

FP11

MAINTENANCE INSTRUCTION
MD-11-DCFPM-B
TESTS

EP-DCFPM-B-DL
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FICHE 1 OF 1

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The microfiche strip contains 15 frames of technical data. Each frame is divided into three columns. The first column contains test names and descriptions, the second column contains test procedures and parameters, and the third column contains test results and diagnostic information. The text is small and difficult to read due to the high resolution of the microfiche.

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IDENTIFICATION

PRODUCT CODE:	MAINDEC-11-DCP4-B-D
PRODUCT NAME:	FP11 MAINTENANCE INSTRUCTION TESTS
DATE CREATED:	NOVEMBER 1973
MAINTAINER:	DIAGNOSTIC GROUP
AUTHOR:	BOB BRAIN

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MAINDEC-11-DCFPM-B-D FP11 MAINTENANCE TEST PAGE 3
DESCRIPTION

1. ABSTRACT
THE PURPOSE OF THIS PROGRAM IS THREE FOLD. FIRST TO TEST THE MAINTENANCE FEATURES, SECOND TO TRACE MULD THROUGH ITS STEPS, THIRD TO TRACE DIVD.
2. REQUIREMENTS
 - 2.1 EQUIPMENT
POP11/45 STANDARD COMPUTER WITH FP11 OPTION
 - 2.2 STORAGE
PROGRAM STORAGE - THE ROUTINES USE MEMORY 8 - 17776
 - 2.3 PRELIMINARY PROGRAMS
NONE
3. LOADING PROCEDURE
USE STANDARD PROCEDURE FOR ABS TAPES.
4. STARTING PROCEDURE
 - 4.1 CONTROL SWITCH SETTINGS
SEE 5.1.1 (ALL DOWN FOR WORST CASE TESTING)
 - 4.2 STARTING ADDRESS
THE PROGRAM SHOULD ALWAYS BE STARTED AT 200.
 - 4.3 PROGRAM AND/OR OPERATOR ACTION
 - 4.3.1 BASIC MAINTENANCE TEST
 - 1) LOAD PROGRAM INTO MEMORY USING ABS LOADER.

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- 2) LOAD ADDRESS 202.
- 3) SET SWITCHES (SEE SEC 5.1.1) ALL DOWN FOR WORST CASE
- 4) PRESS START.
- 5) THE PROGRAM WILL LOOP AND BELL WILL RING ONCE EVERY PASS

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MAINDEC-11-DCFPM-B-0 FP11 MAINTENANCE TEST PAGE 4
DESCRIPTION

6) A MINIMUM OF TWO PASSES SHOULD ALWAYS BE RUN.
7) THE DISPLAY ON THE 11.45 WILL SHOW THE ITERATION CCUNT IN
THE LEFT BYTE AND TEST NUMBER IN THE RIGHT. TO USE, SET THE
DATA DISPLAY SWITCH TO THE DISPLAY POSITION.

4.3.2 MULTIPLY TRACE (MUST RUN 1 PASS OF BASIC TEST)

- 1) LOAD ADDRESS 204
- 2) START
- 3) TYPE FIRST NUMBER (MUST BE IN OCTAL, 4 WORDS SEPERATED BY SPACES, FOLLOWED BY A RETURN)
- 4) TYPE SECOND NUMBER (LIKE FIRST)
- 5) THE PROGRAM WILL TRACE THE 71 STEPS

4.3.3 DIVIDE TRACE

SAME AS 4.3.2 EXCEPT START AT 210

5. OPERATING PROCEDURE

5.1 OPERATIONAL SWITCH SETTINGS

AT SA 200 .. ALL SWITCHES DOWN IS WORST CASE TESTING. IF AN ERROR OCCURS, THAT TEST WILL BE LOOPED UPON UNTIL COMPLETION OF 250 CONSECUTIVE PASSES WITH NO ERRORS OF THE SUBTEST IF SW<9> SET TO A 1. THE BELL WILL RING UPON COMPLETION OF A PASS.

5.1.1 SWITCH SETTINGS ARE:

- SW<15> = 1 HALT ON ERROR
- SW<14> = 1 SCOPE LOOP
- SW<13> = 1 INHIBIT PRINTOUT
- SW<12> = 1 INHIBIT TRACE TRAPPING
- SW<11> = 1 INHIBIT ITERATIONS OF SUBTEST
- SW<10> = 1 BELL ON ERROR
- 0 BELL ON PASS COMPLETE
- SW<09> = 1 LOOP ON ERROR
- SW<08> = 1 LOOP ON TEST IN SW<7:0>
- 0 LOAD SW<7:0> INTO UB REGISTER

5.2 SUBROUTINE ABSTRACTS

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MAINDEC-11-DCFPH-0-D FP11 MAINTENANCE TEST PAGE 5
 DESCRIPTION

5.2.1 SCOPE

THIS SUBROUTINE CALL IS PLACED BETWEEN EACH SUBTEST IN THE INSTRUCTION SECTION. IT RECORDS THE STARTING ADDRESS OF EACH SUBTEST AS IT IS BEING ENTERED IN LOCATION "LAD". IF A SCOPE LOOP IS REQUESTED, THE CURRENT SUBTEST WILL BE LOOPED UPON. SW<11> ON A 1 INHIBITS ITERATION OF SUBTESTS. THE CONTENTS OF LAD MAY BE USED TO DETERMINE THE LAST SUBTEST SUCCESSFULLY COMPLETED.

5.2.2 HLT

THIS ROUTINE PRINTS OUT AN ERROR MESSAGE (SEE 6.1.) IF A HLT IS EXECUTED, THE SUBTEST WILL BE LOOPED UPON UNTIL 256 CONSECUTIVE GOOD PASSES ARE COMPLETED IF SW<9> IS ON A 1. TO INHIBIT TYPEOUTS, PUT SW<13> ON A 1.

5.2.3 TRTRAP

IF SW<12> IS ON A 0, THE T BIT WILL BE SET ON ALTERNATE PASSES. WHEN SET, IT CAUSES A TRAP AFTER EACH INSTRUCTION. THE FIRST INSTRUCTION EXECUTED UPON TRAPPING IS AN "RTT" WHICH RETURNS TO THE INTERRUPTED SEQUENCE OF INSTRUCTIONS. THIS SEQUENCE IS CONTINUED UNTIL THE END OF THE PROGRAM IS REACHED.

5.2.4 TRAPCATCHER

A ".+2" - "HALT" SEQUENCE IS REPEATED FROM 0 - 776 TO CATCH ANY UNEXPECTED TRAPS. THUS ANY UNEXPECTED TRAPS OR INTERRUPTS WILL HALT AT THE VECTOR + 2.

5.2.5 FLOATING POINT TRAP (TO 244)

THE FP11 INTERRUPT DISABLE BIT IS ALWAYS SET IN ALL OF THESE TESTS SO NO TRAPS TO 244 SHOULD OCCUR. IF AN INTERRUPT OCCURS, THE PROGRAM WILL HALT AT 766 IN THE ROUTINE CALLED FLTERR AND DISPLAY THE FPS REGISTER IN R0.

6. ERRORS

6.1 ERROR PRINTOUT

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THE FORMAT FOR THE BASIC TEST IS AS FOLLOWS:

ADR FPS ANS1 ANS2 ANS3 ANS4 ANS5 ANS6 ANS7 ANS8
FEC FEA

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MAINDEC-11-DCFPM-0-0 FP11 MAINTENANCE TEST PAGE 6
DESCRIPTION

WHERE:

ADR = ADDRESS OF ERROR WLT
FPS = FLOATING POINT STATUS
FEC = FLOATING EXCEPTION CODES (ERROR CODES)
FEA = FLOATING EXCEPTION ADDRESS (ERROR ADDRESS)
ANS1-8 = ERROR DATA READ FROM THE FP11. FROM 0-8 OF THESE
MAY BE TYPED DEPENDING ON THE NUMBER FOLLOWING THE
WLT; I.E., WLT+3 WOULD TYPE ANS1-ANS3.

TO FIND THE FAILING TEST, LOOK AT THE LISTING ABOVE THE
ADDRESS TYPE.

THE TRACE TYPEOUT IS SIMILAR EXCEPT FPS IS THE COUNT (1 -
71), ANS1 - ANS4 ARE THE AR, AND ANS5 - ANS8 ARE THE CR.

6.2 ERROR RECOVERY

RESTART AT 200

7. RESTRICTIONS

NONE

8. MISCELLANEOUS

8.1 EXECUTION TIME

A BELL WILL RING WITHIN 15 SECONDS WITH ALL SWITCHES DOWN.

8.2 STACK POINTER

STACK IS INITIALLY SET TO 600

8.3 POWER FAIL

EACH TEST CAN BE POWER FAILED WITH NO ERRORS EXCEPT ON THE
FEC AND FEA. TO USE, START THE TEST AS USUAL AND POWER DOWN
THEN UP AT ANY TIME. THE PROGRAM SHOULD TYPE "POWER" AND
CONTINUE TO RUN WITH NO OTHER TYPEOUTS.

9. PROGRAM DESCRIPTION

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THIS PROGRAM TESTS THE MAINTENANCE INSTRUCTIONS OF THE FP11.
IT HAS MANY SUBTESTS (THE CODE BETWEEN 2 SCOPE STATEMENTS)
WHICH ARE RUN 256 TIMES BEFORE CONTINUING TO THE NEXT.

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MAINDEC-11-DCFPM-B-D FP11 MAINTENANCE TEST PAGE 7
DESCRIPTION

SW<11> ON A 1 CAUSES EACH SUBTEST TO BE RUN ONLY ONCE.
SW<9> ON A 1 ENABLES LOOP ON ERROR. THE ADDRESS ICNT (LOC
1000) AND DISPLAY REGISTER ON THE 11/45 EACH CONTAIN THE
ITERATION COUNT IN THE LEFT BYTE AND THE TEST NUMBER IN THE
RIGHT BYTE. ALL THE SUBTESTS SHOULD BE RUN SEQUENTIALLY BY
STARTING AT 200 NOT BY STARTING AT THE BEGINNING OF THE
SUBTEST. TO LOOP ON A PARTICULAR SUBTEST, PUT THE TEST
NUMBER (SEE LISTING) IN THE RIGHT BYTE OF THE SWITCH
REGISTER AND SW<8> ON A 1. THIS TEST WILL BE LOOPED UPON
UNTIL SW<8> IS PUT ON A 0 OR THE RIGHT BYTE IS CHANGED. IF
THE TEST IS NON-EXISTANT, THE PROGRAM WILL BE RUN AS USUAL.

STARTING AT 204 OR 210 WILL TRACE THE AR AND OR THROUGH THE
MULD OR DIVD INSTRUCTIONS.
.ENDR

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.TITLE MAINDEC-11-DCFPM-B MAINTENANCE INSTRUCTION TEST
PROGRAM BY BOB BRAIV
.REM*

SWITCH	USE
8	LOOP ON TEST IN SWK718>
10	2 - BELL ON PASS COMPLETE
	1 - BELL ON ERROR
11	INHIBIT ITERATIONS
12	INHIBIT TRACE TRAP
13	INHIBIT ERROR TYPEOUTS
14	LOOP ON TEST
15	HALT ON ERROR

OUTPUT FORM:

ADR FPS ANS1 ANS2 ANS3 ANS4 ANS5 ANS6 ANS7 ANS8
FEC FEA

BIT	FPS	REASON	CODE	FEC	ERROR
0		CARRY	8		ADDRESS ERROR
1		OVERFLOW	2		OPCODE ERROR
2		ZERO	4		DIVIDE BY ZERO
3		NEGATIVE	6		CONVERSION ERROR
4		MAINTAINANCE MODE	10		OVERFLOW
5		TRUNCATE MODE	12		UNDERFLOW
6		LONG INTEGER MODE	14		UNDEFINED VARIABLE (-0)
7		DOUBLE PRECISION MODE	16		UBREAK TRAP
8		INTERUPT ON CONVERSION ERROR			
9		INTERUPT ON OVERFLOW			
10		INTERUPT ON UNDERFLOW			
11		INTERUPT ON UNDEFINED VARIABLE			
12					
13					
14		INTERUPT DISABLE			
15		ERROR FLAG*			

334			.ENABL	ABS	
335	000001		N#	1	
336	177776		PS#	177776	
337	177570		SWR#	177570	
338	177570		DISPLAY#	SWR	
339	104400		SCOPE#	TRAP	
390	104000		HLT#	EMT	
371	000004		TYPE#	IOT	
392	000007		BELL#	7	
393	000000		FPS#	X0	
374	000000		R0#	X0	
395	000001		R1#	X1	
396	000002		R2#	X2	
397	000003		R3#	X3	
398	000004		R4#	X4	
399	000005		R5#	X5	
4J0	000005		TTY#	X5	
4J1	000006		SP#	X6	
4J2	000007		PC#	X7	
473	000000		AC0#	X0	
4J4	000001		AC1#	X1	
4J5	000002		AC2#	X2	
476	000003		AC3#	X3	
4J7	000004		AC4#	X4	
4J8	000005		AC5#	X5	
4J9	100000		SW15#	100000	
410	040000		SW14#	40000	
411	020000		SW13#	20000	
412	010000		SW12#	10000	
413	004000		SW11#	4000	
414	002000		SW10#	2000	
415	001000		SW09#	1000	
416	000400		SW08#	400	
417	170003		LDUB#	170003	
418	170005		STAB#	170005	
419	170007		STOB#	170007	
420	170006		MRS#	170006	
421	170004		LOSC#	170004	
422					
423	000000		.#	0	
424	000200		.#	200	
425	000200	000167	000622	JMP	BEG
426	000204	000167	003234	JMP	TSTMUL
427	000210	000167	003464	JMP	TSTDIV
428					
429	000760		.#	760	
430	000760	170200	FLTRR#	STFPS	FPS
431	000762	170367	000034	STST	FEC
432	000766	000000		HALT	
433	000770	000002		RTI	

TRAP CATCHER FROM B - 770


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475 .....
476 TEST 1 TRAP BEFORE LOAD [5]
477 .....
478 *J:224 104400 *ST1: SCOPE
479
480 *J:220 173127 240220 LDFPS #4J220 ;DOUBLE/MAINT BITS
481 *J:212 172467 004066 LDD ALT1A,AC0 ;LOAD ALT 1'S
482 *J:216 112703 000005 MOV #5,R3 ;LOAD 5 INTO
483 *J:222 170003 LCUB ;UBREAK REG.
484 *J:224 172467 004064 LDD ALT1B,AC0 ;LOAD OTHER 1'S
485 *J:230 170200 STFPS FPS ;STORE FLOATING POINT STATUS
486 *J:232 170367 177564 STST FEC ;STORE EXCEPTION CODES
487 *J:236 022700 140230 CMP #140230,FPS ;CHECK FLOATING POINT STATUS
488 *J:242 001401 BEQ .+4 ;BRANCH IF OK
489 *J:244 104000 HLT ;FPS NOT EQUAL TO 140230
490
491 *J:246 022767 000016 177546 CMP #16,FEC ;CHECK FLOATING EXCEPTION CODE
492 *J:254 001401 BEQ .+4 ;BRANCH IF OK
493 *J:256 104000 HLT ;FEC NOT EQUAL TO 16
494
495 *J:260 174067 177516 STD AC0,ANS1 ;GET RESULT
496 *J:264 173467 004014 CMPD ALT1A,AC0 ;CHECK RESULT
497 *J:270 170000 CFCC ;GET CC BITS
498 *J:272 001401 BEQ .+4 ;SKIP IF OK
499 *J:274 104004 HLT+4 ;SECOND LDD DIDN'T TRAP
500
501 *J:276 005003 CLR R3 ;CLEAR
502 *J:300 170003 LCUB ;UBREAK REG
503
504 .....
505 TEST 2 TRAP AFTER LOADING 32 BITS [21]
506 .....
507 *J:302 104400 *ST2: SCOPE
508
509 *J:304 173127 040220 LDFPS #40220 ;DOUBLE/MAINT BITS
510 *J:310 012703 000021 MOV #21,R3 ;LOAD 21 INTO
511 *J:314 170003 LCUB ;UBREAK REG.
512 *J:316 172467 003772 LDD ALT1B,AC0 ;LOAD FIRST 32 BITS
513 *J:322 170200 STFPS FPS ;STORE FLOATING POINT STATUS
514 *J:324 170367 177472 STST FEC ;STORE EXCEPTION CODES
515 *J:330 022700 140230 CMP #140230,FPS ;CHECK FLOATING POINT STATUS
516 *J:334 001401 BEQ .+4 ;BRANCH IF OK
517 *J:336 104000 HLT ;FPS NOT EQUAL TO 140230
518
519 *J:340 022767 000016 177454 CMP #16,FEC ;CHECK FLOATING EXCEPTION CODE
520 *J:346 001401 BEQ .+4 ;BRANCH IF OK
521 *J:350 104000 HLT ;FEC NOT EQUAL TO 16
522
523 *J:352 174067 177424 STD AC0,ANS1 ;GET ANSWER
524 *J:356 173467 003736 CMPD ALT1C,AC0 ;RESULT RIGHT?
525 *J:362 170000 CFCC ;GET CC
526 *J:364 001401 BEQ .+4 ;SKIP IF OK
527 *J:366 104004 HLT+4 ;WEIRD ANSWER
528

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Line	Address	Value	Instruction	Register	Comment
529	001370	005003	CLR	R3	;CLEAR
530	001372	170003	LOUB		;UBREAK REG
531					
532					
533			;.....		
534			;TEST 3 TEST OF STAB AND STOP DOUBLE MODE		
535	001374	104400	;.....		
536			TST3:	SCOPE	
537	001376	170127	LOFPS	#40220	;DOUBLE/MAINT BITS
538	001402	172467	LOD	ALTA,ACB	;LOAD ALT 1'S
539	001406	012703	MOV	#115,R3	;LOAD 115 INTO
540	001412	170003	LOUB		;UBREAK REG,
541	001414	172067	ADD	ALTB,ACB	;ADD ALT 1'S
542	001420	170200	STFPS	FPS	;STORE FLOATING POINT STATUS
543	001422	170367	STST	FEC	;STORE EXCEPTION CODES
544	001426	022700	CMF	#140220,FPS	;CHECK FLOATING POINT STATUS
545	001432	001401	BEQ	,+4	;BRANCH IF OK
546	001434	104000	HLT		;FPS NOT EQUAL TO 140220
547					
548	001436	022767	CMF	#16,FEC	;CHECK FLOATING EXCEPTION CODE
549	001444	001401	BEQ	,+4	;BRANCH IF OK
550	001446	104000	HLT		;FEC NOT EQUAL TO 16
551					
552	001450	170003	STAB		;GET AR INTO ACB
553	001452	174067	STD	ACB,ANS1	;GET FOR TYPING
554	001456	042767	BIC	#177600,ANS1	;CLEAR JUNK
555	001464	022767	CMF	#125,ANS1	;IS ANS1 = 125
556	001472	001401	BEQ	,+4	;SKIP IF SAME
557	001474	104004	HLT+4		;ANS1 NOT = 125
558	001476	022767	CMF	#92525,ANS2	;IS ANS2 = 92525
559	001504	001401	BEQ	,+4	;SKIP IF SAME
560	001506	104004	HLT+4		;ANS2 NOT = 92525
561	001510	022767	CMF	#92525,ANS3	;IS ANS3 = 92525
562	001516	001401	BEQ	,+4	;SKIP IF SAME
563	001520	104004	HLT+4		;ANS3 NOT = 92525
564	001522	022767	CMF	#92525,ANS4	;IS ANS4 = 92525
565	001530	001401	BEQ	,+4	;SKIP IF SAME
566	001532	104004	HLT+4		;ANS4 NOT = 92525
567					
568	001534	170007	STOB		;GET OR
569	001536	174067	STD	ACB,ANS1	;GET RESULT
570	001542	042767	BIC	#177600,ANS1	;CLEAR JUNK
571	001550	022767	CMF	#92,ANS1	;IS ANS1 = 92
572	001556	001401	BEQ	,+4	;SKIP IF SAME
573	001560	104004	HLT+4		;ANS1 NOT = 92
574	001562	022767	CMF	#125252,ANS2	;IS ANS2 = 125252
575	001570	001401	BEQ	,+4	;SKIP IF SAME
576	001572	104004	HLT+4		;ANS2 NOT = 125252
577	001574	022767	CMF	#125252,ANS3	;IS ANS3 = 125252
578	001602	001401	BEQ	,+4	;SKIP IF SAME
579	001604	104004	HLT+4		;ANS3 NOT = 125252
580	001606	022767	CMF	#125252,ANS4	;IS ANS4 = 125252
581	001614	001401	BEQ	,+4	;SKIP IF SAME
582	001616	104004	HLT+4		;ANS4 NOT = 125252


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583
584 001620 005003          CLR      R3          ;CLEAR
585 001622 170003          LDUB     ;UBREAK REG.
586
587
588 ;.....
589 ;TEST 4          TEST OF STAB AND STOB FLOATING MODE
590 ;.....
591 TST4:  SCOPE
592 001626 170127 040020    LDFPS   040020      ;FLOATING/MAINT BITS
593 001632 172467 003502    LDF     ALT0,AC0   ;LOAD ALT 1'S
594 001636 012703 000115    MOV     0115,R3    ;LOAD 115 INTO
595 001642 170003          LDUB     ;UBREAK REG.
596 001644 172067 003460    ADDF    ALTA,AC0   ;ADD ALT 1'S
597 001650 170200          STFPS   FPS        ;STORE FLOATING POINT STATUS
598 001652 170367 177144    STST    FEC        ;STORE EXCEPTION CODES
599 001656 022700 140020    CMP     0140020,FPS ;CHECK FLOATING POINT STATUS
600 001662 001401          BEQ     ,+4        ;BRANCH IF OK
601 001664 104000          HLT     ;FPS NOT EQUAL TO 140020
602
603 001666 022767 000016 177126    CMP     016,FEC    ;CHECK FLOATING EXCEPTION CODE
604 001674 001401          BEQ     ,+4        ;BRANCH IF OK
605 001676 104000          HLT     ;FEC NOT EQUAL TO 16
606
607 001700 170007          STOB    ;GET OR INTO AC0
608 001702 174067 177074    STF     AC0,ANS1   ;GET FOR TYPING
609 001706 042767 177000 177066    BIC     0177000,ANS1 ;CLEAR JUNK
610 001714 022767 000125 177060    CMP     0125,ANS1  ;IS ANS1 = 125
611 001722 001401          BEQ     ,+4        ;SKIP IF SAME
612 001724 104004          HLT+4   ;ANS1 NOT = 125
613 001726 022767 052525 177050    CMP     052525,ANS2 ;IS ANS2 = 52525
614 001734 001401          BEQ     ,+4        ;SKIP IF SAME
615 001736 104004          HLT+4   ;ANS2 NOT = 52525
616 001740 022767 125252 177040    CMP     0125252,ANS3 ;IS ANS3 = 125252
617 001746 001401          BEQ     ,+4        ;SKIP IF SAME
618 001750 104004          HLT+4   ;ANS3 NOT = 125252
619 001752 022767 125252 177030    CMP     0125252,ANS4 ;IS ANS4 = 125252
620 001760 001401          BEQ     ,+4        ;SKIP IF SAME
621 001762 104004          HLT+4   ;ANS4 NOT = 125252
622
623 001764 170005          STAB    ;GET AR
624 001766 174067 177010    STF     AC0,ANS1   ;GET RESULT
625 001772 042767 177000 177002    BIC     0177000,ANS1 ;CLEAR JUNK
626 002000 022767 000052 176774    CMP     052,ANS1   ;IS ANS1 = 52
627 002006 001401          BEQ     ,+4        ;SKIP IF SAME
628 002010 104002          HLT+2   ;ANS1 NOT = 52
629 002012 022767 125252 176764    CMP     0125252,ANS2 ;IS ANS2 = 125252
630 002020 001401          BEQ     ,+4        ;SKIP IF SAME
631 002022 104002          HLT+2   ;ANS2 NOT = 125252
632
633 002024 005003          CLR      R3          ;CLEAR
634 002026 170003          LDUB     ;UBREAK REG.
635
636 ;.....

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637                                     )TEST 5          TEST OF MRS
638                                     |.....|
639 #02030 104400                       TST5:  SCOPE
640
641 #02032 170127 #40220                 LDFPS #40220           ;DOUBLE/MAINT BITS
642 #02036 012703 #00115                 MOV #115,R3          ;LOAD 115 INTO
643 #02042 170003                       LOUB                ;UBREAK REG,
644 #02044 172467 #03260                 LOD ALTA,AC0        ;LOAD ALT 1'S
645 #02050 172067 #03264                 ADD ALT0,AC0        ;ADD ALT 1'S
646 #02054 170006                       MRS
647 #02056 170007                       ST00
648 #02060 174067 176716                 STO AC0,ANS1        ;GET OR INTO AC0
649 #02064 170200                       STFPS FPS           ;GET RESULT
650 #02066 042767 177600 176706         BIC #177600,ANS1    ;GET FPS
651 #02074 022767 #00125 176700         CMP #125,ANS1       ;CLEAR JUNK
652 #02102 001401                       BEQ ,+4             ;IS IT 125?
653 #02104 104004                       HLT+4              ;SKIP IF OK
654                                     ;FIRST WORD IS NOT 125
655 #02106 170005                       STAB
656 #02110 174067 176666                 STD AC0,ANS1        ;GET AR INTO A0
657 #02114 042767 177600 176660         BIC #177600,ANS1    ;GET RESULT
658 #02122 022767 #00152 176652         CMP #152,ANS1       ;CLEAR JUNK
659 #02130 001401                       BEQ ,+4             ;CHECK RESULT
660 #02132 104004                       HLT+4              ;SKIP IF OK
661                                     ;AR NOT 152
662 #02134 005003                       CLR R3              ;CLEAR
663 #02136 170003                       LOUB                ;UBREAK REG
664
665                                     |.....|
666 )TEST 6          TEST OF L0SC FOR MULD OF 1
667 |.....|
668 #02140 104400                       TST6:  SCOPE
669
670 #02142 170127 #40220                 LDFPS #40220           ;DOUBLE/MAINT BITS
671 #02146 012703 #00230                 MOV #230,R3          ;LOAD 230 INTO
672 #02152 170003                       LOUB                ;UBREAK REG,
673 #02154 012704 #00001                 MOV #1,R4           ;LOAD 1 INTO
674 #02160 170004                       L0SC                ;SHIFT COUNT REG.
675 #02162 172467 #00206                 LOD 10,AC0          ;LOAD INTO AC0 = 40000,0,0,0
676 #02166 171067 #00212                 MULD 20,AC0         ;MULD BY 40292,125292,125292,125292
677 #02172 170200                       STFPS FPS           ;STORE FLOATING POINT STATUS
678 #02174 170367 176622                 STST FEC            ;STORE EXCEPTION CODES
679 #02200 022700 140220                 CMP #140220,FPS     ;CHECK FLOATING POINT STATUS
680 #02204 001401                       BEQ ,+4             ;BRANCH IF OK
681 #02206 104000                       HLT                 ;FPS NOT EQUAL TO 140220
682
683 #02210 022767 #00016 176604         CMP #16,FEC         ;CHECK FLOATING EXCEPTION CODE
684 #02216 001401                       BEQ ,+4             ;BRANCH IF OK
685 #02220 104000                       HLT                 ;FEC NOT EQUAL TO 16
686
687 #02222 170005                       STAB
688 #02224 174067 176552                 STD AC0,ANS1        ;GET AR
689 #02230 042767 177600 176544         BIC #177600,ANS1    ;GET FOR TYPING
690 #02236 170007                       ST00                ;CLEAR JUNK
                                     ;GET OR

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691	702240	174067	176546			STD	AC0,ANS5	;GET FOR TYPING
692	702244	042767	177600	176540		BIC	#177600,ANS5	;CLEAR JUNK
693	002252	022767	000000	176522		CMP	#0,ANS1	;IS ANS1 = 0
694	002260	001401				BEO	,+4	;SKIP IF SAME
695	702262	104010				HLT+R.		;ANS1 NOT = 0
696	002264	022767	000000	176512		CMP	#0,ANS2	;IS ANS2 = 0
697	002272	001401				BEO	,+4	;SKIP IF SAME
698	002274	104010				HLT+0.		;ANS2 NOT = 0
699	002276	022767	000000	176502		CMP	#0,ANS3	;IS ANS3 = 0
700	002304	001401				BEO	,+4	;SKIP IF SAME
701	002306	104010				HLT+0.		;ANS3 NOT = 0
702	002310	022767	000000	176472		CMP	#0,ANS4	;IS ANS4 = 0
703	002316	001401				BEO	,+4	;SKIP IF SAME
704	002320	104010				HLT+0.		;ANS4 NOT = 0
705	002322	022767	000125	176462		CMP	#125,ANS5	;IS ANS5 = 125
706	002330	001401				BEO	,+4	;SKIP IF SAME
707	002332	104010				HLT+0.		;ANS5 NOT = 125
708	002334	022767	052525	176452		CMP	#52525,ANS6	;IS ANS6 = 52525
709	002342	001401				BEO	,+4	;SKIP IF SAME
710	002344	104010				HLT+0.		;ANS6 NOT = 52525
711	002346	022767	052525	176442		CMP	#52525,ANS7	;IS ANS7 = 52525
712	002354	001401				BEO	,+4	;SKIP IF SAME
713	002356	104010				HLT+0.		;ANS7 NOT = 52525
714	002360	022767	052525	176432		CMP	#52525,ANS8	;IS ANS8 = 52525
715	002366	001401				BEO	,+4	;SKIP IF SAME
716	002370	104010				HLT+0.		;ANS8 NOT = 52525
717	002372	000410				BR	55	;SKIP JUNK
718								
719	002374	040000	000000	000000	15:		40000,0,0,0	
720	002402	000000						
721	002404	040252	125252	125252	25:		40252,125252,125252,125252	
722	002412	125252						
723								
724	002414	005003			55:	CLR	R3	;CLEAR
725	002416	170003				LOUB		;UBREAK REG.
726								
727								
728								
729								
730								
731	002420	104400						
732								
733	002422	170127	040220			LOFPS	#40220	;DOUBLE/MAINT BITS
734	002426	012703	000230			MOV	#230,R3	;LOAD 230 INTO
735	002432	170003				LOUB		;UBREAK REG.
736	002434	012704	000071			MOV	#71,R4	;LOAD 71 INTO
737	002440	170004				LCSC		;SHIFT COUNT REG.
738	002442	172467	000206			LDD	15,AC0	;LOAD INTO AC0 = 40000,0,0,0
739	002446	171067	000212			MULD	25,AC0	;MULD BY 40252,125252,125252,125252
740	002452	170200				STFPS	FPS	;STORE FLOATING POINT STATUS
741	002454	170367	176342			STST	FEC	;STORE EXCEPTION CODES
742	002460	022700	140220			CMP	#140220,FPS	;CHECK FLOATING POINT STATUS
743	002464	001401				BEO	,+4	;BRANCH IF OK
744	002466	104000				HLT		;FPS NOT EQUAL TO 140220

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745
746 002470 022767 000016 176324      CMP      #16,FEC      ;CHECK FLOATING EXCEPTION CCDE
747 002476 001401      BEQ      ,+4      ;BRANCH IF OK
748 002500 104000      HLT
749
750 002502 170005      STAB
751 002504 174067 176272      STD      AC0,ANS1  ;GET FOR TYPING
752 002510 042767 177600 176264      BIC      #177600,ANS1 ;CLEAR JUNK
753 002516 170007      STQB
754 002520 174067 176266      STD      AC0,ANS5  ;GET FOR TYPING
755 002524 042767 177600 176260      BIC      #177600,ANS5 ;CLEAR JUNK
756 002532 022767 000125 176242      CMP      #125,ANS1 ;IS ANS1 = 125
757 002540 001401      BEQ      ,+4      ;SKIP IF SAME
758 002542 104010      HLT+0.  ;ANS1 NOT = 125
759 002544 022767 052525 176232      CMP      #52525,ANS2 ;IS ANS2 = 52525
760 002552 001401      BEQ      ,+4      ;SKIP IF SAME
761 002554 104010      HLT+0.  ;ANS2 NOT = 52525
762 002556 022767 052525 176222      CMP      #52525,ANS3 ;IS ANS3 = 52525
763 002564 001401      BEQ      ,+4      ;SKIP IF SAME
764 002566 104010      HLT+0.  ;ANS3 NOT = 52525
765 002570 022767 052525 176212      CMP      #52525,ANS4 ;IS ANS4 = 52525
766 002576 001401      BEQ      ,+4      ;SKIP IF SAME
767 002600 104010      HLT+0.  ;ANS4 NOT = 52525
768 002602 022767 000000 176202      CMP      #0,ANS5   ;IS ANS5 = 0
769 002610 001401      BEQ      ,+4      ;SKIP IF SAME
770 002612 104010      HLT+0.  ;ANS5 NOT = 0
771 002614 022767 000000 176172      CMP      #0,ANS6   ;IS ANS6 = 0
772 002622 001401      BEQ      ,+4      ;SKIP IF SAME
773 002624 104010      HLT+0.  ;ANS6 NOT = 0
774 002626 022767 000000 176162      CMP      #0,ANS7   ;IS ANS7 = 0
775 002634 001401      BEQ      ,+4      ;SKIP IF SAME
776 002636 104010      HLT+0.  ;ANS7 NOT = 0
777 002640 022767 000000 176152      CMP      #0,ANS8   ;IS ANS8 = 0
778 002646 001401      BEQ      ,+4      ;SKIP IF SAME
779 002650 104010      HLT+0.  ;ANS8 NOT = 0
780 002652 000410      BR      55
781
782 002654 040000 000000 000000 15: 40000,0,0,0
783 002662 000000
784 002664 040252 125252 125252 25: 40252,125252,125252,125252
785 002672 125252
786
787 002674 005003 55: CLR      R3      ;CLEAR
788 002676 170003      LOUB     ;UBREAK REG.
789
790
791
792
793
794 002700 104400
795
796 002702 170127 040220      LDPPS   #40220     ;DOUBLE/MAINT BITS
797 002706 012703 000314      MOV     #314,R3    ;LOAD 314 INTO
798 002712 170003      LOUB     ;UBREAK REG.

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.....
;TEST 10      TEST OF LDSC FOR DIVD OF 1
;TEST10: SCOPE

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799	P02714	012704	000001			MOV	01,R4	:LOAD 1 INTC
800	P02720	170004				LOSC		:SHIFT COUNT REG.
801	P02722	172467	000206			LDD	18,AC0	:LOAD INTO AC0 = 40000,0,0,0
802	P02726	174467	000212			DIVD	28,AC0	:DIVD BY 40252,125252,125252,125252
803	P02732	170200				STFPS	FPS	:STORE FLOATING POINT STATUS
804	P02734	170367	176062			STST	FEC	:STORE EXCEPTION CODES
805	P02740	022700	140220			CMP	0140220,FPS	:CHECK FLOATING POINT STATUS
806	P02744	001401				BEQ	,+4	:BRANCH IF CK
807	P02746	104000				HLT		:FPS NOT EQUAL TO 140220
808								
809	P02750	022767	000016	176044		CMP	016,FEC	:CHECK FLOATING EXCEPTION CODE
810	P02756	001401				BEQ	,+4	:BRANCH IF CK
811	P02760	104000				HLT		:FEC NOT EQUAL TO 16
812								
813	P02762	170005				STAB		:GET AB
814	P02764	174067	176012			STD	AC0,ANS1	:GET FOR TYPING
815	P02770	042767	177600	176004		BIC	0177600,ANS1	:CLEAR JUNK
816	P02776	170007				STOB		:GET OB
817	P03000	174067	176006			STD	AC0,ANS5	:GET FOR TYPING
818	P03004	042767	177600	176000		BIC	0177600,ANS5	:CLEAR JUNK
819	P03012	022767	000052	175762		CMP	052,ANS1	:IS ANS1 = 52
820	P03020	001401				BEQ	,+4	:SKIP IF SAME
821	P03022	104010				HLT+0.		:ANS1 NOT = 52
822	P03024	022767	125252	175752		CMP	0125252,ANS2	:IS ANS2 = 125252
823	P03032	001401				BEQ	,+4	:SKIP IF SAME
824	P03034	104010				HLT+0.		:ANS2 NOT = 125252
825	P03036	022767	125252	175742		CMP	0125252,ANS3	:IS ANS3 = 125252
826	P03044	001401				BEQ	,+4	:SKIP IF SAME
827	P03046	104010				HLT+0.		:ANS3 NOT = 125252
828	P03050	022767	125254	175732		CMP	0125254,ANS4	:IS ANS4 = 125254
829	P03056	001401				BEQ	,+4	:SKIP IF SAME
830	P03060	104010				HLT+0.		:ANS4 NOT = 125254
831	P03062	022767	000125	175722		CMP	0125,ANS5	:IS ANS5 = 125
832	P03070	001401				BEQ	,+4	:SKIP IF SAME
833	P03072	104010				HLT+0.		:ANS5 NOT = 125
834	P03074	022767	052525	175712		CMP	052525,ANS6	:IS ANS6 = 52525
835	P03102	001401				BEQ	,+4	:SKIP IF SAME
836	P03104	104010				HLT+0.		:ANS6 NOT = 52525
837	P03106	022767	052525	175702		CMP	052525,ANS7	:IS ANS7 = 52525
838	P03114	001401				BEQ	,+4	:SKIP IF SAME
839	P03116	104010				HLT+0.		:ANS7 NOT = 52525
840	P03120	022767	052524	175672		CMP	052524,ANS8	:IS ANS8 = 52524
841	P03126	001401				BEQ	,+4	:SKIP IF SAME
842	P03130	104010				HLT+0.		:ANS8 NOT = 52524
843	P03132	000410				BR	58	:SKIP JUNK
844								
845	P03134	040000	000000	000000	18:		40000,0,0,0	
846	P03142	000000						
847	P03144	040252	125252	125252	28:		40252,125252,125252,125252	
848	P03152	125252						
849								
850	P03154	005003			58:	CLR	R3	:CLEAR
851	P03156	170003				LODB		:UBREAK REG.
852								

853									
854									
855									
856									
857	033160	104400							
858									
859	033162	170127	040220						
860	033166	012703	000314						
861	033172	170003							
862	033174	012704	000071						
863	033200	170004							
864	033202	172467	000206						
865	033206	174467	000212						
866	033212	170200							
867	033214	170367	175602						
868	033220	022700	140220						
869	033224	001401							
870	033226	104000							
871									
872	033230	022767	000016	175564					
873	033236	001401							
874	033240	104000							
875									
876	033242	170005							
877	033244	174067	175532						
878	033250	042767	177600	175524					
879	033256	170007							
880	033260	174067	175526						
881	033264	042767	177600	175520					
882	033272	022767	000052	175502					
883	033300	001401							
884	033302	104010							
885	033304	022767	125252	175472					
886	033312	001401							
887	033314	104010							
888	033316	022767	125252	175462					
889	033324	001401							
890	033326	104010							
891	033330	022767	125254	175452					
892	033336	001401							
893	033340	104010							
894	033342	022767	000014	175442					
895	033350	001401							
896	033352	104010							
897	033354	022767	000000	175432					
898	033362	001401							
899	033364	104010							
900	033366	022767	000000	175422					
901	033374	001401							
902	033376	104010							
903	033400	022767	000000	175412					
904	033406	001401							
905	033410	104010							
906	033412	000410							

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;.....
;TEST 11      TEST OF LDSC FOR DIVD OF 71
;.....
TST11: SCOPE

LDFPS      040220      ;DOUBLE/MAINT BITS
MOV        0314,R3    ;LOAD 314 INTO
LDUB      ;SUBRACK REG,
MOV        071,R4     ;LOAD 71 INTO
LDSC      ;SHIFT COUNT REG,
LDD       15,AC0     ;LOAD INTO AC0 = 40000,0,0,0
DIVD      25,AC0     ;DIVD BY 40252,125252,125252,125252
STFPS     FPS        ;STORE FLOATING POINT STATUS
STST      FEC        ;STORE EXCEPTION CODES
CMP       0140220,FPS ;CHECK FLOATING POINT STATUS
BEQ       .+4        ;BRANCH IF OK
HLT       ;FPS NOT EQUAL TO 140220

CMP       016,FEC    ;CHECK FLOATING EXCEPTION CODE
BEQ       .+4        ;BRANCH IF OK
HLT       ;FEC NOT EQUAL TO 16

STAB      ;GET AN
STD       AC0,ANS1   ;GET FOR TYPING
BIC       0177600,ANS1 ;CLEAR JUNK
STOB      ;GET OR
STD       AC0,ANS5   ;GET FOR TYPING
BIC       0177600,ANS5 ;CLEAR JUNK
CMP       052,ANS1   ;IS ANS1 = 52
BEQ       .+4        ;SKIP IF SAME
HLT+0.    ;ANS1 NOT = 52
CMP       0125252,ANS2 ;IS ANS2 = 125252
BEQ       .+4        ;SKIP IF SAME
HLT+0.    ;ANS2 NOT = 125252
CMP       0125252,ANS3 ;IS ANS3 = 125252
BEQ       .+4        ;SKIP IF SAME
HLT+0.    ;ANS3 NOT = 125252
CMP       0125254,ANS4 ;IS ANS4 = 125254
BEQ       .+4        ;SKIP IF SAME
HLT+0.    ;ANS4 NOT = 125254
CMP       014,ANS5   ;IS ANS5 = 14
BEQ       .+4        ;SKIP IF SAME
HLT+0.    ;ANS5 NOT = 14
CMP       00,ANS6   ;IS ANS6 = 0
BEQ       .+4        ;SKIP IF SAME
HLT+0.    ;ANS6 NOT = 0
CMP       00,ANS7   ;IS ANS7 = 0
BEQ       .+4        ;SKIP IF SAME
HLT+0.    ;ANS7 NOT = 0
CMP       00,ANS8   ;IS ANS8 = 0
BEQ       .+4        ;SKIP IF SAME
HLT+0.    ;ANS8 NOT = 0
BR        55        ;SKIP JUNK

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027									
028	023414	240000	000000	000000	18:			40300.0.0.0	
029	023422	000000							
030	023424	040252	125252	125252	28:			40252.125252.125252.125252	
031	023432	125252							
032									
033	023434	005003			58:	CLR	R3		:CLEAR
034	023436	170003				LDUB			:JBREAK REG.
035									
036									
037	003440	000167	001002			JMP	DONE		

918	023444	005067	175330		TSTMULI CLR	ICNT	
919	023450	104400			SCOPE		
920	023452	004767	000456		JSR	PC,GETTY	;GET TTY INPUT
921	023456	170127	040220		LDFPS	040220	;DOUBLE/MAINT MODES
922	023462	012703	000230		MOV	0230,R3	
923	023466	170003			LDUB		
924	023470	005004			CLR	R4	
925	023472	012767	003510	002214	MOV	010,LAD	
926	023500	172767	175276		LDD	ANS1,AC3	;GET FIRST
927	023504	172567	175302		LDD	ANS5,AC1	;GET SECOND
928	023510	172603		151	LDD	AC3,AC2	;RESTORE
929	023512	005204			INC	R4	;INC SHIFT COUNT
930	023514	170004			LQSC		
931	023516	171201			MULD	AC1,AC2	;MULTIPLY
932	023520	170005			STAB		
933	023522	174067	175254		STD	AC0,ANS1	;GET RESULT
934	023526	170007			STOB		
935	023530	174067	175256		STD	AC0,ANS5	;GET RESULT
936							
937	023534	042767	177600	175240	BIC	0177600,ANS1	
938	023542	042767	177600	175242	BIC	0177600,ANS5	
939	023550	170006			MRS		
940	023552	170006			MRS		
941	023554	170005			STAB		
942	023556	174067	000004		STD	AC0,INPUT	
943	023562	006167	000000		ROL	INPUT	
944	023566	006167	000574		ROL	INPUT	
945	023572	042767	177477	000566	BIC	0177477,INPUT	
946	023600	056767	000562	175174	BIS	INPUT,ANS1	
947	023606	170007			STOB		
948	023610	174067	000552		STD	AC0,INPUT	
949	023614	006167	000546		ROL	INPUT	
950	023620	006167	000542		ROL	INPUT	
951	023624	042767	177477	000534	BIC	0177477,INPUT	
952	023632	056767	000530	175152	BIS	INPUT,ANS5	
953	023640	010400			MOV	R4,R0	
954	023642	104010			HLT+0.		
955	023644	022704	000071		CHP	071,R4	
956	023650	001002			BNE	35	
957	023652	105067	175123		CLRB	ICNT+1	
958	023656	104400		351	SCOPE		
959	023660	170127	040200		LDFPS	040200	
960	023664	172603			LDD	AC3,AC2	
961	023666	171201			MULD	AC1,AC2	
962	023670	170200			STFPS	FPS	
963	023672	104010			HLT+0.		
964	023674	000167	177544		JMP	TSTMUL	

965	003700	005067	175074		TSTDIV: CLR	ICNT	
966	003704	104400			SCOPE		
967	003706	004767	000222		JSR	PC,GETTY	;GET TTY INPUT
968	003712	170127	040220		LDFPS	040220	;DOUBLE/MAINT MODES
969	003716	012703	000314		MOV	0314,R3	
970	003722	170003			LDUB		
971	003724	005004			CLR	R4	
972	003726	012767	003744	001760	MOV	018,LAD	
973	003734	172767	175042		LDD	ANS1,AC3	;GET FIRST
974	003740	172567	175046		LDD	ANS5,AC1	;GET SECOND
975	003744	172603			LDD	AC3,AC2	;RESTORE
976	003746	005204			IS: INC	R4	;INC SWIFT COUNT
977	003750	170004			LDSC		
978	003752	174601			DIVD	AC1,AC2	;DIVIDE
979	003754	170005			STAB		
980	003756	174067	175020		STD	AC0,ANS1	;GET RESULT
981	003762	170007			STOB		
982	003764	174067	175022		STD	AC0,ANS5	;GET RESULT
983							
984	003770	042767	177600	175004	BIC	0177600,ANS1	
985	003776	042767	177600	175006	BIC	0177600,ANS5	
986	004004	170006			MRS		
987	004006	170006			MRS		
988	004010	170005			STAB		
989	004012	174067	000350		STD	AC0,INPUT	
990	004016	006167	000344		ROL	INPUT	
991	004022	006167	000340		RCL	INPUT	
992	004026	042767	177477	000332	BIC	0177477,INPUT	
993	004034	056767	000326	174740	BIS	INPUT,ANS1	
994	004042	170007			STOB		
995	004044	174067	000316		STD	AC0,INPUT	
996	004050	006167	000312		ROL	INPUT	
997	004054	006167	000306		ROL	INPUT	
998	004060	042767	177477	000300	BIC	0177477,INPUT	
999	004066	056767	000274	174716	BIS	INPUT,ANS5	
1000	004074	010400			MOV	R4,R0	
1001	004076	104010			HLT+0.		
1002	004100	022704	000071		CMR	071,R4	
1003	004104	001002			BNE	38	
1004	004106	105067	174067		CLRB	ICNT+1	
1005	004112	104400			3S: SCOPE		
1006	004114	170127	040200		LDFPS	040200	
1007	004120	172603			LDD	AC3,AC2	
1008	004122	174601			DIVD	AC1,AC2	
1009	004124	170200			STFPS	FPS	
1010	004126	104010			HLT+0.		
1011	004130	000167	177544		JMP	TSTDIV	

1012 004134
1013 004134 000004 004140
1014 004140 005027 000000
1015 004152 012702 001002
1016 004150 004567 000100
1017 004162 004366
1018 004164 005012
1019 004166 012701 004366
1020 004172 122711 000015
1021 004170 001420
1022 004200 122711 000040
1023 004204 001411
1024 004206 106011
1025 004210 106011
1026 004212 106011
1027 004214 006112
1028 004216 106111
1029 004220 006112
1030 004222 106121
1031 004224 006112
1032 004226 000701
1033 004230 105721
1034 004232 005722
1035 004234 005012
1036 004236 000755
1037 004240 005767 177704
1038 004244 001010
1039 004246 000004 004252
1040 004250 005722
1041 004260 005167 177604
1042 004264 000734
1043 004266 000207
1244
1045 004270 012503
1046 004272 105767 173202
1047 004276 100375
1048 004300 116713 173256
1049 004304 142713 000200
1050 004310 111367 001374
1051 004314 000004 005710
1052 004320 122713 000177
1053 004324 001411
1054 004326 122723 000015
1055 004332 001357
1056 004334 012707 000012 001340
1057 004342 000004 005710
1058 004346 000205
1059 004350 000004 004362
1060 004354 016503 177776
1061 004360 000744
1062 004362 006477 000012
1063 004366 000030

GETTY: TYPE ,,+2 ;.ASCIZ <15><12>"1) "
FLAG: CLR 00
MOV 0ANS1,R2
58: JSR R9,GOGET
INPUT
CLR (2)
MOV 0INPUT,R1
38: CMPB 015,(1) ;IS IT A CR?
BEQ 15
CMPB 040,(1) ;HOW ABOUT A SPACE
BEQ 25
RCRB (1)
MORB (1)
RCRB (1)
ROL (2)
ROLB (1)
ROL (2)
ROLB (1)+
ROL (2)
BR 35
28: TSTB (1)+ ;TRY NEXT BYTE
TST (2)+
CLR (2)
BR 35
18: TST FLAG+2 ;FIRST TIME?
BNE 65
TYPE ,,+2 ;.ASCIZ "2) "
TST (2)+
COM FLAG+2
BR 55
68: RTS PC
GOGET: MOV (5)+,R3 ;GET ADDRESS
18: TSTB 177500
BPL ,+4
MOVB 177502,(3) ;GET CHARACTER
BICB 0200,(3)
MOVB (3),,TYPE ;SET UP FOR TYPING
TYPE ,,TYPE
CMPB 0177,(3)
BEQ 25
CMPB 015,(3)+ ;CHECK FOR RETURN
BNE 15
MOV 012,,TYPE ;TYPE A 12
TYPE ,,TYPE
RTS R9
28: TYPE ,QUES
MOV -2(5),R3
BR 15
QUES: ,ASCIZ "?"<15><12>
INPUT: ,BLKW 30

1264	RJ4446	104400			DONEI	SCOPE			
1265	RJ4450	032737	002000	177570		BIT	0SW12,00SWR		;RING THE BELL?
1266	RJ4456	001005				BNE	15		;NOI
1267	RJ4460	012767	000007	001222		MOV	0BELL,,TYPE		;TYPE A BELL
1268	RJ4466	000004	005710			TYPE	,,TYPE		
1269	RJ4472	005046			15:	CLR	-(6)		;CLEAR TRACE TRAP
1270	RJ4474	032737	010000	177570		BIT	0SW12,00SWR		;RUN WITH TRT?
1271	RJ4502	001010				BNE	25		
1272	RJ4504	005167	001202			COM	TRPB		
1273	RJ4510	100005				BPL	25		
1274	RJ4512	052716	000020			BIS	020,(6)		;SET TRACE TRAP
1275	RJ4516	012746	001062			MOV	0BEGIN,-(6)		;JUMP TO START OF TEST
1276	RJ4522	000412				BR	YESRT		
1277	RJ4524	012746	001062		25:	MOV	0BEGIN,-(6)		;JUMP TO START OF TEST
1278	RJ4530	013700	000042			MOV	0042,R0		;GET MONITOR ADDRESS
1279	RJ4534	001404				BEQ	35		;IF NONE
1280	RJ4536	004710				JSR	7,(0)		;GO TO MONITOR
1281	RJ4540	000240				NOP			
1282	RJ4542	000240				NOP			
1283	RJ4544	000240				NOP			
1284	RJ4546	000002			35:	RTI			
1285	RJ4550	000002			YESRT:	RTI			;RETURN TO PROGRAM FROM TRAP
1286									
1287	RJ4552	032737	000400	177570	.CNT:	BIT	0SW00,00SWR		;KILL LOUD OR LOOP ON SPEC. TEST
1288	RJ4560	001404				BEQ	15		
1289	RJ4562	123767	177570	174210		CMPS	00SWR,ICNT		;ON RIGHT TEST? 0SW7-00
1290	RJ4570	001434				BEQ	OVER		
1291	RJ4572	032737	040000	177570	15:	BIT	0SW14,00SWR		;LOOP ON TEST
1292	RJ4600	001026				BNE	KIT		
1293	RJ4602	032737	004000	177570		BIT	0SW11,00SWR		;KILL ITERATIONS
1294	RJ4610	001012				BNE	SAVLAD		
1295	RJ4612	105767	174163			TSTB	ICNT+1		
1296	RJ4616	001404				BEQ	25		;BRANCH IF FIRST
1297	RJ4620	126767	001074	174153		CMPS	TIMES,ICNT+1		;DONE?
1298	RJ4626	001013				BNE	KIT		;BRANCH IF NOT
1299	RJ4630	112767	000001	174143	25:	MOVB	01,ICNT+1		;FIRST ITERATION
1100	RJ4636	105267	174136		SAVLAD:	INCB	ICNT		;COUNT TEST NUMBERS
1101	RJ4642	011667	001046			MOV	(0),LAD		;SAVE LOOP ADDRESS
1102	RJ4646	016737	174126	177570		MOV	ICNT,00DISPLAY		;DISPLAY TEST NO. AND ITERATION COUNT
1103	RJ4654	000002				RTI			;RETURN
1104									
1105	RJ4656	105267	174117		KIT:	INCB	ICNT+1		
1106	RJ4662	016737	174112	177570	OVER:	MOV	ICNT,00DISPLAY		;SET UP DISPLAY
1107	RJ4670	005767	001020			TST	LAD		;FIRST ONE?
1108	RJ4674	001760				BEQ	SAVLAD		
1109	RJ4676	016716	001012			MOV	LAD,(6)		;FUDGE RETURN ADDRESS
1110	RJ4702	000002				RTI			;FIXES PS

1111	034724	032737	022000	177570	.TRP:	HIT	05H17.0054H	:HLL ON ERROR?
1112	034712	001405				BEQ	18	:NO - SKIP
1113	034714	012767	000007	000760		MOV	09ELL.,TYPE	:TYPE A HELL
1114	034722	007014	005710			TYPE	,TYPE	
1115	034726	005267	000764		18:	INC	ERRDPS	:COUNT THE NUMBER OF ERRORS
1116	034732	017440				MOV	R4,-(6)	
1117	034734	032737	022000	177570		RIT	05H13.0054H	:SKIP TYPEOUT IF SET
1118	034742	001072				RNE	48	
1119	034744	000074	005056			TYPE	,NETJNL	
1120	034750	016646	000072			MOV	2(6),-(6)	:PUT ADDRESS OF INSTRUCTION ON STACK
1121	034754	002116	000002			SLB	02,(6)	
1122	034760	011605				MOV	(6),TTY	:TYPE (6) IN OCTAL
1123	034762	004767	000156			JSR	X7,PRINTR	:TYPE LEADING ZERO'S
1124	034766	000004	005064			TYPE	,SPACE+3	
1125	034772	010005				MOV	R0,TTY	:TYPE R0 IN OCTAL
1126	034774	004767	000144			JSR	X7,PRINTR	:TYPE LEADING ZERO'S
1127	035000	000004	005065			TYPE	,SPACE+4	
1128	035004	012723	001002			MOV	0ANS1,R3	:ADDRESS OF DATA
1129	035010	013604				MCVB	0(6)+,R4	:AMOUNT OF DATA IN TABLE
1130	035012	001426				BEQ	38	
1131	035014	000016				RPL	28	:TYPE STACK?
1132	035016	016667	000006	173756		MOV	6(6),ANS1	
1133	035024	016667	000010	173752		MOV	10(6),ANS2	
1134	035032	016667	000012	173746		MOV	12(6),ANS3	
1135	035040	016667	000014	173742		MOV	14(6),ANS4	
1136	035046	042734	177600			BIC	0177600,R4	:CLEAR SIGN
1137	035052	000004	005065		28:	TYPE	,SPACE+4	
1138	035056	012305				MOV	(3)+,TTY	:TYPE (3)+ IN OCTAL
1139	035060	004767	000060			JSR	X7,PRINTR	:TYPE LEADING ZERO'S
1140	035064	005304				DEC	R4	
1141	035066	001371				RNE	28	
1142	035070	005700			38:	TST	FPS	
1143	035072	000016				BPL	48	
1144	035074	000004	005061			TYPE	,SPACE	
1145	035100	170367	173716			STST	FEC	
1146	035104	016705	173712			MOV	FEC,TTY	:TYPE FEC IN OCTAL
1147	035110	004767	000030			JSR	X7,PRINTR	:TYPE LEADING ZERO'S
1148	035114	000004	005064			TYPE	,SPACE+3	
1149	035120	016705	173700			MOV	FEA,TTY	:TYPE FEA IN OCTAL
1150	035124	004767	000014			JSR	X7,PRINTR	:TYPE LEADING ZERO'S
1151	035130	012604			48:	MOV	(6)+,R4	
1152	035132	005737	177570			TST	00SHR	:HALT ON ERROR
1153	035136	000001				BPL	,+4	:SKIP IF CONTINUE
1154	035140	000000				HALT		:HALT ON ERROR!
1155	035142	000002				RTI		

1156	035144	112767	000001	000130	PRINTR:	MOVB	#1,A45		;SET ZERO FILL SWITCH
1157	035152	000402				BR	,+6		
1158	005154	005067	000122		PRINTS:	CLR	A45		;SUPPRESS LEADING ZERO'S
1159	035160	112767	177772	000115		MOVB	#-6,A45+1		;SET COUNT
1160	005166	010446				MOV	R4,-(6)		;SAVE R4
1161	035170	012704	005272			MOV	#35,R4		;SET POINTER TO FIRST ASCII CHAR.
1162	005174	105014				CLRB	(4)		;CLEAR FIRST BYTE
1163	035176	000405				BR	25		;ROTATE FIRST BIT
1164	035200	105014			15:	CLRB	(4)		;CLEAR BYTE OF CHARACTER
1165	005202	006105				ROL	TTY		;ROTATE BIT INTO C
1166	035204	106114				ROLB	(4)		;PACK IT
1167	035206	006105				ROL	TTY		;ROTATE BIT INTO C
1168	035210	106114				ROLB	(4)		;PACK IT
1169	035212	006105			25:	ROL	TTY		;ROTATE BIT INTO C
1170	005214	106114				ROLB	(4)		;PACK IT
1171	005216	105714				TSTB	(4)		
1172	005220	001402				BEO	,+6		
1173	005222	105267	000054			INCB	A45		
1174	005226	105767	000050			TSTB	A45		;CHECK FILL SWITCH
1175	005232	001402				BEO	,+6		
1176	005234	152724	000060			B19B	#'0,(4)+		;MAKE INTO ASCII CHAR
1177	005240	105267	000037			INCB	A45+1		
1178	035244	001355				BNE	15		;REPEAT
1179	005246	022704	005272			CHP	#35,R4		
1180	005252	001002				BNE	,+6		
1181	035254	112724	000060			MOVB	#'0,(4)+		
1182	035260	105014				CLRB	(4)		
1183	005262	000004	005272			TYPE	,35		;TYPE IT
1184	035266	012604				MOV	(6)+,R4		;RESTORE R4
1185	005270	000207				RTS	PC		
1186									
1187	005272	000004			35:	,BLKW	4		
1188	035302	000000			A45:	0			
1189									
1190	005304	052525	052525	052525	ALT1A:	52525,52525,52525,52525			
1191	005312	052525							
1192	035314	125252	125252		ALT1B:	125252,125252			
1193	035320	125252	125252	052525	ALT1C:	125252,125252,52525,52525			
1194	035326	052525							
1195	005330	040125	052525	052525	ALTA:	40125,52525,52525,52525			
1196	005336	052525							
1197	005340	040052	125252	125252	ALTB:	40052,125252,125252,125252			
1198	005346	125252							
1199	035350	000125	052525	052525	ANSA:	125,52525,52525,52525			
1200	005356	052525							
1201	035360	000052	125252	125252	ANSB:	52,125252,125252,125252			
1202	035366	125252							
1203									

12J4	005370	012777	005364	000306	POWDOWN:	MOV	#ILLUP,#UPVEC	;SET FOR FAST UP
1205	005376	012777	000340	000302		MOV	#J40,#UPVEC+2	;PRIO:7
12J6	005404	170246				STFPS	-(6)	;GET THE FPS
1207	005406	170011				SETD		
12J8	005410	174046				STD	AC0,-(6)	;SAVE AC'S
12J9	005412	174146				STD	AC1,-(6)	
1210	005414	174246				STD	AC2,-(6)	
1211	005416	174346				STD	AC3,-(6)	
1212	005420	172404				LDD	AC4,AC0	
1213	005422	174046				STD	AC0,-(6)	
1214	005424	172405				LDD	AC5,AC0	
1215	005426	174046				STD	AC0,-(6)	
1216	005430	010046				MCV	R0,-(6)	;SAVE REGISTERS
1217	005432	010146				MOV	R1,-(6)	
1218	005434	010246				MOV	R2,-(6)	
1219	005436	010346				MOV	R3,-(6)	
1220	005440	010446				MOV	R4,-(6)	
1221	005442	010546				MOV	R5,-(6)	
1222	005444	010667	000220			MOV	SP,SAVE6	;SAVE SP
1223	005450	012777	005460	000226		MOV	#POWUP,#UPVEC	;SET UP VECTOR
1224	005456	000000				HALT		
1225								
1226	005460	016706	000204		POWUP:	MOV	SAVE6,SP	;GET SP
1227	005464	005001				CLR	R1	;WAIT LOOP FOR THE TTY
1228	005466	005201			15:	INC	R1	
1229	005470	001376				BNE	15	
1230	005472	012605				MOV	(6)+,R5	;GET THE REGISTERS
1231	005474	012604				MOV	(6)+,R4	
1232	005476	012603				MOV	(6)+,R3	
1233	005500	012602				MOV	(6)+,R2	
1234	005502	012601				MOV	(6)+,R1	
1235	005504	012600				MOV	(6)+,R0	
1236	005506	170011				SETD		
1237	005510	172426				LDD	(6)+,AC0	;RESTORE THE AC'S
1238	005512	174005				STD	AC0,AC5	
1239	005514	172426				LDD	(6)+,AC0	
1240	005516	174004				STD	AC0,AC4	
1241	005520	172726				LDD	(6)+,AC3	
1242	005522	172626				LDD	(6)+,AC2	
1243	005524	172526				LDD	(6)+,AC1	
1244	005526	172426				LDD	(6)+,AC0	
1245	005530	170126				LOFPS	(6)+	;RESTORE FPS
1246	005532	012777	005370	000140		MOV	#POWDOWN,#DOWNVEC	;SET UP THE POWER DOWN VECTOR
1247	005540	012777	000340	000134		MOV	#J40,#DOWNVEC+2	
1248	005546	000004	005552			TYPE	,,+2	;ASCIZ <15><12>"POWER"
1249	005562	000002				RTI		
1250								
1251	005564	000000			ILLUP:	HALT		;THE POWER UP SEQUENCE WAS STARTED
1252	005566	000776				BR	,=2	;BEFORE THE POWER DOWN WAS COMPLETE

1253	005570	010546			.IOT:	MOV	TTY,-(6)		;SAVE TTY
1254	005572	017605	000002			MOV	02(6),TTY		;GET ADDRESS TO BE TYPED
1255	005576	105715			1S:	TSTB	(TTY)		;TERMINATOR?
1256	005600	001400				BEO	2S		
1257	005602	112537	177566			MOVB	(TTY)+,0#177566		;LOAD AND TYPE THE CHARACTER
1258	005606	105737	177564			TSTB	00177564		;IS THE PRINTER READY
1259	005612	100375				BPL	,=4		
1260	005614	000770				BR	1S		;GET THE NEXT CHARACTER
1261	005616	017646	000002		2S:	MOV	02(6),-(6)		;GET ADDRESS TO BE TYPED
1262	005622	062766	000002	000004		ADD	#2,4(6)		;ADD 2 TO THE ADDRESS
1263	005630	022666	000002			CHP	(6)+,2(6)		;IS IT ,+2?
1264	005634	001000				BNE	3S		;NO
1265	005636	062705	000002			ADD	#2,TTY		;ADD 2 TO THE ADDRESS
1266	005642	042705	000001			BIC	#1,TTY		;BACK UP TO AN EVEN BYTE
1267	005646	010566	000002			MOV	TTY,2(6)		;RESTORE ADDRESS
1268	005652	012605			3S:	MOV	(6)+,TTY		;RESTORE TTY
1269	005654	000002				RTI			;RETURN
1270									
1271	005656	005015	000		RETURN:	.ASCIZ	<15><12>		;RETURN AND LINEFEED
1272	005661	015	020012	020040	SPACE:	.ASCIZ	<15><12>"	"	;RETURN AND 3 SPACES
1273	005666	000							
1274		005670			.EVEN				
1275	005670	000000			SAVE6:	0			
1276	005672	172160			FPTADR:	172160			;FLOATING POINT ADDRESS ON THE 11/20
1277	005674	000244	000246		FPVECT:	244,246			;FLOATING POINT VECTOR ADDRESS
1278	005700	000024	000026		DNVVEC:	24,26			;POWER DOWN VECTOR ADDRESS
1279	005704	000024	000026		UPVEC:	24,26			;POWER UP VECTOR ADDRESS
1280	005710	000000			.TYPE:	0			
1281	005712	000000			TRPB:	0			
1282	005714	000000			LAD:	0			;LOOP ADDRESS
1283	005716	000000			ERRORS:	0			;ERROR COUNT
1284	005720	000377			TIMES:	377			;ITERATION COUNT
1295		000001			.END				

AC0	=X000000	4830	4810	4840	495	496	5120	523	524	5380	5410	553	560	5530
		5960	688	624	6440	6450	648	656	6750	6760	688	691	7380	7390
		751	754	8010	8820	814	817	8640	8650	877	880	933	935	942
		948	988	982	989	995	1208	12120	1213	12140	1215	12370	1238	12390
		1240	12440											
AC1	=X000001	4840	9270	931	961	9740	978	1008	1209	12430				
AC2	=X000002	4850	9280	9310	9600	9610	9750	9780	10070	10080	1210	12420		
AC3	=X000003	4860	9260	928	960	9730	975	1007	1211	12410				
AC4	=X000004	4870	1212	12400										
AC5	=X000005	4880	1214	12380										
ALTA	005330	538	596	644	11950									
ALTB	005340	541	593	645	11970									
ALT1A	005304	481	496	11980										
ALT1B	005314	484	512	11920										
ALT1C	005320	524	11930											
ANSA	005350	11990												
ANSB	005360	12010												
ANS1	001002	4370	4950	5230	5530	5540	555	5690	5700	571	6880	6890	610	6240
		6250	626	6480	6500	651	6560	6570	658	6880	6890	693	7510	7520
		756	8140	8150	819	8770	8780	882	926	9330	9370	9460	973	9800
		9840	9930	1015	1120	11320								
ANS2	001004	4380	558	574	613	629	696	759	822	885	11330			
ANS3	001006	4390	561	577	616	699	762	825	888	11340				
ANS4	001010	4400	564	580	619	702	765	828	891	11350				
ANS5	001012	4410	6910	6920	705	7540	7550	768	8170	8180	831	8800	8810	854
		927	9350	9380	9520	974	9820	9850	9990					
ANS6	001014	4420	708	771	834	897								
ANS7	001016	4430	711	774	837	900								
ANS8	001020	4440	714	777	840	903								
A4S	005302	11560	11580	11590	11730	1174	11770	11800						
BEG	001026	425	4400											
BEGIN	001062	452	4570	1075	1077									
BELL	= 000007	3920	1067	1113										
DISPLA	= 177570	3080	11020	11060										
DONE	004446	917	10640											
DWNEC	005700	4600	4610	12460	12470	12780								
ERRORS	005716	11150	12030											
FEA	001024	4460	1149											
FEC	001022	4310	4450	4860	491	5140	519	5430	540	5980	683	6780	683	7410
		746	8040	809	8670	872	11450	1146						
FLAG	004146	10140	1037	10410										
FLTERR	000760	4380	468											
FPS	=X000000	3930	4380	4850	487	5130	515	5420	544	5970	599	6490	6770	679
		7400	742	8030	805	8660	868	9620	10090	1142				
FPTAJR	005672	454	12760											
FPVECT	005674	4680	4690	12770										
GETTY	004134	928	967	10120										
GOGET	004270	1016	10450											
HLT	= 104000	3900	489	493	499	517	521	527	546	558	557	560	563	566
		573	576	579	582	601	605	612	615	618	621	628	631	633
		660	681	685	695	698	701	704	707	710	713	716	744	748
		758	761	764	767	770	773	776	779	807	811	821	824	827
		830	833	836	839	842	878	874	884	887	890	893	896	899
		982	985	954	963	1001	1010							

ICHT	001000	4360	4700	9180	9570	9650	10040	1009	1095	1097	10490	11000	1102	11050
		1106												
ILLUP	005564	1204	12510											
INPUT	004366	9420	9430	9440	9450	9460	9480	9490	9570	9510	9520	9890	9900	9510
		9920	9930	9950	9960	9570	9980	9990	1017	1019	10030			
KIT	004696	1092	1098	11050										
LAD	005714	4710	9250	9720	11010	1107	1109	12020						
LDSC	= 170004	4210												
LDUB	= 170003	4170												
MRS	= 170006	4200	646	939	940	986	987							
M112J	001094	449	4540											
Y	= 000012	3050	475	4790	504	5000	532	5360	507	5910	636	640	665	6090
		720	7320	791	7950	854	8500							
OVER	004662	1090	11060											
PC	=X000007	4020	9200	9670	10430	11050								
POWDN	005370	460	12040	1246										
POWJF	005460	1223	12260											
PRINTR	005144	1123	1126	1139	1147	1150	11560							
PRINTS	005194	11500												
PS	= 177776	3060												
QUES	004362	1059	10620											
RETURN	005656	1119	12710											
R0	=X000000	3940	4630	9530	10000	10700	1125	1216	12350					
R1	=X000001	3950	10190	1217	12270	12200	12340							
R2	=X000002	3960	10150	1210	12330									
R3	=X000003	3970	4730	4820	5010	5100	5290	5390	5040	5940	6330	6420	6620	6710
		7240	7340	7070	7970	8500	8600	9130	9220	9690	10450	10600	11200	1219
		12320												
R4	=X000004	3900	6730	7360	7990	8620	9240	9290	953	955	9710	9760	1000	1022
		1110	11290	11360	11400	11510	1160	11610	1179	11840	1220	12310		
R5	=X000005	3990	10160	10500	1221	12300								
SAVE6	005670	12220	1226	12750										
SAVLAD	004636	1094	11000	1100										
SCOPE	= 104409	3090	470	507	535	590	639	660	731	794	857	919	950	966
		1005	1064											
SP	=X000006	4010	4400	4500	1222	12260								
SPACE	005661	1124	1127	1137	1144	1140	12720							
STA2	= 170005	4100												
STO2	= 170007	4190												
SWR	= 177570	3070	300	1065	1070	1007	1009	1091	1093	1111	1117	1152		
SW00	= 000400	4160	1007											
SW09	= 001000	4150												
SW10	= 002000	4140	1065	1111										
SW11	= 004000	4130	1093											
SW12	= 010000	4120	1070											
SW13	= 020000	4110	1117											
SW14	= 040000	4100	1091											
SW15	= 100000	4090												
TIMES	005720	1097	12040											
TRPB	005712	10720	12010											
TSTDIV	003700	427	9650	1011										
TSTMUL	003444	426	9100	964										
TST1	001204	4700												
TST1A	002700	7940												

TST11	J03160	8570																		
TST2	J01302	9070																		
TST3	001374	9350																		
TST4	J01624	9900																		
TST5	J02030	6390																		
TST6	J02140	6680																		
TST7	J02420	7310																		
TTY	=XJ00005	4000	11220	11250	11380	11460	11490	11650	11670	11690	1253	12540	1255	1257						
		12650	12660	1267	12680															
TYPE	= J00004	3910	1013	1039	1051	1057	1059	1060	1114	1119	1124	1127	1137	1144						
		1140	1183	1248																
UPVEC	J05704	12040	12050	12230	12790															
YESR	J04550	4510	459	1076	10850															
	= J05722	4230	4240	4290	4340	488	492	498	516	528	526	545	540	556						
		559	562	565	572	575	578	581	600	604	611	614	617	620						
		627	630	652	659	680	684	694	697	700	703	706	709	712						
		715	743	747	757	760	763	766	769	772	775	778	806	810						
		820	823	826	829	832	835	838	841	869	873	883	886	889						
		892	895	898	901	904	1013	1039	1047	10630	1153	1157	1172	1175						
		1100	11070	1240	1252	1259	12740													
.EMT	J04552	466	10070																	
.IOT	J05570	462	12530																	
.TRP	J04704	464	11110																	
.TYPE	J05710	10500	1051	10560	1057	10670	1068	11130	1114	12000										

CHECK	3848	555	558	561	564	571	574	577	580	610	613	616	619	626	629
	693	696	699	702	705	708	711	714	756	759	762	765	768	771	774
	777	819	822	825	828	831	834	837	840	882	885	888	891	894	897
	988	983													
DUMP	3848	1122	1125	1138	1146	1149									
NUMBER	3848	475	584	532	587	636	665	728	791	854					
PRINT	3848	1012	1039	1248											
SCOPEX	3848	475	584	532	587	636	665	728	791	854					
SDUMP	3848														
STATUS	3848	485	513	542	597	677	742	883	866						
TESTSC	3848	665	728	791	854										
TYPEM	3848	1056	1067	1113											

ADD	1262	1265													
ADDD	541	645													
ADDF	596														
BEO	488	492	498	516	528	526	545	549	556	559	562	565	572	575	578
	581	688	684	611	614	617	627	627	637	652	659	687	684	694	697
	788	783	786	789	712	715	743	747	757	769	763	766	769	772	775
	778	886	818	828	823	826	829	832	835	838	841	869	873	883	886
	889	892	895	898	981	984	1821	1823	1853	1879	1888	1897	1896	1188	1112
	1138	1172	1175	1256											
BIC	554	578	689	625	658	657	689	692	752	759	815	818	878	881	937
	938	945	951	984	985	992	998	1136	1266						
BICB	1849														
BIS	946	952	993	999	1874										
BISB	1176														
BIT	1865	1878	1887	1891	1893	1111	1117								
BNE	956	1883	1838	1855	1866	1871	1892	1894	1898	1118	1141	1178	118	1229	1264
BPL	1847	1873	1131	1143	1153	1259									
BR	452	717	788	843	986	1832	1836	1842	1861	1876	1157	1163	1252	1264	
CFCC	497	525													
CLR	472	471	473	581	529	584	633	662	724	787	859	913	918	924	965
	971	1814	1818	1835	1869	1158	1227								
CLRB	957	1884	1162	1164	1182										
CMP	487	491	515	519	544	548	555	558	561	564	571	574	577	588	599
	683	618	513	616	619	626	629	651	658	679	683	693	696	699	782
	785	788	711	714	742	746	756	759	762	765	768	771	774	777	885
	839	819	822	825	828	831	834	837	847	868	872	882	885	888	891
	894	897	988	983	955	1882	1179	1263							
CMPB	1828	1822	1852	1854	1889	1897									
CMPD	496	524													
COM	1841	1872													
DEC	1148														
DIVJ	882	865	978	1888											
EMT	398														
HALT	424	432	1154	1224	1251										
INC	929	976	1115	1228											
INCB	1138	1185	1173	1177											
LOT	391														
JMP	425	426	427	917	964	1811									
JSR	928	967	1816	1888	1123	1126	1139	1147	1157						
LDD	481	484	512	538	644	675	738	881	864	926	927	928	96	973	974
	975	1887	1212	1214	1237	1239	1241	1242	1243	1244					
LDF	593														
LDFPS	472	488	589	537	592	641	678	733	796	859	921	959	968	1886	1245
LJSC	674	737	888	863	938	977									
LJJB	474	483	582	511	538	548	585	595	634	643	663	672	725	735	788
	798	851	861	914	923	978									
MOV	448	449	451	454	457	458	459	468	461	462	463	464	465	466	467
	468	469	482	518	539	594	642	671	673	734	736	797	799	868	862
	922	925	953	969	972	1888	1815	1819	1845	1856	1868	1867	1875	1877	1878
	1181	1182	1186	1189	1113	1116	1128	1122	1125	1128	1132	1133	1134	1135	1138
	1146	1149	1151	1168	1161	1184	1284	1285	1216	1217	1218	1219	122	1221	1222
	1223	1226	1238	1231	1232	1233	1234	1235	1246	1247	1253	1254	1261	1267	1268
MOVB	1848	1858	1899	1129	1156	1159	1181	1257							
MULD	676	739	931	961											

NOP	1201	1002	1003												
ROL	943	944	949	952	990	991	996	997	1027	1029	1031	1165	1167	1169	
ROLB	1020	1030	1106	1100	1170										
RORB	1024	1025	1026												
RTI	433	1004	1005	1103	1110	1155	1249	1269							
RTS	1043	1050	1105												
SETJ	1207	1236													
STAR	552	623	655	607	750	813	876	932	941	979	980				
STD	495	523	553	569	640	656	680	691	751	754	814	817	877	880	923
	935	942	940	900	902	909	995	1200	1209	1210	1211	1213	1215	1230	1240
STF	600	624													
STFPS	430	405	513	542	597	649	677	740	803	866	962	1009	1206		
STQB	500	607	647	690	753	816	879	934	947	981	994				
STST	431	406	514	543	590	670	741	804	867	1149					
SUB	1121														
TRAP	309														
TST	450	1034	1037	1040	1107	1142	1152								
TSTB	1033	1046	1095	1171	1174	1255	1250								
.ASCIZ	1014	1040	1062	1249	1271	1272									
.BLKW	1063	1107													
.ENABL	304														
.END	1205														
.ENDC	407	495	515	523	544	552	599	607	672	679	607	735	742	750	750
	005	013	061	060	076										
.EVEN	1014	1040	1249	1274											
.IF	406	514	543	590	671	670	734	741	797	804	860	867			
.IFF	672	735	797	860											
.IFNZ	491	495	519	523	540	552	603	607	603	607	746	750	809	813	872
	876														
.LIST	344	304	424	434	475	479	504	500	532	536	507	591	636	640	669
	669	720	732	791	795	854	850	1014	1040	1064	1111	1150	1204	1249	1253
.MACR	304														
.MACRO	304														
.NLIST	344	304	424	434	475	479	504	500	532	536	507	591	636	640	669
	669	720	732	791	795	854	850	1014	1040	1064	1111	1150	1204	1249	1253
.RE4	345														
.REPT	2	424													
.SBT'L	344	304	434	475	504	532	507	636	665	720	791	854	1064	1111	1256
	1204	1253													
.TITLE	343														

ERRORS DETECTED: 0

MAINDEC-11-DCFPN-B
DCFPN.P11

MAINTENANCE INSTRUCTION TEST

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•DCFPN,DCFPN/SOL/CRF-DCFPN.P11
RUN-TIME: 6 1/2 SECONDS
CORE USED: 7K