      ENDSUB
1505      006124      104003      EMT      C$ESUB
1506      006124      104003
1507
1508      006126      BGNSUB
1509      006126      104002      EMT      C$BSUB
1510      006130      012737      177777      177520      MOV      #-1,PCR      ;LOAD ALL ONES
1511      006136      022737      177777      177520      CMP      #177777,PCR      ;CHECK FOR GOOD DATA
1512      006144      001412      BEQ      2$      ;BR IF GOOD
1513      006146      012701      177777      MOV      #-1,R1      ;EXPECTED DATA
1514      006152      013702      177520      MOV      PCR,R2      ;COPY CONTENTS
1515      006156      ERRDF      14,PACR,RERR2,CKLOOP      ;REGISTER CANNOT HOLD ALL ONES
1516      006156      104562      TRAP      T$ERCODE
1517      006160      000016      .WORD      14
1518      006162      002556      .WORD      PACR
1519      006164      003622      .WORD      RERR2
1520      006166      EXIT      TST      ;ABORT TEST IF ERROR DETECTED
1521      006166      104032      EMT      C$EXIT
1522      006170      000526      .WORD      L10027-
1523      006172      2$      CKLOOP      ;CHECK FOR LOOP ON ERROR AGAIN
1524      006172      104006      EMT      C$CLP1
1525      006174      L10031:      ENDSUB
1526      006174      104003      EMT      C$ESUB
1527      006174      104003
1528
1529      006176      BGNSUB
1530      006176      104002      EMT      C$BSUB
1531      006200      012737      125252      177520      MOV      #125252,PCR      ;LOAD AN ALTERNATING 1'S AND 0'S BIT PATTERN
1532      006206      022737      125252      177520      CMP      #125252,PCR      ;CHECK THE RESULTS
1533      006214      001412      BEQ      3$      ;BR IF GOOD DATA
1534      006216      012701      125252      MOV      #125252,R1      ;EXPECTED DATA

```

1536	006222	013702	177520	MOV	PCR,R2	; COPY CONTENTS
1537	006226			ERRDF	15,PACR,RERR3,CKLOOP	; REGISTER CANNOT HOLD GOOD DATA
1538	006226	104562		TRAP	TSERCODE	
1539	006230	000017		.WORD	15	
1540	006232	002556		.WORD	PACR	
1541	006234	003670		.WORD	RERR3	
1542	006236			EXIT	TST	; ABORT TEST IF ERROR DETECTED
1543	006236	104032		EMT	C\$EXIT	
1544	006240	000456		.WORD	L10027-	
1545	006242			35: CKLOOP		; CHECK FOR LOOP ON ERROR AGAIN
1546	006242	104006		EMT	C\$CLP1	
1547	006244			ENDSUB		
1548	006244			L10032: EMT	C\$ESUB	
1549	006244	104003				
1550						
1551	006246			BGNSUB		
1552	006246	104002		EMT	C\$BSUB	
1553	006250	105037	177520	CLRB	PCR	; CLEAR THE REGISTER'S LOW BYTE
1554	006254	022737	125000 177520	CMP	#125000,PCR	; COMPARE THE RESULTS
1555	006262	001412		BEQ	4\$	; BR IF GOOD DATA
1556	006264	012701	125000	MOV	#125000,R1	; EXPECTED DATA
1557	006270	013702	177520	MOV	PCR,R2	; COPY CONTENTS
1558	006274			ERRDF	16,PACR,RERR4,CKLOOP	; BYTE INSTRUCTION ERROR
1559	006274	104562		TRAP	TSERCODE	
1560	006276	000020		.WORD	16	
1561	006300	002556		.WORD	PACR	
1562	006302	003736		.WORD	RERR4	
1563	006304			EXIT	TST	; ABORT TEST IF ERROR DETECTED
1564	006304	104032		EMT	C\$EXIT	
1565	006306	000410		.WORD	L10027-	
1566	006310			4\$: CKLOOP		; CHECK FOR LOOP ON ERROR
1567	006310	104006		EMT	C\$CLP1	
1568	006312			ENDSUB		
1569	006312			L10033: EMT	C\$ESUB	
1570	006312	104003				
1571						
1572	006314			BGNSUB		
1573	006314	104002		EMT	C\$BSUB	
1574	006316	000337	177520	SWAB	PCR	; SWAP BYTES
1575	006322	022737	000252 177520	CMP	#252,PCR	; CHECK THE RESULTS
1576	006330	001412		BEQ	5\$	; BR IF GOOD DATA
1577	006332	012701	000252	MOV	#252,R1	; EXPECTED DATA
1578	006336	013702	177520	MOV	PCR,R2	; COPY CONTENTS
1579	006342			ERRDF	17,PACR,RERR4,CKLOOP	; BYTE INSTRUCTION ERROR
1580	006342	104562		TRAP	TSERCODE	
1581	006344	000021		.WORD	17	
1582	006346	002556		.WORD	PACR	
1583	006350	003736		.WORD	RERR4	
1584	006352			EXIT	TST	; ABORT TEST IF ERROR DETECTED
1585	006352	104032		EMT	C\$EXIT	
1586	006354	000342		.WORD	L10027-	
1587	006356			5\$: CKLOOP		; CHECK FOR LOOP ON ERROR
1588	006356	104006		EMT	C\$CLP1	
1589	006360			ENDSUB		
1590	006360			L10034: EMT	C\$ESUB	
1591	006360	104003				

1592	006362				BGNSUB		
1593	006362	104002			EMT	CSBSUB	
1594	006364	012737	052525	177520	MOV	#052525,PCR	:LOAD AN ALTERNATING 0'S AND 1'S BIT PATTERN
1595	006372	022737	052525	177520	CMP	#052525,PCR	:CHECK THE RESULTS
1596	006400	001412			BEQ	65	:BR IF GOOD DATA
1597	006402	012701	052525		MOV	#052525,R1	:EXPECTED DATA
1598	006406	013702	177520		MOV	PCR,R2	:COPY CONTENTS
1599	006412				ERRDF	20,PACR,RERR3,CKLOOP	:REGISTER CANNOT HOLD GOOD DATA
1600	006412	104562			TRAP	TSERCODE	
1601	006414	000024			.WORD	20	
1602	006416	002556			.WORD	PACR	
1603	006420	003670			.WORD	RERR3	
1604	006422				EXIT	TST	:ABORT TEST IF ERROR DETECTED
1605	006422	104032			EMT	CSEXIT	
1606	006424	000272			.WORD	L10027-	
1607	006426		65:		CKLOOP		:CHECK FOR LOOP ON ERROR
1608	006426	104006			EMT	CSCLP1	
1609	006430				ENDSUB		
1610	006430		L10035:				
1611	006430	104003			EMT	CSesub	
1612	006432				BGNSUB		
1613	006432	104002			EMT	CSBSUB	
1614	006434	105037	177521		CLRB	PCR+1	:CLEAR THE HIGH BYTE
1615	006440	022737	000125	177520	CMP	#125,PCR	:CHECK THE REGISTER CONTENTS
1616	006446	001412			BEQ	75	:BR IF GOOD DATA
1617	006450	012701	000125		MOV	#125,R1	:EXPECTED DATA
1618	006454	013702	177520		MOV	PCR,R2	:COPY CONTENTS
1619	006460				ERRDF	21,PACR,RERR4,CKLOOP	:BYTE INSTRUCTION ERROR
1620	006460	104562			TRAP	TSERCODE	
1621	006462	000025			.WORD	21	
1622	006464	002556			.WORD	PACR	
1623	006466	003736			.WORD	RERR4	
1624	006470				EXIT	TST	:ABORT TEST IF ERROR DETECTED
1625	006470	104032			EMT	CSEXIT	
1626	006472	000224			.WORD	L10027-	
1627	006474		75:		CKLOOP		:CHECK FOR LOOP ON ERROR
1628	006474	104006			EMT	CSCLP1	
1629	006476				ENDSUB		
1630	006476		L10036:				
1631	006476	104003			EMT	CSesub	
1632							
1633	006500				BGNSUB		
1634	006500	104002			EMT	CSBSUB	
1635	006502	000337	177520		SWAB	PCR	:SWAP BYTES
1636	006506	022737	052400	177520	CMP	#052400,PCR	:CHECK RESULTING CONTENTS
1637	006514	001412			BEQ	105	:BR IF GOOD DATA
1638	006516	012701	052400		MOV	#52400,R1	:EXPECTED DATA
1639	006522	013702	177520		MOV	PCR,R2	:COPY CONTENTS
1640	006526				ERRDF	22,PACR,RERR4,CKLOOP	:BYTE INSTRUCTION ERROR
1641	006526	104562			TRAP	TSERCODE	
1642	006530	000026			.WORD	22	
1643	006532	002556			.WORD	PACR	
1644	006534	003736			.WORD	RERR4	
1645	006536				EXIT	TST	:ABORT TEST IF ERROR DETECTED
1646	006536	104032			EMT	CSEXIT	
1647	006540	000156			.WORD	L10027-	

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SEQ 0039

1648	006542			105:	CKLOOP		; CHECK FOR LOOP ON ERROR
1649	006542	104006			EMT	C\$CLP1	
1650	006544				ENDSUB		
1651	006544			L10037:			
1652	006544	104003			EMT	C\$ESUB	
1653							
1654	006546				BGNSUB		
1655	006546	104002			EMT	C\$BSUB	
1656	006550	005037	177520		CLR	PCR	; MAKE SURE THE C-BIT IS CLEAR
1657	006554	052737	100000	177520	BIS	#BIT15, PCR	; SET MSB
1658	006562	013703	177520		MOV	PCR, R3	; COPY DATA IN PCR
1659	006566	023703	177520	ROTLP3:	CMP	PCR, R3	; ARE THEY THE SAME?
1660	006572	001005			BNE	115	; BR IF NO
1661	006574	006003			ROR	R3	; ROTATE THE SET BIT
1662	006576	001411			BEQ	125	; BR IF FINISHED
1663	006600	006037	177520		ROR	PCR	; REPEAT ROTATE
1664	006604	000770			BR	ROTLP3	; LOOP UNTIL ROTATE IS COMPLETE
1665	006606			115:	ERRDF	23, PACR, RERR5, CKLOOP	
1666	006606	104562			TRAP	T\$ERCODE	
1667	006610	000027			WORD	23	
1668	006612	002556			WORD	PACR	
1669	006614	004004			WORD	RERR5	
1670	006616				EXIT	TST	; SKIP REST OF TEST
1671	006616	104032			EMT	C\$EXIT	
1672	006620	000076			WORD	L10027-	
1673	006622			125:	CKLOOP		; CHECK FOR LOOP ON ERROR
1674	006622	104006			EMT	C\$CLP1	
1675	006624				ENDSUB		
1676	006624			L10040:			
1677	006624	104003			EMT	C\$ESUB	
1678							
1679	006626				BGNSUB		
1680	006626	104002			EMT	C\$BSUB	
1681	006630	012737	177777	177520	MOV	#-1, PCR	; SET ALL ONES
1682	006636	042737	100000	177520	BIC	#BIT15, PCR	; CLEAR MSB
1683	006644	013703	177520		MOV	PCR, R3	; COPY DATA
1684	006650	023703	177520	ROTLP4:	CMP	PCR, R3	; ARE THEY THE SAME?
1685	006654	001010			BNE	135	; BR IF NO
1686	006656	000261			SEC		; SET C-BIT FOR ROTATE
1687	006660	006037	177520		ROR	PCR	; ROTATE CLEAR BIT
1688	006664	006003			ROR	R3	; REPEAT
1689	006666	022703	077777		CMP	#077777, R3	; ALL ONES?
1690	006672	001366			BNE	ROTLP4	; BR IF NOT YET
1691	006674	000406			BR	145	; SUBTEST FINISHED
1692	006676			135:	ERRDF	24, PACR, RERR6, CKLOOP	
1693	006676	104562			TRAP	T\$ERCODE	
1694	006700	000030			WORD	24	
1695	006702	002556			WORD	PACR	
1696	006704	004026			WORD	RERR6	
1697	006706				EXIT	TST	
1698	006706	104032			EMT	C\$EXIT	
1699	006710	000006			WORD	L10027-	
1700	006712			145:	CKLOOP		
1701	006712	104006			EMT	C\$CLP1	
1702	006714				ENDSUB		
1703	006714			L10041:			

1704 006714 104003
1705 006716
1706 006716
1707 006716 104001
1708

EMT CSESUB
ENDTST
L10027:
EMT CSETST

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1709 . SBTTL TEST 3: BEVENT CLAMP ENABLE TEST
1710 ;++
1711 ;TEST TO VERIFY THAT THE BEVENT CLAMP CAN BE ENABLED. THIS TEST
1712 ;ASSUMES THAT SWITCH #5 OF E21 IS IN THE ON POSITION, AND THE M8012
1713 ;MODULE IS LOCATED IN THE SAME BACKPLANE THAT THE LINE TIME CLOCK
1714 ;IS GENERATED FROM.
1715 ;--
1716
1717 006720 BGNTST
1718
1719 177546 BEVREG=177546
1720
1721 006720 005737 002174 TST PASS ; IF THIS IS FIRST PASS
1722 006724 001402 BEQ 15 ; THEN DO THE TEST
1723 006726 104032 EXIT TST ; ELSE DON'T
1724 006726 000520 EMT C$EXIT
1725 006730 104002 . WORD L10042-
1726 006732 15: BGNSUB
1727 006732 012746 000340 EMT C$SUB
1728 006734 012746 007124 SETVEC VECT, #INTSR, #PRI07 ; SET INTERRUPT VECTOR, INHIBIT INTERRUPTS
1729 006734 013746 002204 MOV #PRI07, -(SP)
1730 006740 012746 000003 MOV #INTSR, -(SP)
1731 006744 012746 000003 MOV VECT, -(SP)
1732 006750 012746 000003 MOV #3, -(SP)
1733 006754 062706 000010 EMT C$SVEC
1734 006756 052737 000100 177546 ADD #10, SP
1735 006770 012700 000000 BIS #BIT06, BEVREG ; REMOVE BEVENT CLAMP
1736 006774 104041 000000 SETPRI #PRI00 ; ALLOW INTERRUPTS
1737 006776 012700 000620 MOV #PRI00, RO
1738 006776 012700 000620 EMT C$SPRI
1739 006776 012700 000620 WAITUS #400. ; DELAY 40 MSEC.
1740 006776 012700 000620 MOV #400, RO
1741 007002 012700 000620 EMT C$WTU
1742 007004 012700 000620 SETPRI #PRI07 ; INHIBIT FURTHER INTERRUPTS
1743 007004 012700 000620 MOV #PRI07, RO
1744 007010 012700 000620 EMT C$SPRI
1745 007012 022737 000002 007132 CMP #2, ICOUNT ; DID THE MINIMUM OF TWO INTERRUPTS OCCUR?
1746 007020 003403 BLE 25 ; BR IF YES
1747 007022 104542 ERROF 25, BVERR1, CKLOOP ; BEVENT CLAMP ENABLE FAILED
1748 007022 000031 TRAP T$ERCODE
1749 007024 007134 . WORD 25
1750 007026 007134 . WORD BVERR1
1751 007030 25: CKLOOP ; CHECK FOR LOOP ON ERROR
1752 007030 104006 EMT C$CLP1
1753 007032 005037 007132 CLR ICOUNT ; CLEAR INTERRUPT COUNT
1754 007036
1755 007036 L10043: ENDSUB
1756 007036 104003 EMT C$ESUB
1757
1758 007040 BGNSUB
1759 007040 104002 EMT C$SUB
1760 007042 042737 000100 177546 BIC #BIT06, BEVREG ; SET BEVENT CLAMP
1761 007050 012700 000000 SETPRI #PRI00 ; ALLOW INTERRUPTS
1762 007050 104041 000000 MOV #PRI00, RO
1763 007054 104041 EMT C$SPRI
1764 007056 WAITUS #400. ; DELAY 40 MSEC

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1765	007056	012700	000620	MOV	#400.,R0	
1766	007062	104027		EMT	C\$WTU	
1767	007064			SETPRI	#PRI07	; SET HIGHEST PRIORITY
1768	007064	012700	000340	MOV	#PRI07,R0	
1769	007070	104041		EMT	C\$SPRI	
1770	007072	022737	000001 007132	CMP	#1,ICOUNT	; CHECK INTERRUPT COUNT
1771	007100	002003		BGE	4\$	; BR IF NO INTERRUPTS OCCURRED
1772	007102			ERRDF	26,,BVERR2,CKLOOP	; BEVENT CLAMP DID NOT PREVENT INTERRUPTS
1773	007102	104542		TRAP	T\$ERCODE	
1774	007104	000032		.WORD	26	
1775	007106	007202		.WORD	BVERR2	
1776	007110		4\$:	CKLOOP		; CHECK FOR LOOP ON ERROR
1777	007110	104006		EMT	C\$CLP1	
1778	007112	005037	007132	CLR	ICOUNT	; CLEAR INTERRUPT COUNT
1779	007116			ENDSUB		
1780	007116		L10044:			
1781	007116	104003		EMT	C\$ESUB	
1782	007120			EXIT TST		
1783	007120	104032		EMT	C\$EXIT	
1784	007122	000326		.WORD	L10042-	
1785	007124		INTSR:			
1786	007124			BGN\$RV	BEVENT	; INTERRUPT SERVICE ROUTINE
1787	007124		BEVENT:			
1788	007124	005237	007132	INC	ICOUNT	; INCREMENT COUNTER
1789	007130			END\$RV		
1790	007130		L10045:			
1791	007130	000002		RTI		
1792						
1793	007132	000000		ICOUNT:	.WORD 0	
1794						
1795	007134			BGNMSG	BVERR1	
1796	007134		BVERR1:			
1797	007134			PRINTB	#MSG1	
1798	007134	012746	007250	MOV	#MSG1,-(SP)	
1799	007140	012746	000001	MOV	#1,-(SP)	
1800	007144	010600		MOV	SP,R0	
1801	007146	104014		EMT	C\$PNTB	
1802	007150	062706	000004	ADD	#4,SP	
1803	007154			PRINTB	#INTCT,ICOUNT	
1804	007154	013746	007132	MOV	ICOUNT,-(SP)	
1805	007160	012746	007324	MOV	#INTCT,-(SP)	
1806	007164	012746	000002	MOV	#2,-(SP)	
1807	007170	010600		MOV	SP,R0	
1808	007172	104014		EMT	C\$PNTB	
1809	007174	062706	000006	ADD	#6,SP	
1810	007200			ENDMSG		
1811	007200		L10046:			
1812	007200	104023		EMT	C\$MSG	
1813						
1814	007202			BGNMSG	BVERR2	
1815	007202		BVERR2:			
1816	007202			PRINTB	#MSG2	
1817	007202	012746	007373	MOV	#MSG2,-(SP)	
1818	007206	012746	000001	MOV	#1,-(SP)	
1819	007212	010600		MOV	SP,R0	
1820	007214	104014		EMT	C\$PNTB	

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SEQ 0043

1821	007216	062706	000004		ADD	#4, SP
1822	007222				PRINTB	#INTCT, ICOUNT
1823	007222	013746	007132		MOV	ICOUNT, -(SP)
1824	007226	012746	007324		MOV	#INTCT, -(SP)
1825	007232	012746	000002		MOV	#2, -(SP)
1826	007236	010600			MOV	SP, R0
1827	007240	104014			EMT	C\$PNTB
1828	007242	062706	000006		ADD	#6, SP
1829	007246				ENDMSG	
1830	007246			L10047:		
1831	007246	104023			EMT	C\$MSG
1832						
1833	007250	040445	042502	042526	MSG1:	.ASCIZ /%ABEVENT CLAMP FAILED TO ALLOW INTERRUPTS%N/
1834	007256	052116	041440	040514		
1835	007264	050115	043040	044501		
1836	007272	042514	020104	047524		
1837	007300	040440	046114	053517		
1838	007306	044440	052116	051105		
1839	007314	052522	052120	022523		
1840	007322	000116				
1841	007324	040445	052516	041115	INTCT:	.ASCIZ /%ANUMBER OF INTERRUPTS RECEIVED: %03%N/
1842	007332	051105	047440	020106		
1843	007340	047111	042524	051122		
1844	007346	050125	051524	051040		
1845	007354	041505	044505	042526		
1846	007362	035104	022440	031517		
1847	007370	047045	000			
1848	007373	045	041101	053105	MSG2:	.ASCIZ /%ABEVENT CLAMP DID NOT PREVENT INTERRUPTS%N/
1849	007400	047105	020124	046103		
1850	007406	046501	020120	044504		
1851	007414	020104	047516	020124		
1852	007422	051120	053105	047105		
1853	007430	020124	047111	042524		
1854	007436	051122	050125	051524		
1855	007444	047045	000			
1856		007450				
1857	007450				EVEN	
1858	007450				ENDTST	
1859	007450	104001			L10042:	
					EMT	C\$ETST

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 DVM8AA.P11 07-NOV-77 10:41 TEST 4: LIGHT DISPLAY TEST

SEQ 0044

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1860          SBTTL TEST 4: LIGHT DISPLAY TEST
1861          ;++
1862          ;TEST TO VERIFY THAT THE FOUR RED LED'S ARE WORKING AND CAN BE
1863          ;TURNED ON INDIVIDUALLY.
1864          ;--
1865
1866          007452          BGNTST
1867
1868          007452 005037 177524          CLR          LSREG          ;TURN ON ALL FOUR LED'S
1869          007456          WAITMS #2.          ;DELAY APPROX. 0.2 SEC.
1870          007456 012700 000002          MOV          #2.,RO
1871          007462 104026          EMT          CSWTM
1872          007464 012737 000017 177524          MOV          #17,LSREG
1873          007472          WAITMS #2.          ;TURN OFF ALL FOUR LED'S
1874          007472 012700 000002          MOV          #2.,RO          ;DELAY APPROX. 0.2 SEC.
1875          007476 104026          EMT          CSWTM
1876          007500          MANUAL          ;IS MANUAL INTERVENTION ALLOWED?
1877          007500 104051          EMT          CSMANI
1878          007502          BCOMPLETE 25          ;BR IF YES
1879          007502 103410          BCS          25
1880          007504 022737 000030 002176          CMP          #30,PASCT          ;IS PASS COUNT >= 30?
1881          007512 003402          BLE          15          ;BR IF YES
1882          007514          EXIT          TST
1883          007514 104032          EMT          CSEXIT
1884          007516 000072          .WORD          L10050-
1885          007520 005037 002176 15:          CLR          PASCT          ;EXIT TEST
1886          007524 012737 000016 177524 25:          MOV          #16,LSREG          ;TURN ON THE LED CORRESPONDING TO THE LSB
1887          007532          WAITMS #2.          ;DELAY APPROX. 0.2 SEC.
1888          007532 012700 000002          MOV          #2.,RO
1889          007536 104026          EMT          CSWTM
1890          007540 012737 000015 177524          MOV          #15,LSREG          ;TURN ON 2ND LED
1891          007546          WAITMS #2.          ;DELAY APPROX. 0.2 SEC.
1892          007546 012700 000002          MOV          #2.,RO
1893          007552 104026          EMT          CSWTM
1894          007554 012737 000013 177524          MOV          #13,LSREG          ;TURN ON 3RD LED
1895          007562          WAITMS #2.          ;DELAY APPROX. 0.2 SEC.
1896          007562 012700 000002          MOV          #2.,RO
1897          007566 104026          EMT          CSWTM
1898          007570 012737 000007 177524          MOV          #7,LSREG          ;TURN ON LED CORRESPONDING TO MSB
1899          007576          WAITMS #2.          ;DELAY APPROX. 0.2 SEC.
1900          007576 012700 000002          MOV          #2.,RO
1901          007602 104026          EMT          CSWTM
1902          007604          EXIT          TST          ;EXIT
1903          007604 104032          EMT          CSEXIT
1904          007606 000002          .WORD          L10050-
1905
1906          007610          ENDTST
1907          007610          L10050:
1908          007610 104001          EMT          CSETST
1909

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1910						.SBTTL TEST 5: ROCKER SWITCHES TEST	
1911						;TEST TO CONFIRM THE ROCKER SWITCH SETTINGS. THIS TEST ASSUMES THAT,	
1912						;IN MANUFACTURING, THE ROCKER SWITCHES ARE ALL IN THE ON POSITION.	
1913						;THIS INCLUDES BOTH E21 AND E15. IN MANUFACTURING, THIS TEST WILL	
1914						;VERIFY THAT ALL SWITCHES CAN BE READ AS ON. IN OTHER ENVIRONMENTS,	
1915						;THE OPERATOR MAY SPECIFY WHAT THE SWITCH SETTINGS ARE BEFORE	
1916						;THE DIAGNOSTIC IS STARTED (SEE PROGRAM OPTIONS UNDER OPERATING	
1917						;INSTRUCTIONS). SWITCHES A1-A8 CORRESPOND TO E15 AND SWITCHES	
1918						;B1-B4 TO E21.	
1919	007612					BGNTST	
1920							
1921	007612					MANUAL	;IS MANUAL INTERVENTION ALLOWED?
1922	007612	104051				EMT C\$MANI	
1923	007614					BCOMLETE PRTSW	;BR IF YES
1924	007614	103412				BCS PRTSW	
1925	007616	023737	002206	177524		CMP SWSET,LSREG	;ALL SWITCHES SHOULD BE ON AND BITS 0-11 SET
1926	007624	001403				BEQ 15	;BR IF SWITCH READINGS ARE OK
1927	007626					ERRDF 27,,SWERR	;CANNOT READ SWITCHES PROPERLY
1928	007626	104442				TRAP T\$ERCODE	
1929	007630	000033				.WORD 27	
1930	007632	010134				.WORD SWERR	
1931	007634				15:	CKLOOP	;CHECK FOR LOOP ON ERROR
1932	007634	104006				EMT C\$CLP1	
1933	007636					EXIT TST	;EXIT
1934	007636	104032				EMT C\$EXIT	
1935	007640	000524				.WORD L10051-	
1936	007642	013737	177524	010130	PRTSW:	MOV LSREG,TEMP	;COPY CONTENTS OF LSREG
1937	007650	005037	010132			CLR SWCHON	;CLEAR MASK
1938	007654	012737	000014	010126		MOV #14,SWCNT	;SET SWITCH COUNT
1939	007662	032737	000001	010130	LP:	BIT #BIT0,TEMP	;TEST FOR SWITCH SET
1940	007670	001403				BEQ 25	;BR IF NOT SET
1941	007672	052737	100000	010132		BIS #BIT15,SWCHON	;IF SET, THEN SET CORRESPNDING BIT IN MASK
1942	007700	000241			25:	CLC	;CLEAR C-BIT FOR ROTATE
1943	007702	006037	010132			ROR SWCHON	;ROTATE SWSET
1944	007706	006037	010130			ROR TEMP	;GET READY TO TEST NEXT SWITCH
1945	007712	005337	010126			DEC SWCNT	;DECREMENT SWITCH COUNT
1946	007716	001361				BNE LP	;LOOP UNTIL ALL SWITCHES HAVE BEEN CHECKED
1947	007720	000241				CLC	;CLEAR C-BIT FOR ROTATE
1948	007722	006037	010132			ROR SWCHON	;ROTATE DATA
1949	007726	006037	010132			ROR SWCHON	;ROTATE DATA
1950	007732	006037	010132			ROR SWCHON	;ROTATE DATA
1951	007736					PRINTF #READN,SWCHON	;PRINT SWITCH SETTINGS
1952	007736	013746	010132			MOV SWCHON,-(SP)	
1953	007742	012746	010166			MOV #READN,-(SP)	
1954	007746	012746	000002			MOV #2,-(SP)	
1955	007752	010600				MOV SP,R0	
1956	007754	104017				EMT C\$PNTF	
1957	007756	062706	000006			ADD #6,SP	
1958							
1959	007762	013702	010132			MOV SWCHON,R2	;COPY SWITCH SETTINGS
1960	007766	012701	000001			MOV #1,R1	;SET SWITCH NUMBER = 1
1961	007772	032702	000001		TAG1:	BIT #BIT0,R2	;IS THIS SWITCH ON?
1962	007776	001411				BEQ TAG2	;BR IF NO
1963	010000					PRINTF #MESSG1,R1	;PRINT SWITCH NUMBER
1964	010000	010146				MOV R1,-(SP)	
1965	010002	012746	010217			MOV #MESSG1,-(SP)	

1966	010006	012746	000002		MOV	#2, -(SP)	
1967	010012	010600			MOV	SP, R0	
1968	010014	104017			EMT	C\$PNTF	
1969	010016	062706	000006		ADD	#6, SP	
1970	010022	005201		TAG2:	INC	R1	; INCREMENT SWITCH NUMBER
1971	010024	006002			ROR	R2	; ROTATE SWITCH REGISTER
1972	010026	022701	000010		CMP	#10, R1	; FINISHED WITH E15?
1973	010032	002357			BGE	TAG1	; BR IF NO
1974	010034	012701	000001		MOV	#1, R1	; RESET SWITCH NUMBER FOR E21
1975	010040	032702	000001	TAG3:	BIT	#BIT0, R2	; IS THIS SWITCH SET?
1976	010044	001411			BEQ	TAG4	; BR IF NO
1977	010046				PRINTF	#MESSG2, R1	; PRINT SWITCH NUMBER
1978	010046	010146			MOV	R1, -(SP)	
1979	010050	012746	010232		MOV	#MESSG2, -(SP)	
1980	010054	012746	000002		MOV	#2, -(SP)	
1981	010060	010600			MOV	SP, R0	
1982	010062	104017			EMT	C\$PNTF	
1983	010064	062706	000006		ADD	#6, SP	
1984	010070	005201		TAG4:	INC	R1	; INCREMENT SWITCH NUMBER
1985	010072	006002			ROR	R2	; ROTATE SWITCH REGISTER
1986	010074	022701	000004		CMP	#4, R1	; FINISHED?
1987	010100	002357			BGE	TAG3	; BR IF NO
1988	010102				PRINTF	#NEWLIN	
1989	010102	012746	010245		MOV	#NEWLIN, -(SP)	
1990	010106	012746	000001		MOV	#1, -(SP)	
1991	010112	010600			MOV	SP, R0	
1992	010114	104017			EMT	C\$PNTF	
1993	010116	062706	000004		ADD	#4, SP	
1994							
1995	010122				EXIT TST		
1996	010122	104032			EMT	C\$EXIT	
1997	010124	000240			WORD	L10051-	
1998							
1999	010126	000000		SWCNT:	WORD	0	
2000	010130	000000		TEMP:	WORD	0	
2001	010132	000000		SWCHON:	WORD	0	
2002							
2003	010134				BGNMSG	SWERR	
2004	010134			SWERR:			
2005	010134				PRINTB	#SERR1, SWSET, LSREG	
2006	010134	013746	177524		MOV	LSREG, -(SP)	
2007	010140	013746	002206		MOV	SWSET, -(SP)	
2008	010144	012746	010250		MOV	#SERR1, -(SP)	
2009	010150	012746	000003		MOV	#3, -(SP)	
2010	010154	010600			MOV	SP, R0	
2011	010156	104014			EMT	C\$PNTB	
2012	010160	062706	000010		ADD	#10, SP	
2013	010164				ENDMSG		
2014	010164			L10052:			
2015	010164	104023			EMT	C\$MSG	
2016							
2017	010166	040445	053523	052111	FEADN:	ASCIZ	%ASWITCHES ON %06XA
2018	010174	044103	051505	047440			
2019	010202	020116	020072	047445			
2020	010210	022466	020101	020072			
2021	010216	000					

2022	010217	045	040501	042045	MESSG1: .ASCIZ /%AA%D1%A, /
2023	010224	022461	026101	000040	
2024	010232	040445	022502	030504	MESSG2: .ASCIZ /%AB%D1%A, /
2025	010240	040445	020054	000	
2026	010245	045	000116		NEWLIN: .ASCIZ /%N/
2027	010250	040445	044504	020104	SERR1: .ASCII /%ADID NOT RECOGNIZE ALL SWITCHES AS ON%N/
2028	010256	047516	020124	042522	
2029	010264	047503	047107	055111	
2030	010272	020105	046101	020114	
2031	010300	053523	052111	044103	
2032	010306	051505	040440	020123	
2033	010314	047117	047045		
2034	010320	040445	054105	042520	.ASCIZ /%AEXPECTED: %06%S5%ARECEIVED: %06%N/
2035	010326	052103	042105	020072	
2036	010334	047445	022466	032523	
2037	010342	040445	042522	042503	
2038	010350	053111	042105	022472	
2039	010356	033117	047045	000	
2040		010364			
2041	010364				EVEN
2042	010364				ENDTST
2043	010364	104001			L10051: EMT CSETST
2044					


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2045 . SBTTL TEST 6: 2K DIAGNOSTIC ROM
2046 ;++
2047 ;TEST TO PERFORM CHECKSUM AND CHECKWORD VERIFICATION ON THE 2K
2048 ;OF DIAGNOSTIC ROM. IN UNATTENDED MODE, THE ROM WILL BE ADDRESSED
2049 ;FROM 0-2K. IN STAND-ALONE MODE, THE OPERATOR MAY CHANGE THE
2050 ;ADDRESS BY RESPONDING TO QUESTIONS GENERATED ON THE FIRST PASS.
2051 ;--
2052 010366 BGNTST
2053
2054 010366 BGNSUB
2055 010366 104002 EMT CSBSUB
2056 010370 MANUAL ;MANUAL INTERVENTION OK?
2057 010370 104051 EMT CSMANI
2058 010372 BNCOMPLETE STRT ;BR IF NO
2059 010372 103014 BCC STRT
2060 010374 005737 002174 TST PASS ;FIRST PASS?
2061 010400 001032 BNE RSTRT ;BR IF NO
2062 010402 GMANIL DADDR, RSET, 1, YES
2063 010402 104043 EMT CSGMAN
2064 010404 000404 BR 10000$
2065 010406 002222 . WORD RSET
2066 010410 000130 . WORD TSCODE
2067 010412 011473 . WORD DADDR
2068 010414 000001 . WORD 1
2069 010416 10000$: TST RSET ;STANDARD- JUMPERS?
2070 010416 005737 002222 BEQ GETAD ;BR IF NO
2071 010422 001404 MOV #400, DRLP ;STORE STARTING ADDRESS
2072 010424 012737 000400 010746 STRT: RSTRT ;GO PERFORM TEST
2073 010432 000415 GETAD: GMANID LOADR, STORE, D, -1, 0, 24, NO
2074 010434 104043 EMT CSGMAN
2075 010434 000406 BR 10001$
2076 010436 002210 . WORD STORE
2077 010440 000042 . WORD TSCODE
2078 010442 002774 . WORD LOADR
2079 010444 177777 . WORD -1
2080 010446 000000 . WORD TSLOLIM
2081 010450 000024 . WORD TSHILIM
2082 010452 000024 10001$: JSR PC, SETADR ;GET STARTING ADDRESS
2083 010454 004737 004732 MOV LOPAG, DRLP ;STORE STARTING ADDRESS
2084 010454 013737 002160 010746 RSTRT: MOV DRLP, PCR ;SET UP PCR
2085 010460 013737 010746 177520 DRTST: MOV #10, COUNTR ;SET NUMBER OF CHECKWORDS TO CHECK
2086 010466 012737 000010 002162 MOV #SFPTBL, R5 ;LOCATION OF CHECKWORDS
2087 010474 012705 002134 MOV #1, RFLAG ;INDICATE ROM
2088 010502 012737 000001 002166 DLOOP: CLR BCF ;SIGNAL LOW BYTES ARE BEING CHECKED
2089 010506 005037 002154 CMPB #-1, @#173774 ;DOES THE ROM EXIST?
2090 010514 122737 177777 173774 BNE 1$ ;BR IF YES
2091 010520 001005 ERRDF 30, , DERR1, CKLOOP ;DIAGNOSTIC ROM E48 NOT FOUND
2092 010526 001005 TRAP TSERCODE
2093 010530 104542 . WORD 30
2094 010530 000036 . WORD DERR1
2095 010532 000036 EXIT TST ;EXIT TEST, ROM NOT FOUND
2096 010534 010750 EMT CSEXIT
2097 010536 104032 . WORD L10053-
2098 010536 000754 1$: CKLOOP ;CHECK FOR LOOP ON ERROR
2099 010540
2100 010542

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2101	010542	104006			EMT	C\$CLP1	
2102	010544	004737	004122		JSR	PC,CHKSUM	; COMPUTE THE ACTUAL CHECKSUM
2103	010550	113737	173776	002170	MOVB	@#173776,EXPSUM	; GET THE STORED CHECKSUM
2104	010556	063737	002172	002170	ADD	ACTSUM,EXPSUM	; ADD THE EXPECTED AND ACTUAL CHECKSUMS
2105	010564	105737	002170		TSTB	EXPSUM	; BYTE RESULT = 0?
2106	010570	001403			BEQ	2\$	; BR IF YES
2107	010572				ERRDF	31,,DERR2,CKLOOP	; CHECKSUM ERROR IN DIAGNOSTIC ROM
2108	010572	104542			TRAP	T\$ERCODE	
2109	010574	000037			.WORD	31	
2110	010576	010776			.WORD	DERR2	
2111	010600				2\$: CKLOOP		; CHECK FOR LOOP ON ERROR
2112	010600	104006			EMT	C\$CLP1	
2113	010602				ENDSUB		
2114	010602				L10054: EMT	C\$ESUB	
2115	010602	104003					
2116							
2117							
2118	010604				BGNSUB		
2119	010604	104002			EMT	C\$BSUB	
2120	010606	012737	000C01	002154	MOV	#1,BCF	; SET BCF TO DENOTE HIGH BYTES
2121	010614	122737	177777	173775	CMPB	#-1,@#173775	; DOES THE ROM EXIST?
2122	010622	001005			BNE	3\$	; BR IF YES
2123	010624				ERRDF	32,,DERR3,CKLOOP	; DIAGNOSTIC ROM E53 NOT FOUND
2124	010624	104542			TRAP	T\$ERCODE	
2125	010626	000040			.WORD	32	
2126	010630	011024			.WORD	DERR3	
2127	010632				EXIT	TST	; EXIT TEST, ROM NOT FOUND
2128	010632	104032			EMT	C\$EXIT	
2129	010634	000660			.WORD	L10053-	
2130	010636				3\$: CKLOOP		; CHECK FOR LOOP ON ERROR
2131	010636	104006			EMT	C\$CLP1	
2132	010640	004737	004122		JSR	PC,CHKSUM	; COMPUTE THE ACTUAL CHECKSUM
2133	010644	113737	173777	002170	MOVB	@#173777,EXPSUM	; GET EXPECTED CHECKSUM
2134	010652	063737	002172	002170	ADD	ACTSUM,EXPSUM	; ADD THE EXPECTED AND ACTUAL CHECKSUMS
2135	010660	105737	002170		TSTB	EXPSUM	; BYTE RESULT = 0?
2136	010664	001403			BEQ	4\$	; BR IF YES
2137	010666				ERRDF	33,,DERR4,CKLOOP	; CHECKSUM ERROR IN DIAGNOSTIC ROM
2138	010666	104542			TRAP	T\$ERCODE	
2139	010670	000041			.WORD	33	
2140	010672	011052			.WORD	DERR4	
2141	010674				4\$: CKLOOP		
2142	010674	104006			EMT	C\$CLP1	
2143	010676				ENDSUB		
2144	010676				L10055: EMT	C\$ESUB	
2145	010676	104003					
2146							
2147	010700				BGNSUB		
2148	010700	104002			EMT	C\$BSUB	
2149	010702	022537	173776		CMP	(R5)+,@#173776	; VERIFY THE CHECKWORD FOR THIS PAGE
2150	010706	001403			BEQ	5\$	; BR IF THE SAME
2151	010710				ERRDF	34,,DERR5,CKLOOP	; CHECKWORD ERROR
2152	010710	104542			TRAP	T\$ERCODE	
2153	010712	000042			.WORD	34	
2154	010714	011100			.WORD	DERR5	
2155	010716				5\$: CKLOOP		
2156	010716	104006			EMT	C\$CLP1	

2157	010720				ENDSUB	
2158	010720				L10056:	
2159	010720	104003			EMT	C\$ESUB
2160						
2161						
2162	010722				BGNSUB	
2163	010722	104002			EMT	C\$BSUB
2164	010724	062737	001002	177520	ADD	#1002,PCR
2165	010732	005337	002162		DEC	COUNTR
2166	010736	001266			BNE	DLOOP
2167	010740				ENDSUB	
2168	010740				L10057:	
2169	010740	104003			EMT	C\$ESUB
2170						
2171	010742				EXIT	TST
2172	010742	104032			EMT	C\$EXIT
2173	010744	000550			WORD	L10053-
2174						
2175	010746	000000			DRLP:	WORD 0
2176						
2177	010750				BGNMSG	DERR1
2178	010750				DERR1:	
2179	010750				PRINTB	#LRAERR, #NODR
2180	010750	012746	011447		MOV	#NODR, -(SP)
2181	010754	012746	011126		MOV	#LRAERR, -(SP)
2182	010760	012746	000002		MOV	#2, -(SP)
2183	010764	010600			MOV	SP, RO
2184	010766	104014			EMT	C\$PNTB
2185	010770	062706	000006		ADD	#6, SP
2186	010774				ENDMSG	
2187	010774				L10060:	
2188	010774	104023			EMT	C\$MSG
2189						
2190	010776				BGNMSG	DERR2
2191	010776				DERR2:	
2192	010776				PRINTB	#LOWROM, #CKERR
2193	010776	012746	002624		MOV	#CKERR, -(SP)
2194	011002	012746	011202		MOV	#LOWROM, -(SP)
2195	011006	012746	000002		MOV	#2, -(SP)
2196	011012	010600			MOV	SP, RO
2197	011014	104014			EMT	C\$PNTB
2198	011016	062706	000006		ADD	#6, SP
2199	011022				ENDMSG	
2200	011022				L10061:	
2201	011022	104023			EMT	C\$MSG
2202						
2203	011024				BGNMSG	DERR3
2204	011024				DERR3:	
2205	011024				PRINTB	#HRAERR, #NODR
2206	011024	012746	011447		MOV	#NODR, -(SP)
2207	011030	012746	011251		MOV	#HRAERR, -(SP)
2208	011034	012746	000002		MOV	#2, -(SP)
2209	011040	010600			MOV	SP, RO
2210	011042	104014			EMT	C\$PNTB
2211	011044	062706	000006		ADD	#6, SP
2212	011050				ENDMSG	

;NEXT PAGE IN PCR
 ;DECREMENT CHECKWORD COUNT
 ;LOOP UNTIL ALL 20 PAGES HAVE BEEN CHECKED

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SEQ 0051

2213	011050				L10062:	
2214	011050	104023			EMT	C\$MSG
2215						
2216	011052				BGNMSG	DERR4
2217	011052				DERR4:	
2218	011052				PRINTB	#HIROM, #CKERR
2219	011052	012746	002624		MOV	#CKERR, -(SP)
2220	011056	012746	011325		MOV	#HIROM, -(SP)
2221	011062	012746	000002		MOV	#2, -(SP)
2222	011066	010600			MOV	SP, RO
2223	011070	104014			EMT	C\$PNTB
2224	011072	062706	000006		ADD	#6, SP
2225	011076				ENDMSG	
2226	011076				L10063:	
2227	011076	104023			EMT	C\$MSG
2228						
2229	011100				BGNMSG	DERR5
2230	011100				DERR5:	
2231	011100				PRINTB	#MISTAK
2232	011100	012746	011375		MOV	#MISTAK, -(SP)
2233	011104	012746	000001		MOV	#1, -(SP)
2234	011110	010600			MOV	SP, RO
2235	011112	104014			EMT	C\$PNTB
2236	011114	062706	000004		ADD	#4, SP
2237	011120	004737	004346		JSR	PC, VIRTAD
2238	011124				ENDMSG	
2239	011124				L10064:	
2240	011124	104023			EMT	C\$MSG
2241						
2242	011126	052045	047045	040445	LRAERR:	ASCIZ /%T%N%ACANNOT ACCESS DIAGNOSTIC ROM IN E48%N/
2243	011134	040503	047116	052117		
2244	011142	040440	041503	051505		
2245	011150	020123	044504	043501		
2246	011156	047516	052123	041511		
2247	011164	051040	046517	044440		
2248	011172	020116	032105	022470		
2249	011200	000116				
2250						
2251	011202	052045	047045	040445	LOWROM:	ASCIZ /%T%N%ALOW BYTE DIAGNOSTIC ROM IN E48%N/
2252	011210	047514	020127	054502		
2253	011216	042524	042040	040511		
2254	011224	047107	051517	044524		
2255	011232	020103	047522	020115		
2256	011240	047111	042440	034064		
2257	011246	047045	000			
2258						
2259	011251	045	022524	022516	HRAERR:	ASCIZ /%T%N%ACANNOT ACCESS DIAGNOSTIC ROM IN E53%N/
2260	011256	041501	047101	047516		
2261	011264	020124	041501	042503		
2262	011272	051523	042040	040511		
2263	011300	047107	051517	044524		
2264	011306	020103	047522	020115		
2265	011314	047111	042440	031465		
2266	011322	047045	000			
2267						
2268	011325	045	022524	022516	HIROM:	ASCIZ /%T%N%AHIGH BYTE DIAGNOSTIC ROM IN E53%N/

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SEQ 0052

2269	011332	044101	043511	020110
2270	011340	054502	042524	042040
2271	011346	040511	047107	051517
2272	011354	044524	020103	047522
2273	011362	020115	047111	042440
2274	011370	031465	047045	000

2275
 2276 011375 045 044501 041516 MISTAK: .ASCIZ /%AINCORRECT CHECKWORD IN DIAGNOSTIC ROM%N/

2277	011402	051117	042522	052103
2278	011410	041440	042510	045503
2279	011416	047527	042122	044440
2280	011424	020116	044504	043501
2281	011432	047516	052123	041511
2282	011440	051040	046517	047045
2283	011446	000		

2284
 2285 011447 116 047117 042455 NODR: .ASCIZ /NON-EXISTENT MEMORY/

2286	011454	044530	052123	047105
2287	011462	020124	042515	047515
2288	011470	054522	000	

2289
 2290 011473 123 040524 042116 DADDR: .ASCIZ /STANDARD JUMPERS/

2291	011500	051101	020104	052512
2292	011506	050115	051105	000123

2293
 2294
 2295 011514 .EVEN
 2296 011514 .ENDTST

2297 011514 104001 L10053: EMT CSETST

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2298 .SBTTL TEST 7: TEST ALL ADDITIONAL MEMORY
2299 ;++
2300 ;TEST TO LOCATE AND VERIFY CHECKSUMS IN ALL RESIDENT MEMORY
2301 ;ON A PAGE BASIS. THERE ARE FOUR STORAGE AREAS ASSOCIATED
2302 ;WITH THIS TEST WHICH HOLD THE CHECKWORDS OF ALL THE MEMORY
2303 ;THAT IS TO BE TESTED. THESE TABLES WILL HAVE DEFAULT VALUES
2304 ;ONLY IF THE ASSOCIATED MEMORY CHIP IS A STANDARD COMPONENT
2305 ;ON THE BOARD. IF NO DEFAULT VALUES EXIST, THE OPERATOR MUST
2306 ;INPUT THE CHECKWORDS AS LISTED ON THE PRINT SET. THE MEMORY
2307 ;WILL BE TESTED IN THE FOLLOWING LOCATIONS BY DEFAULT:
2308
2309 ;          EXPANDABLE DIAGNOSTIC ROM      2-4K
2310 ;          EPROM IN SOCKETS              4-6K
2311 ;          SYSTEM ROM                    16-32K
2312 ;          SYSTEM EPROM                  16-24K
2313
2314 ;THE TEST WILL FIRST VERIFY THE CHECKSUMS IN ALL RESIDENT ROM,
2315 ;THEN COMPARE THE ACTUAL CHECKWORDS. ERROR INFORMATION WILL
2316 ;INCLUDE THE SPECIFIC TYPE OF ERROR THAT OCCURS, THE VIRTUAL
2317 ;ADDRESS, AND WHETHER IT WAS THE HIGH BYTE OR LOW BYTE ROM/EPROM.
2318 ;THIS INFORMATION SHOULD ALLOW A KNOWLEDGEABLE OPERATOR TO ISOLATE
2319 ;THE ERROR DOWN TO A SINGLE ROM/EPROM WITH THE AID OF THE
2320 ;ADDRESS MAP IN THE PRINT SET.
2321 ;--
2322 011516          BGNTST
2323
2324 011516          BGNSUB
2325 011516 104002    EMT      CSBSUB
2326 011520          MANUAL
2327 011520 104051    EMT      CSMANI
2328 011522          BNCOMPLETE      DFLTST
2329 011522 103112    BCC      DFLTST
2330 011524 005037 013530 CLR      ADDON
2331 011530 005737 002174 TST      PASS
2332 011534 001422    BEQ      GET
2333 011536 005737 013534 TST      LOD1
2334 011542 001153    BNE      LD1
2335 011544 005737 013536 TST      LOD2
2336 011550 001402    BEQ      P1
2337 011552 000137 012420 JMP      LD2
2338 011556 005737 013540 P1:    TST      LOD3
2339 011562 001402    BEQ      P2
2340 011564 000137 012766 JMP      LD3
2341 011570 005737 013542 P2:    TST      LOD4
2342 011574 001465    BEQ      DFLTST
2343 011576 000137 013324 JMP      LD4
2344 011602          GET:    GMANIL  EXEC, ADDON, 1, YES
2345 011602 104043    EMT      CSGMAN
2346 011604 000404    BR       10000$
2347 011606 013530    .WORD    ADDON
2348 011610 000130    .WORD    TSCODE
2349 011612 014037    .WORD    EXEC
2350 011614 000001    .WORD    1
2351 011616          10000$:
2352 011616 005737 013530 TST      ADDON
2353 011622 001452    BEQ      DFLTST
```

; UNDER APT?

; SKIP TEST IF YES

; RESTORE DEFAULT

; FIRST PASS?

; BR IF YES

; EXPANDED DIAGNOSTIC ROM?

; BR IF YES

; EPROM IN SOCKETS?

; BR IF NO

; TEST EPROM

; SYSTEM ROM ?

; BR IF NO

; TEST ROM

; SYSTEM EPROM?

; EXIT IF NO

; TEST EPROM

; ADDITIONAL MEMORY?

; BR IF NO

2354	011624			DIAIN:	GMANIL	EXPND, RESPND, 1, NO	
2355	011624	104043			EMT	C\$GMAN	
2356	011626	000404			BR	10001\$	
2357	011630	002220			. WORD	RESPND	
2358	011632	000120			. WORD	T\$CODE	
2359	011634	014066			. WORD	EXPND	
2360	011636	000001			. WORD	1	
2361	011640			10001\$:			
2362	011640	005737	002220		TST	RESPND	; EXPANDED DIAGNOSTIC ROM?
2363	011644	001045			BNE	EXPROM	; BR IF YES
2364	011646			EPRIN:	GMANIL	EPRM, RESPND, 1, NO	
2365	011646	104043			EMT	C\$GMAN	
2366	011650	000404			BR	10002\$	
2367	011652	002220			. WORD	RESPND	
2368	011654	000120			. WORD	T\$CODE	
2369	011656	014116			. WORD	EPRM	
2370	011660	000001			. WORD	1	
2371	011662			10002\$:			
2372	011662	005737	002220		TST	RESPND	; EPROM IN SOCKETS?
2373	011666	001402			BEQ	SYSRIN	; BR IF NO
2374	011670	000137	012306		JMP	EPRMT	; JUMP TO ACCEPT INPUT
2375	011674			SYSRIN:	GMANIL	SYSR, RESPND, 1, NO	
2376	011674	104043			EMT	C\$GMAN	
2377	011676	000404			BR	10003\$	
2378	011700	002220			. WORD	RESPND	
2379	011702	000120			. WORD	T\$CODE	
2380	011704	014137			. WORD	SYSR	
2381	011706	000001			. WORD	1	
2382	011710			10003\$:			
2383	011710	005737	002220		TST	RESPND	; SYSTEM ROM?
2384	011714	001402			BEQ	SYSEIN	; BR IF NO
2385	011716	000137	012626		JMP	SYSET	; INPUT CHECKWORDS
2386	011722			SYSEIN:	GMANIL	SYSE, RESPND, 1, NO	
2387	011722	104043			EMT	C\$GMAN	
2388	011724	000404			BR	10004\$	
2389	011726	002220			. WORD	RESPND	
2390	011730	000120			. WORD	T\$CODE	
2391	011732	014152			. WORD	SYSE	
2392	011734	000001			. WORD	1	
2393	011736			10004\$:			
2394	011736	005737	002220		TST	RESPND	; SYSTEM EPROM?
2395	011742	001402			BEQ	DFLTST	; BR IF NO
2396	011744	000137	013164		JMP	SYSET	; INPUT CHECKWORDS
2397	011750			DFLTST:	EXIT	TST	; NO ADDTL. MEMORY -- EXIT
2398	011750	104032			EMT	C\$EXIT	
2399	011752	002344			. WORD	L10065-	
2400	011754				ENDSUB		
2401	011754			L10066:			
2402	011754	104003			EMT	C\$ESUB	
2403							
2404							
2405	011756				BGNSUB		
2406	011756	104002			EMT	C\$BSUB	
2407	011760	005037	002232	EXPROM:	CLR	ERRFLG	; CLEAR ERROR FLAG
2408	011764	012737	000010		MOV	#10, WORDCT	; COUNT 8 CHECKWORDS
2409	011772	012702	002234		MOV	#EXPDIAR, R2	; POINTER TO STORAGE TABLE

2410	011776	004737	004166			JSR	PC, INPUT	; INPUT CHECKWORDS
2411	012002					GMANIL	EXADD, ANSR, 1, YES	
2412	012002	104043				EMT	C\$GMAN	
2413	012004	000404				BR	10000\$	
2414	012006	002164				. WORD	ANSR	
2415	012010	000130				. WORD	T\$CODE	
2416	012012	014167				. WORD	EXADD	
2417	012014	000001				. WORD	1	
2418	012016							
2419	012016	005737	002164			TST	ANSR	; STANDARD MEMORY RANGE?
2420	012022	001020				BNE	1\$	; BR IF YES
2421	012024	005237	002164			INC	ANSR	; RESTORE DEFAULT VALUE
2422	012030					GMANID	LOADR, STORE, D, -1, 0, 30, NO	
2423	012030	104043				EMT	C\$GMAN	
2424	012032	000406				BR	10001\$	
2425	012034	002210				. WORD	STORE	
2426	012036	000042				. WORD	T\$CODE	
2427	012040	002774				. WORD	LOADR	
2428	012042	177777				. WORD	-1	
2429	012044	000000				. WORD	T\$LOLIM	
2430	012046	000030				. WORD	T\$HILIM	
2431	012050							
2432	012050	004737	004732			JSR	PC, SETADR	; GET FIRST PAGE ADDRESS
2433	012054	013737	002160	013534		MOV	LOPAG, LOD1	; STORE LOW PAGE NO.
2434	012062	000403				BR	LD1	; SKIP NEXT INSTRUCTION
2435	012064	012737	010420	013534	1\$:	MOV	#010420, LOD1	; STANDARD PAGE = 20, 21 2-4K RANGE
2436	012072	013737	013534	177520	LD1:	MOV	LOD1, PCR	; LOAD STARTING PAGE
2437	012100	012737	000001	002166		MOV	#1, RFLAG	; INDICATE ROM
2438	012106	012703	002234			MOV	#EXPDIR, R3	; POINTER TO CHECKWORDS
2439	012112	012737	000010	002162		MOV	#10, COUNTR	; PAGE COUNT
2440	012120	012337	002216			MOV	(R3)+, CKWD	; GET CHECKWORD FOR THIS PAGE
2441	012124	004737	004504			JSR	PC, MEMTST	; TEST MEMORY
2442	012130	005737	002156			TST	REAL	; DOES THE MEMORY EXIST?
2443	012134	001455				BEQ	E3	; BR IF NO
2444	012136	005737	002232			TST	ERRFLG	; ANY OTHER ERRORS?
2445	012142	001421				BEQ	NOERR	; BR IF NO
2446	012144	004737	004346			JSR	PC, VIRTAD	; GET ADDRESS OF ERROR
2447	012150	005737	002154			TST	BCF	; LOW BYTE PAGE?
2448	012154	001004				BNE	HIGH	; BR IF NO
2449	012156	012737	002667	002230		MOV	#LOBYT, BYTLOC	; SET POINTER FOR ERROR MSG.
2450	012164	000403				BR	DATOUT	; PRINT ERROR MESSAGE
2451	012166	012737	002731	002230	HIGH:	MOV	#HIBYT, BYTLOC	; POINTER FOR ERROR MSG.
2452	012174	022737	000001	002232	DATOUT:	CMP	#1, ERPFLG	; CHECKSUM ERROR?
2453	012202	001420				BEQ	E1	; BR IF YES
2454	012204	000424				BR	E2	; ELSE CHECKWORD ERROR
2455	012206	062737	001002	177520	NOERR:	ADD	#1002, PCR	; ADJUST PCR
2456	012214	005337	002162			DEC	COUNTR	; DEC PAGE COUNT
2457	012220	001337				BNE	EXPTST	; LOOP UNTIL ALL PAGES ARE TESTED
2458	012222	005737	002174		MORE:	TST	PASS	; FIRST PASS?
2459	012226	001002				BNE	1\$	; BR IF NO
2460	012230	000137	011646			JMP	EPRIN	; TEST ANY ADDITIONAL MEMORY
2461	012234	000137	011556		1\$:	JMP	P1	; FIND ANY ADDITIONAL MEMORY
2462	012240					EXIT	SUB	; END OF SUBTEST
2463	012240	104032				EMT	C\$EXIT	
2464	012242	000040				. WORD	L10067-	
2465	012244				E1:	ERRDF	35, EXPND, CKSME, CKLOOP	

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SEQ 0056

2466	012244	104562				TRAP	T\$ERCODE	
2467	012246	000043				. WORD	35	
2468	012250	014066				. WORD	EXPND	
2469	012252	013544				. WORD	CKSME	
2470	012254	000762				BR	MORE	
2471	012256				E2:	ERRDF	36, EXPND, CWKDE, CKLOOP	
2472	012256	104562				TRAP	T\$ERCODE	
2473	012260	000044				. WORD	36	
2474	012262	014066				. WORD	EXPND	
2475	012264	013602				. WORD	CWKDE	
2476	012266	000755				BR	MORE	
2477	012270				E3:	ERRDF	37, EXPND, NONXT, CKLOOP	
2478	012270	104562				TRAP	T\$ERCODE	
2479	012272	000045				. WORD	37	
2480	012274	014066				. WORD	EXPND	
2481	012276	013634				. WORD	NONXT	
2482	012300	000750				BR	MORE	
2483	012302					ENDSUB		
2484	012302				L10067:			
2485	012302	104003				EMT	C\$ESUB	
2486								
2487	012304					BGN SUB		
2488	012304	104002				EMT	C\$BSUB	
2489	012306	005037	002232		EPRMT:	CLR	ERRFLG	; CLEAR ERROR FLAG
2490	012312	012737	000010	002212		MOV	#10, WORDCT	; INPUT 8 CHECKWORDS
2491	012320	012702	002254			MOV	#EPROM, R2	; POINTER TO STORAGE TABLE
2492	012324	004737	004166			JSR	PC, INPUT	; INPUT CHECKWORDS
2493	012330					GMANIL	EPADD, ANSR, 1, YES	
2494	012330	104043				EMT	C\$GMAN	
2495	012332	000404				BR	10000\$	
2496	012334	002164				. WORD	ANSR	
2497	012336	000130				. WORD	T\$CODE	
2498	012340	014215				. WORD	EPADD	
2499	012342	000001				. WORD	1	
2500	012344				10000\$:			
2501	012344	005737	002164			TST	ANSR	; STANDARD MEMORY RANGE?
2502	012350	001020				BNE	1\$	; BR IF YES
2503	012352	005237	002164			INC	ANSR	; RESTORE DEFAULT
2504	012356					GMANID	LOADR, STORE, D, -1, 0, 30, NO	
2505	012356	104043				EMT	C\$GMAN	
2506	012360	000406				BR	10001\$	
2507	012362	002210				. WORD	STORE	
2508	012364	000042				. WORD	T\$CODE	
2509	012366	002774				. WORD	LOADR	
2510	012370	177777				. WORD	-1	
2511	012372	000000				. WORD	T\$LOLIM	
2512	012374	000030				. WORD	T\$HILIM	
2513	012376				10001\$:			
2514	012376	004737	004732			JSR	PC, SETADR	; GET FIRST PAGE ADDRESS
2515	012402	013737	002160	013536		MOV	LOPAG, LOD2	; STORE LOW PAGE NO.
2516	012410	000403				BR	LD2	; SKIP NEXT INSTRUCTION
2517	012412	012737	020440	013536	1\$:	MOV	#020440, LOD2	; STANDARD PAGE = 40, 41 4-6K RANGE
2518	012420	013737	013536	177520	LD2:	MOV	LOD2, PCR	; LOAD STARTING ADDRESS
2519	012426	005037	002166			CLR	RFLAG	; INDICATE EPROM
2520	012432	012703	002254			MOV	#EPROM, R3	; POINT TO CHECKWORDS
2521	012436	012737	000010	002162		MOV	#10, COUNT	; PAGE COUNT

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SEQ 0057

2522	012444	012337	002216		EPRTST:	MOV	(R3)+,CKWD	;GET CHECKWORD FOR THIS PAGE
2523	012450	004737	004504			JSR	PC,MENTST	;TEST MEMORY
2524	012454	005737	002156			TST	REAL	;DOES THE MEMORY EXIST?
2525	012460	001453				BEQ	E6	;BR IF NO
2526	012462	005737	002232			TST	ERRFLG	;ANY OTHER ERRORS?
2527	012466	001421				BEQ	NONE	;BR IF NO
2528	012470	004737	004346			JSR	PC,VIRTAD	;GET ADDRESS OF ERROR
2529	012474	005737	002154			TST	BCF	;LOW BYTE PAGE?
2530	012500	001004				BNE	HIADD	;BR IF NO
2531	012502	012737	002667	002230		MOV	#LOBYT,BYTLOC	;SET POINTER FOR ERROR MSG.
2532	012510	000403				BR	PRIOUT	;PRINT ERROR MESSAGE
2533	012512	012737	002731	002230	HIADD:	MOV	#HIBYT,BYTLOC	;POINTER FOR ERROR MSG.
2534	012520	022737	000001	002232	PRIOUT:	CMP	#1,ERRFLG	;CHECKSUM ERROR?
2535	012526	001416				BEQ	E4	;BR IF YES
2536	012530	000422				BR	E5	;ELSE CHECKWORD ERROR
2537	012532	062737	001002	177520	NONE:	ADD	#1002,PCR	;ADJUST PAGE IN PCR
2538	012540	005337	002162			DEC	COUNTR	;DEC PAGE COUNT
2539	012544	001337				BNE	EPRTST	;LOOP UNTIL FINISHED
2540	012546	005737	002174		ADDTL:	TST	PASS	;FIRST PASS?
2541	012552	001002				BNE	15	;BR IF NO
2542	012554	000137	011674			JMP	SYSRIN	;TEST ANY ADDITIONAL MEMORY
2543	012560	000137	011570		15:	JMP	P2	;FIND ANY ADDITIONAL MEMORY
2544	012564				E4:	ERRDF	40,EPRM,CKSME,CKLOOP	
2545	012564	104562				TRAP	T\$ERCODE	
2546	012566	000050				WORD	40	
2547	012570	014116				WORD	EPRM	
2548	012572	013544				WORD	CKSME	
2549	012574	000764				BR	ADDTL	
2550	012576				E5:	ERRDF	41,EPRM,CHKDE,CKLOOP	
2551	012576	104562				TRAP	T\$ERCODE	
2552	012600	000051				WORD	41	
2553	012602	014116				WORD	EPRM	
2554	012604	013602				WORD	CHKDE	
2555	012606	000757				BR	ADDTL	
2556	012610				E6:	ERRDF	42,EPRM,NONXT,CKLOOP	
2557	012610	104562				TRAP	T\$ERCODE	
2558	012612	000052				WORD	42	
2559	012614	014116				WORD	EPRM	
2560	012616	013634				WORD	NONXT	
2561	012620	000752				BR	ADDTL	
2562	012622					ENDSUB		
2563	012622				L10070:			
2564	012622	104003				EMT	C\$ESUB	
2565								
2566	012624					BGNSUB		
2567	012624	104002				EMT	C\$BSUB	
2568	012626	005037	002232		SYSRT:	CLR	ERRFLG	;CLEAR ERROR FLAG
2569	012632					G\$MANID	RWDCT,RESPND,D,-1,10,100,NO	
2570	012632	104043				EMT	C\$G\$MAN	
2571	012634	000406				BR	100005	
2572	012636	002220				WORD	RESPND	
2573	012640	000042				WORD	T\$CODE	
2574	012642	013775				WORD	RWDCT	
2575	012644	177777				WORD	-1	
2576	012646	000010				WORD	T\$LOLIM	
2577	012650	000100				WORD	T\$HILIM	

2578	012652				10000\$:	MOV	RESPND, PGCT	; STORE PAGE COUNT
2579	012652	013737	002220	013532		MOV	RESPND, WORDCT	; COPY WORD COUNT
2580	012660	013737	002220	002212		MOV	#SYSROM, R2	; POINTER TO STORAGE TABLE
2581	012666	012702	002274			JSR	PC, INPUT	; INPUT CHECKWORDS
2582	012672	004737	004166			GMANIL	SRR, ANSR, 1, YES	
2583	012676					EMT	C\$GMAN	
2584	012676	104043				BR	10001\$	
2585	012700	000404				. WORD	ANSR	
2586	012702	002164				. WORD	T\$CODE	
2587	012704	000130				. WORD	SRR	
2588	012706	014234				. WORD	1	
2589	012710	000001						
2590	012712				10001\$:	TST	ANSR	; STANDARD MEMORY RANGE?
2591	012712	005737	002164			BNE	1\$	; BR IF YES
2592	012716	001020				INC	ANSR	; RESTORE DEFAULT VALUE
2593	012720	005237	002164			GMANID	LOADR, STORE, D, -1, 0, 30, NO	
2594	012724					EMT	C\$GMAN	
2595	012724	104043				BR	10002\$	
2596	012726	000406				. WORD	STORE	
2597	012730	002210				. WORD	T\$CODE	
2598	012732	000042				. WORD	LOADR	
2599	012734	002774				. WORD	-1	
2600	012736	177777				. WORD	T\$LOLIM	
2601	012740	000000				. WORD	T\$HILIM	
2602	012742	000030						
2603	012744				10002\$:	JSR	PC, SETADR	; GET FIRST PAGE ADDRESS
2604	012744	004737	004732			MOV	LOPAG, LOD3	; STORE LOW PAGE NO.
2605	012750	013737	002160	013540		BR	LD3	; SKIP NEXT INSTRUCTION
2606	012756	000403				MOV	#100600, LOD3	; STANDARD PAGE = 200, 201 16-32K RANGE
2607	012760	012737	100600	013540	1\$:	MOV	LOD3, PCR	; LOAD STARTING ADDRESS
2608	012766	013737	013540	177520	LD3:	MOV	#1, RFLAG	; INDICATE ROM
2609	012774	012737	000001	002166		MOV	#SYSROM, R3	; POINT TO CHECKWORDS
2610	013002	012703	002274			MOV	PGCT, COUNTR	; PAGE COUNT
2611	013006	013737	013532	002162		MOV	(R3)+, CKWD	; GET CHECKWORD FOR THIS PAGE
2612	013014	012337	002216		SYRTST:	JSR	PC, MEMTST	; TEST MEMORY
2613	013020	004737	004504			TST	REAL	; DOES THE MEMORY EXIST?
2614	013024	005737	002156			BEQ	E11	; BR IF NO
2615	013030	001446				TST	ERRFLG	; ANY OTHER ERRORS?
2616	013032	005737	002232			BEQ	PASSED	; BR IF NO
2617	013036	001421				JSR	PC, VIRTAD	; GET ADDRESS OF ERROR
2618	013040	004737	004346			TST	BCF	; LOW BYTE PAGE?
2619	013044	005737	002154			BNE	HIGHB	; BR IF NO
2620	013050	001004				MOV	#LOBYT, BYTLOC	; SET POINTER FOR ERROR MSG.
2621	013052	012737	002667	002230		BR	MSGOUT	; PRINT ERROR MESSAGE
2622	013060	000403				MOV	#HIBYT, BYTLOC	; POINTER FOR ERROR MSG.
2623	013062	012737	002731	002230	HIGHB:	CMP	#1, ERRFLG	; CHECKSUM ERROR?
2624	013070	022737	000001	002232	MSGOUT:	BEQ	E7	; BR IF YES
2625	013076	001411				BR	E10	; ELSE CHECKWORD ERROR
2626	013100	000415				ADD	#1002, PCR	; ADJUST PAGE IN PCR
2627	013102	062737	001002	177520	PASSED:	DEC	COUNTR	; DEC PAGE COUNT
2628	013110	005337	002162			BNE	SYRTST	; LOOP UNTIL FINISHED
2629	013114	001337				EXIT	TST	; TEST IS FINISHED
2630	013116				NEXT:	EMT	C\$EXIT	
2631	013116	104032				. WORD	L10065-	
2632	013120	001176				ERRDF	43, SYSR, CKSME, CKLOOP	
2633	013122				E7:			

2634	013122	104562			TRAP	T\$ERCODE	
2635	013124	000053			.WORD	43	
2636	013126	014137			.WORD	SYSR	
2637	013130	013544			.WORD	CKSME	
2638	013132	000771			BR	NEXT	
2639	013134			E10:	ERRDF	44, SYSR, CWKDE, CKLOOP	
2640	013134	104562			TRAP	T\$ERCODE	
2641	013136	000054			.WORD	44	
2642	013140	014137			.WORD	SYSR	
2643	013142	013602			.WORD	CWKDE	
2644	013144	000764			BR	NEXT	
2645	013146			E11:	ERRDF	45, SYSR, NONXT, CKLOOP	
2646	013146	104562			TRAP	T\$ERCODE	
2647	013150	000055			.WORD	45	
2648	013152	014137			.WORD	SYSR	
2649	013154	013634			.WORD	NONXT	
2650	013156	000757			BR	NEXT	
2651	013160				ENDSUB		
2652	013160			L10071:			
2653	013160	104003			EMT	C\$ESUB	
2654							
2655	013162				BGNSUB		
2656	013162	104002			EMT	C\$BSUB	
2657	013164	005037	002232	SYSET:	CLR	ERRFLG	: CLEAR ERROR FLAG
2658	013170				G\$MANID	RWDCT, RESPND, D, -1, 10, 40, NO	
2659	013170	104043			EMT	C\$G\$MAN	
2660	013172	000406			BR	10000\$	
2661	013174	002220			.WORD	RESPND	
2662	013176	000042			.WORD	T\$CODE	
2663	013200	013775			.WORD	RWDCT	
2664	013202	177777			.WORD	-1	
2665	013204	000010			.WORD	T\$LOLIM	
2666	013206	000040			.WORD	T\$HILIM	
2667	013210			10000\$:			
2668	013210	013737	002220	013532	MOV	RESPND, PGCT	: STORE PAGE COUNT
2669	013216	013737	002220	002212	MOV	RESPND, WORDCT	: COPY WORD COUNT
2670	013224	012702	002274		MOV	#SYSROM, R2	: POINTER TO STORAGE TABLE
2671	013230	004737	004166		JSR	PC, INPUT	: INPUT CHECKWORDS
2672	013234				G\$MANIL	SYEE, ANSR, 1, YES	
2673	013234	104043			EMT	C\$G\$MAN	
2674	013236	000404			BR	10001\$	
2675	013240	002164			.WORD	ANSR	
2676	013242	000130			.WORD	T\$CODE	
2677	013244	014264			.WORD	SYEE	
2678	013246	000001			.WORD	1	
2679	013250			10001\$:			
2680	013250	005737	002164		TST	ANSR	: STANDARD MEMORY RANGE?
2681	013254	001020			BNE	1\$	: BR IF YES
2682	013256	005237	002164		INC	ANSR	: RESTORE DEFAULT VALUE
2683	013262				G\$MANID	LOADR, STORE, D, -1, 0, 30, NO	
2684	013262	104043			EMT	C\$G\$MAN	
2685	013264	000406			BR	10002\$	
2686	013266	002210			.WORD	STORE	
2687	013270	000342			.WORD	T\$CODE	
2688	013272	002774			.WORD	LOADR	
2689	013274	177777			.WORD	-1	

HARDWARE TESTS MACY11 30(1046) 16-NOV-77 16:04 PAGE 62
 DVM8AA.P11 07-NOV-77 10:41 TEST 7: TEST ALL ADDITIONAL MEMORY

SEQ 0060

2690	013276	000000				WORD	T\$LOLIM	
2691	013300	000030				WORD	T\$HILIM	
2692	013302				100025:			
2693	013302	004737	004732			JSR	PC, SETADR	; GET FIRST PAGE ADDRESS
2694	013306	013737	002160	013542		MOV	LOPAG, LOD4	; STORE LOW PAGE NO.
2695	013314	000403				BR	LD4	; SKIP NEXT INSTRUCTION
2696	013316	012737	100600	013542	15:	MOV	#100600, LOD4	; STANDARD PAGE = 200, 201 16-24K RANGE
2697	013324	013737	013542	177520	LD4:	MOV	LOD4, PCR	; LOAD STARTING ADDRESS
2698	013332	005037	002166			CLR	RFLAG	; INDICATE EPROM
2699	013336	012703	002274			MOV	#SYSROM, R3	; POINT TO CHECKWORDS
2700	013342	013737	013532	002162		MOV	PGCT, COUNTR	; PAGE COUNT
2701	013350	012337	002216		SYETST:	MOV	(R3)+, CKWD	; GET CHECKWORD FOR THIS PAGE
2702	013354	004737	004504			JSR	PC, MEMTST	; TEST MEMORY
2703	013360	005737	002156			TST	REAL	; DOES THIS MEMORY EXIST?
2704	013364	001450				BEQ	E14	; BR IF NO
2705	013366	005737	002232			TST	ERRFLG	; ANY ERRORS?
2706	013372	001421				BEQ	CONT	; BR IF NO
2707	013374	004737	004346			JSR	PC, VIRTAD	; GET ADDRESS OF ERROR
2708	013400	005737	002154			TST	BCF	; LOW BYTE PAGE?
2709	013404	001004				BNE	HBYTE	; BR IF NO
2710	013406	012737	002667	002230		MOV	#LOBYT, BYTLOC	; SET POINTER FOR ERROR MSG.
2711	013414	000403				BR	PRIN	; PRINT ERROR MESSAGE
2712	013416	012737	002731	002230	HBYTE:	MOV	#HIBYT, BYTLOC	; POINTER FOR ERROR MSG.
2713	013424	022737	000001	002232	PRIN:	CMP	#1, ERRFLG	; CHECKSUM ERROR?
2714	013432	001411				BEQ	E12	; BR IF YES
2715	013434	000416				BR	E13	; ELSE CHECKWORD ERROR
2716	013436	062737	001002	177520	CONT:	ADD	#1002, PCR	; ADJUST PAGE IN PCR
2717	013444	005337	002162			DEC	COUNTR	; DEC PAGE COUNT
2718	013450	001337				BNE	SYETST	; LOOP UNTIL FINISHED
2719	013452					EXIT	TST	; TEST IS FINISHED
2720	013452	104032				EMT	C\$EXIT	
2721	013454	000642				WORD	L10065-	
2722	013456				E12:	ERRDF	46, SYSE, CKSME, CKLOOP	
2723	013456	104562				TRAP	T\$ERCODE	
2724	013460	000056				WORD	46	
2725	013462	014152				WORD	SYSE	
2726	013464	013544				WORD	CKSME	
2727	013466					EXIT	TST	
2728	013466	104032				EMT	C\$EXIT	
2729	013470	000626				WORD	L10065-	
2730	013472				E13:	ERRDF	47, SYSE, CWKDE, CKLOOP	
2731	013472	104562				TRAP	T\$ERCODE	
2732	013474	000057				WORD	47	
2733	013476	014152				WORD	SYSE	
2734	013500	013602				WORD	CWKDE	
2735	013502					EXIT	TST	
2736	013502	104032				EMT	C\$EXIT	
2737	013504	000612				WORD	L10065-	
2738	013506				E14:	ERRDF	50, SYSE, NONXT, CKLOOP	
2739	013506	104562				TRAP	T\$ERCODE	
2740	013510	000062				WORD	50	
2741	013512	014152				WORD	SYSE	
2742	013514	013634				WORD	NONXT	
2743	013516					EXIT	TST	
2744	013516	104032				EMT	C\$EXIT	
2745	013520	000576				WORD	L10065-	

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SEQ 0061

2746	013522			ENDSUB
2747	013522			L10072:
2748	013522	104003		EMT C\$ESUB
2749				
2750	013524			EXIT TST
2751	013524	104032		EMT C\$EXIT
2752	013526	000570		.WORD L10065-
2753				
2754	013530	000000		ADDON: .WORD 0
2755	013532	000000		PGCT: .WORD 0
2756	013534	000000		LOD1: .WORD 0
2757	013536	000000		LOD2: .WORD 0
2758	013540	000000		LOD3: .WORD 0
2759	013542	000000		LOD4: .WORD 0
2760				
2761				
2762	013544			BGNMSG CKSME
2763	013544			CKSME: :
2764	013544			PRINTB #ERM6, BYTLOC
2765	013544	013746	002230	MOV BYTLOC, -(SP)
2766	013550	012746	013716	MOV #ERM6, -(SP)
2767	013554	012746	000002	MOV #2, -(SP)
2768	013560	010600		MOV SP, RO
2769	013562	104014		EMT C\$PNTB
2770	013564	062706	000006	ADD #6, SP
2771	013570	004737	004346	JSR PC, VIRTAD
2772	013574	004737	004072	JSR PC, VIPRI
2773	013600			ENDMSG
2774	013600			L10073:
2775	013600	104023		EMT C\$MSG
2776				
2777	013602			BGNMSG CWKDE
2778	013602			CWKDE: :
2779	013602			PRINTB #ERM5
2780	013602	012746	013666	MOV #ERM5, -(SP)
2781	013606	012746	000001	MOV #1, -(SP)
2782	013612	010600		MOV SP, RO
2783	013614	104014		EMT C\$PNTB
2784	013616	062706	000004	ADD #4, SP
2785	013622	004737	004346	JSR PC, VIRTAD
2786	013626	004737	004072	JSR PC, VIPRI
2787	013632			ENDMSG
2788	013632			L10074:
2789	013632	104023		EMT C\$MSG
2790				
2791	013634			BGNMSG NONXT
2792	013634			NONXT: :
2793	013634			PRINTB #LOST
2794	013634	012746	013745	MOV #LOST, -(SP)
2795	013640	012746	000001	MOV #1, -(SP)
2796	013644	010600		MOV SP, RO
2797	013646	104014		EMT C\$PNTB
2798	013650	062706	000004	ADD #4, SP
2799	013654	004737	004346	JSR PC, VIRTAD
2800	013660	004737	004072	JSR PC, VIPRI
2801	013664			ENDMSG

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SEQ 0062

2802	013664				L10075:	
2803	013664	104023			EMT	C\$MSG
2804						
2805	013666	040445	047111	047503	ERM5:	ASCIZ /%AINCORRECT CHECKWORD%N/
2806	013674	051122	041505	020124		
2807	013702	044103	041505	053513		
2808	013710	051117	022504	000116		
2809						
2810	013716	040445	044103	041505	ERM6:	ASCIZ /%ACHECKSUM ERROR%N%T%N/
2811	013724	051513	046525	042440		
2812	013732	051122	051117	047045		
2813	013740	052045	047045	000		
2814						
2815	013745	045	047101	047117	LOST:	ASCIZ /%ANON-EXISTENT MEMORY%N/
2816	013752	042455	044530	052123		
2817	013760	047105	020124	042515		
2818	013766	047515	054522	047045		
2819	013774	000				
2820						
2821	013775	110	053517	046440	RWDCT:	ASCIZ /HOW MANY CHECKWORDS WILL BE INPUT/
2822	014002	047101	020131	044103		
2823	014010	041505	053513	051117		
2824	014016	051504	053440	046111		
2825	014024	020114	042502	044440		
2826	014032	050116	052125	000		
2827						
2828	014037	101	054516	040440	EXEC:	ASCIZ /ANY ADDITIONAL MEMORY /
2829	014044	042104	052111	047511		
2830	014052	040516	020114	042515		
2831	014060	047515	054522	000040		
2832						
2833	014066	054105	040520	042116	EXPND:	ASCIZ /EXPANDED DIAGNOSTIC ROM/
2834	014074	042105	042040	040511		
2835	014102	047107	051517	044524		
2836	014110	020103	047522	000115		
2837						
2838	014116	050105	047522	020115	EPRM:	ASCIZ /EPROM IN SOCKETS/
2839	014124	047111	051440	041517		
2840	014132	042513	051524	000		
2841						
2842	014137	123	051531	042524	SYSR:	ASCIZ /SYSTEM ROM/
2843	014144	020115	047522	000115		
2844						
2845	014152	054523	052123	046505	SYSE:	ASCIZ /SYSTEM EPROM/
2846	014160	042440	051120	046517		
2847	014166	000				
2848						
2849	014167	105	050130	047101	EXADD:	ASCIZ /EXPANDED ROM IN 2-4K /
2850	014174	042504	020104	047522		
2851	014202	020115	047111	031040		
2852	014210	032055	020113	000		
2853						
2854	014215	105	051120	046517	EPADD:	ASCIZ /EPROM IN 4-6K /
2855	014222	044440	020116	026464		
2856	014230	045466	000040			
2857						

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SEQ 0063

2858	014234	054523	052123	046505	SRR:	.ASCIZ	/SYSTEM ROM START AT 16K/
2859	014242	051040	046517	051440			
2860	014250	040524	052122	040440			
2861	014256	020124	033061	000113			
2862							
2863	014264	054523	052123	046505	SYEE:	.ASCIZ	/SYSTEM EPROM START AT 16K/
2864	014272	042440	051120	046517			
2865	014300	051440	040524	052122			
2866	014306	040440	020124	033061			
2867	014314	000113					
2868							
2869							
2870							
2871	014316					.EVEN	
2872	014316					ENDTST	
2873	014316	104001			L10065:	EMT	CSETST
2874							
2875							
2876							
2877							
2878							
2879							
2880							
2881							
2882							

PARAMETER CODING MACY11 30(1046) 16-NOV-77 16:04 PAGE 66
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SEQ 0064

2883
2884
2885
2886

TITLE PARAMETER CODING
SBTTL IDENTIFICATION

PARAMETER CODING
DUM8AA.P11

MACY11 30(1046)
07-NOV-77 10:41

N 5
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HARDWARE PARAMETER CODING SECTION

SEQ 0065

.SBTTL HARDWARE PARAMETER CODING SECTION

;++
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; THAT ARE USED BY THE SUPERVISOR TO BUILD P-TABLES. THE
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; WITH THE OPERATOR.
;--

BGNHRD
.WORD L10076-LSHARD/2

LSHARD: :

GPRMD UNIT, 0, 0, 160000, 0, 16, YES
.WORD TSCODE
.WORD UNIT
.WORD 160000
.WORD TSLOLIM
.WORD TSHILIM
GPRMD INTVEC, 2, 0, -1, 66, 100, YES
.WORD TSCODE
.WORD INTVEC
.WORD -1
.WORD TSLOLIM
.WORD TSHILIM
GPRMD PRI, 4, 0, -1, 0, 7, YES
.WORD TSCODE
.WORD PRI
.WORD -1
.WORD TSLOLIM
.WORD TSHILIM
GPRMD RKSW, 6, 0, -1, 0, 7777, YES
.WORD TSCODE
.WORD RKSW
.WORD -1
.WORD TSLOLIM
.WORD TSHILIM

EXIT HRD

.WORD TSCODE

UNIT: .ASCIZ /UNIT NUMBER/

INTVEC: .ASCIZ /INTERRUPT VECTOR ADDRESS/

PRI: .ASCIZ /INTERRUPT LEVEL/

RKSW: .ASCIZ /ROCKER SWITCH SETTINGS/

2887
2888
2889
2890
2891
2892
2893
2894
2895
2896
2897
2898
2899 014320
2900 014320 000073
2901 014322
2902
2903 014322
2904 014322 000032
2905 014324 014374
2906 014326 160000
2907 014330 000000
2908 014332 000016
2909 014334
2910 014334 001032
2911 014336 014410
2912 014340 177777
2913 014342 000066
2914 014344 000100
2915 014346
2916 014346 002032
2917 014350 014441
2918 014352 177777
2919 014354 000000
2920 014356 000007
2921 014360
2922 014360 003032
2923 014362 014461
2924 014364 177777
2925 014366 000000
2926 014370 007777
2927
2928 014372
2929 014372 047004
2930
2931 014374 047125 052111 047040
2932 014402 046525 042502 000122
2933 014410 047111 042524 051122
2934 014416 050125 020124 042526
2935 014424 052103 051117 040440
2936 014432 042104 042522 051523
2937 014440 000
2938 014441 111 052116 051105
2939 014446 052522 052120 046040
2940 014454 053105 046105 000
2941 014461 122 041517 042513
2942 014466 020122 053523 052111

2943 014474 044103 051440 052105
2944 014502 044524 043516 000123
2945
2946
2947 014510
2948
2949 014510

. EVEN

ENDHRD
. EVEN

L10076:

2950
2951
2952
2953
2954
2955
2956
2957
2958
2959
2960
2961 014510
2962 014510 000161
2963 014512
2964 014512
2965 014512 000032
2966 014514 014634
2967 014516 177777
2968 014520 000000
2969 014522 177777
2970 014524
2971 014524 001032
2972 014526 014711
2973 014530 177777
2974 014532 000000
2975 014534 177777
2976 014536
2977 014536 002032
2978 014540 014727
2979 014542 177777
2980 014544 000000
2981 014546 177777
2982 014550
2983 014550 003032
2984 014552 014745
2985 014554 177777
2986 014556 000000
2987 014560 177777
2988 014562
2989 014562 004032
2990 014564 014763
2991 014566 177777
2992 014570 000000
2993 014572 177777
2994 014574
2995 014574 005032
2996 014576 015001
2997 014600 177777
2998 014602 000000
2999 014604 177777
3000 014606
3001 014606 006032
3002 014610 015017
3003 014612 177777
3004 014614 000000
3005 014616 177777

.SBTTL SOFTWARE PARAMETER CODING SECTION

; ++

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; --

BGNSFT
WORD L10077-L\$SOFT/2
L\$SOFT: :
GPRMD CKW1, 0, 0, -1, 0, 177777, YES
WORD T\$CODE
WORD CKW1
WORD -1
WORD T\$LOLIM
WORD T\$HILIM
GPRMD CKW2, 2, 0, -1, 0, 177777, YES
WORD T\$CODE
WORD CKW2
WORD -1
WORD T\$LOLIM
WORD T\$HILIM
GPRMD CKW3, 4, 0, -1, 0, 177777, YES
WORD T\$CODE
WORD CKW3
WORD -1
WORD T\$LOLIM
WORD T\$HILIM
GPRMD CKW4, 6, 0, -1, 0, 177777, YES
WORD T\$CODE
WORD CKW4
WORD -1
WORD T\$LOLIM
WORD T\$HILIM
GPRMD CKW5, 10, 0, -1, 0, 177777, YES
WORD T\$CODE
WORD CKW5
WORD -1
WORD T\$LOLIM
WORD T\$HILIM
GPRMD CKW6, 12, 0, -1, 0, 177777, YES
WORD T\$CODE
WORD CKW6
WORD -1
WORD T\$LOLIM
WORD T\$HILIM
GPRMD CKW7, 14, 0, -1, 0, 177777, YES
WORD T\$CODE
WORD CKW7
WORD -1
WORD T\$LOLIM
WORD T\$HILIM

3006	014620				GPRMD	CKW8, 16, 0, -1, 0, 177777, YES
3007	014620	007032			.WORD	T\$CODE
3008	014622	015035			.WORD	CKW8
3009	014624	177777			.WORD	-1
3010	014626	000000			.WORD	T\$LOLIM
3011	014630	177777			.WORD	T\$HILIM
3012						
3013	014632				EXIT SFT	
3014	014632	111004			.WORD	T\$CODE
3015						
3016	014634	044103	041505	053513	CKW1:	.ASCIZ /CHECKWORDS FOR DIAGNOSTIC ROM. CHECKWORD 1: /
3017	014642	051117	051504	043040		
3018	014650	051117	042040	040511		
3019	014656	047107	051517	044524		
3020	014664	020103	047522	027115		
3021	014672	041440	042510	045503		
3022	014700	047527	042122	030440		
3023	014706	020072	000			
3024	014711	103	042510	045503	CKW2:	.ASCIZ /CHECKWORD 2: /
3025	014716	047527	042122	031040		
3026	014724	020072	000			
3027	014727	103	042510	045503	CKW3:	.ASCIZ /CHECKWORD 3: /
3028	014734	047527	042122	031440		
3029	014742	020072	000			
3030	014745	103	042510	045503	CKW4:	.ASCIZ /CHECKWORD 4: /
3031	014752	047527	042122	032040		
3032	014760	020072	000			
3033	014763	103	042510	045503	CKW5:	.ASCIZ /CHECKWORD 5: /
3034	014770	047527	042122	032440		
3035	014776	020072	000			
3036	015001	103	042510	045503	CKW6:	.ASCIZ /CHECKWORD 6: /
3037	015006	047527	042122	033040		
3038	015014	020072	000			
3039	015017	103	042510	045503	CKW7:	.ASCIZ /CHECKWORD 7: /
3040	015024	047527	042122	033440		
3041	015032	020072	000			
3042	015035	103	042510	045503	CKW8:	.ASCIZ /CHECKWORD 8: /
3043	015042	047527	042122	034040		
3044	015050	020072	000			
3045		015054				.EVEN
3046						
3047						
3048	015054				ENDSFT	
3049					.EVEN	
3050	015054				L10077:	
3051						
3052	015054				LASTAD	
3053					.EVEN	
3054	015054				LSLAST:	

PDP-11 DIAGNOSTIC SUPERVISOR
DOCTOR P11 07-OCT-77 13:48

MACY11 30(1046) 16-NOV-77 16:04 PAGE 72
SOFTWARE PARAMETER CODING SECTION

SEQ 0069

3055
3056 045754
071776
071776 000000
072000
000200

. TITLE PDP-11 DIAGNOSTIC SUPERVISOR
END. SUPV= +2
=71776
. WORD 0
X1X1=
. END 200

ABOFLA	015326	G	3056#*
ABOPAS	015240	G	3056#*
ABO.FM	020202		3056#
ACTSUM	002172		623# 960* 964* 1069 1086 2104 2134
ADDON	013530		1228* 2330* 2347 2352 2754#
ADDTL	012546		2540# 2549 2555 2561
ALLOC	035772		3056#
ANSR	002164		620# 1229* 2414 2419 2421* 2496 2501 2503* 2586 2591 2593* 2675 2680
			2682*
ASAAW	022112		3056#
ASAAW	022126		3056#
ASAAW	022134		3056#
ASAAZ	022150		3056#
ASABA	022160		3056#
BCF	002154		616# 959 962 1063* 1076* 2090* 2120* 2447 2529 2619 2708
BDDAT	003144		745# 852
BEVENT	007124	G	1787#
BEVREG=	177546		1719# 1735* 1760*
BGN.SU=	015054		3056#
BINMSG	034302		3056#
BIT0 =	000001	G	563# 1939 1961 1975
BIT00 =	000001	G	552# 563
BIT01 =	000002	G	551# 562
BIT02 =	000004	G	550# 561
BIT03 =	000010	G	549# 560
BIT04 =	000020	G	548# 559
BIT05 =	000040	G	547# 558
BIT06 =	000100	G	546# 557 1735 1760
BIT07 =	000200	G	545# 556
BIT08 =	000400	G	544# 555
BIT09 =	001000	G	543# 554
BIT1 =	000002	G	562#
BIT10 =	002000	G	542#
BIT11 =	004000	G	541#
BIT12 =	010000	G	540#
BIT13 =	020000	G	539#
BIT14 =	040000	G	538#
BIT15 =	100000	G	537# 1428 1453 1657 1682 1941
BIT2 =	000004	G	561#
BIT3 =	000010	G	560#
BIT4 =	000020	G	559#
BIT5 =	000040	G	558#
BIT6 =	000100	G	557#
BIT7 =	000200	G	556#
BIT8 =	000400	G	555#
BIT9 =	001000	G	554#
BLD.HW	022772		3056#
BLOCK	040126		3056#
BVERR1	007134	G	1750 1796#
BVERR2	007202	G	1775 1815#
BYTINS	003207		752# 872
BYTLOC	002230		638# 2449# 2451# 2531# 2533# 2621# 2623# 2710# 2712# 2765
BSAAB	024374		3056#
BSAAF	024306		3056#
CALLPC=	000022		3056#*
CALLPS=	000024		3056#*

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DOCTOR. P11 07-OCT-77 13:48 CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0071

CALLSP=	000026	3056#*																		
CALLTC=	000030	3056#*																		
CAL. CL	042510	3056#*																		
CAL. TI	042546	G	3056#																	
CHKLUP	024410		3056#																	
CHKSTR	036334		3056#																	
CHKSUM	004122		958#	1067	1084	2102	2132													
CHKTTY	034422		3056#																	
CHK. FO	016620		3056#																	
CHK. MA	022550		3056#																	
CHK. PC	027636		3056#*																	
CHK. SW	016342		3056#																	
CHRCNT	035654		3056#*																	
CH. FLA	022252		3056#																	
CH. PAS	022274		3056#																	
CKERR	002624		684#	2193	2219															
CKSME	013544	G	2469	2548	2637	2726	2763#													
CKWD	002216		633#	1096	1099	2440*	2522*	2612*	2701*											
CKW1	014634		2966	3016#																
CKW2	014711		2972	3024#																
CKW3	014727		2978	3027#																
CKW4	014745		2984	3030#																
CKW5	014763		2990	3033#																
CKW6	015001		2996	3036#																
CKW7	015017		3002	3039#																
CKW8	015035		3008	3042#																
CLEAR.	023672		3056#																	
CLKACC	015236	G	3056#*																	
CLKBFR	042512		3056#*																	
CLKCNT	015234	G	3056#*																	
CLKRES	044110	G	3056#																	
CLKSER	044410	G	3056#																	
CLKSON	015300	G	3056#*																	
CLK. SE	022352		3056#																	
CLR. MA	022626		3056#																	
CNVT	040566		3056#																	
COMMTA	040406		3056#																	
CONT	013436		2706	2716#																
CONTCL	044170	G	3056#																	
COUNTR	002162		619#	2087*	2165*	2439*	2456*	2521*	2538*	2611*	2628*	2700*	2717*							
CRLF	034504		3056#																	
CURR. T	015254	G	3056#*																	
CWDERR	002643		688#																	
CHKDE	013602	G	2475	2554	2643	2734	2778#													
CSAAD	027610		3056#																	
CSAAE	027622		3056#																	
CSAAK	030440		3056#																	
CSAAL	030550		3056#																	
CSABRT=	000021		359#																	
CSADR =	000020		359#	1267	1288	1309	1330	1349	1370	1391	1412	1437	1464	1495	1516					
			1538	1559	1580	1600	1620	1641	1666	1693	2466	2472	2478	2545	2551					
			2557	2634	2640	2646	2723	2731	2739											
CSAU =	000054		359#																	
CSBRK =	000022		359#																	
CSBSEG=	000004		359#																	
CSBSUB=	000002		359#	1261	1281	1302	1323	1344	1363	1384	1405	1426	1451	1489	1509					

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CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0073

CSQ10 = 000377	359#					
CSRDBU= 000007	359#					
CSREFG= 000050	359#					
CSREQT= 000045	359#					
CSRESE= 000033	359#					
CSREVI= 000001	359#	394				
CSRPT = 000025	359#	1164				
CSSEFG= 000047	359#					
CSSPRI= 000041	359#	1185	1738	1744	1763	1769
CSSVEC= 000037	359#	1733				
CSTPRI= 000013	359#					
CSUNBU= 000031	359#					
CSWTM = 000026	359#	1871	1875	1889	1893	1897 1901
CSWTU = 000027	359#	1741	1766			
DADDR 011473	2067	2290#				
DATOUT 012174	2450	2452#				
DECMG 034316	3056#					
DERR1 010750 G	2096	2178#				
DERR2 010776 G	2110	2191#				
DERR3 011024 G	2126	2204#				
DERR4 011052 G	2140	2217#				
DERR5 011100 G	2154	2230#				
DEV DAT 002502 G	655#					
DFLTST 011750	2329	2342	2353	2395	2397#	
DFPTBL 002122 G	481#					
DIAGER 003376	776#	916				
DIAG. T 015334 G	3056#*					
DIAIN 011624	2354#					
DLOOP 010514	2090#	2166				
DPDVD 045120 G	3056#					
DPMUL 045006 G	3056#					
DRLP 010746	2072#	2085*	2086	2175#		
DRTST 010474	2087#					
DSPCOD 002100 G	457#					
DUNIT. 015244 G	3056#*					
DVC. FT 030410	3056#					
DSARG 031260	3056#					
DSAAH 031276	3056#					
DSAAI 034050	3056#					
DSAAJ 034054	3056#					
DSAAK 034072	3056#					
DSAAAL 034110	3056#					
DSAAAM 034120	3056#					
EF. CON= 000036 G	571#					
EF. NEW= 000035 G	572#					
EF. PWR= 000034 G	573#					
EF. RES= 000037 G	570#					
EF. STA= 000040 G	569#					
EF01 = 000001 G	590#					
EF02 = 000002 G	589#					
EF03 = 000003 G	588#					
EF04 = 000004 G	587#					
EF05 = 000005 G	586#					
EF06 = 000006 G	585#					
EF07 = 000007 G	584#					
EF08 = 000010 G	583#					

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CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0075

FORM. T 030722
 FREE 036230
 FSAU = 000015
 FSBGN = 000040

3056#*

3056#

359#

359#

890

1293

1380

1478

1569

1655

1783

2042

2178

2488

2778

359#

359#

359#

900

1281

1354

1422

1489

1564

1630

1705

1813

2042

2160

2325

2652

2872

359#

359#

359#

359#

1500

1903

2751

359#

359#

914

2213

359#

359#

359#

359#

359#

359#

1384

1548

1680

2168

359#

359#

2323

369

902

1298

1384

1487

1573

1671

1787

2053

2191

2563

2792

1222

369

912

1293

1359

1424

1500

1569

1632

1706

1832

2044

2163

2398

2654

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2900

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359#

1521

1934

2929

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359#

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2217

359#

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1401

1552

1703

2325

359#

359#

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914

1302

1396

1489

1585

1676

1796

2055

2204

2567

2872

1243

448

924

1298

1361

1426

1505

1571

1634

1708

1858

2053

2168

2401

2656

2874

2929

2929

359#

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1543

1996

3014

359#

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359#

359#

359#

359#

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1569

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1500

1590

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1815

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1573

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2403

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1272

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2230

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359#

359#

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2406

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2652

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1198

1302

1375

1447

1509

1585

1651

1724

1867

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2406

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2128

3014

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1653

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2463

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3051

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1302

1593

1780

2488

359#

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1521

1610

1706

1883

2128

2323

2720

3014

1243

607

1237

1319

1382

1451

1526

1592

1655

1727

1883

2116

2202

2484

2656

2874

2929

3051

359#

359#

359#

359#

1335

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SEQ 0080

L10053	011514	2099	2129	2173	2296#				
L10054	010602	2114#							
L10055	010676	2144#							
L10056	010720	2158#							
L10057	010740	2168#							
L10060	010774	2187#							
L10061	011022	2200#							
L10062	011050	2213#							
L10063	011076	2226#							
L10064	011124	2239#							
L10065	014316	2399	2632	2721	2729	2737	2745	2752	2872#
L10066	011754	2401#							
L10067	012302	2464	2484#						
L10070	012622	2563#							
L10071	013160	2652#							
L10072	013522	2747#							
L10073	013600	2774#							
L10074	013632	2788#							
L10075	013664	2802#							
L10076	014510	2900	2929	2949#					
L10077	015054	2962	3014	3050#					
MAJ. IN	015060 G	3056#*							
MAJ. LO	042514	3056#*							
MAJ. US	015062 G	3056#*							
MAN. TI	017362	3056#							
MAP16	045356 G	3056#							
MASK. B	024406	3056#							
MASK. W	024404	3056#							
MDHEDR	002000 G	369#							
MEMTST	004504	1062#	2441	2523	2613	2702			
MEM. SI	021702	3056#							
MESSG1	010217	1965	2022#						
MESSG2	010232	1979	2024#						
MIN. IN	015054 G	3056#*							
MIN. US	015056 G	3056#*							
MISTAK	011375	2232	2276#						
MODR	044720 G	3056#							
MORE	012222	2458#	2470	2476	2482				
MSGOUT	013070	2622	2624#						
MSG1	007250	1798	1833#						
MSG2	007373	1817	1848#						
MUL	044654 G	3056#							
NEWLIN	010245	1989	2026#						
NEWPRI	044400 G	3056#							
NEXT	013116	2630#	2638	2644	2650				
NEXTAR	040510	3056#							
NODR	011447	2180	2206	2285#					
NOERR	012206	2445	2455#						
NONE	012532	2527	2537#						
NONXT	013634 G	2481	2560	2649	2742	2792#			
NO. CLK	017412	3056#							
NO. FLA	040304	3056#							
NO. LPT	035622	3056#							
NO. PTA	022102	3056#							
NR =	000001	649#							
NUMBIN	030746	3056#							

[illegible]

SUNIT. 022256
SUPERV 020234
SUPFLA 015242 G
SUPV. T 015420 G
SUP. PR 016266
SVC CNT= 177777

3056#
3056#
3056#*
3056#*
3056#

359#	370	448	458	469	479	490	500	517	533	607	616	644
810	826	830	846	850	866	870	886	890	898	902	910	914
922	994	1161	1163	1175	1212	1222	1243	1259	1261	1277	1281	1298
1302	1319	1323	1340	1344	1359	1363	1380	1384	1401	1405	1422	1426
1447	1451	1474	1478	1487	1489	1505	1509	1526	1531	1548	1552	1569
1573	1590	1593	1610	1613	1630	1634	1651	1655	1676	1680	1703	1706
1718	1727	1755	1759	1780	1787	1790	1796	1811	1815	1830	1858	1867
1907	1920	2004	2014	2042	2053	2055	2070	2084	2114	2119	2144	2148
2158	2163	2168	2178	2187	2191	2200	2204	2213	2217	2226	2230	2239
2296	2323	2325	2352	2362	2372	2383	2394	2401	2406	2419	2432	2484
2488	2501	2514	2563	2567	2579	2591	2604	2652	2656	2668	2680	2693
2747	2763	2774	2778	2788	2792	2802	2872	2900	2948	2962	3049	
359#	360#	369	370	380	381	389	390	391	392	393	394	396
397	398	399	400	401	402	403	404	405	407	408	409	410
411	412	413	414	415	416	417	418	419	420	421	422	423
424	425	426	427	428	429	430	431	432	433	434	435	436
437	438	439	440	441	442	443	444	445	446	457	458	460
461	480	481	482	501	502	503	532	533	615	616	650	651
652	654	655	656	720	721	810	811	830	831	850	851	870
871	890	891	902	903	914	915	1161	1162	1175	1176	1222	1223
1787	1788	1796	1797	1815	1816	2004	2005	2178	2179	2191	2192	2204
2205	2217	2218	2230	2231	2763	2764	2778	2779	2792	2793	2901	2902
2963	2964	3054#	3055									

SVCGBL= 000000

SUCHAN 024566
SVC INS= 000000

3056#

359#	381	382	383	384	385	386	387	388	389	390	391	392
393	394	395	396	397	398	399	400	401	402	403	404	405
406	407	408	409	410	411	412	413	414	415	416	417	418
419	420	421	422	423	424	425	426	427	428	429	430	431
432	433	434	435	436	437	438	439	440	441	442	443	444
445	446	447	459	460	461	462	463	464	465	466	467	468
479	480	500	501	649	650	652	653	654	656	657	721	723
724	812	813	814	815	816	817	818	819	820	821	822	823
824	825	827	828	832	833	834	835	836	837	838	839	840
841	842	843	844	845	847	848	852	853	854	855	856	857
858	859	860	861	862	863	864	865	867	868	872	873	874
875	876	877	878	879	880	881	882	883	884	885	887	888
892	893	894	895	896	897	899	900	904	905	906	907	908
909	911	912	916	917	918	919	920	921	923	924	928	929
930	931	932	933	934	935	979	980	981	982	983	984	985
986	987	988	989	990	991	992	993	1038	1039	1040	1041	1042
1043	1164	1165	1177	1178	1179	1180	1184	1185	1186	1187	1188	1189
1190	1191	1192	1193	1194	1195	1196	1198	1199	1200	1213	1214	1233
1234	1235	1237	1238	1239	1244	1245	1261	1262	1267	1268	1269	1270
1271	1272	1273	1274	1275	1276	1278	1279	1281	1282	1288	1289	1290
1291	1292	1293	1294	1295	1296	1297	1299	1300	1302	1303	1309	1310
1311	1312	1313	1314	1315	1316	1317	1318	1320	1321	1323	1324	1330
1331	1332	1333	1334	1335	1336	1337	1338	1339	1341	1342	1344	1345
1349	1350	1351	1352	1353	1354	1355	1356	1357	1358	1360	1361	1363
1364	1370	1371	1372	1373	1374	1375	1376	1377	1378	1379	1381	1382
1384	1385	1391	1392	1393	1394	1395	1396	1397	1398	1399	1400	1402
1403	1405	1406	1412	1413	1414	1415	1416	1417	1418	1419	1420	1421

CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0084

1423	1424	1426	1427	1437	1438	1439	1440	1441	1442	1443	1444	1445
1446	1448	1449	1451	1452	1464	1465	1466	1467	1468	1469	1470	1471
1472	1473	1475	1476	1479	1480	1489	1490	1495	1496	1497	1498	1499
1500	1501	1502	1503	1504	1506	1507	1509	1510	1516	1517	1518	1519
1520	1521	1522	1523	1524	1525	1527	1528	1531	1532	1538	1539	1540
1541	1542	1543	1544	1545	1546	1547	1549	1550	1552	1553	1559	1560
1561	1562	1563	1564	1565	1566	1567	1568	1570	1571	1573	1574	1580
1581	1582	1583	1584	1585	1586	1587	1588	1589	1591	1592	1593	1594
1600	1601	1602	1603	1604	1605	1606	1607	1608	1609	1611	1612	1613
1614	1620	1621	1622	1623	1624	1625	1626	1627	1628	1629	1631	1632
1634	1635	1641	1642	1643	1644	1645	1646	1647	1648	1649	1650	1652
1653	1655	1656	1666	1667	1668	1669	1670	1671	1672	1673	1674	1675
1677	1678	1680	1681	1693	1694	1695	1696	1697	1698	1699	1700	1701
1702	1704	1705	1707	1708	1724	1725	1726	1727	1728	1729	1730	1731
1732	1733	1734	1735	1737	1738	1739	1740	1741	1742	1743	1744	1745
1748	1749	1750	1751	1752	1753	1756	1757	1759	1760	1762	1763	1764
1765	1766	1767	1768	1769	1770	1773	1774	1775	1776	1777	1778	1781
1782	1783	1784	1785	1791	1792	1798	1799	1800	1801	1802	1803	1804
1805	1806	1807	1808	1809	1810	1812	1813	1817	1818	1819	1820	1821
1822	1823	1824	1825	1826	1827	1828	1829	1831	1832	1859	1860	1870
1871	1872	1874	1875	1876	1877	1878	1879	1880	1883	1884	1885	1888
1889	1890	1892	1893	1894	1896	1897	1898	1900	1901	1902	1903	1904
1905	1908	1909	1922	1923	1924	1925	1928	1929	1930	1931	1932	1933
1934	1935	1936	1952	1953	1954	1955	1956	1957	1958	1964	1965	1966
1967	1968	1969	1970	1978	1979	1980	1981	1982	1983	1984	1989	1990
1991	1992	1993	1994	1996	1997	1998	2006	2007	2008	2009	2010	2011
2012	2013	2015	2016	2043	2044	2055	2056	2057	2058	2059	2060	2063
2064	2065	2066	2067	2068	2069	2075	2076	2077	2078	2079	2080	2081
2082	2083	2094	2095	2096	2097	2098	2099	2100	2101	2102	2108	2109
2110	2111	2112	2113	2115	2116	2119	2120	2124	2125	2126	2127	2128
2129	2130	2131	2132	2138	2139	2140	2141	2142	2143	2145	2146	2148
2149	2152	2153	2154	2155	2156	2157	2159	2160	2163	2164	2169	2170
2172	2173	2174	2180	2181	2182	2183	2184	2185	2186	2188	2189	2193
2194	2195	2196	2197	2198	2199	2201	2202	2206	2207	2208	2209	2210
2211	2212	2214	2215	2219	2220	2221	2222	2223	2224	2225	2227	2228
2232	2233	2234	2235	2236	2237	2240	2241	2297	2298	2325	2326	2327
2328	2329	2330	2345	2346	2347	2348	2349	2350	2351	2355	2356	2357
2358	2359	2360	2361	2365	2366	2367	2368	2369	2370	2371	2376	2377
2378	2379	2380	2381	2382	2387	2388	2389	2390	2391	2392	2393	2398
2399	2400	2402	2403	2406	2407	2412	2413	2414	2415	2416	2417	2418
2423	2424	2425	2426	2427	2428	2429	2430	2431	2463	2464	2465	2466
2467	2468	2469	2470	2472	2473	2474	2475	2476	2478	2479	2480	2481
2482	2485	2486	2488	2489	2494	2495	2496	2497	2498	2499	2500	2505
2506	2507	2508	2509	2510	2511	2512	2513	2545	2546	2547	2548	2549
2551	2552	2553	2554	2555	2557	2558	2559	2560	2561	2564	2565	2567
2568	2570	2571	2572	2573	2574	2575	2576	2577	2578	2584	2585	2586
2587	2588	2589	2590	2595	2596	2597	2598	2599	2600	2601	2602	2603
2631	2632	2633	2634	2635	2636	2637	2638	2640	2641	2642	2643	2644
2646	2647	2648	2649	2650	2653	2654	2656	2657	2659	2660	2661	2662
2663	2664	2665	2666	2667	2673	2674	2675	2676	2677	2678	2679	2684
2685	2686	2687	2688	2689	2690	2691	2692	2720	2721	2722	2723	2724
2725	2726	2727	2728	2729	2730	2731	2732	2733	2734	2735	2736	2737
2738	2739	2740	2741	2742	2743	2744	2745	2746	2748	2749	2751	2752
2753	2765	2766	2767	2768	2769	2770	2771	2775	2776	2780	2781	2782
2783	2784	2785	2789	2790	2794	2795	2796	2797	2798	2799	2803	2804
2873	2874	2900	2901	2904	2905	2906	2907	2908	2909	2910	2911	2912

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CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0085

	2913	2914	2915	2916	2917	2918	2919	2920	2921	2922	2923	2924	2925
	2926	2927	2929	2930	2948	2949	2962	2963	2965	2966	2967	2968	2969
	2970	2971	2972	2973	2974	2975	2976	2977	2978	2979	2980	2981	2982
	2983	2984	2985	2986	2987	2988	2989	2990	2991	2992	2993	2994	2995
	2996	2997	2998	2999	3000	3001	3002	3003	3004	3005	3006	3007	3008
	3009	3010	3011	3012	3014	3015	3049	3050	3053	3054			
SVCSTK= 177777	359#	370	448	458	469	479	490	500	517	533	607	616	644
	810	826	830	846	850	866	870	886	890	898	902	910	914
	922	1161	1163	1175	1212	1222	1243	1259	1261	1277	1281	1298	1302
	1319	1323	1340	1344	1359	1363	1380	1384	1401	1405	1422	1426	1447
	1451	1474	1478	1487	1489	1505	1509	1526	1531	1548	1552	1569	1573
	1590	1593	1610	1613	1630	1634	1651	1655	1676	1680	1703	1706	1718
	1727	1755	1759	1780	1787	1790	1796	1811	1815	1830	1858	1867	1907
	1920	2004	2014	2042	2053	2055	2114	2119	2144	2148	2158	2163	2168
	2178	2187	2191	2200	2204	2213	2217	2226	2230	2239	2296	2323	2325
	2401	2406	2484	2488	2563	2567	2652	2656	2747	2763	2774	2778	2788
	2792	2802	2872	2900	2929	2948	2962	3014	3049				
SVC SUB= 177777	359#	1261	1281	1302	1323	1344	1363	1384	1405	1426	1451	1489	1509
	1531	1552	1573	1593	1613	1634	1655	1680	1727	1759	2055	2119	2148
	2163	2325	2406	2488	2567	2656							
SVCTAG= 000000	359#	361#	490	491	517	518	826	827	846	847	866	867	886
	887	898	899	910	911	922	923	993	994	1163	1164	1212	1213
	1243	1244	1277	1278	1298	1299	1319	1320	1340	1341	1359	1360	1380
	1381	1401	1402	1422	1423	1447	1448	1474	1475	1478	1479	1505	1506
	1526	1527	1548	1549	1569	1570	1590	1591	1610	1611	1630	1631	1651
	1652	1676	1677	1703	1704	1706	1707	1755	1756	1780	1781	1790	1791
	1811	1812	1830	1831	1858	1859	1907	1908	2014	2015	2042	2043	2069
	2070	2083	2084	2114	2115	2144	2145	2158	2159	2168	2169	2187	2188
	2200	2201	2213	2214	2226	2227	2239	2240	2296	2297	2351	2352	2361
	2362	2371	2372	2382	2383	2393	2394	2401	2402	2418	2419	2431	2432
	2484	2485	2500	2501	2513	2514	2563	2564	2578	2579	2590	2591	2603
	2604	2652	2653	2667	2668	2679	2680	2692	2693	2747	2748	2774	2775
	2788	2789	2802	2803	2872	2873	2949	2950	3050	3051			
SVCTST= 177777	359#	1259	1487	1718	1867	1920	2053	2323					
SWCHAN 022074	3056#												
SWCHON 010132	1937#	1941#	1943#	1948#	1949#	1950#	1952	1959	2001#				
SWCNT 010126	1938#	1945#	1999#										
SWERR 010134 G	1930	2004#											
SWITCH 040464	3056#												
SWSET 002206	629#	1182#	1925	2007									
SW. PTA 022060	3056#												
SYEE 014264	2677	2863#											
SYETST 013350	2701#	2718											
SYRTST 013014	2612#	2629											
SYSE 014152	2391	2725	2733	2741	2845#								
SYSE IN 011722	2384	2386#											
SYSET 013164	2396	2657#											
SYSR 014137	2380	2636	2642	2648	2842#								
SYSR IN 011674	2373	2375#	2542										
SYSROM 002274	642#	2581	2610	2670	2699								
SYSRT 012626	2385	2568#											
SYS. FT 030400	3056#												
S&LSYM= 010000	359#	491#	518#	827#	847#	867#	887#	899#	911#	923#	986	993	994#
	1164#	1213#	1244#	1278#	1299#	1320#	1341#	1360#	1381#	1402#	1423#	1448#	1475#
	1479#	1506#	1527#	1549#	1570#	1591#	1611#	1631#	1652#	1677#	1704#	1707#	1756#
	1781#	1791#	1812#	1831#	1859#	1908#	2015#	2043#	2064	2069	2070#	2076	2083

		2084#	2115#	2145#	2159#	2169#	2188#	2201#	2214#	2227#	2240#	2297#	2346	2351
		2352#	2356	2361	2362#	2366	2371	2372#	2377	2382	2383#	2388	2393	2394#
		2402#	2413	2418	2419#	2424	2431	2432#	2485#	2495	2500	2501#	2506	2513
		2514#	2564#	2571	2578	2579#	2585	2590	2591#	2596	2603	2604#	2653#	2660
		2667	2668#	2674	2679	2680#	2685	2692	2693#	2748#	2775#	2789#	2803#	2873#
		2950#	3051#											
TAG1	007772	1961#	1973											
TAG2	010022	1962	1970#											
TAG3	010040	1975#	1987											
TAG4	010070	1976	1984#											
TEMP	010130	1936*	1939	1944*	2000#									
TERMI	042504	3056#												
TERMLI	040312	3056#												
TERMTA	034274	3056#												
TEST. M	022204	3056#*												
TIMFLG	015232 G	3056#*												
TIM. CO	015064 G	3056#*												
TIM. OP	030720	3056#*												
TOO. MA	034254	3056#												
TSTCKW	004662	1078	1088	1092#										
TST. AB	024520	3056#												
TST. TO	016324	3056#												
TYPEC	034650	3056#												
TYPEPC	030544	3056#												
TYPFLA	040166	3056#												
TYPLIN	034546	3056#												
TYPNUM	034134	3056#												
TYPSTR	034566	3056#												
TYP. ER	030430	3056#												
TY. UNI	023664	3056#												
TSARGC=	000001	381#	382#	383#	384#	385#	386#	387#	812#	816	818#	824	832#	836
		838#	844	852#	856	858#	864	872#	876	878#	884	892#	896	904#
		908	916#	920	928#	934	979#	983	1191#	1195	1798#	1802	1804#	1809
		1817#	1821	1823#	1828	1952#	1957	1964#	1969	1978#	1983	1989#	1993	2006#
		2012	2180#	2185	2193#	2198	2206#	2211	2219#	2224	2232#	2236	2765#	2770
		2780#	2784	2794#	2798									
TS CODE=	111004	988#	2066#	2078#	2348#	2358#	2368#	2379#	2390#	2415#	2426#	2497#	2508#	2573#
		2587#	2598#	2662#	2676#	2687#	2904#	2910#	2916#	2922#	2929#	2965#	2971#	2977#
		2983#	2989#	2995#	3001#	3007#	3014#							
TSERCO=	000162	1038#	1267#	1288#	1309#	1330#	1349#	1370#	1391#	1412#	1437#	1464#	1495#	1516#
		1538#	1559#	1580#	1600#	1620#	1641#	1666#	1693#	1748#	1773#	1928#	2094#	2108#
		2124#	2138#	2152#	2466#	2472#	2478#	2545#	2551#	2557#	2634#	2640#	2646#	2723#
		2731#	2739#											
TSERRN=	000062	359#	1039#	1268#	1289#	1310#	1331#	1350#	1371#	1392#	1413#	1438#	1465#	1496#
		1517#	1539#	1560#	1581#	1601#	1621#	1642#	1667#	1694#	1749#	1774#	1929#	2095#
		2109#	2125#	2139#	2153#	2467#	2473#	2479#	2546#	2552#	2558#	2635#	2641#	2647#
		2724#	2732#	2740#										
TS EXCP=	000000	988#	993	2078#	2083	2426#	2431	2508#	2513	2573#	2578	2598#	2603	2662#
		2667	2687#	2692	2904#	2909	2910#	2915	2916#	2921	2922#	2927	2965#	2970
		2971#	2976	2977#	2982	2983#	2988	2989#	2994	2995#	3000	3001#	3006	3007#
		3012												
TSFLAG=	000041	1198#	1237#	1272#	1293#	1314#	1335#	1354#	1375#	1396#	1417#	1442#	1469#	1500#
		1521#	1543#	1564#	1585#	1605#	1625#	1646#	1671#	1698#	1724#	1783#	1883#	1903#
		1934#	1996#	2098#	2128#	2172#	2398#	2463#	2631#	2720#	2728#	2736#	2744#	2751#
		2929#	3014#											
TS HILI=	177777	988#	992	2078#	2082	2426#	2430	2508#	2512	2573#	2577	2598#	2602	2662#

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CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0087

TSLOLI= 000000

TSLSYM= 010000

TSMCAL= 177777

TSEST= 177777

TNSKO= 000005

TNSKI= 000011

TSSAVL= 177777

TSSGL= 177777

TSSUBN= 000005

TSTAGL= 177777

TSTAGN= 010100

TSTEMP= 000005

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2971#	2975	2977#	2981	2983#	2987	2989#	2993	2995#	2999	3001#	3005	3007#
3011												
988#	991	2078#	2081	2426#	2429	2508#	2511	2573#	2576	2598#	2601	2662#
2665	2687#	2690	2904#	2907	2910#	2913	2916#	2919	2922#	2925	2965#	2968
2971#	2974	2977#	2980	2983#	2986	2989#	2992	2995#	2998	3001#	3004	3007#
3010												
359#	491	518	827	847	867	887	899	911	923	1164	1213	1244
1278	1299	1320	1341	1360	1381	1402	1423	1448	1475	1479	1506	1527
1549	1570	1591	1611	1631	1652	1677	1704	1707	1756	1781	1791	1812
1831	1859	1908	2015	2043	2115	2145	2159	2169	2188	2201	2214	2227
2240	2297	2402	2485	2564	2653	2748	2775	2789	2803	2873	2950	3051
1#	359											
359#	370#	448#	458#	469#	479#	490#	500#	517#	533#	607#	616#	644#
810#	826#	830#	846#	850#	866#	870#	886#	890#	898#	902#	910#	914#
922#	1161#	1163#	1175#	1212#	1222#	1243#	1259#	1261#	1277#	1281#	1298#	1302#
1319#	1323#	1340#	1344#	1359#	1363#	1380#	1384#	1401#	1405#	1422#	1426#	1447#
1451#	1474#	1478#	1487#	1489#	1505#	1509#	1526#	1531#	1548#	1552#	1569#	1573#
1590#	1593#	1610#	1613#	1630#	1634#	1651#	1655#	1676#	1680#	1703#	1706#	1718#
1727#	1755#	1759#	1780#	1787#	1790#	1796#	1811#	1815#	1830#	1858#	1867#	1907#
1920#	2004#	2014#	2042#	2053#	2055#	2114#	2119#	2144#	2148#	2158#	2163#	2168#
2178#	2187#	2191#	2200#	2204#	2213#	2217#	2226#	2230#	2239#	2296#	2323#	2325#
2401#	2406#	2484#	2488#	2563#	2567#	2652#	2656#	2747#	2763#	2774#	2778#	2788#
2792#	2802#	2872#	2900#	2929	2948#	2962#	3014	3049#				
370#	448	458#	469	479#	490	500#	517	533#	607	616#	644	810#
826	830#	846	850#	866	870#	886	890#	898	902#	910	914#	922
1161#	1163	1175#	1212	1222#	1243	1259#	1478	1487#	1706	1718#	1858	1867#
1907	1920#	2042	2053#	2296	2323#	2872	2900#	2929	2948	2962#	3014	3049
1261#	1277	1281#	1298	1302#	1319	1323#	1340	1344#	1359	1363#	1380	1384#
1401	1405#	1422	1426#	1447	1451#	1474	1489#	1505	1509#	1526	1531#	1548
1552#	1569	1573#	1590	1593#	1610	1613#	1630	1634#	1651	1655#	1676	1680#
1703	1727#	1755	1759#	1780	1787#	1790	1796#	1811	1815#	1830	2004#	2014
2055#	2114	2119#	2144	2148#	2158	2163#	2168	2178#	2187	2191#	2200	2204#
2213	2217#	2226	2230#	2239	2325#	2401	2406#	2484	2488#	2563	2567#	2652
2656#	2747	2763#	2774	2778#	2788	2792#	2802					
359#												
359#												
359#	1259#	1261#	1281#	1302#	1323#	1344#	1363#	1384#	1405#	1426#	1451#	1487#
1489#	1509#	1531#	1552#	1573#	1593#	1613#	1634#	1655#	1680#	1718#	1727#	1759#
1867#	1920#	2053#	2055#	2119#	2148#	2163#	2323#	2325#	2406#	2488#	2567#	2656#
359#												
359#	479#	500#	810#	830#	850#	870#	890#	902#	914#	1161#	1175#	1222#
1259#	1261#	1281#	1302#	1323#	1344#	1363#	1384#	1405#	1426#	1451#	1487#	1489#
1509#	1531#	1552#	1573#	1593#	1613#	1634#	1655#	1680#	1718#	1727#	1759#	1787#
1796#	1815#	1867#	1920#	2004#	2053#	2055#	2119#	2148#	2163#	2178#	2191#	2204#
2217#	2230#	2323#	2325#	2406#	2488#	2567#	2656#	2763#	2778#	2792#	2900#	2962#
448#	461#	462#	463#	464#	465#	466#	467#	468#	469#	490#	517#	607#
644#	826#	846#	866#	886#	898#	910#	922#	988#	1163#	1198#	1199	1212#
1237#	1238	1243#	1272#	1273	1277#	1293#	1294	1298#	1314#	1315	1319#	1335#
1336	1340#	1354#	1355	1359#	1375#	1376	1380#	1396#	1397	1401#	1417#	1418
1422#	1442#	1443	1447#	1469#	1470	1474#	1478#	1500#	1501	1505#	1521#	1522
1526#	1543#	1544	1548#	1564#	1565	1569#	1585#	1586	1590#	1605#	1606	1610#
1625#	1626	1630#	1646#	1647	1651#	1671#	1672	1676#	1698#	1699	1703#	1706#
1724#	1725	1755#	1780#	1783#	1784	1790#	1811#	1830#	1858#	1883#	1884	1903#
1904	1907#	1934#	1935	1996#	1997	2014#	2042#	2066#	2078#	2098#	2099	2114#
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CROSS REFERENCE TABLE -- USER SYMBOLS

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TSTSTS= 000001

TSSCLE= 010013

TSSHAR= 010076

TSSHW = 010000

TSSINI= 010012

TSSMSG= 010075

TSSRPT= 010011

TSSSOF = 010077

TSSSRV= 010045

TSSSUB= 010072

TSSSW = 010001

TSSSES= 010065

T1 005250 G

T1. 1	005250
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T1. 10	005776
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T1. 2 005306

T1. 2	005355
T1. 3	005356

T1. 4	005426
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2348#	2358#	2368#	2379#	2390#	2398#	2399	2401#	2415#	2426#	2463#	2464	2484#
2497#	2508#	2563#	2573#	2587#	2598#	2631#	2632	2652#	2662#	2676#	2687#	2720#
2721	2728#	2729	2736#	2737	2744#	2745	2747#	2751#	2752	2774#	2788#	2802#
2872#	2904#	2910#	2916#	2922#	2929#	2948#	2965#	2971#	2977#	2983#	2989#	2995#
3001#	3007#	3014#	3049#									
359#	1259#	1261	1281	1302	1323	1344	1363	1384	1405	1426	1451	1487#
1489	1509	1531	1552	1573	1593	1613	1634	1655	1680	1718#	1727	1759
1867#	1920#	2053#	2055	2119	2148	2163	2323#	2325	2406	2488	2567	2656
359#	815	823	827	835	843	847	855	863	867	875	883	887
895	899	907	911	919	923	933	982	985	1038	1042	1164	1178
1185	1187	1194	1198	1213	1234	1237	1244	1261	1267	1272	1275	1278
1281	1288	1293	1296	1299	1302	1309	1314	1317	1320	1323	1330	1335
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1391	1396	1399	1402	1405	1412	1417	1420	1423	1426	1437	1442	1445
1448	1451	1464	1469	1472	1475	1479	1489	1495	1500	1503	1506	1509
1516	1521	1524	1527	1531	1538	1543	1546	1549	1552	1559	1564	1567
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1908	1922	1928	1932	1934	1956	1968	1982	1992	1996	2011	2015	2043
2055	2057	2063	2075	2094	2098	2101	2108	2112	2115	2119	2124	2128
2131	2138	2142	2145	2148	2152	2156	2159	2163	2169	2172	2184	2188
2197	2201	2210	2214	2223	2227	2235	2240	2297	2325	2327	2345	2355
2365	2376	2387	2398	2402	2406	2412	2423	2463	2466	2472	2478	2485
2488	2494	2505	2545	2551	2557	2564	2567	2570	2584	2595	2631	2634
2640	2646	2653	2656	2659	2673	2684	2720	2723	2728	2731	2736	2739
2744	2748	2751	2769	2775	2783	2789	2797	2803	2873			
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2900#	2929	2949										
479#	490											
1175#	1198	1212										
810#	826	830#	846	850#	866	870#	886	890#	898	902#	910	914#
922	1796#	1811	1815#	1830	2004#	2014	2178#	2187	2191#	2200	2204#	

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CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0089

[illegible]

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CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0090

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SENDAD	044440 G	3056#																
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SSAV4	045536 G	3056#																
SSAV5	045556 G	3056#																
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		2464	2632	2721	2729	2737	2745	2752	2929	3014	3045#	3056#						

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	1558	1579	1599	1619	1640	1665	1692	1747	1772	1927	2093	2107	2123	2137	2151
	2465	2471	2477	2544	2550	2556	2633	2639	2645	2722	2730	2738			
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ERRSF	1#														
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	1542	1563	1584	1604	1624	1645	1670	1697	1723	1782	1882	1902	1933	1995	2097
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IOSETU	1#														
IOSTAR	1#														
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MANUAL	1#	1186	1876	1921	2056	2326									
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MSBRAN	1#														
MSBYTE	1#	380#	387	388											
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MSCKID	1#	415#													
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	3007#														
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	1907#	2014#	2042#	2114#	2144#	2158#	2168#	2187#	2200#	2213#	2226#	2239#	2296#	2401#	2484#
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CROSS REFERENCE TABLE -- MACRO NAMES

SEQ 0093

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	654	655	720#	810#	830#	850#	870#	890#	902#	914#	1161#	1175#	1222#	1787#	1796#
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	2131#	2138#	2142#	2145#	2148#	2152#	2156#	2159#	2163#	2169#	2172#	2184#	2188#	2197#	2201#
	2210#	2214#	2223#	2227#	2235#	2240#	2297#	2325#	2327#	2345#	2355#	2365#	2376#	2387#	2398#
	2402#	2406#	2412#	2423#	2463#	2466#	2472#	2478#	2485#	2488#	2494#	2505#	2545#	2551#	2557#
	2564#	2567#	2570#	2584#	2595#	2631#	2634#	2640#	2646#	2653#	2656#	2659#	2673#	2684#	2720#
	2723#	2728#	2731#	2736#	2739#	2744#	2748#	2751#	2769#	2775#	2783#	2789#	2797#	2803#	2873#
MSTSTL	1#	815#	823#	827#	835#	843#	847#	855#	863#	867#	875#	883#	887#	895#	899#
	907#	911#	919#	923#	933#	982#	985#	1038#	1042#	1164#	1178#	1185#	1187#	1194#	1198#
	1213#	1234#	1237#	1244#	1261#	1267#	1272#	1275#	1278#	1281#	1288#	1293#	1296#	1299#	1302#
	1309#	1314#	1317#	1320#	1323#	1330#	1335#	1338#	1341#	1344#	1349#	1354#	1357#	1360#	1363#
	1370#	1375#	1378#	1381#	1384#	1391#	1396#	1399#	1402#	1405#	1412#	1417#	1420#	1423#	1426#
	1437#	1442#	1445#	1448#	1451#	1464#	1469#	1472#	1475#	1479#	1489#	1495#	1500#	1503#	1506#
	1509#	1516#	1521#	1524#	1527#	1531#	1538#	1543#	1546#	1549#	1552#	1559#	1564#	1567#	1570#
	1573#	1580#	1585#	1588#	1591#	1593#	1600#	1605#	1608#	1611#	1613#	1620#	1625#	1628#	1631#
	1634#	1641#	1646#	1649#	1652#	1655#	1666#	1671#	1674#	1677#	1680#	1693#	1698#	1701#	1704#
	1707#	1724#	1727#	1733#	1738#	1741#	1744#	1748#	1752#	1756#	1759#	1763#	1766#	1769#	1773#
	1777#	1781#	1783#	1801#	1808#	1812#	1820#	1827#	1831#	1859#	1871#	1875#	1877#	1883#	1889#
	1893#	1897#	1901#	1903#	1908#	1922#	1928#	1932#	1934#	1956#	1968#	1982#	1992#	1996#	2011#
	2015#	2043#	2055#	2057#	2063#	2075#	2094#	2098#	2101#	2108#	2112#	2115#	2119#	2124#	2128#
	2131#	2138#	2142#	2145#	2148#	2152#	2156#	2159#	2163#	2169#	2172#	2184#	2188#	2197#	2201#

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CROSS REFERENCE TABLE -- MACRO NAMES

SEQ 0097

MSWORD	2210#	2214#	2223#	2227#	2235#	2240#	2297#	2325#	2327#	2345#	2355#	2365#	2376#	2387#	2398#
	2402#	2406#	2412#	2423#	2463#	2466#	2472#	2478#	2485#	2488#	2494#	2505#	2545#	2551#	2557#
	2564#	2567#	2570#	2584#	2595#	2631#	2634#	2640#	2646#	2653#	2656#	2659#	2673#	2684#	2720#
	2723#	2728#	2731#	2736#	2739#	2744#	2748#	2751#	2769#	2775#	2783#	2789#	2797#	2803#	2873#
	1#	404#	406	459#	461	462	463	464	465	466	467	649#	652#	653	985#
	987	988#	1038#	1039	1040	1198#	1237#	1267#	1268	1269	1270	1272#	1288#	1289	1290
	1291	1293#	1309#	1310	1311	1312	1314#	1330#	1331	1332	1333	1335#	1349#	1350	1351
	1352	1354#	1370#	1371	1372	1373	1375#	1391#	1392	1393	1394	1396#	1412#	1413	1414
	1415	1417#	1437#	1438	1439	1440	1442#	1464#	1465	1466	1467	1469#	1495#	1496	1497
	1498	1500#	1516#	1517	1518	1519	1521#	1538#	1539	1540	1541	1543#	1559#	1560	1561
	1562	1564#	1580#	1581	1582	1583	1585#	1600#	1601	1602	1603	1605#	1620#	1621	1622
	1623	1625#	1641#	1642	1643	1644	1646#	1666#	1667	1668	1669	1671#	1693#	1694	1695
	1696	1698#	1724#	1748#	1749	1750	1773#	1774	1775	1783#	1883#	1903#	1928#	1929	1930
	1934#	1996#	2063#	2065	2066#	2075#	2077	2078#	2094#	2095	2096	2098#	2108#	2109	2110
	2124#	2125	2126	2128#	2138#	2139	2140	2152#	2153	2154	2172#	2345#	2347	2348#	2355#
	2357	2358#	2365#	2367	2368#	2376#	2378	2379#	2387#	2389	2390#	2398#	2412#	2414	2415#
	2423#	2425	2426#	2463#	2466#	2467	2468	2469	2472#	2473	2474	2475	2478#	2479	2480
	2481	2494#	2496	2497#	2505#	2507	2508#	2545#	2546	2547	2548	2551#	2552	2553	2554
	2557#	2558	2559	2560	2570#	2572	2573#	2584#	2586	2587#	2595#	2597	2598#	2631#	2634#
	2635	2636	2637	2640#	2641	2642	2643	2646#	2647	2648	2649	2659#	2661	2662#	2673#
	2675	2676#	2684#	2686	2687#	2720#	2723#	2724	2725	2726	2728#	2731#	2732	2733	2734
	2736#	2739#	2740	2741	2742	2744#	2751#	2904#	2910#	2916#	2922#	2929#	2965#	2971#	2977#
	2983#	2989#	2995#	3001#	3007#	3014#									
MSXFER	1#	2929#	3014#												
POINTE	1#	376													
PRINTB	1#	811	831	851	871	891	903	915	1797	1803	1816	1822	2005	2179	2192
	2205	2218	2231	2764	2779	2793									
PRINTF	1#	927	978	1190	1951	1963	1977	1988							
PRINTN	1#														
PRINTS	1#														
PRINTX	1#	817	837	857	877										
READBU	1#														
READEF	1#														
REQTIM	1#														
SETEF	1#														
SETPRI	1#	1183	1736	1742	1761	1767									
SETVEC	1#	1728													
SLASH	1#														
STARS	1#														
SVC	1#	358#													
TRAPPR	1#														
UNBUFF	1#														
WAITMS	1#	1869	1873	1887	1891	1895	1899								
WAITUS	1#	1739	1764												
XFER	1#	2929	3014												
XFERF	1#														
XFERT	1#														

ABS. 072000 000

ERRORS DETECTED: 0

DUMSAA.BIN,DUMSAA.SEQ/SOL/CRF/NL:TOC=SVC.SML,DUMSAA.P11,DOCTOR.P11
 RUN-TIME: 36 39 4 SECONDS

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DOCTOR.P11 07-OCT-77 13:48 CROSS REFERENCE TABLE -- MACRO NAMES

SEQ 0098

RUN-TIME RATIO: 1193/81=14.6
CORE USED: 18K (35 PAGES)