

TMA-11

INSTRUCTION TEST
MD-11-DZTMA-H

EP-DZTMA-H-DL-A

NOV 1976

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MADE IN USA

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TM,A,B-11/TS03 OR TUIO.N.W INSTRUCTION TEST(MAINDEC-11-DZTMA-H-D)
DTMA.H.P.11

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.REM %

IDENTIFICATION

PRODUCT CODE: MAINDEC-11-DZTMA-H-D
PRODUCT TITLE: TM,A,B-11/TS03,TUIO.N.W INSTRUCTION TEST
PROGRAM DATE: AUGUST 1976
MAINTAINER: DIAGNOSTIC ENGINEERING
AUTHOR: JOHN RODENHISER
REVISED: JIM LACEY/JIM KAPADIA/B. BURGESS/K. LIND/R. BARNES
SAM CARPENTER/R. SOLER

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TM,A,B-11/TS03 OR TUIO.N.W INSTRUCTION TEST(MAINDEC-11-DZTMA-H-D)
DTMA.H.P.11

1. ABSTRACT

THE TM,A,B-11 INSTRUCTION TEST CONTAINS A SERIES OF BASIC TESTS THAT CHECK REGISTERS FOR PROPER OPERATION WHILE NOT INVOLVING TAPE MOTION, ALL TAPE MOTION FUNCTIONS, DATA TRANSFERS, EXTENDED MEMORY, AND MANUAL INTERVENTION TESTS OF THE TUIO OR TS03 TRANSPORTS. ***MANUAL INTERVENTION TESTS ARE SKIPPED IN CHAIN MODE***

2. REQUIREMENTS

2.1 EQUIPMENT

PDP-11 WITH TM,A,B-11 CONTROL UNIT AND 1 TS03,TUIO,N,W TAPE UNIT.

2.2 STORAGE

2.2.1 PROGRAM STORAGE

THE ROUTINE REQUIRES 4K OF MEMORY.

3. LOADING PROCEDURE

3.1 METHOD

A. PROCEDURE FOR NORMAL BINARY TAPES SHOULD BE FOLLOWED.

B. PROGRAM IS LOADABLE AND CHAINABLE IN 8K OF MEMORY.

4. STARTING PROCEDURE

4.1 CONTROL SWITCH SETTINGS

STARTING AT LOC. 200 ALL SWITCHES SHOULD BE DOWN OR ZERO.
SOFTWARE SWITCH REGISTER IS LOCATED AT LOC. 176 IF NEEDED.

4.2 STARTING ADDRESS

200

4.3 PROGRAM AND/OR OPERATOR ACTION

1. LOAD PROGRAM INTO MEMORY.
2. PLACE ONE TAPE UNIT, ON-LINE, AT LOAD POINT (BOT), UNIT 0 SELECTED.
3. LOAD STARTING ADDRESS
4. START PROGRAM

PROGRAM WILL TYPE "SET SWO=1 IF 7 CHANNEL". (IF NOT CHAIN MODE)

CHAIN MODE DEFAULT IS DRIVE 0 9TRK ONLY.

IF APPROPRIATE SET SWO AND THEN PRESS CONTINUE OR

***IF SOFTWARE SWITCH REGISTER IS USED TYPE CNTL G AND THEN CONTINUE

-THIS WILL ALLOW THE MODIFICATION OF THE SOFTWARE SWITCH REGISTER (REFER TO S
THE PROGRAM WILL BEGIN TESTING.

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5. OPERATING PROCEDURE

5.1 OPERATIONAL SWITCH SETTINGS

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

CONTROL:

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

- 1) TYPE CONTROL G (<G>): THIS WILL ALLOW THE TTY TO ENTER DATA INTO LOC. 176 AT SELECTED POINTS WITHIN THE PROGRAM.
- 2) THE MACHINE WILL THEN TYPE: SWR=XXXXXXNEW= (XXXXXX IS THE OCTAL CONTENTS OF THE SOFTWARE SWITCH REGISTER.)
- 3) AFTER THE ''NEW='' HAS BEEN TYPED THEN THE OPERATOR CAN DO ONE OF THE FOLLOWING AT THE TTY:
 - A) TYPE A NUMBER TO BE LOADED INTO LOC. 176 FOLLOWED BY A <CR>. (ONLY NUMBERS BETWEEN 0-7 WILL BE ACCEPTED AND ONLY 6 NUMBERS WILL BE ALLOWED)
IF A <CR> IS THE FIRST KEY DEPRESSED THE SOFTWARE SWITCH REGISTER CONTENTS WILL NOT BE CHANGED.
 - B) IF A CONTROL U (<U>) IS DEPRESSED THEN THE PROGRAM WILL SEND YOU BACK TO STEP 2.

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5.1.1 WITH ALL SWITCHES DOWN THE PROGRAM WILL PRINT OUT ON ERRORS AND
CONTINUE IN TEST. (END OF PASS WILL PRINT ON EACH PASS)

5.1.2 SWITCH SETTINGS ARE:

SW15 (100000) = 1 OR UP ... HALT ON ERROR
SW14 (040000) = 1 OR UP ... SCOPE LOOP
SW13 (020000) = 1 OR UP ... INHIBIT PRINTOUT.
SW12 (010000) = 1 OR UP ... INHIBIT SUB-TEST INTERACTION.
SW11 (004000) = 1 OR UP ... SINGLE PASS
SW10 (002000) = 1 OR UP ... INHIBIT MANUAL INTERVENTION TEST
SW9 (001000) = 1 OR UP ... FOR TS03 TAPE DRIVES
SW0 (000001) = 1 OR UP ... TEST 7 CHANNEL TAPE UNIT.

5.1.3 MANUAL INTERVENTION TEST

THIS TEST WILL REQUIRE THE OPERATOR TO PERFORM CERTAIN OPERATIONS
WITH THE TRANSPORT AS DIRECTED BY MESSAGES PRINTED ON THE
TELETYPE.

5.2 SUBROUTINE ABSTRACTS

5.2.1 SCOPE

THIS SUBROUTINE CALL IS PLACED BETWEEN EACH SUB-TEST IN THE INSTRUCTION
SECTION. IT RECORDS THE STARTING ADDRESS OF EACH SUB-TEST AS IT IS
BEING ENTERED. IF A SCOPE LOOP IS REQUESTED, IT WILL JUMP TO THE
START OF THE SUB-TEST THAT THE SCOPE LOOP IS REQUESTING.
***CNTL G WILL BE RECOGNIZED IN THIS ROUTINE (REFER TO SECT 5.1)

5.2.2 HLT

THIS SUBROUTINE CALL PRINTS THE ADDRESS THAT TAGS THE FAILING
SUBTEST AND THE CONTENTS OF ALL THE TM A B-11 REGISTERS.
***THIS ROUTINE RECOGNIZES CNTL G FUNCTION (REFER TO SECT. 5.1)

6.0 ERRORS

6.1 ERROR PRINTOUT FORMAT

WITH SW13=0 (OR DOWN) THE FOLLOWING PRINTOUT WILL APPEAR ON AN ERROR:

PC	STATUS	COMAND	BYTE	CA	DATA B	READ L	TEMP	CRC CAL
XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX

PC	=	ADDRESS OF TEST WHERE ERROR OCCURED
STATUS	=	CONTENTS OF STATUS REGISTER AT TIME OF ERROR
COMAND	=	CONTENTS OF COMMAND REGISTER AT TIME OF ERROR
BYTE	=	CONTENTS OF BYTE COUNTER AT TIME OF ERROR
CA	=	CONTENTS OF CURRENT MEMORY ADDRESS AT TIME OF ERROR
DATA B	=	CONTENTS OF DATA BUFFER AT TIME OF ERROR
READ L	=	CONTENTS OF READ LINES AT TIME OF ERROR
TEMP	=	CONTENTS OF ADDRESS "TEMP" USED BY SOME TESTS
CRC CAL	=	CRC CHARACTER CALCULATED (USEFUL ONLY FOR CRC TEST)

NOTE THAT NOT ALL OF THE INFORMATION PRINTED IS INTENDED TO BE USEFUL FOR EVERY TYPE OF ERROR. THIS IS SIMPLY A STANDARD ERROR REPORT FOR ALL ERRORS. THE OPERATOR MUST REFER TO THE PROGRAM LISTING AT THE ADDRESS OF THE ERROR FOR A DESCRIPTION OF THE CAUSE OF THE ERROR. IT IS THEN UP TO HIM TO DETERMINE WHICH OF THE INFORMATION IS USEFUL.

6.2 ERROR RECOVERY

WITH SW15=1 OR UP THE PROGRAM WILL HALT ON AN ERROR. DEPRESS CONTINUE SWITCH TO RESTART TEST.

7. RESTRICTIONS

7.1 STARTING RESTRICTION

BEFORE STARTING PROGRAM THE OPERATOR MUST MAKE CERTAIN THAT THE
TRANSPORT HAS DRIVE 0 SELECTED "ON-LINE".

7.2 OPERATIONAL RESTRICTIONS

MANUAL INTERVENTION TEST MUST BE PERFORMED ON EACH PASS THRU
THE PROGRAM UNLESS INHIBITED WITH SW10=1 (OR UP).
IF UNIT IS A TS03 SW9 MUST BE 1 (OR UP).

8.0 MISCELLANEOUS

8.1 EXECUTION TIME

WITH MANUAL INTERVENTION TEST INHIBITED IT TAKES 1 MINUTE
FOR ONE PASS THRU PROGRAM. MANUAL INTERVENTION TEST IS
OPERATOR DEPENDENT BUT SHOULD TAKE APPROXIMATELY 2 MINUTES.

9.0 PROGRAM DESCRIPTION

10.0 LISTING

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TITLE TM A, B-11/TS03 OR TUI0,N,W INSTRUCTION TEST(MAINDEC-11-DZTMA-H-D)
;COPYRIGHT 1971,1972,1973,1975, 1976 DIGITAL EQUIPMENT CORP., MAYNARD, MASS. 01754
;JOHN RODENHISER
;REVISED AUGUST 1972, JIM LACEY
;REVISED MARCH 1973, JIM KAPADIA
;REVISED JANUARY 1975, KEN LIND
;REVISED AUG 1975, R. B. BARNES
;REVISED MAR 1976, S. K. CARPENTER - SUPPORT SOFTWARE SWITCH REGISTER
;REVISED AUG 1976, R. SOLER - INCLUDE TUI0W,N
; (A) MODIFIED TO SUPPORT SOFTWARE SWITCH REGISTER
; (B) ALSO SUPPORTS THE DYNAMIC LOADING OF THE SOFTWARE SWITCH REGISTER FROM TTY
; BY PRESSING A CNTL G
; (C) PROGRAM WILL ALLOW THE LOADING OF THE SOFTWARE SWITCH REGISTER AT START
; IF NO HARDWARE SWITCH REGISTER IS AVAILABLE OR IF THE
; HARDWARE SWITCH REGISTER CONTAINS ALL 1'S.

.ENABL ABS,AMA
.MCALL .SACT11

.=0
.WORD 0,0 ;CATCH IMPROPERLY LOADED VECTORS

;TRAP CATCHER 0-776

.=30
TRAP30

340
.=34

SCOPEC
340

EMT=TRAP30

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000030 014102
000032 000340
000034 000034
000034 013400
000036 000340
014102

H01

TM, A, 6-11 TSD3 OR TU10, N.W INSTRUCTION TEST (MAINDEC-11-DZTMA-H-D)
DZTMAH.P11

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256	177776	CC=177776
257	000240	NOP=240
258	104400	SCOPE=TRAP
259	000776	BUFF=776
260	000000	R0=%0
261	000001	R1=%1
262	000002	R2=%2
263	000003	R3=%3
264	000004	R4=%4
265	000005	R5=%5
266	000006	SP=%6
267	000007	PC=%7

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271 ;*****
272 ;THIS PROGRAM SUPPORTS SOFTWARE SWITCH REGISTER WHICH IS LOCATED AT LOC. 176
273
274 ;BEFORE STARTING REFER TO SECTION 5.1 IN DOCUMENTIT
275
276
277 ;*****
278 ;
279
280
281 .SBTTL ACT11 HOOKS
282
283 ;*****
284 ;HOOKS REQUIRED BY ACT11
285 $SVPC= . ;SAVE PC
286 .=46
287 000046 012752 $ENDAD ;;1)SET LOC.46 TO ADDRESS OF $ENDAD IN .SEOP
288 000052 .=52
289 000052 .WORD 0 ;;2)SET LOC.52 TO ZERO
290 000040 .=$SVPC ;; RESTORE PC
291 000176 .=176
292 000176 002000 SWREG: .WORD 2000 ;SOFTWARE SWITCH REGISTER(9TRK=2000/7TRK=2001)
293 000200 .=200
294 000200 000137 001040 JMP START
295 001000 .=1000
296 001000 000224 MTV: 224 ; INTERRUPT VECTOR
297 001002 000226 MTVS: 226 ; INTERRUPT STATUS
298 001004 172520 MTS: 172520 ; STATUS REGISTER
299 001006 172522 MTC: 172522 ; COMMAND REGISTER
300 001010 172524 BC: 172524 ; BYTE COUNT
301 001012 172526 CA: 172526 ; CURRENT MEMORY ADDRESS
302 001014 172530 MTD: 172530 ; DATA BUFFER
303 001016 172532 MTRD: 172532 ; READ LINES
304 001020 177566 TPB: 177566
305 001022 177564 TPS: 177564
306 001024 177570 SWR: 177570
307 001026 177560 TKS: 177560
308 001030 177562 TKB: 177562
309 001032 000000 TEMP: 0
310 001034 000000 ICOUNT: 0
311 001036 000000 PCNTR: 0 ;PASS COUNTER

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J01

TM A 6-11 TS03 OR TUIO N.W INSTRUCTION TEST (MAINDEC-11-DZTMA-H-D)
DZTMAH.P11 ACT11 HOOKS

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315 001040 012706 000776 START: MOV #BUFF, SP
316 001044 012737 177570 001024 MOV #177570, SWR ;PRESET TO CONSOLE SWITCHES
317 001052 005037 001036 CLR PCNTR ;CLEAR PASS COUNTER
318 001056 122737 000004 000041 CMPB #4, @#41 ;SEE IF LOAD MEDIUM
319 001064 001006 BNE SUSWR ;IF NOT: BR
320 001066 012702 017145 MOV #MSG21, R2
321 001072 004737 013456 JSR PC, TOP ;PRINT NO TEST
322 001076 000137 012666 JMP TSTEND ;END TEST
323 001102 013746 000006 SUSWR: MOV @#6, -(SP) ;SAVE VECTORS
324 001106 013746 000004 MOV @#4, -(SP)
325 001112 012737 001140 000004 MOV #15, @#4 ;SET UP FOR TIMEOUT
326 001120 022777 177777 177676 CMP #-1, @SWR ;REFERENCE HARDWARE SWITCH REGISTER
327 001126 001405 BEQ 2$
328 001130 005737 000042 TST @#42
329 001134 001002 BNE 2$ ;IF CHAIN MODE: BR
330 001136 000404 BR 3$
331 001140 022626 1$: CMP (SP)+, (SP)+ ;ADJUST STACK
332 001142 012737 000176 001024 2$: MOV #SWREG, SWR ;POINT TO SOFTWARE SWITCH REG
333 001150 012637 000004 3$: MOV (SP)+, @#4 ;RESTORE VECTORS
334 001154 012637 000006 MOV (SP)+, @#6
335 001160 012702 014200 MOV #MSG0, R2
336 001164 004737 013456 JSR PC, TOP
337 001170 005002 CLR R2
338 001172 005302 4$: DEC R2 ;DELAY
339 001174 001376 BNE 4$
340 001176 005737 000042 TST @#42 ;SEE IF CHAIN MODE
341 001202 001006 BNE BEGIN ;IF SO: BR
342 001204 012702 014270 MOV #MSG01, R2
343 001210 004737 013456 JSR PC, TOP ;PRINT 7 TRK SELECT
344 001214 000000 HALT
345 001216 104002 CKSWR
346 001220 012706 000776 BEGIN: MOV #BUFF, SP ;CHECK FOR A CNTL G
347 001224 012737 001220 013454 MOV #BEGIN, RETURN ;SET UP STACK FOR SCOPE LOOPS
348 001232 005037 013174 CLR PRINT1 ;SET UP RESTART OF PROGRAM
349 001236 005037 011240 CLR CRCWRT ;INITIALIZE ERROR PRINTOUT HEADING
350 001242 005037 000006 CLR 6 ;INITIALIZE CRC CALCULATED FOR PRINTOUT
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355 ;*****
356 001246 104400 ;TEST ALL BITS OF COMMAND REGISTER (EXCEPT CU READY, BIT 7) TO BE CLEARED BY INIT
357 001250 000005 SCOPE
358 001252 032777 177577 177526 RESET
359 001260 001401 BIT #177577, @MTC
360 001262 104000 BEQ .+4 ;ERROR, INIT DIDN'T CLEAR COMMAND REGISTER
361
362
363 ;*****
364 ;TEST BITS 7-13, 15 OF STATUS REGISTER TO BE CLEARED AFTER INIT
365 001264 104400 SCOPE
366 001266 000005 RESET
367 001270 032777 137600 177506 BIT #137600, @MTS

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TM A B-11/TS03 OR TU10 N.W INSTRUCTION TEST (MAINDEC-11-DZTMA-H-D) MACY11 27(732) 04-NOV-76 12:11 PAGE 11
 DZTMAH.P11 TEST BITS 7-13, 15 OF STATUS REGISTER TO BE CLEARED AFTER INIT

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368 001276 001401      BFG      .+4
369 001300 104000      HLT                      ;ERROR, INIT DIDN'T CLEAR PROPER BITS IN STATUS REGISTER
370
371
372 ;*****
373 ;TEST INIT TO CLEAR BYTE RECORD COUNT
374 001302 104400      SCOPE
375 001304 000005      RESET
376 001306 005777 177476 TST      @BC
377 001312 001401      BEQ      .+4
378 001314 104000      HLT                      ;ERROR, INIT DIDN'T CLEAR BYTE COUNT
379
380 ;*****
381 ;TEST INIT TO CLEAR CURRENT MEMORY ADDRESS REGISTER
382
383 001316 104400      SCOPE
384 001320 000005      RESET
385 001322 005777 177464 TST      @CA
386 001326 001401      BEQ      .+4
387 001330 104000      HLT                      ;ERROR, INIT DIDN'T CLEAR CURRENT MEMORY ADDRESS REGISTE
388
389 ;*****
390 ;TEST INIT TO CLEAR DATA BUFFER
391
392 001332 104400      SCOPE
393 001334 000005      RESET
394 001336 005777 177452 TST      @MTO
395 001342 001401      BEQ      .+4
396 001344 104000      HLT                      ;ERROR, INIT DIDN'T CLEAR DATA BUFFER
397
398 ;*****
399 ;TEST CU READY (BIT 7 COMMAND REGISTER) TO BE SET BY INIT.
400
401 001346 104400      SCOPE
402 001350 000005      RESET
403 001352 105777 177430 TSTB   @MTC
404 001356 100401      BMI      .+4
405 001360 104000      HLT                      ;ERROR, INIT DIDN'T SET CU READY
406
407 ;*****
408 ;TEST BIT 14 OF TU10 READ LINES TO BE CLEARED BY INIT
409
410 001362 104400      SCOPE
411 001364 000005      RESET
412 001366 032777 040000 177422 BIT     @MTRD
413 001374 001401      BEQ      .+4
414 001376 104000      HLT                      ;ERROR, INIT FAILED TO CLEAR BIT 14 OF MTRD
415
416 ;*****
417 ;TEST COMMAND REGISTER (EXCEPT CU READY, BIT 7) TO BE CLEARED BY POWER CLEAR (BIT 12)
418
419 001400 104400      SCOPE
420 001402 052777 010000 177376 BIS     @MTC                      ;POWER CLEAR
421 001410 032777 177577 177370 BIT     @MTC
422 001416 001401      BEQ      .+4
423 001420 104000      HLT                      ;ERROR, POWER CLEAR DIDN'T CLEAR COMMAND REGISTER

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L01

TM, A, 8-11/TS03 OR TU10, N, W INSTRUCTION TEST (MAINDEC-11-DZTMA-H-C) MACY11 27(732) 04-NOV-76 12:11 PAGE 12
DZTMAH.P11 TEST COMMAND REGISTER (EXCEPT CU READY, BIT 7) TO BE CLEARED BY POWER CLEAR (BIT 12)

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429 001422 104400
430 001424 052777 010000 177354
431 001432 032777 137600 177344
432 001440 001401
433 001442 104000
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436
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438 001444 104400
439 001446 052777 010000 177332
440 001454 005777 177330
441 001460 001401
442 001462 104000
443
444
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447 001464 104400
448 001466 052777 010000 177312
449 001474 005777 177312
450 001500 001401
451 001502 104000
452
453
454
455
456 001504 104400
457 001506 052777 010000 177272
458 001514 005777 177274
459 001520 001401
460 001522 104000
461
462
463
464
465 001524 104400
466 001526 052777 010000 177252
467 001534 105777 177246
468 001540 100401
469 001542 104000
470
471
472
473
474 001544 104400
475 001546 052777 010000 177232
476 001554 032777 040000 177234
477 001562 001401
478 001564 104000
479

```

;TEST BITS 7-13, 15 OF STATUS REGISTER TO BE CLEARED BY POWER CLEAR (BIT12)

SCOPE

BIS #10000,2MTC ;POWER CLEAR

BIT #137600,2MTS

BEQ .+4

HLT ;ERROR, POWER CLEAR DIDN'T CLEAR PROPER BITS IN STATUS

;TEST POWER CLEAR (BIT 12) TO CLEAR BYTE RECORD COUNT

SCOPE

BIS #10000,2MTC ;POWER CLEAR

TST 2BC

BEQ .+4

HLT ;ERROR, POWER CLEAR DIDN'T CLEAR BYTE COUNT

;TEST POWER CLEAR (BIT 12) TO CLEAR CURRENT MEMORY ADDRESS REGISTER

SCOPE

BIS #10000,2MTC ;POWER CLEAR

TST 2CA

BEQ .+4

HLT ;ERROR, POWER CLEAR DIDN'T CLEAR CURRENT ADDRESS REGISTE

;TEST POWER CLEAR (BIT 12) TO CLEAR DATA BUFFER

SCOPE

BIS #10000,2MTC ;POWER CLEAR

TST 2MTD

BEQ .+4

HLT ;ERROR, POWER CLEAR DIDN'T CLEAR DATA BUFFER

;TEST CU READY (BIT 7 COMMAND REGISTER) TO BE SET BY POWER CLEAR

SCOPE

BIS #10000,2MTC ;POWER CLEAR

TSTB 2MTC

BMI .+4

HLT ;ERROR, POWER CLEAR DIDN'T SET CU READY

;TEST BIT 14 OF TU10 READ LINES TO BE CLEARED BY POWER CLEAR (BIT12)

SCOPE

BIS #10000,2MTC ;POWER CLEAR

BIT #40000,2MTRD

BEQ .+4

HLT ;ERROR, POWER CLEAR FAILED TO CLEAR BIT14 OF MTRD

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TM A 6-11 TS03 OR TUIO.N.W INSTRUCTION TEST(MAINDEC-11-DZTMA-H-D) MACY11 27(732) 04-NOV-76 12:11 PAGE 13
DZTMAH.P11 TEST FUNCTION BITS (1,2,3) OF COMMAND REGISTER CAN BE SET

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480
481
482
483 001566 104400
484 001570 012777 000016 177210
485 001576 122777 000216 177202
486 001604 001401
487 001606 104000
488
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491
492 001610 104400
493 001612 052777 000016 177166
494 001620 042777 000016 177160
495 001626 032777 000016 177152
496 001634 001401
497 001636 104000
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499
500
501
502
503 001640 104400
504 001642 012777 000002 177136
505 001650 122777 000202 177130
506 001656 001401
507 001660 104000
508 001662 104400
509 001664 012777 000004 177114
510 001672 122777 000204 177106
511 001700 001401
512 001702 104000
513 001704 104400
514 001706 012777 000006 177072
515 001714 122777 000206 177064
516 001722 001401
517 001724 104000
518 001726 104400
519 001730 012777 000010 177050
520 001736 122777 000210 177042
521 001744 001401
522 001746 104000
523 001750 104400
524 001752 012777 000012 177026
525 001760 122777 000212 177020
526 001766 001401
527 001770 104000
528 001772 104400
529 001774 012777 000014 177004
530 002002 122777 000214 176776
531 002010 001401
532 002012 104000
533 002014 104400
534 002016 012777 000016 176762
535 002024 122777 000216 176754

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;TEST FUNCTION BITS (1,2,3) OF COMMAND REGISTER CAN BE SET
SCOPE
MOV #16,DMTC
CMPB #216,DMTC
BEQ .+4
HLT
;ERROR, CU READY AND ALL FUNCTION BITS NOT SET

;TEST FUNCTION BITS (1,2,3) OF COMMAND REGISTER CAN BE CLEARED
SCOPE
BIS #16,DMTC
BIC #16,DMTC
BIT #16,DMTC
BEQ .+4
HLT
;ERROR, ALL FUNCTION BITS NOT CLEARED

;TEST FUNCTIONS BITS (1,2,3,) OF COMMAND REGISTER CAN BE SET AND CLEARED INDIVIDUALLY
SCOPE
MOV #2,DMTC
CMPB #202,DMTC
BEQ .+4
HLT
;ERROR, FUNCTION NOT =001 (READ)
SCOPE
MOV #4,DMTC
CMPB #204,DMTC
BEQ .+4
HLT
;ERROR, FUNCTION NOT =010 (WRITE)
SCOPE
MOV #6,DMTC
CMPB #206,DMTC
BEQ .+4
HLT
;ERROR, FUNCTION NOT =011 (WRITE EOF)
SCOPE
MOV #10,DMTC
CMPB #210,DMTC
BEQ .+4
HLT
;ERROR, FUNCTION NOT =100 (SPACE FORWARD)
SCOPE
MOV #12,DMTC
CMPB #212,DMTC
BEQ .+4
HLT
;ERROR, FUNCTION NOT =101 (SPACE REVERSE)
SCOPE
MOV #14,DMTC
CMPB #214,DMTC
BEQ .+4
HLT
;ERROR, FUNCTION NOT =110 (WRITE XIRG)
SCOPE
MOV #16,DMTC
CMPB #216,DMTC

NO1

TA, A, B-11/TS03 OR TUIO, N, W INSTRUCTION TEST (MAINDEC-11-DZTMA-H-D) MACY11 27(732) 04-NOV-76 12:11 PAGE 14
DZTMAH.P11 TEST FUNCTIONS BITS (1,2,3,) OF COMMAND REGISTER CAN BE SET AND CLEARED INDIVIDUALLY

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536 002032 001401      BEQ      .+4      ;ERROR, FUNCTION NOT =111 (REWIND)
537 002034 104000      HLT
538
539
540
541 ;*****
542 ;TEST ADDRESS BITS (4,5) OF COMMAND REGISTER CAN BE SET
543 SCOPE
544 002036 104400      MOV      #60,2MTC
545 002040 012777 000060 176740      CMPB    #260,2MTC
546 002046 122777 000260 176732      BEQ      .+4
547 002054 001401      HLT
548 ;ERROR, CU READY AND ADDRESS BITS NOT SET
549
550 ;*****
551 ;TEST ADDRESS BITS (4,5) OF COMMAND REGISTER CAN BE CLEARED
552 SCOPE
553 002060 104400      BIS      #60,2MTC
554 002062 052777 000060 176716      BIC      #60,2MTC
555 002070 042777 000060 176710      BIT      #60,2MTC
556 002076 032777 000060 176702      BEQ      .+4
557 002104 001401      HLT
558 ;ERROR, ADDRESS BITS NOT CLEARED
559
560 ;*****
561 ;CHECK BYTE LOADING OF COMMAND REGISTER
562 ;THIS 1ST SECTION WILL TEST THAT THE FUNCTION BITS CAN BE BYTE LOADED
563 SCOPE
564 002110 104400      CHKBYTE: MOV      #2,R0      ;INITIALIZE R0
565 002112 012700 000002      CLR      2MTC      ;CLEAR OUT COMMAND REGISTER
566 002116 005077 176664      1$: MOV     RO,2MTC      ;LOAD LOWER BYTE OF COMMAND REGISTER
567 002122 110077 176660      MOV     2MTC,R1      ;GET THE CONTENTS OF THE COMMAND
568 ;REGISTER JUST LOADED
569 002132 042701 000200      BIC      #200,R1      ;MASK OUT READY BIT FOR COMPARE
570 002136 020100      CMP      R1,R0      ;DID IT LOAD PROPERLY?
571 002140 001416      BEQ      2$      ;BRANCH IF YES
572 002142 010037 002332      MOV     RO,2*EXPECTED ;STORE WHAT SHOULD HAVE APPEARED IN
573 ;THE COMMAND REGISTER
574 002146 062737 000200 002332      ADD     #200,2*EXPECTED ;ADD A READY BIT TO WHAT WAS BYTE LOADED
575 002154 017737 176626 002334      MOV     2MTC,2*RECEIVED ;STORE WHAT DID APPEAR IN THE
576 ;COMMAND REGISTER
577 002162 012702 016467      MOV     #MSG14,R2      ;INDICATE INCORRECT BYTE LOAD
578 002166 004737 013456      JSR     PC,TCP
579 002172 104000      HLT      ;PROGRAM PC INDICATOR
580 ;AT THIS POINT LOCATIONS 6$ AND 7$ BELOW WILL CONTAIN THE GOOD
581 ;AND BAD DATA, RESPECTIVELY
582 BR      3$      ;GO TO START LOADING THE UPPER BYTE OF
583 ;THE COMMAND REGISTER
584 002176 062700 000002      2$: ADD     #2,R0      ;STEP UP VALUE TO BE BYTE LOADED
585 002202 022700 000016      CMP      #16,R0      ;OK TO LOAD IT?
586 002206 100403      BMI      3$      ;BRANCH IF NO
587 002210 005077 176572      CLR      2MTC      ;CLEAR OUT THE COMMAND REGISTER
588 002214 000742      BR      1$      ;GO BACK TO LOAD NEW VALUE
589 ;THIS 2ND SECTION WILL TEST THAT ALL UPPER BYTE DATA COMBINATIONS
590 ;CAN BE BYTE LOADED EXCEPT FOR THOSE REQUIRING BIT12 (POWER CLEAR)
591 ;TO BE SET

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592 002216 005000          35: CLR      R0          ;INITIALIZE R0
593 002220 005077 176562    CLR      3MTC        ;CLEAR OUT COMMAND REGISTER
594 002224 010003          45: MOV      R0,R3      ;SAVE INITIAL VALUE TO BE BYTE LOADED
595 002226 042700 000020    BIC      #20,R0      ;MASK OUT POWER CLEAR BIT OF BYTE
596                                ;TO BE LOADED
597 002232 110037 172523    MOV8     R0,#172522+1 ;LOAD UPPER BYTE OF COMMAND REGISTER
598 002236 000300          SWAB     R0          ;MOVE LOWER BYTE INTO UPPER BYTE
599                                ;POSITION FOR CHECKING
600 002240 017701 176542    MOV      3MTC,R1      ;GET THE CONTENTS OF THE COMMAND
601                                ;REGISTER JUST LOADED
602 002244 042701 000200    BIC      #200,R1      ;MASK OUT READY BIT FOR COMPARE
603 002250 020100          CMP      R1,R0        ;DID IT LOAD PROPERLY?
604 002252 00417          BEQ      55          ;BRANCH IF YES
605 002254 010037 002336    MOV      R0,#GOODDATA ;STORE WHAT SHOULD HAVE APPEARED IN THE
606                                ;COMMAND REGISTER
607 002260 062737 000200 002336 ADD      #200,#GOODDATA ;ADD A READY BIT TO WHAT WAS BYTE LOADED
608 002266 017737 176514 002340 MOV      3MTC,#BADDATA ;STORE WHAT DID APPEAR IN THE COMMAND
609                                ;REGISTER
610 002274 012702 016600    MOV      #MSG15,R2      ;INDICATE INCORRECT BYTE LOAD
611 002300 004737 013456    JSR      PC,PC        ;PROGRAM PC INDICATOR
612 002304 104000          HLT                     ;
613                                ;AT THIS POINT LOCATIONS 105 AND 115 BELOW WILL CONTAIN THE GOOD
614                                ;AND BAD DATA, RESPECTIVELY
615 002306 000137 002342    JMP      3BYTEOPEND ;ALL DONE
616 002312 010300          55: MOV      R3,R0        ;OBTAIN INITIAL VALUE (LESS MASKING OF
617                                ;POWER CLEAR BIT) THAT WAS TO BE BYTE
618                                ;LOADED
619 002314 005200          INC      R0          ;STEP UP VALUE TO BE BYTE LOADED
620 002316 022700 000157    CMP      #157,R0      ;OK TO LOAD IT?
621 002322 100407          BMI      BYTEOPEND    ;BRANCH IF NO
622 002324 005077 176456    CLR      3MTC        ;CLEAR OUT THE COMMAND REGISTER
623 002330 000735          BR      45          ;GO BACK TO LOAD NEW VALUE
624                                ;THE FOLLOWING ARE THE GOOD AND BAD DATA HOLDERS FOR THE LOWER
625                                ;AND UPPER BYTE LOAD TESTS PERFORMED ABOVE
626 002332          65:                                ;
627 002332 000000          EXPECTED: .WORD 0      ;HOLDS VALUE THAT SHOULD HAVE
628                                ;APPEARED IN THE COMMAND REGISTER
629                                ;ON LOW BYTE LOADING
630 002334          75:                                ;
631 002334 000000          RECEIVED: .WORD 0       ;HOLDS VALUE THAT DID APPEAR IN
632                                ;THE COMMAND REGISTER ON LOW
633                                ;BYTE LOADING
634 002336          105:                                ;
635 002336 000000          GOODDATA: .WORD 0       ;HOLDS VALUE THAT SHOULD HAVE
636                                ;APPEARED IN THE COMMAND REGISTER
637                                ;ON UPPER BYTE LOADING
638 002340          115:                                ;
639 002340 000000          BADDATA: .WORD 0        ;HOLDS VALUE THAT DID APPEAR IN
640                                ;THE COMMAND REGISTER ON UPPER
641                                ;BYTE LOADING
642 002342 005077 176440    BYTEOPEND: CLR      3MTC ;CLEAR OUT COMMAND REGISTER BEFORE GOING ON
643
644
645
646
647
;*****
;TEST ADDRESS BITS (4,5,6) OF COMMAND REGISTER CAN BE SET AND CLEARED INDIVIDUALLY

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C02

TM A, 6-11 TS03 JR TUIO, N.W INSTRUCTION TEST (MAINDEC-11-DZTMA-H-D) MACY11 27(732) 04-NOV-76 12:11 PAGE 16
 DZTMAH.P11 TEST ADDRESS BITS (4,5,6) OF COMMAND REGISTER CAN BE SET AND CLEARED INDIVIDUALLY

648	002346	104400			SCOPE		
649	002350	012777	000020	176430	MOV	#20,2MTC	
650	002356	122777	000220	176422	CMPB	#220,2MTC	
651	002364	001401			BEQ	.+4	
652	002366	104000			HLT		;ERROR ADDRESS BITS NOT =01
653	002370	104400			SCOPE		
654	002372	012777	000040	176406	MOV	#40,2MTC	
655	002400	122777	000240	176400	CMPB	#240,2MTC	
656	002406	001401			BEQ	.+4	
657	002410	104000			HLT		;ERROR, ADDRESS BITS NOT =10
658	002412	104400			SCOPE		
659	002414	012777	000060	176364	MOV	#60,2MTC	
660	002422	122777	000260	176356	CMPB	#260,2MTC	
661	002430	001401			BEQ	.+4	
662	002432	104000			HLT		;ERROR, ADDRESS BITS NOT =11
663							
664							
665							
666							
667							
668	002434	104400					
669	002436	012777	003400	176342	SCOPE		
670	002444	022777	003600	176334	MOV	#3400,2MTC	
671	002452	001401			CMP	#3600,2MTC	
672	002454	104000			BEQ	.+4	
673					HLT		;ERROR, CU READY AND ALL UNIT SELECT BITS NOT SET
674							
675							
676							
677	002456	104400					
678	002460	052777	003400	176320	SCOPE		
679	002466	042777	003400	176312	BIS	#3400,2MTC	
680	002474	032777	003400	176304	BIC	#3400,2MTC	
681	002502	001401			BIT	#3400,2MTC	
682	002504	104000			BEQ	.+4	
683					HLT		;ERROR, UNIT SELECT BITS NOT CLEARED
684							
685							
686							
687	002506	104400					
688	002510	012777	000400	176270	SCOPE		
689	002516	022777	000600	176262	MOV	#400,2MTC	
690	002524	001401			CMP	#600,2MTC	
691	002526	104000			BEQ	.+4	
692	002530	104400			HLT		;ERROR, UNIT SELECT NOT =001
693	002532	012777	001000	176246	SCOPE		
694	002540	022777	001200	176240	MOV	#1000,2MTC	
695	002546	001401			CMP	#1200,2MTC	
696	002550	104000			BEQ	.+4	
697	002552	104400			HLT		;ERROR, UNIT SELECT NOT =010
698	002554	012777	001400	176224	SCOPE		
699	002562	022777	001600	176216	MOV	#1400,2MTC	
700	002570	001401			CMP	#1600,2MTC	
701	002572	104000			BEQ	.+4	
702	002574	104400			HLT		;ERROR, UNIT SELECT NOT =011
703	002576	012777	002000	176202	SCOPE		
					MOV	#2000,2MTC	

704	002604	022777	002200	176174	CMP	#2200,DMTC	
705	002612	001401			BEQ	.+4	
706	002614	104000			HLT		;ERROR, UNIT SELECT NOT =100
707							
708							
709	002616	104400			SCOPE		
710	002620	012777	002400	176160	MOV	#2400,DMTC	
711	002626	022777	002600	176152	CMP	#2600,DMTC	
712	002634	001401			BEQ	.+4	
713	002636	104000			HLT		;ERROR, UNIT SELECT NOT =101
714	002640	104400			SCOPE		
715	002642	012777	003000	176136	MOV	#3000,DMTC	
716	002650	022777	003200	176130	CMP	#3200,DMTC	
717	002656	001401			BEQ	.+4	
718	002660	104000			HLT		;ERROR, UNIT SELECT NOT =110
719	002662	104400			SCOPE		
720	002664	012777	003400	176114	MOV	#3400,DMTC	
721	002672	022777	003600	176106	CMP	#3600,DMTC	
722	002700	001401			BEQ	.+4	
723	002702	104000			HLT		;ERROR, UNIT SELECT NOT =111
724							
725							
726							
727							
728							*****
729	002704	104400					;TEST PARITY BIT (BIT 11) CAN BE SET
730	002706	052777	004000	176072	SCOPE		
731	002714	032777	004000	176064	BIS	#4000,DMTC	
732	002722	001001			BIT	#4000,DMTC	
733	002724	104000			BNE	.+4	
734					HLT		;ERROR, PARITY NOT SET
735							
736							
737							*****
738	002726	104400					;TEST PARITY BIT (BIT 11) CAN BE CLEARED
739	002730	052777	004000	176050	SCOPE		
740	002736	042777	004000	176042	BIS	#4000,DMTC	
741	002744	032777	004000	176034	BIC	#4000,DMTC	
742	002752	001401			BIT	#4000,DMTC	
743	002754	104000			BEQ	.+4	
744					HLT		;ERROR, PARITY BIT NOT CLEARED
745							
746							
747							*****
748	002756	104400					;TEST DENSITY BITS (13,14) OF COMMAND REGISTER CAN BE SET
749	002760	012777	060000	176020	SCOPE		
750	002766	022777	060200	176012	MOV	#60000,DMTC	
751	002774	001401			CMP	#60200,DMTC	
752	002776	104000			BEQ	.+4	
753					HLT		;ERROR, CU READY AND DENSITY BITS NOT SET
754							
755							
756							*****
757							;TEST DENSITY BITS (13,14) OF COMMAND REGISTER CAN BE CLEARED
758	003000	104400			SCOPE		
759	003002	052777	060000	175776	BIS	#60000,DMTC	

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760 003010 042777 060000 175770      BIC      #60000,DMTC
761 003016 032777 060000 175762      BIT      #60000,DMTC
762 003024 001401                      BEQ      .+4
763 003026 104000                      HLT
764
765
766
767
768 ;*****
769 ;TEST DENSITY BITS (13,14) OF COMMAND REGISTER CAN BE SET AND CLEARED INDIVIDUALLY
770 003030 104400      SCOPE
771 003032 012777 020000 175746      MOV      #20000,DMTC
772 003040 022777 020200 175740      CMP      #20200,DMTC
773 003046 001401                      BEQ      .+4
774 003050 104000                      HLT                      ;ERROR, DENSITY NOT =01
775 003052 104400      SCOPE
776 003054 012777 040000 175724      MOV      #40000,DMTC
777 003062 022777 040200 175716      CMP      #40200,DMTC
778 003070 001401                      BEQ      .+4
779 003072 104000                      HLT                      ;ERROR, DENSITY NOT =10
780 003074 104400      SCOPE
781 003076 012777 060000 175702      MOV      #60000,DMTC
782 003104 022777 060200 175674      CMP      #60200,DMTC
783 003112 001401                      BEQ      .+4
784 003114 104000                      HLT                      ;ERROR DENSITY NOT =11
785
786
787 ;*****
788 ;TEST ALL BITS OF BYTE COUNT TO ACCEPT COUNT PATTERN
789 003116 104400      SCOPE
790 003120 005037 001034      CLR      ICOUNT
791 003124 005037 001032      CLR      TEMP
792 003130 013777 001032 175652 TBC:  MOV      TEMP,DMC
793 003136 023777 001032 175644      CMP      TEMP,DMC
794 003144 001401                      BEQ      .+4
795 003146 104000                      HLT                      ;ERROR, BYTE COUNT NOT =TEMP
796 003150 005237 001032      INC      TEMP
797 003154 001365      BNE      TBC
798
799
800 ;*****
801 ;TEST ALL BITS OF CURRENT MEMORY ADDRESS REGISTER TO ACCEPT CCUNT PATTERN
802 003156 104400      SCOPE
803 003160 005037 001034      CLR      ICOUNT
804 003164 005037 001032      CLR      TEMP
805 003170 013777 001032 175614 TMA:  MOV      TEMP,DMC
806 003176 023777 001032 175606      CMP      TEMP,DMC
807 003204 001401                      BEQ      .+4
808 003206 104000                      HLT                      ;ERROR, CA NOT = TEMP
809 003210 005237 001032      INC      TEMP
810 003214 001365      BNE      TMA
811
812
813 ;*****
814 ;TEST BITS 0-7 OF DATA BUFFER TO ACCEPT COUNT PATTERN
815 003216 104400      SCOPE

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816	003220	005037	001034		CLR	ICOUNT	
817	003224	005037	001032		CLR	TEMP	
818	003230	113777	001032	175556	MOV B	TEMP, 2MTD	
819	003236	123777	001032	175550	CMFB	TEMP, 2MTD	
820	003244	001401			BEQ	.+4	
821	003246	104000			HLT		;ERROR, DATA BUFFER NOT=TEMP
822	003250	105237	001032		INCB	TEMP	
823	003254	001365			BNE	TDB	
824							
825							
826							
827							
828							
829							
830	003256	104400			SCOPE		
831	003260	052777	040000	175530	BIS	#40000, 2MTRD	
832	003266	032777	040000	175522	BIT	#40000, 2MTRD	
833	003274	001001			BNE	.+4	
834	003276	104000			HLT		;ERROR, BIT 14 OF MTRD NOT=1
835	003300	042777	040000	175510	BIC	#40000, 2MTRD	
836	003306	032777	040000	175502	BIT	#40000, 2MTRD	
837	003314	001401			BEQ	.+4	
838	003316	104000			HLT		;ERROR, BIT 14 OF MTRD NOT=0
839							
840							
841							
842							
843	003320	104400			SCOPE		
844	003322	042777	003400	175456	BIC	#3400, 2MTC	;SELECT DRIVE 0
845	003330	032777	000001	175446	BIT	#1, 2MTS	
846	003336	001001			BNE	.+4	
847	003340	104000			HLT		;ERROR TU READY NOT SET
848							
849							
850							
851							
852	003342	104400			SCOPE		
853	003344	032777	000002	175432	BIT	#2, 2MTS	
854	003352	001401			BEQ	.+4	
855	003354	104000			HLT		;ERROR, REWIND STATUS IS SET
856							
857							
858							
859							
860	003356	104400			SCOPE		
861	003360	032777	000004	175416	BIT	#4, 2MTS	
862	003366	001401			BEQ	.+4	
863	003370	104000			HLT		;ERROR, WRITE LOCK IS SET
864							
865							
866							
867							
868	003372	104400			SCOPE		
869	003374	032777	000010	175402	BIT	#10, 2MTS	
870	003402	001401			BEQ	.+4	
871	003404	104000			HLT		;ERROR, SETTLEDOWN IS SET

G02

TM A B-11 TS03 OR TUIO N.W INSTRUCTION TEST (MAINDEC-11-DZTMA-H-D)
 DZTMAH.P11 TEST FOR 7 CHANNEL (BIT 4) CLEARED IF 9 CHANNEL SELECTED

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872
873
874
875 *****
876 003406 132777 000001 175410 :TEST FOR 7 CHANNEL (BIT 4) CLEARED IF 9 CHANNEL SELECTED
877 003414 001007 BITB #1,2SWR ;IS SWO=1
878 003416 104400 BNE T7CH ;YES SKIP 9 CHANNEL TEST
879 003420 032777 000020 175356 SCOPE
880 003426 001401 BIT #20,2MTS
881 003430 104000 BEQ .+4
882 003432 000417 HLT ;ERROR, 7 CHANNEL SET WITH 9 TRACK DOWN SELECTED
883 BR TSR ;SKIP 7 CHANNEL TEST
884
885 *****
886 :TEST FOR 7 CHANNEL (BIT 4) SET IF 7 CHANNEL SELECTED
887 003434 104400 T7CH: SCOPE
888 003436 032777 000020 175340 BIT #20,2MTS
889 003444 001001 BNE .+4
890 003446 104000 HLT ;ERROR, 7 CHANNEL NOT SET
891
892 *****
893 :TEST FOR BEGINNING OF TAPE (BIT 5) SET
894 SCOPE
895 003450 104400 BIC #3400,2MTC ;SELECT DRIVE 0
896 003452 042777 003400 175326 BIT #40,2MTS
897 003460 032777 000040 175316 BNE .+4
898 003466 001001 HLT ;ERROR, BOT NOT SET (DRIVE SHOULD BE AT BOT)
899 003470 104000
900
901 *****
902 :TEST FOR SELECT/REMOTE (BIT 6) SET
903 TSR: SCOPE
904 003472 104400 BIT #100,2MTS
905 003474 032777 000100 175302 BNE .+4
906 003502 001001 HLT ;ERROR, SELECT/REMOTE NOT SET
907 003504 104000
908
909 *****
910 :WRITE 1 BYTE RECORD FROM BOT
911 :BOT (BIT 5) SHOULD CLEAR, CU READY SHOULD SET, BYTE COUNT AND
912 :CURRENT ADDRESS SHOULD INCREMENT
913
914 SCOPE
915 003506 104400 CLR 2MTC ;SELECT UNIT 0
916 003510 005077 175272 TSTB 2MTC
917 003514 105777 175266 BPL -4 ;WAIT FOR CU READY
918 003520 100375 ROR 2MTS
919 003522 006077 175256 BCC -4 ;WAIT FOR TU READY
920 003526 103375 BIT #40,2MTS ;SEE IF AT BOT
921 003530 032777 000040 175246 BNE 35 ;IF SO: BR
922 003536 001014 TST 2#42 ;SEE IF CHAIN MODE
923 003540 005737 000042 BEQ 25 ;IF NOT: BR
924 003544 001410 MOV #60017,2MTC ;START REWIND
925 003546 012777 060017 175232

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928 003554 032777 000001 175222 1$: BIT #1,AMTS ;SEE IF TUR
929 003562 001774 BEQ 1$ ;IF NOT:AWAIT TUR
930 003564 000401 BR 3$
931 003566 104000 2$: HLT ;ERROR, DRIVE 0 NOT AT BOT
932 003570 012777 177777 175212 3$: MOV #-1,ABC ;SET BYTE COUNT=-1
933 003576 012777 017230 175206 MOV #WBUF,ACA ;INIT CURRENT MEMORY ADDRESS
934 003604 005000 CLR RO ;INIT DELAY COUNTER
935 003606 012701 000020 MOV #20,R1
936 003612 012777 060005 175166 MOV #60005,AMTC ;WRITE, 800 BPI, GO
937 003620 005200 INC RO
938 003622 001376 BNE -2 ;DELAY LONG ENOUGH TO MOVE OFF BOT
939 003624 005301 DEC R1
940 003626 001374 BNE -6
941 003630 032777 000040 175146 BIT #40,AMTS ;TEST FOR BOT
942 003636 001401 BEQ .+4
943 003640 104000 HLT ;ERROR, BOT (BIT 5) NOT CLEARED
944 003642 105777 175140 TSTB AMTC ;TEST FOR CU READY
945 003646 100401 BMI .+4
946 003650 104000 HLT ;ERROR, CU READY NOT SET AFTER WRITE FINISHED
947 003652 005777 175132 TST ABC ;TEST BYTE COUNT TO = 0
948 003656 001401 BEQ .+4
949 003660 104000 HLT ;ERROR, BYTE COUNT DIDN'T INCREMENT
950 003662 022777 017231 175122 CMP #WBUF+1,ACA ;TEST CURRENT MEMORY ADDRESS TO COUNT
951 003670 001401 BEQ .+4
952 003672 104000 HLT ;ERROR, CURRENT MEMORY ADDRESS DIDN'T INCREMENT TO 0
953
954
955 ;*****
956 ;TEST WRITE A 3 BYTE RECORD
957 003674 104400 SCOPE
958 003676 012777 177775 175104 MOV #-3,ABC ;SET BYTE COUNT = -3
959 003704 012777 017230 175100 MOV #WBUF,ACA ;INIT CURRENT MEMORY ADDRESS
960 003712 005000 CLR RO ;INIT DELAY COUNTER
961 003714 005077 175066 CLR AMTC ;SELECT UNIT 0
962 003720 105777 175062 TSTB AMTC
963 003724 100375 BPL -4 ;WAIT FOR CU READY
964 003726 006077 175052 ROR AMTS
965 003732 103375 BCC -4 ;WAIT FOR TU READY
966 003734 005000 CLR RO
967 003736 012777 060005 175042 MOV #60005,AMTC ;WRITE, 800BPI, GO
968 003744 105777 175036 TSTB AMTC
969 003750 100403 BMI .+10
970 003752 005200 INC RO
971 003754 001373 BNE -10
972 003756 104000 HLT ;ERROR, CU READY DIDN'T SET AFTER 3 BYTE RECORD
973
974
975 003760 022777 017233 175024 CMP #WBUF+3,ACA
976 003766 001401 BEQ .+4
977 003770 104000 HLT ;ERROR, CURRENT MEMORY ADDRESS DIDN'T INCREMENT
978 003772 005777 175012 TST ABC
979 003776 001401 BEQ .+4
980 004000 104000 HLT ;ERROR, BYTE COUNT DIDN'T INCREMENT TO 0
981 004002 005777 175000 TST AMTC
982 004006 100001 BPL .+4
983 004010 104000 HLT ;ERROR, BIT 15 SET IN COMMAND REGISTER

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984
985
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987
988
989 004012 104400
990 004014 012777 177775 174766
991 004022 012777 017230 174762
992 004030 105777 174752
993 004034 100375
994 004036 012777 060005 174742
995 004044 105777 174736
996 004050 100375
997 004052 006077 174726
998 004056 103375
999 004060 012777 060017 174720
1000 004066 105777 174714
1001 004072 100375
1002 004074 032777 000002 174702
1003 004102 001001
1004 004104 104000
1005 004106 006077 174672
1006 004112 103001
1007 004114 104000
1008 004116 032777 000002 174660
1009 004124 001374
1010 004126 032777 000010 174650
1011 004134 001774
1012 004136 032777 000040 174640
1013 004144 001001
1014 004146 104000
1015 004150 032777 000010 174626
1016 004156 001374
1017 004160 006077 174620
1018 004164 103401
1019 004166 104000
1020
1021
1022
1023
1024
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1028 004170 104400
1029 004172 005077 174610
1030 004176 105777 174604
1031 004202 100375
1032 004204 006077 174574
1033 004210 103375
1034 004212 032777 000040 174564
1035 004220 001001
1036 004222 104000
1037 004224 012777 177777 174556
1038 004232 012777 017230 174552
1039 004240 005000

;*****
;TEST REWIND FUNCTION
SCOPE
MOV # -3, ABC ;WRITE SHORT RECORD TO BE CERTAIN THAT BOT NOT SE
MOV # WBUF, ACA
TSTB @MTC
BPL -4
MOV #60005, @MTC ;WRITE, 800 BPI, GO
TSTB @MTC
SPL -4 ;WAIT FOR CU READY
ROR @MTS
BCC -4 ;WAIT FOR TU READY
MOV #60017, @MTC ;REWIND, GO
TSTB @MTC
BPL -4
BIT #2, @MTS
BNE +4
HLT ;ERROR, REWIND STATUS (BIT 1) NOT = 1 DURING REWIND
ROR @MTS
BCC +4
HLT ;ERROR, TU READY NOT = 0
BIT #2, @MTS
BNE -6 ;WAIT FOR RWS TO CLEAR
BIT #10, @MTS
BEQ -6 ;WAIT FOR SETTLEDOWN TO SET
BIT #40, @MTS
BNE +4
HLT ;ERROR, BOT (BIT 5) NOT = 1 WHEN SDWN (BIT 3) SET ON REW
BIT #10, @MTS
BNE -6
ROR @MTS
BCS +4
HLT ;ERROR, TU READY NOT SET AFTER SDWN CLEARED ON REWIND

;*****
;READ 1 BYTE RECORD FROM BOT
;BOT (BIT 5) SHOULD CLEAR, CU READY SHOULD SET, BYTE COUNT AND
;CURRENT ADDRESS SHOULD INCREMENT
SCOPE
CLR @MTC ;SELECT UNIT 0
TSTB @MTC
BPL -4 ;WAIT FOR CU READY
ROR @MTS
BCC -4 ;WAIT FOR TU READY
BIT #40, @MTS
BNE +4
HLT ;ERROR, DRIVE 0 NOT AT BOT
MOV # -1, ABC ;SET BYTE COUNT=-1
MOV # WBUF, ACA ;INIT CURRENT MEMORY ADDRESS
CLR RD ;INIT DELAY COUNTER

```

TM A, S-11 TS03 OR TU10, N.W INSTRUCTION TEST (MAINDEC-11-DZTMA-H-D)
DZTMAH.P11 READ 1 BYTE RECORD FROM BOT

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1040	004242	012701	000020		MOV	#20, R1	
1041	004246	012777	060003	174532	MOV	#60003, @MTC	; READ, 800 BPI, GO
1042	004254	005200			INC	R0	
1043	004256	001376			BNE	-2	; DELAY LONG ENOUGH TO MOVE OFF BOT
1044	004260	005301			DEC	R1	
1045	004262	001374			BNE	-6	
1046	004264	032777	000040	174512	BIT	#40, @MTS	; TEST FOR BOT
1047	004272	001401			BEQ	+.4	
1048	004274	104000			HLT		; ERROR, BOT (BIT 5) NOT CLEARED
1049	004276	105777	174504		TSTB	@MTC	; TEST FOR CU READY
1050	004302	100401			BMI	+.4	
1051	004304	104000			HLT		; ERROR, CU READY NOT SET AFTER WRITE FINISHED
1052	004306	005777	174476		TST	@BC	; TEST BYTE COUNT TO = 0
1053	004312	001401			BEQ	+.4	
1054	004314	104000			HLT		; ERROR, BYTE COUNT DIDN'T INCREMENT
1055	004316	022777	017231	174466	CMP	#WBUF+1, @CA	; TEST CURRENT MEMORY ADDRESS TO COUNT
1056	004324	001401			BEQ	+.4	
1057	004326	104000			HLT		; ERROR, CURRENT MEMORY ADDRESS DIDN'T INCREMENT TO 0
1058							
1059							
1060							
1061							
1062	004330	104400					
1063	004332	012777	177775	174450	MOV	#-3, @BC	; SET BYTE COUNT = -3
1064	004340	012777	017230	174444	MOV	#WBUF, @CA	; INIT CURRENT MEMORY ADDRESS
1065	004346	005000			CLR	R0	; INIT DELAY COUNTER
1066	004350	005077	174432		CLR	@MTC	; SELECT UNIT 0
1067	004354	105777	174426		TSTB	@MTC	
1068	004360	100375			BPL	-4	; WAIT FOR CU READY
1069	004362	006077	174416		ROR	@MTS	
1070	004366	103375			BCC	-4	; WAIT FOR TU READY
1071	004370	005000			CLR	R0	
1072	004372	012777	060003	174406	MOV	#60003, @MTC	; READ, 800BPI, GO
1073	004400	105777	174402		TSTB	@MTC	
1074	004404	100403			BMI	+.10	
1075	004406	005200			INC	R0	
1076	004410	001373			BNE	-10	
1077	004412	104000			HLT		; ERROR, CU READY DIDN'T SET AFTER 3 BYTE RECORD
1078	004414	022777	017233	174370	CMP	#WBUF+3, @CA	
1079	004422	001401			BEQ	+.4	
1080	004424	104000			HLT		; ERROR, CURRENT MEMORY ADDRESS DIDN'T INCREMENT
1081							
1082	004426	005777	174356		TST	@BC	
1083	004432	001401			BEQ	+.4	
1084	004434	104000			HLT		; ERROR, BYTE COUNT DIDN'T INCREMENT TO 0
1085	004436	005777	174344		TST	@MTC	
1086	004442	100001			BPL	+.4	
1087	004444	104000			HLT		; ERROR, BIT 15 SET IN COMMAND REGISTER
1088							
1089							
1090							
1091							
1092	004446	104400					
1093	004450	105777	174332		TSTB	@MTC	
1094	004454	100375			BPL	-4	
1095	004456	012777	060017	174322	MOV	#60017, @MTC	; REWIND UNIT TO BOT

K02

 TM, A, 6-11/TS03 OR TUIO, N, W INSTRUCTION TEST (MAINDEC-11-DZTMA-H-D)
 DZTMAH.P11 TEST WRITE EOF

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1096	004464	105777	174316	TSTB	AMTC	
1097	004470	100375		BPL	.-4	
1098	004472	012777	177777 174310	MOV	#-1, ABC	
1099	004500	012777	017230 174304	MOV	#WBUF, ACA	
1100	004506	012777	060007 174272	MOV	#60007, AMTC	;WRITE EOF
1101	004514	105777	174266	TSTB	AMTC	
1102	004520	100375		BPL	.-4	
1103	004522	005777	174262	TST	ABC	
1104	004526	001001		BNE	+.4	
1105	004530	104000		HLT		;ERROR, BYTE COUNT SHOULD NOT INCREMENT ON WRITE EOF
1106	004532	022777	017230 174252	CMP	#WBUF, ACA	
1107	004540	001401		BEQ	+.4	
1108	004542	104000		HLT		;ERROR, CURRENT ADDRESS SHOULD NOT INCREMENT ON WRITE EOF
1109						
1110						
1111						
1112				;*****		
1113	004544	012777	060017 174234	;TEST SPACE FORWARD TO STOP ON FIRST EOF		
1114	004552	105777	174230	MOV	#60017, AMTC	;REWIND
1115	004556	100375		TSTB	AMTC	
1116	004560	012777	177776 174222	BPL	.-4	
1117	004566	012777	060011 174212	MOV	#-2, ABC	
1118	004574	105777	174206	MOV	#60011, AMTC	;SPACE FORWARD 2 RECORDS
1119	004600	100375		TSTB	AMTC	
1120	004602	032777	040000 174174	BPL	.-4	
1121	004610	001001		BIT	#40000, AMTS	
1122	004612	104000		BNE	+.4	
1123	004614	005777	174166	HLT		;ERROR, EOF (BIT 14) NOT =1
1124	004620	100401		TST	AMTC	
1125	004622	104000		BMI	+.4	
1126	004624	022777	177777 174156	HLT		;ERROR, (BIT 15) OF COMMAND REGISTER NOT=1 WITH EOF=1
1127	004632	001401		CMP	#-1, ABC	
1128	004634	104000		BEQ	+.4	
1129	004636	022777	017230 174146	HLT		;ERROR, BYTE COUNT SHOULD HAVE INCREMENTED FROM -2 TO -1
1130	004644	001401		CMP	#WBUF, ACA	
1131	004646	104000		BEQ	+.4	
1132	004650	052777	010000 174130	HLT		;ERROR, CURRENT ADDRESS REGISTER SHOULD NOT INCREMENT.
1133	004656	032777	040000 174120	BIS	#10000, AMTC	;PWR CLEAR
1134	004664	001401		BIT	#40000, AMTS	
1135	004666	104000		BEQ	+.4	
1136				HLT		;ERROR, PWR CLEAR DIDN'T CLEAR EOF (BIT 14)
1137						
1138						
1139						
1140						
1141				;*****		
1142	004670	012777	177776 174112	;TEST SPACE REVERSE TO STOP IN FIRST EOF		
1143	004676	012777	017230 174106	MOV	#-2, ABC	
1144	004704	012777	060013 174074	MOV	#WBUF, ACA	
1145	004712	105777	174070	MOV	#60013, AMTC	;SPACE REVERSE 2 RECORDS
1146	004716	100375		TSTB	AMTC	
1147	004720	032777	040000 174056	BPL	.-4	
1148	004726	001001		BIT	#40000, AMTS	
1149	004730	104000		BNE	+.4	
1150	004732	032777	000040 174044	HLT		;ERROR, EOF (BIT 14) NOT =1
1151	004740	001401		BIT	#40, AMTS	
				BEQ	+.4	

1152	004742	104000		HLT		; ERROR, BOT=1, SHOULD NOT HAVE REACHED BOT
1153	004744	022777	177777 174036	CMP	#-1,ABC	
1154	004752	001401		BEQ	.+4	
1155	004754	104000		HLT		;ERROR, BYTE COUNT SHOULD HAVE INCREMENTED FROM -2 TO -1
1156	004756	022777	017230 174026	CMP	#WBUF,ACA	
1157	004764	001401		BEQ	.+4	
1158	004766	104000		HLT		;ERROR, CURRENT ADDRESS REGISTER SHOULD NOT INCREMENT
1159						
1160						
1161						
1162						
1163						
1164						
1165	004770	104400		SCOPE		
1166	004772	105777	174010	TSTB	AMTC	
1167	004776	100375		BPL	.-4	
1168	005000	012777	060017 174000	MOV	#60017,AMTC	;REWIND TO BOT
1169	005006	105777	173774	TSTB	AMTC	
1170	005012	100375		BPL	.-4	
1171	005014	012777	177775 173766	MOV	#-3,ABC	
1172	005022	012777	017230 173762	MOV	#WBUF,ACA	
1173	005030	012777	060005 173750	MOV	#60005,AMTC	; WRITE 1ST RECORD
1174	005036	105777	173744	TSTB	AMTC	
1175	005042	100375		BPL	.-4	
1176	005044	012777	177775 173736	MOV	#-3,ABC	
1177	005052	012777	017230 173732	MOV	#WBUF,ACA	
1178	005060	012777	060005 173720	MOV	#60005,AMTC	; WRITE 2ND RECORD
1179	005066	105777	173714	TSTB	AMTC	
1180	005072	100375		BPL	.-4	
1181	005074	012777	060007 173704	MOV	#60007,AMTC	; WRITE EOF
1182	005102	105777	173700	TSTB	AMTC	
1183	005106	100375		BPL	.-4	
1184	005110	012777	060017 173670	MOV	#60017,AMTC	; REWIND
1185	005116	105777	173664	TSTB	AMTC	
1186	005122	100375		BPL	.-4	
1187	005124	012777	177776 173656	MOV	#-2,ABC	
1188	005132	012777	060011 173646	MOV	#60011,AMTC	; SPACE FORWARD 2 RECORDS
1189	005140	105777	173642	TSTB	AMTC	
1190	005144	100375		BPL	.-4	
1191	005146	032777	040000 173630	BIT	#40000,AMTS	
1192	005154	001401		BEQ	.+4	
1193	005156	104000		HLT		;ERROR, EOF (BIT 14)=1. SHOULDN'T SPACE THIS FAR
1194						
1195						
1196	005160	012777	060011 173620	MOV	#60011,AMTC	;SPACE FORWARD TO EOF WITH BYTE COUNT=0
1197	005166	105777	173614	TSTB	AMTC	
1198	005172	100375		BPL	.-4	
1199	005174	032777	040000 173602	BIT	#40000,AMTS	
1200	005202	001001		BNE	.+4	
1201	005204	104000		HLT		;ERROR, EOF NOT =1
1202	005206	022777	000001 173574	CMP	#1,ABC	
1203	005214	001401		BEQ	.+4	
1204	005216	104000		HLT		;ERROR BYTE COUNT SHOULD =1
1205						
1206	005220	012777	177775 173562	MOV	#-3,ABC	
1207	005226	012777	017230 173556	MOV	#WBUF,ACA	

;NOW SPACE REVERSE 2 RECORDS (FIRST MUST BACKSPACE OVER EOF)

1208	005234	012777	060013	173544	MOV	#60013,AMTC	
1209	005242	105777	173540		TSTB	AMTC	
1210	005246	100375			BPL	.-4	
1211	005250	032777	040000	173526	BIT	#40000,AMTS	
1212	005256	001001			BNE	+.4	
1213	005260	104000			HLT		;ERROR, EOF (BIT 14) NOT =1 AFTER BACKSPACE OVER BOT
1214	005262	005277	173520		INC	AMTC	;RESUME BACKSPACE
1215	005266	105777	173514		TSTB	AMTC	
1216	005272	100375			BPL	.-4	
1217	005274	100377			BPL	.	
1218	005276	105777	173506		TSTB	ABC	
1219	005302	001401			SEQ	+.4	
1220	005304	104000			HLT		;ERROR, BYTE COUNT NOT=0
1221	005306	001401			BEQ	+.4	
1222	005310	104000			HLT		;ERROR, CURRENT MEMORY ADDRESS SHOULDN'T COUNT ON BACKSP
1223	005312	032777	000040	173464	BIT	#40,AMTS	
1224	005320	001401			BEQ	+.4	
1225	005322	104000			HLT		;ERROR, BACKSPACE SHOULD NOT HAVE REACHED BOT
1226							
1227							
1228							
1229							
1230	005324	104400					
1231	005326	105777	173454		SCOPE		
1232	005332	100375			TSTB	AMTC	
1233	005334	012777	060007	173444	BPL	.-4	
1234	005342	105777	173440		MOV	#60007,AMTC	;WRITE EOF
1235	005346	100375			TSTB	AMTC	
1236	005350	012777	060013	173430	BPL	.-4	
1237	005356	105777	173424		MOV	#60013,AMTC	;BACKSPACE OVER EOF
1238	005362	100375			TSTB	AMTC	
1239	005364	005037	017374		BPL	.-4	
1240	005370	012777	177771	173412	CLR	RBUF	
1241	005376	012777	017374	173406	MOV	#-7,ABC	
1242	005404	012777	060003	173374	MOV	#RBUF,ACA	
1243	005412	105777	173370		MOV	#60003,AMTC	;READ
1244	005416	100375			TSTB	AMTC	
1245	005420	032777	040000	173360	BPL	.-4	
1246	005426	001001			BIT	#40000,AMTC	
1247	005430	104000			BNE	+.4	
1248	005432	132777	000001	173364	HLT		;ERROR, EOF (BIT 14) NOT -1 DURING A READ OPERATION
1249	005440	001006			BITB	#1,ASWR	;IS 7 CHANNEL SELECTED
1250	005442	022737	011423	017374	TREOF		;YES
1251	005450	001401			BNE	TREOF	
1252	005452	104000			CMP	#11423,RBUF	
1253	005454	000405			BEQ	+.4	
1254	005456	022737	000377	017374	HLT		;ERROR, EOF (23) NOT TRANSFERRED FOR 2 BYTES DURING READ
1255	005464	001401			BR	TRE	
1256	005466	104000			CMP	#377,RBUF	
1257					BEQ	+.4	
1258					HLT		;ERROR, EOF (17-7 CHANNEL) NOT TRANSFERRED DURING READ E
1259							
1260							
1261							
1262							
1263	005470	104400					

;TEST READ TO FIND EOF

;TEST RECORD LENGTH ERROR
TRLE: SCOPE

1264	005472	105777	173310	TSTB	AMTC	
1265	005476	100375		BPL	.-4	
1266	005500	012737	177777 017230	MOV	#-1, WBUF	
1267	005506	012737	177777 017232	MOV	#-1, WBUF+2	
1268	005514	012777	177774 173266	MOV	#-4, ABC	
1269	005522	012777	017230 173262	MOV	#WBUF, ACA	
1270	005530	012777	060005 173250	MOV	#60005, AMTC	;WRITE 4 BYTE RECORD
1271	005536	105777	173244	TSTB	AMTC	
1272	005542	100375		BPL	.-4	
1273	005544	012777	177777 173236	MOV	#-1, ABC	
1274	005552	012777	060013 173226	MOV	#60013, AMTC	;BACKSPACE
1275	005560	105777	173222	TSTB	AMTC	
1276	005564	100375		BPL	.-4	
1277	005566	005037	017374	CLR	RBUF	
1278	005572	005037	017376	CLR	RBUF+2	
1279	005576	012777	177775 173204	MOV	#-3, ABC	
1280	005604	012777	017374 173200	MOV	#RBUF, ACA	
1281	005612	012777	060003 173166	MOV	#60003, AMTC	;READ 3 BYTE RECORD
1282	005620	105777	173162	TSTB	AMTC	
1283	005624	100375		BPL	.-4	
1284	005626	032777	001000 173150	BIT	#1000, AMTS	
1285	005634	001001		BNE	.-4	
1286	005636	104000		HLT		;ERROR, RECORD LENGTH ERROR (BIT 9) NOT =1
1287	005640	005777	173142	TST	AMTC	
1288	005644	100401		BMI	.-4	
1289	005646	104000		HLT		;ERROR, BIT 15 NOT =1 WHEN RLS (BIT 9) =1
1290	005650	022737	177777 017374	CMP	#-1, RBUF	
1291	005656	001401		BEQ	.-4	
1292	005660	104000		HLT		;ERROR, BYTES 1+2 NOT READ PROPERLY
1293	005662	022737	000377 017376	CMP	#377, RBUF+2	
1294	005670	001401		BEQ	.-4	
1295	005672	104000		HLT		;ERROR, BYTE 3 READ ERROR OR SOMETHING TRANSFERED TO BYTE
1296	005674	052777	010000 173104	BIS	#10000, AMTC	;PWR CLEAR
1297	005702	032777	001000 173074	BIT	#1000, AMTS	
1298	005710	001401		BEQ	.-4	
1299	005712	104000		HLT		;ERROR PWR CLEAR DIDN'T RLE (BIT 9)
1300						
1301						
1302						
1303						
1304						
1305						
1306	005714	104400		SCOPE		
1307	005716	105777	173064	TSTB	AMTC	
1308	005722	100375		BPL	.-4	
1309	005724	006077	173054	ROR	AMTS	
1310	005730	103375		BCC	.-4	
1311	005732	012777	177775 173050	MOV	#-3, ABC	
1312	005740	012777	017230 173044	MOV	#WBUF, ACA	
1313	005746	012777	060007 173032	MOV	#60007, AMTC	;WRITE EOF
1314	005754	105777	173026	TSTB	AMTC	
1315	005760	100775		BMI	.-4	;WAIT FOR CU READY TO CLEAR
1316	005762	012777	060017 173016	MOV	#60017, AMTC	;DATO TO MTC WITH CU READY =0
1317	005770	105777	173012	TSTB	AMTC	
1318	005774	100375		BPL	.-4	
1319	005776	005777	173002	TST	AMTS	

;TEST ILLEGAL COMMAND TO =1 ON A DATO OR DATOB TO MTC WITH CU READY=0

1320	006002	100401		BMI	.+4	
1321	006004	104000		HLT		;ERROR, ILLEGAL COMMAND (BIT 15) NOT =1
1322	005006	105777	172774	TSTB	2MTC	
1323	006012	100401		BMI	.+4	
1324	006014	104000		HLT		;ERROR, (BIT 15) NOT =1 WITH ILLEGAL COMMAND
1325	006016	105777	172764	TSTB	2MTC	
1326	006022	100375		SPL	.-4	
1327	006024	006077	172754	ROR	2MTS	
1328	006030	103375		BCC	.-4	
1329						
1330						
1331						
1332				;*****		
1333	006032	104400		;TEST ILLEGAL COMMAND BY ISSUING A COMMAND TO TYPE A UNIT WITH SELECT REMOTE =3		
1334	006034	012777	003400 172744	SCOPE		
1335	006042	105777	172740	MOV	#3400,2MTC	;SELECT UNIT 7, SELECT REMOTE SHOULD =0
1336	006046	100375		TSTB	2MTC	
1337	006050	032777	000100 172726	BPL	.-4	
1338	006056	001401		BIT	#100,2MTS	
1339	006060	104000		BEQ	.+4	
1340	006062	052777	000017 172716	HLT		;ERROR, SELECT REMOTE (BIT 6) NOT =0 WITH NONEXISTENT U
1341	006070	105777	172712	BIS	#17,2MTC	;ISSUE REWIND
1342	006074	100375		TSTB	2MTC	
1343	006076	005777	172702	BPL	.-4	
1344	006102	100401		TST	2MTS	
1345	006104	104000		BMI	.+4	
1346	006106	052777	010000 172672	HLT		;ERROR, ILLEGAL COMMAND (BIT 15) NOT =1
1347	006114	005777	172664	BIS	#10000,2MTC	;PWR CLEAR
1348	006120	100001		TST	2MTS	
1349	006122	104000		BPL	.+4	
1350				HLT		;ERROR, POWER CLEAR DIDN'T CLEAR ILC (BIT 15)
1351						
1352						
1353						
1354				;*****		
1355				;TEST BACKSPACE WHILE AT BOT TO BE IGNORED		
1356	006124	104400		SCOPE		
1357	006126	032777	000040 172652	BIT	#40,2MTC	;AT BOT ?
1358	006134	001003		BNE	.+10	;YES
1359	006136	012777	060017 172642	MOV	#60017,2MTC	;NO, REWIND
1360	006144	105777	172636	TSTB	2MTC	
1361	006150	100375		BPL	.-4	
1362	006152	006077	172626	ROR	2MTS	
1363	006156	103375		BCC	.-4	
1364	006160	012777	177777 172622	MOV	#-1,2BC	
1365	006166	012777	000013 172612	MOV	#13,2MTC	;BACKSPACE
1366	006174	105777	172606	TSTB	2MTC	
1367	006200	100375		BPL	.-4	
1368	006202	005777	172576	TST	2MTS	
1369	006206	100001		BPL	.+4	
1370	006210	104000		HLT		;ERROR, ILC (BIT 15) =1 AFTER BACKSPACE WHILE AT BOT
1371	006212	032777	000040 172564	BIT	#40,2MTS	
1372	006220	001001		BNE	.+4	
1373	006222	104000		HLT		;ERROR, NOT AT BOT AFTER BACKSPACE
1374						
1375						

C03

TM, A, B-11 TS03 OR TUIO, N.W INSTRUCTION TEST (MAINDEC-11-DZTMA-H-D)
 DZTMAH.P11 TEST REWIND WHILE AT BOT TO BE IGNORED

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1376                                     ;*****
1377                                     ;TEST REWIND WHILE AT BOT TO BE IGNORED
1378 006224 104400                      SCOPE
1379 006226 032777 000040 172550      BIT      #40,AMTS      ;AT BOT?
1380 006234 001003                      BNE      .+10        ;YES
1381 006236 012777 060017 172542      MOV      #60017,AMTC    ;NO, REWIND
1382 006244 105777 172536              TSTB      AMTC
1383 006250 100375                      BPL      .-4
1384 006252 006077 172526              ROR      AMTS
1385 006256 103375                      BCC      .-4
1386 006260 012777 060017 172520      MOV      #60017,AMTC    ;REWIND WHILE AT BOT
1387 006266 105777 172514              TSTB      AMTC
1388 006272 100375                      BPL      .-4
1389 006274 005777 172504              TST      AMTS
1390 006300 100001                      BPL      .+4
1391 006302 104000                      HLT
1392 006304 032777 000040 172472      BIT      #40,AMTS      ;ERROR, ILC(BIT15)=1 AFTER REWIND WHILE AT BOT
1393 006312 001001                      BNE
1394 006314 104000                      HLT      ;ERROR, NOT BOT AFTER REWIND
1395
1396
1397
1398                                     ;*****
1399                                     ;TEST BAD TAPE ERROR (BIT 8) TO =1
1400                                     ;USE MAINTENANCE BIT 13 OF MTRD TO SET PREMATURE CU READY TO CAUSE BAD TAPE
1401 006316 104400                      SCOPE
1402 006320 012777 177774 172462      MOV      #-4,ABC
1403 006326 012777 017230 172456      MOV      #WB0F,ACA
1404 006334 105777 172446              TSTB      AMTC
1405 006340 100375                      BPL      .-4
1406 006342 012777 060005 172436      MOV      #60005,AMTC    ;WRITE, 800 BPI, GO
1407 006350 005777 172434              TST      ABC
1408 006354 001375                      BNE      .-4
1409 006356 052777 020000 172432      BIS      #20000,AMTRD    ;SET PREMATURE CU READY
1410 006364 006077 172414              ROR      AMTS
1411 006370 103375                      BCC      .-4
1412 006372 032777 000400 172404      BIT      #400,AMTS
1413 006400 001001                      BNE      .+4
1414 006402 104000                      HLT      ;ERROR, BAD TAPE ERROR (BIT 8) NOT =1
1415 006404 005777 172376              TST      AMTC
1416 006410 100401                      BMI      .+4
1417 006412 104000                      HLT
1418 006414 052777 010000 172364      BIS      #10000,AMTC
1419 006422 032777 000400 172354      BIT      #400,AMTS
1420 006430 001401                      BEQ      .+4

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1421 006432 104000          HLT          ;ERROR, POWER CLEAR DIDN'T CLEAR BTE (BIT 8)
1422
1423
1424
1425
1426
1427 006434 104400          SCOPE
1428 006436 012777 177777 172344      MOV      #-1,ABC      ;INIT BYTE COUNTER
1429 006444 012777 173000 172340      MOV      #173000,ACA    ;INIT CURRENT MEMORY ADDRESS FOR NON EXISTENT MEMORY
1430 006452 105777 172330          TSTB     @MTC
1431 006456 100375          BPL      .-4
1432 006460 012777 060063 172320      MOV      #60063,@MTC    ;READ, EA=3, 800 BPI, GO
1433 006466 105777 172314          TSTB     @MTC
1434 006472 100375          BPL      .-4
1435 006474 032777 000200 172302      BIT      #200,@MTC
1436 006502 001001          BNE      .+4
1437 006504 104000          HLT
1438 006506 005777 172274          TST      @MTC
1439 006512 100401          BMI      .+4
1440 006514 104000          HLT
1441 006516 052777 010000 172262      BIS      #10000,@MTC    ;ERROR, (BIT 15) NOT =1 WITH NXM (BIT 7) =1
1442 006524 032777 000600 172252      BIT      #600,@MTC    ;PWR CLEAR
1443 006532 001401          BEQ      .+4
1444 006534 104000          HLT          ;ERROR, POWER CLEAR DIDN'T CLEAR BTE (BIT 8) OR NXM (BIT
1445
1446
1447
1448
1449
1450
1451
1452 006536 104400          SCOPE
1453 006540 012737 000200 177776      MOV      #200,CC      ;SET PRIORITY LEVEL 4
1454 006546 005077 172230          CLR      @MTVS      ;CLEAR INTERRUPT VECTOR CC
1455 006552 012777 006602 172220      MOV      #IR1,@MTV    ;INIT INTERRUPT RETURN
1456 006560 005000          CLR      R0      ;INIT DELAY COUNT
1457 006562 012777 000100 172216      MOV      #100,@MTC    ;SET INT ENABLE
1458 006570 005200          INC      R0      ;WAIT FOR INTERRUPT
1459 006572 001376          BNE      .-2
1460 006574 005077 172206          CLR      @MTC      ;WAITED TOO LONG WITHOUT INTERRUPT, CLEAR INT ENABLE
1461 006600 104000          HLT          ;ERROR, INTERRUPT ENABLE FAILED TO CAUSE INT.
1462
1463
1464
1465
1466 006602 012737 000240 177776      IR1: MOV      #240,CC      ;SET PROCESSOR PRIORITY LEVEL 5
1467 006610 012777 006634 172162      MOV      #IR2,@MTV    ;INIT INTERRUPT RETURN
1468 006616 005000          CLR      R0      ;INIT DELAY COUNT
1469 006620 012777 000100 172160      MOV      #100,@MTC    ;SET INT ENABLE
1470 006626 005200          INC      R0
1471 006630 001376          BNE      .-2
1472 006632 000401          BR       .+4
1473 006634 104000          IR2: HLT
1474
1475
1476

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E03

TM A, B-11 TS03 OR TUIO, N.W INSTRUCTION TEST (MAINDEC-11-DZTMA-H-D)
 DZTMAH.P11 TEST CU READY TO CAUSE INTERRUPT WITH INT ENABLE =1

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1477          :TEST CU READY TO CAUSE INTERRUPT WITH INT ENABLE =1
1478          :INT ENABLE (BIT 6) AND GO (BIT 3) SET AT SAME TIME SHOULDN'T CAUSE INTERRUPT
1479          SCOPE
1480 006636 104400          MOV      #200,CC          ;PROCESSOR PRIORITY LEVEL 4
1481 006640 012737 000200 177776          MOV      #IR3,AMTV
1482 006646 012777 006704 172124          MOV      #1,WAIT1
1483 006654 012737 000001 006702          MOV      #1,WAIT1
1484 006662 005077 172120          CLR      AMTC
1485 006666 105777 172114          TSTB     AMTC
1486 006672 100375          BPL      -4
1487 006674 012777 060107 172104          MOV      #60107,AMTC          ;WRITE EOF, INT ENABLE, GO
1488 006702 000001          WAIT1: WAIT
1489 006704 012737 000240 006702          IR3:  MOV      #240,WAIT1
1490 006712 105777 172070          TSTB     AMTC
1491 006716 100401          BMI      +4
1492 006720 104000          HLT
1493          ;ERROR, INTERRUPT NOT CAUSED BY CU READY
1494
1495          :*****
1496          :TEST REWIND TO CAUSE TWO INTERRUPTS
1497          :1ST AFTER CU READY AND 2ND AFTER REWIND COMPLETE
1498          SCOPE
1499 006722 104400          MOV      #200,CC          ;PROCESSOR PRIORITY LEVEL 4
1500 006724 012737 000200 177776          MOV      #IR4,AMTV
1501 006732 012777 007014 172040          MOV      #1,WAIT2
1502 006740 012737 000001 007012          MOV      #1,WAIT2
1503 006746 005077 172034          CLR      AMTC
1504 006752 105777 172030          TSTB     AMTC
1505 006756 100375          BPL      -4
1506 006760 032777 000040 172016          BIT      #40,AMTS          ;AT BOT?
1507 006766 001403          BEQ      +10          ;NO
1508 006770 012777 000003 172010          MOV      #3,AMTC          ;WRITE EOF TO MOVE OFF BOT
1509 006776 105777 172004          TSTB     AMTC
1510 007002 100375          BPL      -4
1511 007004 012777 000117 171774          MOV      #117,AMTC          ;INT ENABLE, REWIND, GO
1512 007012 000001          WAIT2: WAIT
1513 007014 012737 000240 007012          IR4:  MOV      #240,WAIT2
1514 007022 105777 171760          TSTB     AMTC
1515 007026 100401          BMI      +4
1516 007030 104000          HLT
1517          ;ERROR, INTERRUPT NOT CAUSED BY CU READY
1518
1519 007032 032777 000040 171744          BIT      #40,AMTS
1520 007040 100001          BPL      +4
1521 007042 104000          HLT          ;ERROR, SHOULDN'T BE AT BOT SO SOON AFTER 1ST INTERRUPT
1522 007044 012737 000001 007060          MOV      #1,WAIT3
1523 007052 012777 007062 171720          MOV      #IR5,AMTV
1524 007060 000001          WAIT3: WAIT
1525 007062 012737 000240 007060          IR5:  MOV      #240,WAIT3
1526 007070 032777 000040 171706          BIT      #40,AMTS
1527 007076 001001          BNE      +4
1528 007100 104000          HLT
1529          ;ERROR; 2ND INTERRUPT NOT CAUSED BY REWIND COMPLETE
1530
1531          :*****
1532          :DATA TRANSFER TEST
1533          :WRITE RECORD, BACKSPACE, READ RECORD
1534          :REPEAT FOR ALL BYTE PATTERNS FROM 0 THRU DATA PATTERN

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1533 007102 005037 001032          CLR      TEMP          ;INITALIZE DATA PATTERN
1534 007106 012700 017230          WBR:  MOV      #WBUF,RO
1535 007112 013720 001032          MOV      TEMP, (RO)+      ;SET UP WRITE BUFFER
1536 007116 022700 017254          CMP      #WBUF+24,RO
1537 007122 001373          BNE      WBR+4
1538 007124 012777 177754 171656    MOV      #-20,ABC      ;INIT BYTE COUNT
1539 007132 012777 017230 171652    MOV      #WBUF,ACA      ;INIT CURRENT MEMORY ADDRESS
1540 007140 105777 171642          TSTB     @MTC
1541 007144 100375          BPL      .-4
1542 007146 012777 060005 171632    MOV      #50005,@MTC      ;WRITE, 800 BPI, GO
1543 007154 105777 171626          TSTB     @MTC
1544 007160 100375          BPL      .-4
1545                                ;AFTER WRITE, CHECK WRITE BUFFER TO MAKE CERTAIN IT WASN'T MODIFIED
1546 007162 012700 017230          MOV      #WBUF,RO
1547 007166 023720 001032          WBR1:  CMP      TEMP, (RO)+
1548 007172 001401          BEQ      .+4
1549 007174 104000          HLT
1550 007176 022700 017254          CMP      #WBUF+24,RO      ;ERROR, DATA BUFFER MODIFIED DURING WRITE
1551 007202 001371          BNE      WBR1
1552                                ;BACKSPACE 1 RECORD
1553 007204 012777 177777 171576    MOV      #-1,ABC
1554
1555 007212 012777 060013 171566    MOV      #60013,@MTC
1556 007220 105777 171562          TSTB     @MTC
1557 007224 100375          BPL      .-4
1558 007226 012700 017374          MOV      #RBUF,RO
1559 007232 005020          WBR2:  CLR      (RO)+      ;CLEAR READ BUFFER
1560 007234 022700 017420          CMP      #RBUF+24,RO
1561 007240 001374          BNE      WBR2
1562                                ;:READ RECORD
1563 007242 012777 177754 171540    MOV      #-20,ABC      ;UNIT BYTE COUNT
1564 007250 012777 017374 171534    MOV      #RBUF,ACA      ;UNIT CURRENT MEMORY ADDRESS
1565 007256 012777 060003 171522    MOV      #60003,@MTC      ;READ,800 BPI, GO
1566 007264 105777 171516          TSTB     @MTC
1567 007270 100375          BPL      .-4
1568 007272 005777 171510          TST      @MTC
1569 007276 100001          BPL      .+4
1570 007300 104000          HLT
1571 007302 012700 017374          MOV      #RBUF,RO      ;ERROR, ERROR (BIT 15) =1 AFTER READ
1572
1573
1574 007306 023720 001032          WBR3:  CMP      TEMP, (RO)+
1575 007312 001401          BEQ      .+4
1576 007314 104000          HLT
1577 007316 022700 017420          CMP      #RBUF+24,RO      ;ERROR, DATA READ NOT EQUAL DATA WRITTEN
1578 007322 001371          BNE      WBR3
1579 007324 105237 001032          INCB     TEMP
1580 007330 001405          BEQ      WBR4      ;DONE FOR ALL DATA PATTERNS?
1581 007332 113737 001032 001033    MOVB     TEMP, TEMP+1      ;YES, EXIT
1582 007340 000137 007106          JMP      WBR      ;NO
1583                                ;REPEAT
1584                                ;WRITE AND READ A LONG RECORD
1585                                ;USES MEMORY OCCUPIED BY THE PROGRAM AS A WRITE BUFFER
1586 007344 012777 177160 171436    WBR4:  MOV      #-400,ABC
1587 007352 012777 002000 171432    MOV      #2000,ACA
1588 007360 105777 171422          TSTB     @MTC
1589 007364 100375          BPL      .-4

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G03

 TM A B-11 TS03 JR TU10 N.W INSTRUCTION TEST (MAINDEC-11-DZTMA-H-D)
 DZTMAH.P11 DATA TRANSFER TEST

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1589	007366	012777	060005	171412	MOV	#60005, @MTC	;WRITE, 800 BPI, GO
1590	007374	105777	171406		TSTB	@MTC	
1591	007400	100375			BPL	.-4	
1592	007402	012777	177777	171400	MOV	#-1, @BC	
1593	007410	012777	060013	171370	MOV	#60013, @MTC	;BACKSPACE 1 RECORD
1594	007416	105777	171364		TSTB	@MTC	
1595	007422	100375			BPL	.-4	
1596	007424	012777	177160	171356	MOV	#-400, @BC	
1597	007432	012777	017374	171352	MOV	#RBUF, @CA	
1598	007440	012777	060003	171340	MOV	#60003, @MTC	;READ, 800 BPI, GO
1599	007446	105777	171334		TSTB	@MTC	
1600	007452	100375			BPL	.-4	
1601	007454	012700	002000		MOV	#2000, R0	
1602	007460	012701	017374		MOV	#RBUF, R1	
1603	007464	022021			WBR5: CMP	(R0)+, (R1)+	;DO A DATA COMPARISON
1604	007466	001401			BEQ	+.4	
1605	007470	104000			HLT		;ERROR, DATA READ NOT EQUAL DATA WRITTEN
1606	007472	022701	020214		CMP	#RBUF+400, R1	;CHECKED WHOLE BUFFER
1607	007476	001372			BNE	WBR5	;NO
1608							
1609							
1610							
1611							
1612							
1613							
1614							
1615							
1616	007500	104400					
1617	007502	012737	177777	017230	PAR: SCOPE		
1618	007510	012737	177777	017232	MOV	#-1, WBUF	
1619	007516	012777	177775	171264	MOV	#-1, WBUF+2	
1620	007524	012777	017230	171260	MOV	#-3, @BC	
1621	007532	105777	171250		MOV	#WBUF, @CA	
1622	007536	100375			TSTB	@MTC	
1623	007540	012777	060004	171240	BPL	.-4	
1624	007546	132777	000001	171250	MOV	#60004, @MTC	;WRITE, 800 BPI, 9 TRACK
1625	007554	001403			BITB	#1, @SWR	
1626	007556	042777	020000	171222	BEQ	+.10	
1627	007564	005277	171216		BIC	#20000, @MTC	;MAKE COMMAND 7 TRACK
1628	007570	105777	171212		INC	@MTC	;GO
1629	007574	100375			TSTB	@MTC	
1630	007576	012777	177777	171204	BPL	.-4	
1631	007604	012777	060012	171174	MOV	#-1, @BC	
1632	007612	132777	000001	171204	MOV	#60012, @MTC	;BACKSPACE, 9 TRACK
1633	007620	001403			BITB	#1, @SWR	
1634	007622	042777	020000	171156	BEQ	+.10	
1635	007630	005277	171152		BIC	#20000, @MTC	;MAKE COMMAND 7 TRACK
1636	007634	105777	171146		INC	@MTC	;GO
1637	007640	100375			TSTB	@MTC	
1638	007642	052777	040000	171146	BPL	.-4	
1639	007650	012777	177775	171132	BIS	#40000, @MTRD	
1640	007656	012777	017374	171126	MOV	#-3, @BC	
1641	007664	012777	064002	171114	MOV	#RBUF, @CA	
1642	007672	132777	000001	171124	MOV	#64002, @MTC	
1643	007700	001403			BITB	#1, @SWR	
1644	007702	042777	020000	171076	BEQ	+.10	
					BIC	#20000, @MTC	;MAKE COMMAND 7 TRACK

 ;TEST PARITY
 ;WRITE 3 BYTE RECORD ODD PARITY, READ EVEN PARITY
 ;BIT 14 OF MTRD =1 SHOULD CAUSE LPC TO BE LOADED IN DATA BUFFER AFTER READ

H03

TM A B-11 TS03 OR TUIO.N.W INSTRUCTION TEST (MAINDEC-11-DZTMA-H-D)
DZTMAH.P11 TEST PARITY

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1645	007710	005277	171072		INC	AMTC		
1646	007714	105777	171066		TSTB	AMTC		;GO
1647	007720	100375			BPL	.-4		
1648	007722	032777	010000	171054	BIT	#10000,AMTS		
1649	007730	001001			BNE	+.4		
1650	007732	104000			HLT			;ERROR, PARITY ERROR (BIT 12) NOT =1
1651	007734	017700	171054		MOV	AMTD,RO		
1652	007740	042700	177000		BIC	#177000,RO		
1653	007744	132777	000001	171052	BITB	#1,ASWR		
1654	007752	001005			BNE	PAR1		
1655	007754	022700	000744		CMP	#744,RO		
1656	007760	001401			BEQ	+.4		
1657	007762	104000			HLT			;ERROR, LPC NOT =744 OR BIT 14 OF MTRD DID'T CAUSE LPC R
1658	007764	000404			BR	PAR2		
1659	007766	022700	000477		CMP	#477,RO		
1660	007772	001401			BEQ	+.4		
1661	007774	104000			HLT			;ERROR, LPC NOT =477 (7 CHANNEL) OR LPC NOT READ
1662								
1663								
1664								
1665	007776	012777	177775	171004	PAR2: MOV	#-3,ABC		
1666	010004	012777	017230	171000	MOV	#WBUF,ACA		
1667	010012	012777	064004	170766	MOV	#64004,AMTC		;WRITE, 800 BPI, 9 TRACK
1668	010020	132777	000001	170776	BITB	#1,ASWR		
1669	010026	001403			BEQ	+.10		
1670	010030	042777	020000	170750	BIC	#20000,AMTC		;MAKE 7 TRACK
1671	010036	005277	170744		INC	AMTC		;GO
1672	010042	105777	170740		TSTB	AMTC		
1673	010046	100375			BPL	.-4		
1674	010050	012777	177777	170732	MOV	#-1,ABC		
1675	010056	012777	060012	170722	MOV	#60012,AMTC		;BACKSPACE
1676	010064	132777	000001	170732	BITB	#1,ASWR		
1677	010072	001403			BEQ	+.10		
1678	010074	042777	020000	170704	BIC	#20000,AMTC		;MAKE COMMAND 7 TRACK
1679	010102	005277	170700		INC	AMTC		;GO
1680	010106	105777	170674		TSTB	AMTC		
1681	010112	100375			BPL	.-4		
1682	010114	052777	040000	170674	BIS	#40000,AMTRD		
1683	010122	012777	177775	170660	MOV	#-3,ABC		
1684	010130	012777	017374	170654	MOV	#RBUF,ACA		
1685	010136	012777	060002	170642	MOV	#60002,AMTC		;READ, 800 BPI, 9 TRACK
1686	010144	132777	000001	170652	BITB	#1,ASWR		
1687	010152	001403			BEQ	+.10		
1688	010154	042777	020000	170624	BIC	#20000,AMTC		;MAKE 7 TRACK
1689	010162	005277	170620		INC	AMTC		;GO
1690	010166	105777	170614		TSTB	AMTC		
1691	010172	100375			BPL	.-4		
1692	010174	032777	010000	170602	BIT	#10000,AMTS		
1693	010202	001001			BNE	+.4		
1694	010204	104000			HLT			;ERROR, PARITY ERROR (BIT 12) NOT =1
1695	010206	017700	170602		MOV	AMTD,RO		
1696	010212	042700	177000		BIC	#177000,RO		
1697	010216	132777	000001	170600	BITB	#1,ASWR		
1698	010224	001005			BNE	PAR3		
1699	010226	022700	000004		CMP	#4,RO		
1700	010232	001401			BEQ	+.4		

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1701 010234 104000          HLT          ;ERROR, LPC NOT =004 OR LPC NOT READ PROPERLY
1702 010236 000404          BR          PAR4
1703 010240 022700 000077   PAR3:  CMP    #77,RO
1704 010244 001401          BEQ    .+4
1705 010246 104000          HLT          ;ERROR, LPC NOT =77 (7 TRACK)
1706 010250 052777 010000 170530 PAR4:  BIT    #10000,AMTC ;PWR CLEAR
1707 010256 032777 010000 170520      BIT    #10000,AMTS
1708 010258 001401          BEQ    .+4
1709 010260 104000          HLT          ;ERROR, POWER CLEAR DIDN'T CLEAR PARITY ERROR (BIT 11)
1710
1711
1712 ;*****
1713 ;TEST TIMER (BIT 15) TO BE COMPLIMENTING
1714 010270 104400          SCOPE
1715 010272 005000          CLR    RO
1716 010274 005777 170516   TST    AMTRD
1717 010300 001403          BEQ    .+10
1718 010302 005200          INC    RO          ;DELAY LONG TIME
1719 010304 001373          BNE    .-10
1720 010306 104000          HLT          ;ERROR, TIMER (BIT 15) NEVER =0
1721 010310 005000          CLR    RO
1722 010312 005777 170500   TST    AMTRD
1723 010316 001003          BNE    .+10
1724 010320 005200          INC    RO
1725 010322 001373          BNE    .-10
1726 010324 104000          HLT          ; ERROR, TIMER (BIT 15) NEVER =1
1727
1728 010326 132777 000001 170470  BITB   #1,ASWR          ;IS SWD=1 TO INDICATE 7 CHANNEL
1729 010334 001402          BEQ    .+6          ;NO
1730 010336 000137 011450      JMP    MIT          ;YES SKIP CRC TEST
1731
1732 ;*****
1733 ;TEST CRC GENERATION AND LPC CHARACTER
1734 ;PROCEDURE USED IS TO WRITE A 4 BYTE RECORD AND READ IT BACK.
1735 ;THEN THE CRC WRITTEN IS COMPARED WITH CRC CALCULATED.
1736 ;THEN RECORD IS READ AGAIN AND LPC SHOULD = CRC
1737
1738 ;*****
1739 ;TEST IS REPEATED FOR ALL DATA COMBINATIONS.
1740
1741 CRCTST: CLRB    TEMP          ;INITIALIZE DATA
1742 010342 105037 001032 011220 CRCT1: JSR    PC,CRCPAR          ;GENERATE PARITY
1743 010346 004737 011112      MOV    TEMP,CRXOR1          ;SAVE 1ST DATA BYTE (+PARITY)
1744 010352 013737 001032      MOV    TEMP,RO
1745 010360 013700 001032      JSR    PC,CRCROT          ;ROTATE AND COMPLEMENT
1746 010364 004737 011152      MOV    RO,CROT1          ;SAVE ROTATE
1747 010370 010037 011222      MOV    TEMP,R1
1748 010374 013701 001032      JSR    PC,CRCXOR          ;XOR 2ND BYTE
1749 010400 004737 011206      MOV    R1,CRXOR2
1750 010404 010137 011224      MOV    CRXOR2,RO
1751 010410 013700 011224      JSR    PC,CRCROT
1752 010414 004737 011152      MOV    RO,CROT2
1753 010420 010037 011226      MOV    TEMP,R1
1754 010424 013701 001032      JSR    PC,CRCXOR          ;XOR 3RD BYTE
1755 010430 004737 011206      MOV    R1,CRXOR3
1756 010434 010137 011230

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1757	010440	013700	011230	MOV	CRXOR3, R0	
1758	010444	004737	011152	JSR	PC, CRCROT	
1759	010450	010037	011232	MOV	R0, CRR0T3	
1760	010454	013701	001032	MOV	TEMP, R1	
1761	010460	004737	011206	JSR	PC, CRXOR	;XOR 4TH BYTE
1762	010464	010137	011234	MOV	R1, CRXOR4	
1763	010470	013700	011234	MOV	CRXOR4, R0	
1764	010474	004737	011152	JSR	PC, CRCROT	
1765	010500	010037	011236	MOV	R0, CRR0T4	
1766	010504	010001		MOV	R0, R1	;COMPLEMENT ALL EXCEPT 4,6
1767	010506	042701	000727	BIC	#727, R1	
1768	010512	005100		COM	R0	
1769	010514	042700	000050	BIC	#50, R0	
1770	010520	050100		BIS	R1, R0	
1771	010522	010037	011240	MOV	R0, CRCWRT	
1772	010526	042737	177000 011240	BIC	#177000, CRCWRT	;SAVE CRC CALCULATED
1773						
1774						
1775						
1776						
1777	010534	104400				
1778	010536	113737	001032 017230	MOV	TEMP, WBUF	
1779	010544	113737	001032 017231	MOV	TEMP, WBUF+1	
1780	010552	013737	017230 017232	MOV	WBUF, WBUF+2	
1781	010560	012777	017230 170224	MOV	#WBUF, @CA	
1782	010566	012777	177774 170214	MOV	#-4, @BC	
1783	010574	005077	170206	CLR	@MTC	
1784	010600	105777	170202	TSTB	@MTC	
1785	010604	100375		BPL	.-4	
1786	010606	012777	060005 170172	MOV	#60005, @MTC	;WRITE, 4 BYTE RECORD, GO
1787	010614	105777	170166	TSTB	@MTC	
1788	010620	100375		BPL	.-4	
1789	010622	012777	177777 170160	MOV	#-1, @BC	
1790	010630	042777	000016 170150	BIC	#16, @MTC	
1791	010636	052777	000013 170142	BIS	#13, @MTC	;BACKSPACE
1792	010644	105777	170136	TSTB	@MTC	
1793	010650	100375		BPL	.-4	
1794	010652	012777	017374 170132	MOV	#RBUF, @CA	
1795	010660	012777	177774 170122	MOV	#-4, @BC	
1796	010666	042777	000016 170112	BIC	#16, @MTC	
1797	010674	052777	000003 170104	BIS	#3, @MTC	;READ, 4 BYTE RECORD, GO
1798	010702	105777	170100	TSTB	@MTC	
1799	010706	100375		BPL	.-4	
1800	010710	023737	017230 017374	CMP	WBUF, RBUF	;WERE 1ST 2 BYTES WRITTEN AND READ OK?
1801	010716	001401		BEQ	.-4	;YES
1802	010720	104000		HLT		;ERROR DATA WRITTEN NOT = DATA READ
1803	010722	023737	017232 017376	CMP	WBUF+2, RBUF+2	;WERE 2ND 2 BYTES WRITTEN AND READ OK?
1804	010730	001401		BEQ	.-4	;YES
1805	010732	104000		HLT		;ERROR, DATA WRITTEN NOT = DATA READ
1806	010734	017700	170054	MOV	@MTC, R0	;GET CRC
1807	010740	017701	170052	MOV	@MTRD, R1	;GET LPC ERROR
1808	010744	042700	177000	BIC	#177000, R0	;MASK CRC
1809	010750	042701	177000	BIC	#177000, R1	;MASK LPC ERROR
1810	010754	001401		BEQ	.-4	
1811	010756	104000		HLT		;ERROR, LPC NOT = 0
1812	010760	020037	011240	CMP	R0, CRCWRT	

K03

TM.A, B-11/TS03 OR TU10,N.W INSTRUCTION TEST(MAINDEC-11-DZTMA-H-D)
DZTMAH.P11 TEST IS REPEATED FOR ALL DATA COMBINATIONS.

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1813 010764 001401      BEQ      .+4
1814 010766 104000      HLT
1815 010770 012777 177777 170012  MOV      #-1,2BC      ;ERROR CRC WRITTEN NOT = CRC CALCULATED
1816 010776 012777 000013 170002  MOV      #13,2MTC      ;BACKSPACE
1817 011004 105777 167776      TSTB      2MTC
1818 011010 100375      BPL      .-4
1819 011012 012777 177774 167770  MOV      #-4,2BC
1820 011020 012777 017374 167764  MOV      #RBUF,2CA
1821 011026 052777 040000 167762  BIS      #40000,2MTRD  ;ENABLE LPC READ
1822 011034 012777 060003 167744  MOV      #60003,2MTC  ;READ, 4 BYTE RECORD, GO
1823 011042 105777 167740      TSTB      2MTC
1824 011046 100375      BPL      .-4
1825
1826
1827 011050 017700 167740      MOV      2MTRD,RO
1828 011054 042700 177000      BIC      #177000,RO
1829 011060 020037 011240      CMP      RO,CRCWRT
1830 011064 001401      BEQ      .+4
1831 011066 104000      HLT      ;ERROR, LPC NOT=CRC
1832 011070 005037 011240      CLR      CRCWRT
1833 011074 005077 167716      CLR      2MTRD      ;ENABLE CRC READ
1834 011100 105237 001032      INCB     TEMP      ;+1 TO DATA PATTERN
1835 011104 001456      BEQ      ZEROCRC
1836 011106 000137 010346      JMP      CRCT1
1837
1838 011112 112737 000001 001033  ;CALCULATE PARITY OF DATA TO BE WRITTEN IN CRC TEST (MAKE PARITY ODD)
1839 011120 113701 001032      CRCPAR: MOVB     #1,TEMP+1  ;INITIALIZE ODD PARITY
1840 011124 105701      CRCP1:  TSTB     R1
1841 011126 001001      BNE      .+4      ;IS DATA=0
1842 011130 000207      RTS      PC      ;NO
1843 011132 106301      ASLB     R1      ;YES, NOW TEMP+1 CONTAINS PARITY BIT
1844 011134 103002      BCC      .+6      ;SHIFT DATA BITS LEFT INTO C BIT
1845 011136 105137 001033      COMB     TEMP+1    ;WAS BIT=0?
1846 011142 042737 177000 001032  BIC      #177000,TEMP  ;NO, COMPLEMENT PARITY
1847 011150 000765      BR       CRCP1      ;DO AGAIN UNTIL DATA=0
1848
1849 011152 042700 177000      ;SIMULATE CRC ROTATE, IF CRI GOES TO 1 COMPLEMENT 4,5,6, AND 7.
1850 011156 006000      CRCROT: BIC      #177000,RO
1851 011160 103011      ROR      RO
1852 011162 052700 000400      BCC      CRCR1      ;NO EXIT
1853 011166 010001      BIS      #400,RO    ;MAKE BIT1=1
1854 011170 042701 000074      MOV      RO,R1
1855 011174 005100      BIC      #74,R1
1856 011176 042700 000703      COM      RO
1857 011202 050100      BIC      #703,RO
1858 011204 000207      BIS      R1,RO      ;RECOMBINE COMPLEMENTED BITS
1859
1860 011206 010103      CRCR1:  RTS      PC  ;EXIT
1861 011210 040001      ;XOR RO WITH R1, SAVE RESULT IN R1
1862 011212 040300      CRCXOR: MOV      R1,R3
1863 011214 050001      BIC      RO,R1
1864 011216 000207      BIC      R3,RO
1865 011220 000000      BIS      RO,R1
1866 011222 000000      RTS      PC
1867 011224 000000      CRXOR1: 0
1868 011226 000000      CRRROT1: 0
1869
1870 011228 000000      CRXOR2: 0
1871 011230 000000      CRRROT2: 0

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L03

TM A, 6-11/TS03 OR TU10,N,W INSTRUCTION TEST(MAINDEC-11-DZTMA-H-D)
DZTMAH.P11 TEST IS REPEATED FOR ALL DATA COMBINATIONS.

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1869 011230 000000 CRXOR3: 0
1870 011232 000000 CRROT3: 0
1871 011234 000000 CRXOR4: 0
1872 011236 000000 CRROT4: 0
1873 011240 000000 CRCWRT: 0
1874
1875
1876
1877
1878
1879
1880 011242 104400
1881 011244 012777 011370 167540
1882 011252 012777 177751 167530
1883
1884 011260 012777 060005 167520
1885 011266 105777 167514
1886 011272 100375
1887 011274 012777 177777 167506
1888
1889 011302 012777 060013 167476
1890 011310 105777 167472
1891 011314 100375
1892
1893
1894 011316 012777 011420 167466
1895
1896 011324 012777 177751 167456
1897
1898 011332 012777 060003 167446
1899 011340 105777 167442
1900 011344 100375
1901 011346 017700 167442
1902 011352 042700 177000
1903
1904 011356 001401
1905 011360 104000
1906 011362 104400
1907 011364 000137 011450
1908 011370
1909 011370 020011 041056 052131
1910 011376 004505 020040 041440
1911 011404 026122 043114 046054
1912 011412 026106 006460 000012
1913 011420
1914 011420 000014
1915
1916
1917
1918
1919
1920 011450 012777 060017 167330
1921 011456 105777 167324
1922 011462 100375
1923 011464 032777 002000 167332
1924 011472 001402

;*****
;TEST FOR ZERO (0) CRC CHARACTER
ZEROCRC:
MOV #WCRCOBUFF,ACA ;SET CURRENT MEMORY ADDRESS TO BUFFER
;CONTAINING '0' CRC PATTERN
MOV #-27,ABC ;SET BYTE RECORD COUNTER TO 27(8) BYTES
;TO BE WRITTEN
MOV #60005,AMTC ;800 BPI,9-CHANNEL,UNIT 1,WRITE,GO
TSTB AMTC ;CONTROL UNIT READY?
BPL -4 ;NO - WAIT
MOV #-1,ABC ;SET BYTE RECORD COUNTER FOR A
;BACKSPACE OF 1 RECORD
MOV #60013,AMTC ;BACKSPACE 1 RECORD!!
TSTB AMTC ;CONTROL UNIT READY?
BPL -4 ;NO - WAIT
;AT THIS POINT WE MUST READ THE DATA JUST WRITTEN IN ORDER TO
;GET THE CRC CHARACTER INTO THE MAGTAPE DATA BUFFER
MOV #RCRCOBUFF,ACA ;SET CURRENT MEMORY ADDRESS TO DUMP THE
;PATTERN JUST WRITTEN
MOV #-27,ABC ;SET BYTE RECORD COUNTER TO 27(8) BYTES
;TO BE READ
MOV #60003,AMTC ;800 BPI,9-CHANNEL,UNIT 0,READ,GO
TSTB AMTC ;CONTROL UNIT READY?
BPL -4 ;NO - WAIT
MOV AMTD,RO ;GET THE GENERATED CRC CHARACTER
BIC #177000,RO ;MASK UPPER BYTE TO SEGREGATE THE
;TOTAL CRC CHARACTER
BEQ 1$ ;BRANCH IF IT IS 0
HLT ;CRC GENERATED NOT 0!!
1$:
SCOPE
JMP AMIT ;GO TO MANUAL INTERVENTION TESTS
WCRCOBUFF:
20011,41056,52131,4505,20040,41440
26122,43114,46054,26106,6460,00012
RCRCOBUFF:
.BLKW 14 ;RESERVE 12 WORDS FOR THE READ BUFFER

;*****
;MANUAL INTERVENTION TESTS
MIT:
MOV #60017,AMTC ;REWIND
TSTB AMTC
BPL -4
BIT #2000,ASWR
BEQ .+6

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```

1925 011474 000137 012666      JMP      TSTEND
1926 011500 012702 014437      MOV      #MSG3,R2
1927 011504 004737 013456      JSR      PC, TOP      ;PRINT INSTRUCTIONS TO SELECT OR INHIBIT TEST
1928 011510 000000              HALT              ;WAIT FOR OPERATOR TO CONTINUE
1929 011512 104002              CKSWR             ;CHECK FOR A CNTL G
1930 011514 032777 002000 167302 BIT      #2000, ASWR      ;INHIBIT TESTS?
1931 011522 001402              SEQ      MITA          ;NO
1932 011524 000137 012666      JMP      TSTEND      ;YES
1933
1934
1935 ;*****
1936 ;MAKE SURE UNIT 0 SELECTED, ONLINE, AT BOT
1937 011530 012702 014655      MITA:  MOV      #MSG3A,R2
1938 011534 004737 013456      JSR      PC, TOP      ;REQUEST TS03 RESPONSE
1939 011540 000000              HALT
1940 011542 104400              SCOPE
1941 011544 005077 167236      CLR      @MTC          ;SELECT UNIT 0
1942 011550 105777 167232      TSTB     @MTC
1943 011554 100401              BMI      .+4
1944 011556 104000              HLT
1945 011560 104400              SCOPE
1946 011562 032777 000040 167214 BIT      #40, @MTS
1947 011570 001001              BNE      .+4
1948 011572 104000              HLT          ;ERROR, CU READY NOT SET, IS UNIT 0 SELECTED?
1949
1950 ;*****
1951 ;TEST UNIT SELECT SWITCH
1952
1953 011574 112737 000061 014750      MOVB     #61, MSG4+16    ;INITIALIZE TYPEOUT FOR UNIT 1
1954 011602 012737 000400 001032      MOV      #400, TEMP    ;INITIALIZE UNIT SELECT #1
1955 011610 012702 014732              USS:  MOV      #MSG4,R2
1956 011614 004737 013456              JSR      PC, TOP
1957 011620 000000              HALT
1958 011622 104400              SCOPE
1959 011624 013777 001032 167154      MOV      TEMP, @MTC    ;SELECT UNIT
1960 011632 005000              CLR      R0          ;INIT DELAY
1961 011634 032777 000100 167142      USS1:  BIT      #100, @MTS ;IS SELECT REMOTE SET
1962 011642 001003              BNE      USS2          ;YES
1963 011644 005200              INC      R0          ;NO, HAVE WE WAITED LONG ENOUGH?
1964 011646 001372              BNE      USS1          ;NO, WAIT SOME MORE
1965 011650 104000              HLT          ;ERROR, PROPER UNIT NOT SELECTED
1966 011652 105237 014750      USS2:  INCB     MSG4+16    ;INCREMENT UNIT #
1967 011656 062737 000400 001032      ADD      #400, TEMP
1968 011664 032777 001000 167132      BIT      #1000, ASWR   ;SEE IF TS03
1969 011672 001405              BEQ      USS3          ;IF NOT: BR
1970 011674 022737 001000 001032      CMP      #1000, TEMP   ;SEE IF DONE ALL TS03 UNITS
1971 011702 001342              BNE      USS          ;IF NOT: BR
1972 011704 000404              BR       USS4
1973 011706 022737 004000 001022      USS3:  CMP      #4000, TEMP ;DONE ALL UNITS?
1974 011714 001335              BNE      USS          ;NO
1975
1976 ;*****
1977 ;TEST ONLINE-OFFLINE SWITCH
1978
1979 011716 012702 014772      USS4:  MOV      #MSG5,R2
1980 011722 004737 013456      JSR      PC, TOP

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N03

TM A 8-11 TS03 OR TU10.N.W INSTRUCTION TEST(MAINDEC-11-DZTMA-H-D)
DZTMAH.P11 TEST ONLINE-OFFLINE SWITCH

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1981	011726	000000			HALT		
1982	011730	104400			SCOPE		
1983	011732	005077	167050		CLR	QMTC	;SELECT UNIT 0
1984	011736	032777	000100	167040	BIT	#100,QMTS	
1985	011744	001401			BEQ	.+4	
1986	011746	104000			HLT		;ERROR, SELECT REMOTE SET, UNIT NOT OFF-LINE
1987							
1988							
1989							
1990							
1991							
1992							
1993							
1994	011750	012702	015044				
1995	011754	004737	013456		MOV	MSG6,R2	
1996	011760	000000			JSR	PC, TOP	
1997	011762	104400			HALT		
1998	011764	005077	167016		SCOPE		
1999	011770	032777	000004	167006	CLR	QMTC	;SELECT UNIT 0
2000	011776	001001			BIT	#4,QMTS	;IS WRITE LOCK SET?
2001	012000	104000			BNE	.+4	;YES
2002					HLT		;ERROR, WRL (BIT 2) NOT SET WITH WRITE LOCK RING REMOVED
2003							
2004							
2005							
2006	012002	104400					
2007	012004	005077	167000		SCOPE		
2008	012010	005077	166776		CLR	QBC	
2009	012014	012777	060005	166764	CLR	QCA	
2010	012022	105777	166760		MOV	#60005,QMTC	
2011	012026	100375			TSTB	QMTC	
2012	012030	005777	166752		BPL	.-4	
2013	012034	100401			TST	QMTC	
2014	012036	104000			BMI	.+4	
2015	012040	005777	166740		HLT		;ERROR (BIT 15) NOT SET AFTER WRITE WITH WRITE LOCK SET
2016	012044	100401			TST	QMTS	
2017	012046	104000			BMI	.+4	
2018					HLT		;ERROR, ILLEGAL COMMAND (BIT 15) NOT SET AFTER WRITE WITH
2019							
2020							
2021							
2022	012050	104400					
2023	012052	012702	015177		SCOPE		
2024	012056	004737	013456		MOV	MSG7,R2	
2025	012062	032777	001000	166734	JSR	PC, TOP	
2026	012070	001004			BIT	#1000,QSWR	;SEE IF TS03
2027	012072	012702	015264		BNE	IS	;IF S0: BR
2028	012076	004737	013456		MOV	MSG7A,R2	
2029	012102	012702	015340		JSR	PC, TOP	
2030	012106	004737	013456		MOV	MSG7B,R2	
2031	012112	000000			JSR	PC, TOP	
2032	012114	104002			HALT		
2033	012116	012777	010000	166662	CKSWR		;CHECK FOR CNTL G
2034	012124	105777	166656		MOV	#10000,QMTC	;POWER CLEAR
2035	012130	100375			TSTB	QMTC	
2036	012132	032777	000100	166644	BPL	.-4	
					BIT	#100,QMTS	

B04

MAC-8-11-1533 OR T110 N.W. INSTRUCTION TEST (MAINDEC-11-02TMA-H-D) MACY11 27(732) 04-NOV-76 12:11 PAGE 41
 01TMAH.P11 TEST OFFLINE FUNCTION TO SET UNIT OFFLINE AND REWIND TO BOT

2037	012140	001001		BNE	+.4	
2038	012142	104000		HLT		;ERROR, UNIT 0 NOT ON LINE, OFF BOT
2039	012144	104400		SCOPE		
2040	012146	012777	000001 166632	MOV	#1,DMTC	;GO OFFLINE
2041	012154	105777	166626	TSTB	DMTC	
2042	012160	100375		BPL	.-4	
2043	012162	032777	000100 166614	BIT	#100,DMTS	
2044	012170	001401		BEQ	+.4	
2045	012172	104000		HLT		;ERROR, SELR (BIT 6) NOT CLEARED BY OFFLINE COMMAND
2046				;RE-SET UNIT		
2047	012174	012702	015454	MOV	#MSG9,R2	
2048	012200	004737	013456	JSR	PC,TOP	
2049	012204	000000		HALT		
2050	012206	104002		CKSWR		;CHECK FOR CNTL G
2051						
2052						
2053						
2054						
2055						
2056						
2057	012210	012702	015535	MOV	#MSG9,R2	
2058	012214	004737	013456	JSR	PC,TOP	
2059	012220	000000		HALT		
2060	012222	104002		CKSWR		;CHECK FOR CNTL G
2061	012224	032777	000002 166572	BIT	#2,DSWR	
2062	012232	001047		BNE	BGL1	
2063	012234	012702	015655	MOV	#MSG10,R2	
2064	012240	004737	013456	JSR	PC,TOP	
2065	012244	104400		SCOPE		
2066	012246	005077	166534	CLR	DMTC	
2067	012252	105777	166530	TSTB	DMTC	
2068	012256	100375		BPL	.-4	
2069	012260	012777	177756 166522	MOV	#-18.,ABC	
2070	012266	012777	017230 166516	MOV	#WBUF,ACA	
2071	012274	012777	0E0005 166504	MOV	#60005,DMTC	;WRITE, 800 BPI, GO
2072	012302	022777	017232 166502	CMP	#WBUF+2,ACA	
2073	012310	003774		BLE	.-6	;WAIT FOR NPR SEQUENCE TO START
2074	012312	000000		HALT		;CAUSE BGL, WAIT FOR CONTINUE
2075	012314	104002		CKSWR		;CHECK FOR CNTL G
2076	012316	032777	004000 166460	BIT	#4000,DMTS	
2077	012324	001001		BNE	+.4	
2078	012326	104000		HLT		;ERROR, BGL (BIT 11) NOT=1.
2079	012330	052777	010000 166450	BIS	#10000,DMTC	;POWER CLEAR
2080	012336	032777	004000 166440	BIT	#4000,DMTS	
2081	012344	001401		BEQ	+.4	
2082	012346	104000		HLT		;ERROR, POWER CLEAR DIDN'T CLEAR BGL (BIT 11)
2083	012350	000443		BR	LASTTEST	
2084	012352	012702	015723	MOV	#MSG11,R2	
2085	012356	004737	013456	JSR	PC,TOP	
2086	012362	104400		SCOPE		
2087	012364	005077	166416	CLR	DMTC	
2088	012370	105777	166412	TSTB	DMTC	
2089	012374	100375		BPL	.-4	
2090	012376	012777	177756 166404	MOV	#-18.,ABC	
2091	012404	012777	017230 166400	MOV	#WBUF,ACA	
2092	012412	000000		HALT		

BGL1:

C04

TM A, B-11-TS03 OR TUIO, N, W INSTRUCTION TEST (MAINDEC-11-DZTMA-H-D)
 DZTMAH.P11 TEST BUS GRANT LATE (BIT 11) TO=1

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2093	012414	012777	060005	166364	MOV	#60005, 2MTC	;WRITE, 800 BPI, GO
2094	012422	000240			NOP		
2095	012424	000240			NOP		
2096	012426	032777	004000	166350	BIT	#4000, 2MTS	
2097	012434	001001			BNE	.+4	
2098	012436	104000			HLT		;ERROR, BGL (BIT 11) NOT= 1
2099	012440	052777	010000	166340	BIS	#10000, 2MTC	;POWER CLEAR
2100	012446	032777	004000	166330	BIT	#4000, 2MTS	
2101	012454	001401			BEQ	.+4	
2102	012456	104000			HLT		;ERROR, POWER CLEAR DIDN'T CLEAR BGL (BIT 11)
2103							
2104							
2105							
2106							
2107	012460	104400					
2108	012462	012702	016211				
2109	012466	004737	013456				
2110	012472	000000					
2111	012474	104002					
2112	012476	032777	000004	166320			
2113	012504	001470					
2114	012506	012702	016313				
2115							
2116	012512	004737	013456				
2117	012516	032777	001000	166300			
2118	012524	001004					
2119	012526	012702	016366				
2120	012532	004737	013456				
2121	012536	012702	016441				
2122	012542	004737	013456				
2123	012546	000000					
2124	012550	104002					
2125	012552	012702	016712				
2126							
2127	012556	004737	013456				
2128	012562	000000					
2129	012564	104002					
2130	012566	005077	166214				
2131							
2132							
2133	012572	012700	007777				
2134	012576	005300					
2135	012600	001402					
2136	012602	000137	012576				
2137	012606	012777	060417	166172			
2138							
2139							
2140	012614	105777	166166				
2141	012620	100375					
2142	012622	005777	166156				
2143	012626	100401					
2144	012630	000410					
2145	012632	104000					
2146	012634	052777	010000	166144			
2147	012642	005777	166136				
2148	012646	100001					

;*****
 ;TEST FOR ILC ERROR ON DELAYED UNIT CHANGE
 LASTTEST: SCOPE
 MOV #MSG12, R2 ;FIND OUT IF WE HAVE A 2ND TRANSPORT
 JSR PC, TOP
 HALT
 CKSWR ;CHECK FOR CNTL G
 BIT #4, 2SWR ;DO WE HAVE A 2ND TRANSPORT?
 BEQ TSTEND ;BRANCH IF NO
 MOV #MSG13, R2 ;GET OPERATOR TO SELECT UNIT 1 ON 1ST
 ;TRANSPORT, ON-LINE
 JSR PC, TOP
 BIT #1000, 2SWR ;SEE IF TS03
 BNE 15 ;IF SO: BR
 MOV #MSG13A, R2
 JSR PC, TOP
 MOV #MSG13B, R2
 JSR PC, TOP
 HALT
 CKSWR
 MOV #MSG16, R2 ;CHECK FOR CNTL G
 ;GET OPERATOR TO SELECT UNIT 0 ON 2ND
 ;TRANSPORT, ON-LINE
 JSR PC, TOP
 HALT
 CKSWR
 CLR 2MTC ;CHECK FOR CNTL G
 ;SELECT UNIT 0
 ;IT SHOULD BE POWERED UP AND
 ;ON LINE
 ;DELAY BETWEEN CHANGING UNITS
 MOV #7777, R0
 DEC R0
 BEQ 45 ;BRANCH AFTER DELAY
 JMP 2835 ;KEEP DELAYING
 MOV #60417, 2MTC ;LOAD THE COMMAND REGISTER WITH
 ;800 BPI (7 OR 9-CHANNEL), REWIND, GO
 ;THIS COMMAND WILL CHANGE UNITS AND REWIND
 ;CONTROL UNIT READY?
 ;NO - WAIT
 ;ILLEGAL COMMAND ERROR PRESENT?
 ;BRANCH IF YES
 TSTB 2MTC
 BPL .-4
 TST 2MTS
 BMI 55
 BR 65
 HLT
 BIS #10000, 2MTC ;ILC BIT SET - SHOULDN'T BE!!
 TST 2MTS ;ISSUE A POWER CLEAR!!
 BPL .+4 ;ILLEGAL COMMAND BIT CLEAR?
 ;BRANCH IF YES

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TM A B-11/TS03 OR TUIO N W INSTRUCTION TEST (MAINDEC-11-DZTMA-H-D)
 DZTMAH.P11 TEST FOR ILC ERROR ON DELAYED UNIT CHANGE

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2149	012650	104000			HLT					
2150	012652	012702	017010		6S: MOV	#MSG17,R2				;POWER CLEAR DIDN'T CLEAR ILC BIT
2151										;GET OPERATOR TO RESELECT UNIT 1 TO 0
2152	012656	004737	013456		JSR	PC, TOP				;AND TURN 2ND TRANSPORT OFF-LINE
2153	012662	000000			HALT					
2154	012664	104400			SCOPE					
2155					END OF PASS MESSAGE					
2156	012666	012702	017124		TSTEND: MOV	#MSG20,R2				
2157	012672	004737	013456		JSR	PC, TOP				;PRINT END OF PASS
2158	012676	013702	001036		MOV	PCNTR,R2				
2159	012702	004737	013176		JSR	PC, OCTPRT				;PRINT END OF PASS NUMBER
2160	012706	005237	001036		INC	PCNTR				;BUMP PASS COUNTER
2161	012712	105777	166070		TSTB	AMTC				
2162	012716	100375			BPL	-4				
2163	012720	012777	060017	16606C	MOV	#50017,AMTC				;REWIND UNIT
2164	012726	105777	166054		TSTB	AMTC				
2165	012732	100375			BPL	-4				
2166	012734	006077	166044		ROR	AMTS				
2167	012740	103375			BCC	-4				
2168	012742	013702	000042		MOV	#42,R2				
2169	012746	001405			BEQ	THERE				
2170	012750	000005			RESET					
2171	012752	004712			SENDAD: JSR	PC, (R2)				
2172	012754	000240			NOP					
2173	012756	000240			NOP					
2174	012760	000240			NOP					
2175	012762	000240			THERE: NOP					
2176	012764	032777	004000	166032	BIT	#4000,ASWR				;SEE IF SINGLE PASS
2177	012772	001401			BEQ	IS				;IF NOT: BR
2178	012774	000000			HALT					
2179	012776	000137	001220		IS: JMP	BEGIN				;START OF TEST WITH TRACE OFF
2180										
2181					ENTERED WITH SYSTEM TRAP CALL (HLT)					
2182					PRINT PC, STATUS REGISTER, COMMAND REGISTER, BYTE COUNT, CURRENT ADDRESS, DATA BUFFER					
2183	013002	037727	166016	020000	PRINT: BIT	ASWR, #20000				;TEST FOR INHIBIT PRINT OUT
2184	013010	001401			BEQ	+4				;BRANCH TO PRINT
2185	013012	000466			BR	IS				;INHIBIT, RETURN TO MAIN STREAM
2186	013014	012702	014322		MOV	#MSG1,R2				
2187	013020	005737	013174		TST	PRINT1				
2188	013024	001402			BEQ	+6				
2189	013026	012702	014434		MOV	#MSG2,R2				
2190	013032	004737	013456		JSR	PC, TOP				;PRINT ERROR HEADING
2191	013036	005237	013174		INC	PRINT1				
2192	013042	011602			MOV	(SP), R2				
2193	013044	162702	000002		SUB	#2,R2				
2194	013050	004737	013176		JSR	PC, OCTPRT				;PRINT PC
2195	013054	017702	165724		MOV	AMTS,R2				
2196	013060	004737	013176		JSR	PC, OCTPRT				;PRINT STATUS REGISTER
2197	013064	017702	165716		MOV	AMTC,R2				
2198	013070	004737	013176		JSR	PC, OCTPRT				;PRINT COMMAND REGISTER
2199	013074	017702	165710		MOV	ABC,R2				
2200	013100	004737	013176		JSR	PC, OCTPRT				;PRINT BYTE COUNT
2201	013104	017702	165702		MOV	ACA,R2				
2202	013110	004737	013176		JSR	PC, OCTPRT				;PRINT CURRENT ADDRESS
2203	013114	017702	165674		MOV	AMTD,R2				
2204	013120	042702	177000		BIC	#177000,R2				

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TM A 8-11 TS03 OR TUIO, N.W INSTRUCTION TEST (MAINDEC-11-DZTMA-H-D)
 DZTMAH.P11 TEST FOR ILC ERROR ON DELAYED UNIT CHANGE

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2205	013124	004737	013176		JSR	PC, OCTPRT		;PRINT DATA BUFFER
2206	013130	017702	165662		MOV	3MTRD, R2		
2207	013134	004737	013176		JSR	PC, OCTPRT		;PRINT TUIO READ LINES
2208	013140	013702	001032		MOV	TEMP, R2		
2209	013144	004737	013176		JSR	PC, OCTPRT		;PRINT TEMP
2210	013150	013702	011240		MOV	CRCWRT, R2		
2211	013154	004737	013176		JSR	PC, OCTPRT		
2212	013160	005777	165640		TST	3SWR		;CHECK 3SWR FOR HALT SWITCH
2213	013164	100001			BPL	15		
2214	013166	000000			HALT			;HALT ON ERROR UP
2215	013170	104002		15:	CKSWR			;CHECK FOR CNTL G
2216	013172	000207			RTS	PC		;RETURN TO MAINLINE
2217	013174	000000						
2218				PRINT1: 0				
2219	013176	012737	000060	013310	:PRINT OCTAL VALUE IN REGISTER2			
2220	013204	005702			OCTPRT: MOV	#'C, CHAR		;INITIALIZE 1ST NUMBER AS 0
2221	013206	100003			TST	R2		;IS VALUE POSITIVE
2222	013210	012737	000061	013310	BPL	OCT1		;YES PRINT 0
2223	013216	004737	013312		MOV	#'1, CHAR		;NO PRINT 1
2224	013222	006102			OCT1: JSR	PC, OCTP		
2225	013224	006102			ROL	R2		
2226	013226	012737	177773	013306	ROL	R2		
2227	013234	006102			MOV	#-5, OCT		;COUNT 5 DIGITS
2228	013236	006102			OCT2: ROL	R2		
2229	013240	006102			ROL	R2		
2230	013242	010237	013310		ROL	R2		
2231	013246	042737	177770	013310	MOV	R2, CHAR		;SAVE DIGIT
2232	013254	052737	000060	013310	BIC	#177770, CHAR		;CLEAR OTHER BITS
2233	013262	006002			BIS	#60, CHAR		;MAKE ASCII DIGIT
2234	013264	004737	013312		ROR	R2		
2235	013270	006102			JSR	PC, OCTP		;PRINT
2236	013272	005237	013306		ROL	R2		
2237	013276	001356			INC	OCT		;+1 TO DIGIT COUNT
2238	013300	004737	013330		BNE	OCT2		;NOT DONE
2239	013304	000207			JSR	PC, SP3		
2240	013306	000000			RTS	PC		;EXIT
2241	013310	000000			OCT: 0			
2242	013312	105777	165504		CHAR: 0			
2243	013316	100375			OCTP: TSTB	3TPS		
2244	013320	013777	013310	165472	BPL	-4		;WAIT FOR READY
2245	013326	000207			MOV	CHAR, 3TPB		;PRINT
2246					RTS	PC		
2247								
2248	013330	012702	013342		:TYPE 3 SPACES			
2249	013334	004737	013456		SP3: MOV	#SP3A, R2		
2250	013340	000207			JSR	PC, TOP		
2251	013342	020057	027440		RTS	PC		
2252					SP3A: .ASCII	;/ ;		
2253					.EVEN			
2254								
2255	013346	104002			:SCOPE LOOP ROUTINE ENTERED BY USER TRAP			
2256	013350	032777	040000	165446	SCOPEA: CKSWR			;CHECK FOR CNTL G
2257	013356	001003			BIT	#40000, 3SWR		
2258	013360	011637	013454		BNE	SCOPEB		;SCOPE, BIT IS A ONE
2259	013364	000002			MOV	3SP, RETURN		;NO - SAVE PC FOR NEXT TIME
2260	013366	022606			RTI			;RETURN IN SEQUENCE
					SCOPEB: CMP	(SP)+, SP		;REPOSITION THE STACK

F04

 TM A, 8-11/TS03 OR TU10,N,W INSTRUCTION TEST(MAINDEC-11-DZTMA-H-D)
 DZTMAH.P11 TEST FOR ILC ERROR ON DELAYED UNIT CHANGE

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2261 013370 012637 177776      MOV      (SP)+,CC
2262 013374 000177 000054      JMP      @RETURN      ;SCOPE RETURN
2263
2264      ;SCOPE OR/AND ITERATION LOOP FOR EACH TEST 4000 TIMES
2265      SCOPEC: CKSWR      ;CHECK FOR CNTL G
2266 013400 104002      BIT      #40000,@SWR      ;TEST SWR FOR SCOPE
2267 013402 032777 040000 165414  SNE      SCOPEB      ;YES SCOPE
2268 013410 001366      BIT      #10000,@SWR      ;NO - TEST FOR ITERATION
2269 013412 032777 010000 165404  BNE      SCOPEB      ;INHIBIT ITERATION
2270 013420 001007      CMP      SCOPEF,ICOUNT
2271 013422 023737 013452 001034  BEQ      SCOPEB
2272 013430 001403      INC      SCOPEF
2273 013432 005237 013452      BR      SCOPEB
2274 013436 000753      SCOPEG: CLR      SCOPEF
2275 013440 005037 013452      MOV      @SP,RETURN
2276 013444 011637 013454      RTI
2277 013450 000002      SCOPEF: 0
2278 013452 000000      RETURN: BEGIN
2279 013454 001220      ;MOV ADDRESS OF MESSAGE TO REGISTER 2
2280      ;THEN JSR PC, TOP
2281 013456 142777 000177 165336  TOP:  BICB      #177,@TPS      ;CLR INT FLAG
2282 013464 112237 013556      MOVB      (R2)+,EOMK      ;MOVE IN EOM MARKER
2283 013470 121237 013556      TOP1:  CMPB      @R2,EOMK      ;COMPARE FOR EOM
2284 013474 001001      BNE      .+4      ;NO
2285 013476 000207      RTS      PC      ;YES, EXIT
2286 013500 121227 000100      CMPB      @R2,#'a
2287 013504 001406      BEQ      TOP2
2288 013506 105777 165310      TSTB      @TPS      ;CK TTY
2289 013512 100375      BPL      .-4      ;WAIT FOR DONE
2290 013514 112277 165300      MOVB      (R2)+,@TPB      ;MOVE CHARACTER
2291 013520 000763      BR      TOP1      ;BRANCH BACK
2292 013522 105777 165274      TOP2:  TSTB      @TPS
2293 013526 100375      BPL      .-4
2294 013530 112777 000215 165262  MOVB      #215,@TPB      ;SEND CARRIAGE RETURN
2295 013536 105777 165260      TSTB      @TPS
2296 013542 100375      BPL      .-4
2297 013544 112777 000212 165246  MOVB      #212,@TPB      ;SEND LINE FEED
2298 013552 005202      INC      R2      ;INCRMTN R2
2299 013554 000745      BR      TOP1      ;NO EOM, SO LOOP
2300 013556      000      EOMK:  .BYTE      0
2301      013560      .EVEN
2302
2303
2304
2305      ;*****
2306      ;SOFTWARE SWITCH REGISTER CHANGE ROUTINE
2307
2308 013560 022737 000176 001024  CKSWRR: CMP      #SWREG,SWR      ;SOFTWARE SWITCH REG PRESENT
2309 013566 001041      BNE      OUT      ;NO, GET OUT
2310
2311 013570 105777 165232      TSTB      @TKS      ;YES, WAIT FOR
2312 013574 100036      BPL      OUT      ;READY, GET CHARACTER
2313 013576 017737 165226 014100  MOV      @TKB,TIB      ;AND STRIP OFF
2314 013604 042737 177600 014100  BIC      #177600,TIB      ;THE GARBAGE
2315 013612 022737 000007 014100  CMP      #7,TIB      ;IS IT A <TG>
2316 013620 001024      BNE      OUT

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G04

 TM A B-11 TS03 OR TJ10 N W INSTRUCTION TEST (MAINDEC-11-DZTMA-H-D)
 DZTMAH.P11 SOFTWARE SWITCH REGISTER CHANGE ROUTINE

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2317	013622	012702	017202		MOV	#SCNTG,R2	
2318	013626	004737	013456		JSR	PC, TOP	
2319	013632	012702	017210	CNTLU:	MOV	#MSWR,R2	
2320	013636	004737	013456		JSR	PC, TOP	
2321	013642	017702	165156		MOV	ASWR,R2	
2322	013646	004737	013176		JSR	PC, OCTPRT	
2323	013652	012702	017217		MOV	#SMNEW,R2	
2324	013656	004737	013456		JSR	PC, TOP	
2325	013662	005037	014076		CLR	ASTEMPST	
2326	013666	004737	013674		JSR	PC, SREAD	
2327	013672	000207		OUT:	RTS	PC	;GO READ A LINE ;RETURN TO MAIN BODY OF PROGRAM
2328							
2329	013674	005037	014076		CLR	TEMPST	
2330	013700	012737	000007	014074	MOV	#7,COUNT	
2331	013706	004737	014126	1\$:	JSR	PC, TTIN	;GO READ A CHARACTER
2332	013712	042737	177600	014100	BIC	#177600,T1B	;STRIP OFF GARBAGE
2333	013720	122737	000025	014100	CMPB	#25,T1B	;IS IT A 'U'?
2334	013726	001002			BNE	2\$	;BRANCH IF NOT
2335	013730	005726		3\$:	TST	(SP)+	;POP THE STACK
2336	013732	000737			BR	CNTLU	;START OVER
2337	013734	122737	000015	014100	2\$:	CMPB	#15,T1B
2338	013742	001012			BNE	4\$	;IS IT A '<CR>'?
2339	013744	012702	014434		MOV	#MSG2,R2	;BRANCH IF NOT
2340	013750	004737	013456		JSR	PC, TOP	;DO A CRLF
2341	013754	022737	000007	014074	CMP	#7,COUNT	;WAS IT FIRST CHARACTER
2342	013762	001037			BNE	7\$	;CHANGE SWR IF NOT FIRST CR
2343	013764	005726		8\$:	TST	(SP)+	;POP THE STACK
2344	013766	000741			BR	OUT	;GET OUT
2345	013770	122737	000060	014100	4\$:	CMPB	#60,T1B
2346	013776	003004			BGT	5\$	
2347	014000	122737	000067	014100	CMPB	#67,T1B	
2348	014006	002005			BGE	6\$	
2349	014010	012702	017225		5\$:	MOV	#SQUEST,R2
2350	014014	004737	013456		JSR	PC, TOP	
2351	014020	000743			BR	3\$	;START OVER IF NOT LEGAL CHARACTER
2352	014022	006337	014076	6\$:	ASL	TEMPST	
2353	014026	006337	014076		ASL	TEMPST	
2354	014032	006337	014076		ASL	TEMPST	
2355	014036	142737	000060	014100	BICB	#60,T1B	;GET NITTY-GRITTY
2356	014044	153737	014100	014076	BISB	T1B,TEMPST	
2357	014052	005337	014074		DEC	COUNT	;ONLY WANT 6 DIGITS
2358	014056	001754			BEQ	5\$	
2359	014060	000712			BR	1\$	
2360	014062	013777	014076	164734	7\$:	MOV	TEMPST,ASWR
2361	014070	000735			BR	8\$	;CHANGE SWITCH REGISTER CONTENTS
2362							
2363	014072	000000			RDSW:	0	
2364	014074	000000			COUNT:	0	
2365	014076	000000			TEMPST:	0	
2366	014100	000000			T1B:	0	
2367							
2368							
2369							
2370							
2371	014102	011666	000002		TRAP30: MOV	ASW,2(6)	
2372	014106	162716	000002		SUB	#2,ASW	

;*****

;TRAP HANDLER

H04

TM A, B-11/TS03 OR TU10,N.W INSTRUCTION TEST(MAINDEC-11-DZTMA-H-D)
DZTMAH.P11 TRAP HANDLER

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2373 014112 013646
2374 014114 062716 110122
2375 014120 013607
2376 014122 013002
2377 014124 013560
2378 104000
2379 104002
2380
2381
2382
2383
2384

MOV 2(6)+,-(6)
ADD #TABLE-104000,2SP
MOV 2(SP)+,PC
TABLE: PRINT
CKSWRR
HLT= 104000
CKSWR= 104002

;TTY READ SUBROUTINE

2385 014126 005077 164674
2386 014132 005077 164672
2387 014136 005037 014100
2388 014142 005277 164660
2389 014146 105777 164654
2390 014152 100375
2391 014154 017737 164650 014100
2392 014162 105777 164634
2393 014166 100375
2394 014170 113777 014100 164622
2395 014176 000207
2396

TTIN: CLR 2TKS
CLR 2TKB
CLR TIB
INC 2TKS
TTIN1: TSTB 2TKS
BPL TTIN1
MOV 2TKB,TIB
TTIN2: TSTB 2TPS
BPL TTIN2
MOVB TIB,2TPB
RTS PC

2397	014200	040057	046524	040454	MSG0:	.ASCII ;/QTM,A,B-11:TS03 OR TU10,N,W INSTRUCTION TEST (DZTMA-H)/;
2398	014206	041054	030455	035061		
2399	014214	051524	031460	047440		
2400	014222	020122	052524	030061		
2401	014230	047054	053454	044440		
2402	014236	051516	051124	041525		
2403	014244	044524	047117	052040		
2404	014252	051505	020124	042050		
2405	014260	052132	040515	044055		
2406	014266	027451				
2407	014270	040057	042523	020124	MSG01:	.ASCII ;/QSET SW0=1 IF 7 CHANNELQ/;
2408	014276	053523	036460	020061		
2409	014304	043111	033440	041440		
2410	014312	040510	047116	046105		
2411	014320	027500				
2412	014322	040057	020040	041520	MSG1:	.ASCII ;/Q PC STATUS COMAND BYTE CA DATA B READ L TEMP CRC CA
2413	014330	020040	020040	052123		
2414	014336	052101	051525	020040		
2415	014344	047503	040515	042116		
2416	014352	020040	041040	052131		
2417	014360	020105	020040	020040		
2418	014366	040503	020040	020040		
2419	014374	040504	040524	041040		
2420	014402	020040	042522	042101		
2421	014410	046040	020040	052040		
2422	014416	046505	020120	041440		
2423	014424	041522	041440	046101		
2424	014432	027500				
2425	014434	040057	057		MSG2:	.ASCII ;/Q/;
2426	014437	057	022100	020117	MSG3:	.ASCII ;/QTO INHIBIT MANUAL INTERVENTION TEST: SET SW10=1 AND PRESS CONTINUE;
2427	014444	047111	044510	044502		
2428	014452	020124	040515	052516		
2429	014460	046101	044440	052116		
2430	014466	051105	042526	052116		
2431	014474	047511	020116	042524		
2432	014502	052123	020072	051440		
2433	014510	052105	051440	030527		
2434	014516	036460	020061	047101		
2435	014524	020104	051120	051505		
2436	014532	020123	047503	052116		
2437	014540	047111	042525			
2438	014544	047500	044124	051105		
2439	014552	044527	042523	051440		
2440	014560	052105	051440	030527		
2441	014566	036460	026060	051440		
2442	014574	046105	041505	020124		
2443	014602	047125	052111	030040		
2444	014610	020054	047117	046040		
2445	014616	047111	026105	040440		
2446	014624	020124	047502	020124		
2447	014632	047101	020104	051120		
2448	014640	051505	020123	047503		
2449	014646	052116	047111	042525		
2450	014654	057				
2451	014655	057	044500	020106	MSG3A:	.ASCII ;/QIF UNIT IS TS03, SET SW9=1, PRESS CONTINUE/;
2452	014662	047125	052111	044440		

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TM A 6-11 TS03 OR TUIO N W INSTRUCTION TEST (MAINDEC-11-DZTMA-H-D)
DZTMAH.P11 TTY READ SUBROUTINE

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2453	014670	020123	051524	031460	
2454	014676	020054	042523	020124	
2455	014704	053523	036471	026061	
2456	014712	050040	042522	051523	
2457	014720	041440	047117	044524	
2458	014726	052516	027505		
2459	014732	040057	042523	042514	MSG4: .ASCII ;/QSELECT UNIT 1, PRESS CONTINUE/;
2460	014740	052103	052440	044516	
2461	014746	020124	026060	050040	
2462	014754	042522	051523	041440	
2463	014762	047117	044524	052516	
2464	014770	027505			
2465	014772	040057	042523	042514	MSG5: .ASCII ;/QSELECT UNIT 0, OFF-LINE, PRESS CONTINUE/;
2466	015000	052103	052440	044516	
2467	015006	020124	026060	047440	
2468	015014	043106	046055	047111	
2469	015022	026105	050040	042522	
2470	015030	051523	041440	047117	
2471	015036	044524	052516	027505	
2472	015044	040057	044504	046523	MSG6: .ASCII ;/QDISMOUNT TAPE, REMOVE WRITE LOCK RING, MOUNT TAPE;
2473	015052	052517	052116	052040	
2474	015060	050101	026105	051040	
2475	015066	046505	053117	020105	
2476	015074	051127	052111	020105	
2477	015102	047514	045503	051040	
2478	015110	047111	026107	046440	
2479	015116	052517	052116	052040	
2480	015124	050101	105		
2481	015127	100	042523	042514	.ASCII ;/QSELECT UNIT 0, ON LINE, PRESS CONTINUE/;
2482	015134	052103	052440	044516	
2483	015142	020124	026060	047440	
2484	015150	020116	044514	042516	
2485	015156	020054	051120	051505	
2486	015164	020123	047503	052116	
2487	015172	047111	042525	057	
2488	015177	057	042100	051511	MSG7: .ASCII ;/QDISMOUNT TAPE, REPLACE WRITE LOCK RING, MOUNT TAPE/;
2489	015204	047515	047125	020124	
2490	015212	040524	042520	020054	
2491	015220	042522	046120	041501	
2492	015226	020105	051127	052111	
2493	015234	020105	047514	045503	
2494	015242	051040	047111	026107	
2495	015250	046440	052517	052116	
2496	015256	052040	050101	027505	
2497	015264	040057	047515	042526	MSG7A: .ASCII ;/QMOVE TAPE SHORT DISTANCE FORWARD FROM BOT/;
2498	015272	052040	050101	020105	
2499	015300	044123	051117	020124	
2500	015306	044504	052123	047101	
2501	015314	042503	043040	051117	
2502	015322	040527	042122	043040	
2503	015330	047522	020115	047502	
2504	015336	027524			
2505	015340	040057	042523	042514	MSG7B: .ASCII ;/QSELECT UNIT 0, ON LINE, PRESS CONTINUE;
2506	015346	052103	052440	044516	
2507	015354	020124	026060	047440	
2508	015362	020116	044514	042516	

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TM A 6-11/TS03 OR TUIO N W INSTRUCTION TEST(MAINDEC-11-DZTMA-H-D)
DZTMAH.P11 TTY REAR SUBROUTINE

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2509	015370	020054	051120	051505	
2510	015376	020123	047503	052116	
2511	015404	047111	042525		
2512	015410	052500	044516	020124	.ASCII ;@UNIT SHOULD GO OFFLINE AND REWIND@/;
2513	015416	044123	052517	042114	
2514	015424	043440	020117	043117	
2515	015432	046106	047111	020105	
2516	015440	047101	020104	042522	
2517	015446	044527	042116	027500	
2518	015454	040057	042523	042514	MSG8: .ASCII ;/@SELECT UNIT 0, ON LINE, AT BOT, PRESS CONTINUE/;
2519	015462	052103	052440	044516	
2520	015470	020124	026060	047440	
2521	015476	020116	044514	042516	
2522	015504	020054	052101	041040	
2523	015512	052117	020054	051120	
2524	015520	051505	020123	047503	
2525	015526	052116	047111	042525	
2526	015534	057			
2527	015535	057	044500	020106	MSG9: .ASCII ;/@IF PROCESSOR IS A PDF-45, SET SW 1=1;
2528	015542	051120	041517	051505	
2529	015550	047523	020122	051511	
2530	015556	040440	050040	050104	
2531	015564	032055	026065	051440	
2532	015572	052105	051440	020127	
2533	015600	036461	061		
2534	015603	100	043111	040440	.ASCII ;@IF ANY OTHER, SET SW 1=0, PRESS CONTINUE/;
2535	015610	054516	047440	044124	
2536	015616	051105	020054	042523	
2537	015624	020124	053523	030440	
2538	015632	030075	020054	051120	
2539	015640	051505	020123	047503	
2540	015646	052116	047111	042525	
2541	015654	057			
2542	015655	057	050100	047522	MSG10: .ASCII ;/@PROCESSOR WILL HALT, PRESS CONTINUE/;
2543	015662	042503	051523	051117	
2544	015670	053440	046111	020114	
2545	015676	040510	052114	020054	
2546	015704	051120	051505	020123	
2547	015712	047503	052116	047111	
2548	015720	042525	057		
2549	015723	057	050100	047522	MSG11: .ASCII ;/@PROCESSOR WILL HALT, PUT 'ENABLE-HALT' SW ON 'HALT';
2550	015730	042503	051523	051117	
2551	015736	020040	044527	046114	
2552	015744	044040	046101	026124	
2553	015752	050040	052125	023440	
2554	015760	047105	041101	042514	
2555	015766	044055	046101	023524	
2556	015774	051440	020127	047117	
2557	016002	023440	040510	052114	
2558	016010	047			
2559	016011	100	052520	020124	.ASCII ;@PUT 'S-INST-S-BUS CYCLE' SW ON 'S-BUS CYCLE';
2560	016016	051447	044455	051516	
2561	016024	026524	026523	052502	
2562	016032	020123	054503	046103	
2563	016040	023505	051440	020127	
2564	016046	047117	023440	026523	

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 TM, A, B-11/TS03 OR TU10, N, W INSTRUCTION TEST (MAINDEC-11-DZTMA-H-C)
 DZTMAH.P11 TTY READ SUBROUTINE

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2565	016054	052502	020123	054503	
2566	016062	046103	023505		
2567	016066	050100	042522	051523	.ASCII ;@PRESS 'CONTINUE' 6 TIMES;
2568	016074	023440	047503	052116	
2569	016102	047111	042525	020047	
2570	016110	020066	044524	042515	
2571	016116	123			
2572	016117	100	052520	020124	.ASCII ;@PUT SW'S BACK TO 'ENABLE' & 'S-INST', PRESS 'CONTINUE'@/;
2573	016124	053523	051447	020040	
2574	016132	040502	045503	052040	
2575	016140	020117	042447	040516	
2576	016146	046102	023505	023040	
2577	016154	023440	026523	047111	
2578	016162	052123	026047	050040	
2579	016170	042522	051523	023440	
2580	016176	047503	052116	047111	
2581	016204	042525	040047	057	
2582	016211	057	051500	052105	MSG12: .ASCII ;/@SET SW2 = 1 IF A 2ND TRANSPORT IS AVAILABLE;
2583	016216	051440	031127	036440	
2584	016224	030440	044440	020106	
2585	016232	020101	047062	020104	
2586	016240	051124	047101	050123	
2587	016246	051117	020124	051511	
2588	016254	040440	040526	046111	
2589	016262	041101	042514		
2590	016266	052100	042510	020116	.ASCII ;@THEN PRESS CONTINUE/;
2591	016274	051120	051505	020123	
2592	016302	047503	052116	047111	
2593	016310	042525	057		
2594	016313	057	051500	046105	MSG13: .ASCII ;/@SELECT UNIT 1, ON-LINE, ON 1ST TRANSPORT/;
2595	016320	041505	020124	047125	
2596	016326	052111	030440	020054	
2597	016334	047117	046055	047111	
2598	016342	026105	047440	020116	
2599	016350	051461	020124	051124	
2600	016356	047101	050123	051117	
2601	016364	027524			
2602	016366	040057	047101	020104	MSG13A: .ASCII ;/@AND MOVE UNIT 1 ON 1ST TRANSPORT OFF BOT/;
2603	016374	047515	042526	052440	
2604	016402	044516	020124	020061	
2605	016410	047117	030440	052123	
2606	016416	052040	040522	051516	
2607	016424	047520	052122	047440	
2608	016432	043106	041040	052117	
2609	016440	057			
2610	016441	057	052100	042510	MSG13B: .ASCII ;/@THEN PRESS CONTINUE/;
2611	016446	020116	051120	051505	
2612	016454	020123	047503	052116	
2613	016462	047111	042525	057	
2614	016467	057	046100	053517	MSG14: .ASCII ;/@LOW BYTE OF COMMAND REGISTER LOADED INCORRECTLY;
2615	016474	041040	052131	020105	
2616	016502	043117	041440	046517	
2617	016510	040515	042116	051040	
2618	016516	043505	051511	042524	
2619	016524	020122	047514	042101	
2620	016532	042105	044440	041516	

2621	016540	051117	042522	052103	
2622	016546	054514			
2623	016550	052500	044523	043516	.ASCII ;@USING BYTE INSTRUCTION/;
2624	016556	041040	052131	020105	
2625	016564	047111	052123	052522	
2626	016572	052103	047511	027516	
2627	016600	040057	044510	044107	MSG15: .ASCII ;/@HIGH BYTE OF COMMAND REGISTER LOADED INCORRECTLY;
2628	016606	041040	052131	020105	
2629	016614	043117	041440	046517	
2630	016622	040515	042116	051040	
2631	016630	043505	051511	042524	
2632	016636	020122	047514	042101	
2633	016644	042105	044440	041516	
2634	016652	051117	042522	052103	
2635	016660	054514			
2636	016662	052500	044523	043516	.ASCII ;@USING BYTE INSTRUCTION/;
2637	016670	041040	052131	020105	
2638	016676	047111	052123	052522	
2639	016704	052103	047511	027516	
2640	016712	040057	042523	042514	MSG16: .ASCII ;/@SELECT UNIT 0 ON 2ND TRANSPORT, ON-LINE;
2641	016720	052103	052440	044516	
2642	016726	020124	020060	047117	
2643	016734	031040	042116	052040	
2644	016742	040522	051516	047520	
2645	016750	052122	020054	047117	
2646	016756	046055	047111	105	
2647	016763	100	044124	047105	.ASCII ;@THEN PRESS CONTINUE/;
2648	016770	050040	042522	051523	
2649	016776	041440	047117	044524	
2650	017004	052516	027505		
2651	017010	040057	042522	042523	MSG17: .ASCII ;/@RESELECT UNIT 1 TO 0, AND TURN 2ND TRANSPORT OFF-LINE;
2652	017016	042514	052103	052440	
2653	017024	044516	020124	020061	
2654	017032	047524	030040	020054	
2655	017040	047101	020104	052524	
2656	017046	047122	031040	042116	
2657	017054	052040	040522	051516	
2658	017062	047520	052122	047440	
2659	017070	043106	046055	047111	
2660	017076	105			
2661	017077	100	044124	047105	.ASCII ;@THEN PRESS CONTINUE/;
2662	017104	050040	042522	051523	
2663	017112	041440	047117	044524	
2664	017120	052516	027505		
2665	017124	040057	042500	042116	MSG20: .ASCII ;/@END OF PASS: /;
2666	017132	047440	020106	040520	
2667	017140	051523	020072	057	
2668	017145	057	040100	040503	MSG21: .ASCII ;/@CANNOT TEST LOAD MEDIUM@/;
2669	017152	047116	052117	052040	
2670	017160	051505	020124	047514	
2671	017166	042101	046440	042105	
2672	017174	052511	040115	027500	
2673	017202	040057	043536	027500	\$CNTG: .ASCII ;/@+G@/;
2674	017210	040057	053523	036522	\$MSWR: .ASCII ;/@SWR=/;
2675	017216	057			
2676	017217	057	042516	036527	\$MNEW: .ASCII ;/@NEW=/;

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TM, A, 8-11/TS03 OR TU10, N, W INSTRUCTION TEST (MAINDEC-11-DZTMA-H-D)
DZTMAH.P11 TTY READ SUBROUTINE

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2677 017224 057
2678 017225 057 027477
2679
2680 017230 000000
2681 017374
2682 017374 000000
2683 000001

\$QUEST: .ASCII ;/?/;
 .EVEN
WBUF: 0
 .=WBUF+100.
RBUF: 0
 .END

SAD0AT	002340	608*	639*											
BC	001010	300*	376	440	792*	793	932*	947	958*	978	990*	1037*	1052	1063*
		1082	1098*	1103	1116*	1126	1142*	1153	1171*	1176*	1187*	1202	1205*	1218
		1240*	1268*	1273*	1279*	1311*	1364*	1402*	1407	1428*	1532*	1553*	1563*	1585*
		1592*	1596*	1619*	1630*	1639*	1665*	1674*	1683*	1782*	1789*	1795*	1815*	1819*
		1982*	1887*	1896*	2007*	2069*	2090*	2199						
BEGIN	001220	341	346*	347	2179	2278								
BGL1	012352	2062	2084*											
BUFF =	000776	259*	315	346										
BYTEJP	002342	615	621	642*										
CA	001012	301*	385	449	805*	806	933*	950	959*	975	991*	1038*	1055	1064*
		1078	1099*	1106	1129	1143*	1156	1172*	1177*	1207*	1241*	1269*	1280*	1312*
		1403*	1429*	1539*	1564*	1586*	1597*	1620*	1640*	1666*	1684*	1781*	1794*	1920*
		1880*	1894*	2008*	2070*	2072	2091*	2201						
		256*	1453*	1466*	1480*	1498*	2261*							
CC =	177776	2219*	2222*	2230*	2231*	2232*	2241*	2244						
CHAR	013310	564*												
CHKBYT	002112	345	1929	2032	2050	2060	2075	2111	2124	2129	2215	2255	2265	2379*
CKSUM	104002	2308*	2377											
CKSUMR	013560	2319*	2336											
CNTLU	013632	2330*	2341	2357*	2364*									
COUNT	014074	1743	1839*											
CRCPAR	011112	1840*	1847											
CRCPI	011124	1746	1752	1758	1764	1849*								
CRCROT	011152	1851	1858*											
CRCRI	011204	1742*												
CRCTST	010342	1743*	1836											
CRCT1	010346	349*	1771*	1772*	1812	1829	1832*	1873*	2210					
CRCRT	011240	1749	1755	1761	1850*									
CRCXOR	011206	1747*	1866*											
CRR0T1	011222	1753*	1868*											
CRR0T2	011226	1759*	1870*											
CRR0T3	011232	1765*	1872*											
CRR0T4	011236	1744*	1865*											
CRXOR1	011220	1750*	1751	1867*										
CRXOR2	011224	1756*	1757	1869*										
CRXOR3	011230	1762*	1763	1871*										
CRXOR4	011234	1777*												
CWRITE	010534	255*												
ENT =	014102	2282*	2283	2300*										
EOMK	013556	572*	574*	627*										
EXPECT	002332	605*	607*	635*										
GOODDA	002336	360	369	378	387	396	405	414	423	433	442	451	460	469
HLT =	104000	478	487	497	507	512	517	522	527	532	537	546	556	579
		612	652	657	662	672	682	691	696	701	706	713	718	723
		733	743	752	763	774	779	784	795	808	821	834	838	847
		855	863	871	881	890	893	907	931	943	946	949	952	972
		977	980	983	1004	1007	1014	1019	1026	1048	1051	1054	1057	1077
		1080	1084	1087	1105	1108	1122	1125	1128	1131	1135	1149	1152	1155
		1158	1193	1201	1204	1213	1220	1222	1225	1247	1252	1256	1286	1289
		1292	1295	1299	1321	1324	1339	1345	1349	1370	1373	1391	1394	1414
		1417	1421	1437	1440	1444	1461	1473	1491	1514	1519	1526	1549	1570
		1576	1605	1650	1657	1661	1694	1701	1705	1709	1720	1726	1802	1805
		1811	1814	1831	1905	1944	1948	1965	1986	2001	2014	2017	2038	2045
		2078	2082	2098	2102	2145	2149	2378*						
ICOUNT	001034	310*	790*	803*	816*	2270								

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TM A 8-11 TS03 OR TU10 N W INSTRUCTION TEST (MAINDEC-11-DZTMA-H-D)
DZTMAH.P11 CROSS REFERENCE TABLE -- USER SYMBOLS

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MTD	001014	2093*	2099*	2130*	2137*	2140	2146*	2161	2163*	2164	2197	2203	1722	1807
MTRD	001016	302*	394	458	818*	819	1651	1695	1806	1827	1901	1716		
		303*	412	476	831*	832	835*	836	1409*	1638*	1662*			
MTS	001004	1821*	1833*	2206										
		298*	367	431	845	853	861	869	879	883	997	905	921*	923
		928	941	964*	997*	1002	1005*	1008	1010	1012	1015	1017*	1032*	1034
		1046	1069*	1120	1133	1147	1150	1191	1199	1211	1223	1284	1297	1309*
		1319	1327*	1337	1343	1347	1362*	1368	1371	1379	1384*	1389	1392	1410*
		1412	1419	1435	1442	1504	1517	1524	1648	1692	1707	1946	1961	1984
		1999	2015	2036	2043	2076	2080	2096	2100	2142	2147	2166*	2195	
MTV	001000	296*	1455*	1467*	1481*	1499*	1521*							
MTVS	001002	297*	1454*											
NOP	= 000240	257*												
OCT	013306	2226*	2236*	2240*										
OCTP	013312	2223	2234	2242*										
OCTPRT	013176	2159	2194	2196	2198	2200	2202	2205	2207	2209	2211	2219*	2322	
OCT1	013216	2221	2223*											
OCT2	013234	2227*	2237											
OUT	013672	2309	2312	2316	2327*	2344								
PAR	007500	1616*												
PAR1	007766	1654	1659*											
PAR2	007776	1658	1665*											
PAR3	010240	1698	1703*											
PAR4	010250	1702	1706*											
PC	=%000007	267*	321*	336*	343*	578*	611*	1743*	1746*	1749*	1752*	1755*	1758*	1761*
		1764*	1842*	1858*	1864*	1927*	1938*	1956*	1980*	1995*	2024*	2028*	2030*	2048*
		2058*	2064*	2085*	2109*	2116*	2120*	2122*	2127*	2152*	2157*	2159*	2171*	2190*
		2194*	2196*	2198*	2200*	2202*	2205*	2207*	2209*	2211*	2216*	2223*	2234*	2238*
		2239*	2245*	2249*	2250*	2285*	2318*	2320*	2322*	2324*	2326*	2327*	2331*	2340*
		2350*	2375*	2395*										
		311*	317*	2158	2160*									
PCNTR	001036	2183*	2376											
PRINT	013002	348*	2187	2191*	2217*									
PRINT1	013174	1239*	1241	1250	1254	1277*	1278*	1280	1290	1293	1558	1560	1564	1571
RBUF	017374	1577	1597	1602	1606	1640	1684	1794	1800	1803	1820	2682*		
		1894	1913*											
RCRCOB	011420	2363*												
ROSW	014072	575*	631*											
RECEIV	002334	347*	2258*	2262	2275*	2278*								
RETURN	013454	260*	564*	566	570	572	584*	585	592*	594	595*	597	598*	603
RO	=%000000	605	616*	619*	620	934*	937*	960*	966*	970*	1039*	1042*	1065*	1071*
		1075*	1456*	1458*	1468*	1470*	1534*	1535*	1536	1546*	1547	1550	1558*	1559*
		1560	1571*	1574	1577	1601*	1603	1651*	1652*	1655	1659	1695*	1696*	1699
		1703	1715*	1718*	1721*	1724*	1745*	1747	1751*	1753	1757*	1759	1763*	1765
		1766	1768*	1769*	1770*	1771	1806*	1808*	1812	1827*	1828*	1829	1849*	1850*
		1852*	1853	1855*	1856*	1857*	1861	1862*	1863	1901*	1902*	1960*	1963*	2133*
		2134*												
R1	=%000001	261*	567*	569*	570	600*	602*	603	935*	939*	1040*	1044*	1602*	1603
		1606	1748*	1750	1754*	1756	1760*	1762	1766*	1767*	1770	1807*	1809*	1839*
		1840	1843*	1853*	1854*	1857	1860	1861*	1863*					
R2	=%000002	262*	320*	335*	337*	338*	342*	577*	610*	1926*	1937*	1955*	1979*	1994*
		2023*	2027*	2029*	2047*	2057*	2063*	2084*	2108*	2114*	2119*	2121*	2125*	2150*
		2156*	2158*	2168*	2171	2186*	2189*	2192*	2193*	2195*	2197*	2199*	2201*	2203*
		2204*	2206*	2208*	2210*	2220	2224*	2225*	2227*	2228*	2229*	2230	2233*	2235*
		2248*	2282	2283	2286	2290	2298*	2317*	2319*	2321*	2323*	2339*	2343*	
R3	=%000003	263*	594*	616	1860*	1862								

TM A 6-11 TS03 OR TUIO N.W INSTRUCTION TEST (MAIN DEC-11-DZTMA-H-D)
DZTMAH.P11 CROSS REFERENCE TABLE -- USER SYMBOLS

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TM A 6-11 TS03
DETNAH.P11

CROSS REFERENCE TABLE -- USER SYMBOLS

```
R4      =:000004
R5      =:000005
SCOPE   = 104400
```

```
SCOPEA 013346
SCOPEB 013366
SCOPEC 013400
SCOPEF 013452
SCOPEG 013440
SP      =%000006
```

SP3	013330
SP3A	013342
START	001040
SUSWR	001102
SWR	001024

SWREG	000176
TABLE	014122
TBC	003130
TDB	003230
TEMP	001032

TEMPST 014076
THERE 012762
TIB 014100

TKB	001030
TKS	001026
TMA	003170
TOP	013456

TOP1	013470
TOP2	013522
TPB	001020
TPS	001022
TRAP30	014102
TREOF	005456
TRLE	005470
TSR	003472
TSTEND	012666
TTIN	014126
TTIN1	014146
TTIN2	014162
T7CH	003434
USS	011610
USE1	011634

[illegible]

TM.A. 8-11 TS03 OR TUIO.N.W INSTRUCTION TEST (MAIN DEC-11-DZTMA-H-D)
DZTMAH.P11 CROSS REFERENCE TABLE -- USER SYMBOLS

TM A 8-11-T503
DZTNAH.P11

CROSS REFERENCE TABLE -- USER SYMBOLS

USS2	011652	1962	1966*											
USS3	011706	1969	1973*											
USS4	011716	1972	1979*											
WAIT1	006702	1482*	1487*	1488*										
WAIT2	007012	1500*	1510*	1511*										
WAIT3	007060	1520*	1522*	1523*										
WBR	007106	1534*	1537	1582										
WBR1	007166	1547*	1551											
WBR2	007232	1559*	1561											
WBR3	007306	1574*	1578											
WBR4	007344	1580	1585*											
WBR5	007464	1603*	1607											
WBUF	017230	933	950	959	975	991	1038	1055	1064	1078	1099	1106	1129	1143
		1156	1172	1177	1207	1266*	1267*	1269	1312	1403	1534	1536	1539	1546
		1550	1617*	1618*	1620	1666	1778*	1779*	1780*	1781	1800	1803	2070	2072
		2091	2680*	2681										
		1880	1908*											
		1835	1879*											
		2317	2673*											
		287	2171*											
		2323	2676*											
		2319	2674*											
		2349	2678*											
		2326	2329*											
		285*	290											
		246*	248	249*	252*	285	286*	288*	290*	291*	293*	295*	359	368
		377	386	395	404	413	422	432	441	450	459	468	477	486
		496	506	511	516	521	526	531	536	545	555	651	656	661
		671	681	690	695	700	705	712	717	722	732	742	751	762
		773	778	783	794	807	820	833	837	846	854	862	870	880
		889	898	906	920	922	938	940	942	945	948	951	963	965
		969	971	976	979	982	993	996	998	1001	1003	1006	1009	1011
		1013	1016	1018	1031	1033	1035	1043	1045	1047	1050	1053	1056	1068
		1070	1074	1076	1079	1083	1086	1094	1097	1102	1104	1107	1115	1119
		1121	1124	1127	1130	1134	1146	1148	1151	1154	1157	1167	1170	1175
		1180	1183	1186	1190	1192	1198	1200	1203	1210	1212	1216	1217	1219
		1221	1224	1232	1235	1238	1244	1246	1251	1255	1265	1272	1276	1283
		1285	1288	1291	1294	1298	1308	1310	1315	1318	1320	1323	1326	1328
		1336	1338	1342	1344	1348	1358	1361	1363	1367	1369	1372	1380	1383
		1385	1388	1390	1393	1405	1408	1411	1413	1416	1420	1431	1434	1436
		1439	1443	1459	1471	1472	1485	1490	150					

TM.A. B-11 TS03 OR TUIO.N.W INSTRUCTION TEST (MAINDEC-11-DZTMA-H-D)
DZTMAH.P11 CROSS REFERENCE TABLE -- MACRO NAMES

TM A B-11
DZTMAH.P11

NAME	268	269	276	352	361	370	379	383	397	406	415	425	434	443	452
COMMENT	1														
ENDCOM	1														
ESCAPE	1														
GETPRI	1														
GETSWR	1														
MULT	1														
NAME	268	269	276	352	361	370	379	383	397	406	415	425	434	443	452
	461	470	479	488	499	538	547	558	644	664	673	683	725	734	744
	754	766	785	798	811	826	839	848	856	864	872	883	891	900	910
	953	995	1021	1058	1088	1109	1138	1159	1226	1259	1302	1329	1352	1374	1396
	1423	1447	1462	1474	1492	1527	1610	1710	1731	1738	1875	1916	1933	1949	1975
	1990	2002	2018	2052	2103	2303	2367	2380							
NEWST	1														
POP	1														
PUSH	1														
PARCLR	268	420	430	439	448	457	466	475							
REPORT	1														
SETPRI	1														
SETUP	1														
SKIP	1														
SLASH	1														
STARS	1	283													
SWRSU	1														
TYPBIN	1														
TYPDEC	1														
TYPNAM	1														
TYPNUM	1														
TYPOCS	1														
TYPOCT	1														
TYPTXT	1														
SSESCA	1														
SSNEWT	1														
SSSKIP	1														
.EQUAT	1														
.HEADE	1														
.KT11	1														
.SETUP	1														
.SWRHI	1														
.SACT1	1	245	281												
.SAPT8	1														
.SAPTH	1														
.SAPTY	1														
.SASTA	1														
.SCATC	1														
.SCMTA	1														
.SDB20	1														
.SDB20	1														
.SDIV	1														

H05

TM A 6-11 TS03 JR TJ10 N W INSTRUCTION TEST (MAINDEC-11-DZTMA-H-D)
DZTMAH.P11 CROSS REFERENCE TABLE -- MACRO NAMES

MACY11 27(732) 04-NOV-76 12:11 PAGE 62

.SREAD	1*
.SR2AZ	1*
.SSAVE	1*
.SSB20	1*
.SSB20	1*
.SSCOP	1*
.SSIZE	1*
.SSUPR	1*
.STRAP	1*
.STYPB	1*
.STYPD	1*
.STYPE	1*
.STYPO	1*
.S4QCA	1*
.1170	1*

TM, A, 8-11 TS03 OR TUIO, N, W INSTRUCTION TEST (MAIN DEC-11-DZTMA-H-D)
DZTMAH.P11 CROSS REFERENCE TABLE -- PERMANENT SYMBOLS

MACY11 27(732) 04-NOV-76 12:11 PAGE 64

ADD	574	584	607	1967	2374										
ASL	2352	2353	2354												
ASLB	1843														
BCC	922	965	998	1006	1033	1070	1310	1328	1363	1385	1411	1844	1851	2167	
BCS	1018														
BEQ	327	359	368	377	386	395	413	422	432	441	450	459	477	486	496
	506	511	516	521	526	531	536	545	555	571	604	651	656	661	671
	681	690	695	700	705	712	717	722	742	751	762	773	778	783	794
	807	820	837	854	862	870	880	926	929	942	948	951	976	979	1011
	1047	1053	1056	1079	1083	1107	1127	1130	1134	1151	1154	1157	1192	1203	1219
	1221	1224	1251	1255	1291	1294	1298	1338	1420	1443	1505	1548	1575	1580	1604
	1625	1633	1643	1656	1660	1669	1677	1687	1700	1704	1708	1717	1729	1801	1804
	1810	1813	1830	1835	1904	1924	1931	1969	1985	2044	2081	2101	2113	2135	2169
	2177	2184	2188	2271	2287	2358									
BGE	2348														
BGT	2346														
BIC	494	553	569	595	602	679	740	760	835	844	896	1626	1634	1644	1652
	1670	1678	1688	1696	1767	1769	1772	1790	1796	1808	1809	1828	1846	1849	1854
	1856	1861	1862	1902	2204	2231	2314	2332							
BICB	2281	2355													
BIS	420	430	439	448	457	466	475	493	552	678	730	739	759	831	1132
	1296	1340	1346	1409	1418	1441	1638	1682	1706	1770	1791	1797	1821	1852	1857
	1863	2079	2099	2146	2232										
BISB	2356														
BIT	358	367	412	421	431	476	495	554	680	731	741	761	832	836	845
	853	861	869	879	888	897	905	923	928	941	1002	1008	1010	1012	1015
	1034	1046	1120	1133	1147	1150	1191	1199	1211	1223	1245	1284	1297	1337	1357
	1371	1379	1392	1412	1419	1435	1442	1504	1517	1524	1648	1692	1707	1923	1930
	1946	1961	1968	1984	1999	2025	2036	2043	2061	2076	2080	2096	2100	2112	2117
	2176	2183	2256	2266	2268										
BITB	876	1248	1624	1632	1642	1653	1668	1676	1686	1697	1728				
BLE	2073														
BMI	404	468	586	621	945	969	1050	1074	1124	1288	1315	1320	1323	1344	1416
	1439	1490	1513	1943	2013	2016	2143								
BNE	319	329	339	341	732	797	810	823	833	846	877	889	898	906	924
	938	940	971	1003	1009	1013	1016	1035	1043	1045	1076	1104	1121	1148	1200
	1212	1246	1249	1285	1358	1372	1380	1393	1408	1413	1436	1459	1471	1525	1537
	1551	1561	1578	1607	1649	1654	1693	1698	1719	1723	1725	1841	1947	1962	1964
	1971	1974	2000	2026	2037	2062	2077	2097	2118	2237	2257	2267	2269	2284	2309
	2316	2334	2338	2342											
BPL	920	963	982	993	996	1001	1031	1068	1086	1094	1097	1102	1115	1119	1146
	1167	1170	1175	1180	1183	1186	1190	1198	1210	1216	1217	1232	1235	1238	1244
	1265	1272	1276	1283	1308	1318	1326	1336	1342	1348	1361	1367	1369	1383	1388
	1390	1405	1431	1434	1485	1503	1508	1518	1541	1544	1557	1567	1569	1588	1591
	1595	1600	1622	1629	1637	1647	1673	1681	1691	1785	1788	1793	1799	1818	1824
	1886	1891	1900	1922	2011	2035	2042	2068	2089	2141	2148	2162	2165	2213	2221
	2243	2289	2293	2296	2312	2390	2393								
BR	330	582	588	623	882	930	1253	1472	1658	1702	1847	1972	2083	2144	2185
	2273	2291	2299	2336	2344	2351	2359	2361							
CLR	317	337	348	349	350	565	587	592	593	622	642	790	791	903	804
	816	817	918	934	960	961	966	1029	1039	1065	1066	1071	1239	1277	1278
	1454	1456	1460	1468	1483	1501	1533	1559	1715	1721	1783	1832	1833	1941	1960
	1983	1998	2007	2008	2066	2087	2130	2274	2325	2329	2385	2386	2387		
CLRB	1742														
CMP	326	331	570	585	603	620	670	689	694	699	704	711	716	721	750
	772	777	782	793	806	950	975	1055	1078	1106	1126	1129	1153	1156	1202

	1250	1254	1290	1293	1536	1547	1550	1560	1574	1577	1603	1606	1655	1659	1699
CMPB	1703	1800	1803	1812	1829	1970	1973	2072	2260	2270	2308	2315	2341	819	2283
	318	495	505	510	515	520	525	530	535	544	650	655	660		
COM	2286	2333	2337	2345	2347										
COMB	1768	1855													
DEC	1845														
HALT	338	939	1044	2134	2357										
	248	344	1928	1939	1957	1981	1996	2031	2049	2059	2074	2092	2110	2123	2128
INC	2153	2178	2214												
	619	796	809	937	970	1042	1075	1214	1458	1470	1627	1635	1645	1671	1679
INCB	1689	1718	1724	1963	2160	2191	2236	2272	2298	2388					
JMP	822	1579	1834	1966											
JSR	294	322	615	1582	1730	1836	1907	1925	1932	2136	2179	2262			
	321	336	343	578	611	1743	1746	1749	1752	1755	1758	1761	1764	1927	1938
	1956	1980	1995	2024	2028	2030	2048	2058	2064	2085	2109	2116	2120	2122	2127
MOV	2152	2157	2159	2171	2190	2194	2196	2198	2200	2202	2205	2207	2209	2211	2223
	2234	2238	2249	2318	2320	2322	2324	2326	2331	2340	2350				
	315	316	320	323	324	325	332	333	334	335	342	346	347	484	504
	509	514	519	524	529	534	543	564	567	572	575	577	594	600	605
	608	610	616	649	654	659	669	688	693	698	703	710	715	720	749
	771	775	781	792	805	927	932	933	935	936	958	959	967	990	991
	994	999	1037	1038	1040	1041	1063	1064	1072	1095	1098	1099	1100	1113	1116
	1117	1142	1143	1144	1168	1171	1172	1173	1176	1177	1178	1181	1184	1187	1188
	1196	1206	1207	1208	1233	1236	1240	1241	1242	1266	1267	1268	1269	1270	1273
	1274	1279	1280	1281	1311	1312	1313	1316	1334	1359	1364	1365	1381	1386	1402
	1403	1406	1428	1429	1432	1453	1455	1457	1466	1467	1469	1480	1481	1482	1486
	1488	1498	1499	1500	1506	1509	1511	1520	1521	1523	1534	1535	1538	1539	1542
	1546	1553	1555	1558	1563	1564	1565	1571	1585	1586	1589	1592	1593	1596	1597
	1598	1601	1602	1617	1618	1619	1620	1623	1630	1631	1639	1640	1641	1651	1665
	1666	1667	1674	1675	1683	1684	1685	1695	1744	1745	1747	1748	1750	1751	1753
	1754	1756	1757	1759	1760	1762	1763	1765	1766	1771	1780	1781	1782	1786	1789
	1794	1795	1806	1807	1815	1816	1819	1820	1822	1827	1853	1860	1880	1882	1884
	1887	1889	1894	1896	1898	1901	1920	1926	1937	1954	1955	1959	1979	1994	2009
	2023	2027	2029	2033	2040	2047	2057	2063	2069	2070	2071	2084	2090	2091	2093
	2108	2114	2119	2121	2125	2133	2137	2150	2156	2158	2163	2168	2186	2189	2192
	2195	2197	2199	2201	2203	2206	2208	2210	2219	2222	2226	2230	2244	2248	2258
	2261	2275	2313	2317	2319	2321	2323	2330	2339	2349	2360	2371	2373	2375	2391
MOV5	566	597	818	1581	1778	1779	1838	1839	1953	2282	2290	2294	2297	2394	
NOP	2094	2095	2172	2173	2174	2175									
RESET	357	366	375	384	393	402	411	2170							
ROL	2224	2225	2227	2228	2229	2235									
ROR	921	964	997	1005	1017	1032	1069	1309	1327	1362	1384	1410	1850	2166	2233
RTI	2259	2276													
RTS	1842	1858	1864	2216	2239	2245	2250	2285	2327	2395					
SUB	2193	2372													
SWAB	598														
TRAP	258														
TST	328	340	376	385	394	440	449	458	925	947	978	991	1052	1082	1085
	1103	1123	1287	1319	1343	1347	1368	1389	1407	1415	1438	1568	1716	1722	2012
	2015	2142	2147	2187	2212	2220	2335	2343							
TSTB	403	467	919	944	962	968	992	995	1000	1030	1049	1067	1073	1093	1096
	1101	1114	1118	1145	1166	1169	1174	1179	1182	1185	1189	1197	1209	1215	1218
	1231	1234	1237	1243	1264	1271	1275	1282	1307	1314	1317	1322	1325	1335	1341
	1360	1365	1382	1387	1404	1430	1433	1484	1489	1502	1507	1512	1540	1543	1556
	1566	1587	1590	1594	1599	1621	1628	1636	1646	1672	1680	1690	1784	1787	1792
	1798	1817	1823	1840	1885	1890	1899	1921	1942	2010	2034	2041	2067	2088	2140

K05

TM A, B-11/TS03 OR TUIO,N,W INSTRUCTION TEST(MAINDEC-11-DZTMA-H-D)
DZTMAH.P11 CROSS REFERENCE TABLE -- PERMANENT SYMBOLS

MACY11 27(732) 04-NOV-76 12:11 PAGE 66

	2161	2164	2242	2288	2292	2295	2311	2389	2392						
WAIT	1487	1510	1522												
.ASCII	2251	2397	2407	2412	2425	2426	2438	2451	2459	2465	2472	2481	2488	2497	2505
	2512	2518	2527	2534	2542	2549	2559	2567	2572	2582	2590	2594	2602	2610	2614
	2623	2627	2636	2640	2647	2651	2661	2665	2668	2673	2674	2676	2678		
.BLKW	1914														
.BYTE	2300														
.ENABL	1	244													
.END	2683														
.ENDC	284	289	290												
.EVEN	2252	2301	2679												
.IF	283	286	288												
.IFF	284	288	290												
.LIST	1	248	258	269	276	352	361	370	379	388	397	406	415	425	434
	443	452	461	470	479	488	499	538	547	558	644	664	673	683	725
	734	744	754	766	785	798	811	826	839	848	856	864	872	883	891
	900	910	953	985	1021	1058	1088	1109	1138	1159	1226	1259	1302	1329	1352
	1374	1396	1423	1447	1462	1474	1492	1527	1610	1710	1731	1738	1875	1916	1933
	1949	1	1990	2002	2018	2052	2103	2303	2367	2380					
.MACRO	1	268													
.MCALL	245														
.NLIST	1	248	268	269	276	352	361	370	379	388	397	406	415	425	434
	443	452	461	470	479	488	499	538	547	558	644	664	673	683	725
	734	744	754	766	785	798	811	826	839	848	856	864	872	883	891
	900	910	953	985	1021	1058	1088	1109	1138	1159	1226	1259	1302	1329	1352
	1374	1396	1423	1447	1462	1474	1492	1527	1610	1710	1731	1738	1875	1916	1933
	1949	1975	1990	2002	2018	2052	2103	2303	2367	2380					
.REM	1														
.REPT	248														
.SBTTL	269	276	281	352	361	370	379	388	397	406	415	425	434	443	452
	461	470	479	488	499	538	547	558	644	664	673	683	725	734	744
	754	766	785	798	811	826	839	848	856	864	872	883	891	900	910
	953	985	1021	1058	1088	1109	1138	1159	1226	1259	1302	1329	1352	1374	1396
	1423	1447	1462	1474	1492	1527	1610	1710	1731	1738	1875	1916	1933	1949	1975
	1990	2002	2018	2052	2103	2303	2367	2380							
.TITLE	228														
.WORD	247	289	292	627	631	635	639								

ERRORS DETECTED: 0
 DEFAULT GLOBALS GENERATED: 0

* ,DZTMAH.SEG/SOL/CRF/PAGNUM/NL:TOC=DZTMAH.SML,DZTMAH.P11
 RUN-TIME: 27 36 3 SECONDS
 RUN-TIME RATIO: 147/67=2.1
 CORE USED: 32K (63 PAGES)

