

TS03

SUPPLEMENTAL INSTRUCTION
CZTSFDO
TEST

AH-9440D-MC

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CZTSFDD TS03 SPLMTL INSTR

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.REM .

PRODUCT CODE:	AC-9439D-MC
PRODUCT NAME:	CZTSFDD T503 SPLMTL INSTP
PROGRAM DATE:	MARCH 1978
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SEC CODE

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אברהם בן-יוסף - יושב ראש

B. 210(8): STARTING AT THIS ADDRESS WILL NOT PRINT THE HEADER OR THE UNIT SELECT REQUEST AND IS INTENDED AS A RESTART ADDRESS ONLY.

5. THIS PROGRAM HAS BEEN MODIFIED TO RUN ON A PROCESSOR WITH OR WITHOUT A HARDWARE SWITCH REGISTER. WHEN FIRST EXECUTED THE PROGRAM TESTS THE EXISTENCE OF A HARDWARE SWITCH REGISTER. IF NOT FOUND A SOFTWARE SWITCH REGISTER LOCATION (SWREG=LOC. 176) IS DEFAULTED TO. IF THIS IS THE CASE, UPON EXECUTION THE CONTENTS OF THE SWREG ARE DUMPED IN OCTAL ON THE CONSOLE TTY AND ANY CHANGES ARE REQUESTED

(IE) SWR=XXXXXX NEW=

POSSIBLE RESPONSES ARE:

1. (CR) IF NO CHANGES ARE TO BE MADE
2. 6 DIGITS 0-7 TO REPRESENT IN OCTAL THE NEW SWITCH REGISTER VALUE .LAST DIGIT FOLLOWED BY (CR).
3. (U) TO ALLOW REENTERING VALUE IF ERROR IS COMMITTED KEYING IN SWREG VALUE.
4. (LF) ONLY VALID FOR ACT-11 SYSTEMS-DO NOT USE

BUILT INTO THE PROGRAM IS THE ABILITY TO DYNAMICALLY CHANGE THE CONTENTS OF SWREG DURING PROGRAM EXECUTION. BY STRIKING (G) (CNTRL G) ON CONSOLE TTY THE OPERATOR SETS A REQUEST FLAG TO CHANGE THE CONTENTS OF SWREG, WHICH IS PROCESSED IN KEY AREAS OF THE PROGRAM CODE (IE) ERROR ROUTINES, AFTER HALTS END OF PASS, AND OTHER APPLICABLE AREAS.

NOTE ANOTHER MODIFICATION TO THE PROGRAM IS THE TESTING OF 1-8 TS03 UNITS UNDER ACT11M.

5.1 CONSOLE SWITCH SETTING

ALL SWITCHES EXCEPT 3-9 ARE USED AND THE NORMAL, OR DEFAULT, RUN IS DONE WITH ALL SWITCHES SET TO ZERO (0). ALL SWITCHES ARE DYNAMIC AND MAY BE CHANGED AT ANY TIME.

SW15: 1=HALT ON ERROR
0=CONTINUE
SW14: 1=LOOP ON ERROR (SCOPE)
0=CONTINUE
SW13: 1=INHIBIT ERROR TIME OUT
0=PRINT ALL ERRORS
SW12: 1=INHIBIT ITERATION
0=ITERATE EACH TEST ITS ASSIGNED AMOUNT
SW11: 1=CONTINUOUS CYCLE
0=HALT AT END OF PASS
SW10: 1=HALT AT END OF CURRENT TEST
0=CONTINUE
SW9-3: NOT USED
SW2-0: SELECT INDIVIDUAL TEST (1-4)** 00 = 00 ALL TESTS

6. ERROR PRINTOUTS

THERE ARE THREE (3) TYPES OF ERROR PRINTOUTS WHICH MAY
APPEAR: STATUS ERROR, DATA ERROR, POSITION ERROR.

- A. STATUS ERROR: ANY READ, WRITE, OR SPACE OPERATION WHICH
RESULTS IN SOME BAD STATUS (BIT 15 OF MTC),
OR UNEXPECTED BUS ADDRESS, OR INCORRECT
BYTE COUNT, WILL BE PRINTED.
- B. DATA ERROR: ANY READ OPERATION WHICH RESULTS IN UNEXPECTED
DATA WILL BE PRINTED.
- C. POSITION ERROR: ANY SPACE OR REWIND OPERATION RESULTING IN
UNEXPECTED STATUS WILL BE PRINTED.

EXAMPLES***

1. THE FOLLOWING EXAMPLE SHOWS A TYPICAL STATUS ERROR.

TEST1: WRITE FROM ODD BYTE
WRITE ERROR THIS PRINT SHOWS THAT WHILE EXECUTING
MTS: 10101 TEST 1 ON UNIT 2 AT 800 BPI, A WRITE
MTC: 161204 PARITY ERROR OCCURED. THE BYTE COUNT
MTBC: 0 IS ZERO AS IT SHOULD BE AND THE CURRENT
MTCA: 6003 6003 ADDRESS IS AS EXPECTED.

2. THE FOLLOWING EXAMPLE SHOWS A TYPICAL DATA ERROR.

TEST 2: READ TO ODD BYTE
DATA ERROR THIS PRINT SHOWS THAT A SINGLE BIT WAS
CN: 0 PICKED UP IN BOTH CHARACTER NUMBER ZERO
G: 00000000 (0) AND CHARACTER NUMBER THREE (3).
B: 01000000
CN: 3
G: 00000011
B: 01000011

3. THE FOLLOWING EXAMPLE SHOWS AN ERROR DURING A REWIND OPERATION.

TEST4: OPI TOO LONG
REWIND ERROR: NO BOT

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7. OPERATION

THE PROCEDURES FOR OPERATING THIS PROGRAM ARE QUITE SIMPLE AND REQUIRE ONLY A FEW STEPS:

1. LOAD ADDRESS 200 OR 210
2. SET SWICHES FOR DESIRED TEST SEQUENCE
3. PRESS START

ALL CONSOLE SWITCHES ARE DYNAMIC AND MAY BE CHANGED AT ANY TIME. THE NORMAL OPERATING SEQUENCE IS ALL SWITCHES DOWN (0). THE PROGRAM WILL TAKE APPROXIMATELY 1.75 MINUTES TO RUN; HOWEVER, IF ITERATIONS ARE INHIBITED (SW1=1), THE PROGRAM WILL RUN IN ABOUT .75 MINUTES. THE END OF PASS IS NOTED BY A PRINTOUT STATING END OF PASS AND THE NUMBER OF THAT PASS.

SINGLE TEST SELECTION: (SW0-SW3)

WHEN SW0-3 ARE SET TO ZERO (0), THE SCHEDULAR WILL EXECUTE ALL TESTS (1-4) IN SEQUENCE AS A SINGLE PASS. IF SW0-3 ARE SET TO SOME NUMBER BETWEEN 1 AND 4, THEN THAT PARTICULAR TEST WILL BE EXECUTED CONTINUOUSLY. THE PROGRAM MAY BE STOPPED AT THE END OF THE CURRENT TEST (EITHER IN SEQUENCE OR SINGLE TEST MODE) BY SETTING SWITCH TEN (SW10) TO A ONE (1). YOU MAY SELECT TEST NUMBERS IN ANY ORDER (UP OR DOWN) BECAUSE EACH TEST IS SELF CONTAINED.

; TRAP CATCHERS*****

[illegible]

	001000
000040	000040 000
000041	000041 000
000042	000042 000000
000046	000046 002006
000052	000052 000000
	001000

```

*****
MODIFIED JAN 24 1978
*****
++
--
    $SVPC=.                                ;SAVE PC

DRIVE:  .=40                                ;DRIVE # FOR XXDP LOAD MEDIUM
        .BYTE    0                          ;ASSEMBLE AS A 0

MEDIUM: .=41                                ;XXDP LOAD MEDIUM
        .BYTE    0                          ;ASSEMBLE AS A 0

        .=42                                ;AUTO MAN/MODE INDICATOR
        .WORD    0                          ;ASSEMBLE AS A 0

        .=46                                ;SET TO SENDAD IN .SEOP
        .WORD    SENDAD

        .=52                                ;CHARACTERISTICS OF PROGRAM
        .WORD    0                          ;ASSEMBLE AS A 0

        .=$SVPC                            ;RESTORE PC
*****

```

K01

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SEC 00:0

```
353  
354 : *****  
355 : MODIFIED JAN 24 1978  
356 :  
357 :  
358 : ++  
359 : ACT11 AND XXDP MODE INDICATORS  
360 : --  
361 001000 000000 AUTOM: .WORD 0 ;AUTOMATIC MODE INDICATOR  
362 001002 000 ACT11M: .BYTE 0 ;ACT11 AUTO MODE INDICATOR  
363 001003 000 XXDPM: .BYTE 0 ;XXDP AUTO MODE INDICATOR  
364 001004 000 ADUMPM: .BYTE 0 ;ACT11 DUMP MODE INDICATOR  
365 001005 000 XDUMPM: .BYTE 0 ;XXDP DUMP MODE INDICATOR  
366 :  
367 : *****  
368 :
```

L01

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SEG 00:1

369

370				:TTY INTERRUPT VECTOR*****
371				
372		000060		.=60
373	000060	004544		TTINT ;TTY INTERRUPT HANDLER
374	000062	000000		0
375				
376				:SOFTWARE SWITCH REGISTER LOCATIONS*****
377				
378				
379		000174		.=174
380	000174	000000		DISPREG:0
381	000176	000000		SWREG: 0
382				
383				:STARTING ADDRESS*****
384				
385		000200		.=200
386	000200	005000		CLR R0
387	000202	000167	000572	JMP START ;PROGRAM START
388				
389		000210		.=210
390	000210	012700	000001	MOV #1,R0
391	000214	000167	000560	JMP START ;NO HEADER START
392				
393				:TMA-11 INTERRUPT VECTOR*****
394				
395		000224		.=224
396	000224	004524		MTINT ;TAPE INTERRUPT HANDLER
397	000226	000340		340
398				

NO1

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SEQ 0013

399 000600

. =600
;CONSTANTS*****

400
401
402 000600 172520
403 000602 172522
404 000604 172524
405 000606 172526
406 000610 000000
407 000612 000020
408 000614 177760
409 000616 177776
410 000620 177570
411 000622 177570
412 000624 177560
413 000626 177562
414 000630 177564
415 000632 177566
416 000634 000010
417 000636 000040
418 000640 172520
419 000642 000224
420

MTS: 172520 ;TAPE STATUS REGISTER
MTC: 172522 ;TAPE COMMAND REGISTER
MTBC: 172524 ;TAPE BYTE COUNTER
MTBA: 172526 ;TAPE BUS ADDRESS
UDES: 0 ;UNIT DESCRIPTION
RCNT: 20 ;RECORD COUNT
CCNT: -20 ;CHARACTER COUNT
PSW: 177776 ;PROCESSOR STATUS
SWR: 177570 ;CONSOLE SWITCH REGISTER
DISPLAY: 177570 ;CONSOLE DISPLAY REGISTER
TKS: 177560 ;TTY READ STATUS
TKB: 177562 ;TTY READ BUFFER
TPS: 177564 ;TTY PUNCH STATUS
TPB: 177566 ;TTY OUTPUT BUFFER
ITAMT: 10 ;NUMBER OF ITERATIONS
STALL: 40 ;READY DELAY MULTIPLIER
REGS: 172520 ;UNIBUS ADDRESS
VECT: 224 ;VECTOR ADDRESS

;FLAGS AND COUNTERS*****

421			
422			
423	000644	000000	TINF: 0
424	000646	000000	TOB: 00
425	000650	000000	TIB: 00
426	000652	000000	TEMP1: 00
427	000654	000000	TEMP2: 00
428	000656	000000	TEMP3: 00
429	000660	000000	EMADDR: 00
430	000662	000000	ERRAD: 00
431	000664	000000	LTADD: 00
432	000666	000000	ITRLP: 00
433	000670	000000	SPFLG: 00
434	000672	000000	STFLG: 00
435	000674	000000	PCNTR: 00
436	000676	000000	BADR: 00
437	000700	000000	BYTES: 00
438	000702	000000	SCNT: 00
439	000704	000000	FUN: 00
440	000706	000000	ITCNT: 00
441	000710	000000	CRCNT: 00
442	000712	000000	DERFL: 00
443	000714	000000	HDRFL: 00
444	000716	000000	PFLG: 00
445	000720	000000	UNP: 00
446	000722	000000	BCNT: 00
447	000724	000000	COUNT: 00
448	000726	000000	TEMPST: 00
449	000730	000000	RDSW: 0
450			

;TEST ENTRY TABLE*****

451			
452			
453	000732	000000	TSTTBL: 0
454	000734	000000	0
455	000736	002064	T1AD: LT1
456	000740	002064	T1IAC: LT1
457	000742	002312	T2AD: LT2
458	000744	002312	T2IAD: LT2
459	000746	002534	T3AD: LT3
460	000750	002632	T3IAD: LT3IT
461	000752	002764	T4AD: LT4
462	000754	003062	T4IAD: LT4IT
463	000756	000000	0
464			

465 001000

.=1000

:*****
:PROGRAM START AND HOUSEKEEPING

:*****

466	001000	000240		START:	NOP			
467	001002	012777	000340	177606	MOV	#340, @PSW		: SET PRIORITY
468	001010	012706	000500		MOV	#500, SP		: SET STACK POINTER
469	001014	004767	004524		JSR	PC, SUSWR		: SEE IF NO HARDWARE SWITCH REG.
470	001020	004767	005160		JSR	PC, CKMODE		: CHECK FOR MODE OF OPERATION ++ C.W
471	001024	105767	177752		TSTB	ACT11M		: ACT MODE? ++ C.W
472	001030	001404			BEQ	1\$		: BRANCH - IF NO ++ C.W
473	001032	005067	177636		CLR	PCNTR		: INIT PASS COUNTER ++ C.W
474	001036	000167	000256		JMP	\$ACT		: EXECUTE PROGRAM IN ACT MODE ++ C.W
475	001042	005700		1\$:	TST	RD		: SEE IF SKIP HEADER
476	001044	001402			BEQ	2\$		: BRANCH - IF NO ++ C.W
477	001046	000167	000416		JMP	ST4		: DO TEST FROM RESTART ++ C.W
478	001052	012704	006410	2\$:	MOV	#MSG1, R4		
479	001056	004767	003730		JSR	PC, TTOUT		: PRINT HEADER
480	001062	012704	007041		MOV	#MSG22, R4		
481	001066	004767	003720		JSR	PC, TTOUT		: REQUEST UNIBUS ADDRESS
482	001072	016703	177542		MOV	REGS, R3		
483	001076	004767	004106		JSR	PC, OCTP		: PRINT CURRENT ADDRESS
484	001102	012705	000640		MOV	#REGS, R5		: GET ADDRESS OF ENTRY
485	001106	012701	000006		MOV	#6, R1		: SET SIZE OF ENTRY
486	001112	012702	172700		MOV	#172700, R2		: SET UPPER LIMIT
487	001116	012703	172300		MOV	#172300, R3		: SET LOWER LIMIT
488	001122	004767	003426		JSR	PC, TTR		: GO GET RESPONSE
489	001126	012704	007063		MOV	#MSG23, R4		
490	001132	004767	003654		JSR	PC, TTOUT		: REQUEST VECTOR
491	001136	016703	177500		MOV	VECT, R3		
492	001142	004767	004042		JSR	PC, OCTP		: PRINT CURRENT VECTOR
493	001146	012705	000642		MOV	#VECT, R5		: GET ADDRESS OF ENTRY
494	001152	012701	000003		MOV	#3, R1		: SET SIZE OF ENTRY
495	001156	012702	000250		MOV	#250, R2		: SET UPPER LIMIT
496	001162	012703	000150		MOV	#150, R3		: SET LOWER LIMIT
497	001166	004767	003362		JSR	PC, TTR		: GO GET RESPONSE
498	001172	016700	177444		MOV	VECT, R0		: GET VECTOR
499	001176	012720	004524		MOV	#MTINT (R0)+		: SET INTERRUPT ADDRESS IN VECTOR
500	001202	012710	000340		MOV	#340, (R0)		: SET INTERRUPT PRIORITY
501	001206	012701	000004		MOV	#4, R1		: SET NUMBER OF REGISTER
502	001212	012702	000600		MOV	#MTS, R2		: GET FIRST ADDRESS OF TABLE
503	001216	016700	177416		MOV	REGS, R0		: GET FIRST REGISTER
504	001222	010022		STOA:	MOV	R0, (R2)+		: LOAD TABLE
505	001224	062700	000002		ADD	#2, R0		: BUMP ADDRESS
506	001230	005301			DEC	R1		: SEE IF DONE
507	001232	001373			BNE	STOA		: IF NOT: BE
508	001234	012777	010000	177340	MOV	#10000, @MTC		: POWER CLEAR
509	001242	012704	006444		MOV	#MSG2, R4		
510	001246	004767	003540		JSR	PC, TTOUT		: REQUEST UNIT NUMBER
511	001252	005067	177332		CLR	UDES		: PRESET UNIT 0
512	001256	016703	177326		MOV	UDES, R3		: GET UNIT NUMBER
513	001262	000303			SWAB	R3		: POSITION
514	001264	042703	177770		BIC	#177770, R3		: MASK UNIT NUMBER
515	001270	004767	003714		JSR	PC, OCTP		: PRINT CURRENT VALUE

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521	001274	012705	000656		MOV	#TEMP3,R5	:SET SAVE LOCATION
522	001300	012701	000001		MOV	#1,R1	:SET SIZE OF ENTRY
523	001304	012702	000007		MOV	#7,R2	:SET UPPER LIMIT
524	001310	012703	000000		MOV	#0,R3	:SET LOWER LIMIT
525	001314	004767	003234		JSR	PC,TTR	:GO GET UNIT NUMBER
526	001320	105767	177456		TSTB	ACT11M	:ACT MODE? ++ C.W
527	001324	001413			BEQ	NOACT	:BRANCH - IF NO ++ C.W
528	001326	005067	177256		CLR	UDES	:INIT UNIT INDICATOR IN ACT MODE ++ C.W
529	001332	122767	000010	177250	ST: CMPB	#10,UDES	:ARE ALL UNITS DONE? ++ C.W
530	001340	001002			BNE	25	:BRANCH - IF NO ++ C.W
531	001342	000167	000410		JMP	\$DONE	:DO END OF PASS ++ C.W
532	001346	116767	177236	177302	25: MOVB	UDES,TEMP3	:GET UNIT NUMBER IN ACT MODE ++ C.W
533	001354	000367	177276		NOACT: SWAB	TEMP3	:POSITION UNIT NUMBER
534	001360	042767	003400	177222	BIC	#3400,UDES	:CLEAR OLD NUMBER
535	001366	056767	177264	177214	BIS	TEMP3,UDES	:LOAD NEW NUMBER
536	001374	016777	177210	177200	MOV	UDES,AMTC	:SELECT UNIT
537	001402	005000			CLR	R0	
538	001404	022767	000176	177206	CMP	#SWREG,SWR	
539	001412	001002			BNE	ST1	
540	001414	004767	004256		JSR	PC,CNTLU	:GO ASK FOR SWR SETTINGS
541	001420	032777	000100	177152	ST1: BIT	#100,AMTS	:SEE IF SELECT REMOTE
542	001426	001015			BNE	ST3	:IF SO: BR
543	001430	005300			DEC	R0	
544	001432	001372			BNE	ST1	:DELAY FOR SELECT REMOTE
545	001434	105767	177342		TSTB	ACT11M	:ACT MODE? ++ C.W
546	001440	001403			IS	15	:BRANCH - IF NO ++ C.W
547	001442	105267	177142		INCB	UDES	:GET NEXT UNIT ++ C.W
548	001446	000731			BR	ST	:CONTINUE ++ C.W
549	001450	012704	007020		15: MOV	#MSG21,R4	
550	001454	004767	003332		JSR	PC,TROUT	:PRINT NOT AVAILABLE
551	001460	000670			BR	ST0	:REDO REQUEST
552	001462	052767	060000	177120	ST3: BIS	#60000,UDES	:SET TO 800 BPI 9 CHAN
553	001470	000240			ST4: NOP		
554	001472	012777	010000	177102	MOV	#10000,AMTC	:POWER CLEAR
555	001500	012702	000646		MOV	#108,R2	:GET START OF TABLE
556	001504	012700	000027		MOV	#27,R0	:SET SIZE OF TABLE
557	001510	005022			ST5: CLR	(R2)+	:CLEAR TABLE
558	001512	005300			DEC	R0	
559	001514	001375			BNE	ST5	:DO ALL
560	001516	105767	177260		TSTB	ACT11M	:ACT MODE? ++ C.W
561	001522	001002			BNE	TSCD	:BRANCH - IF YES ++ C.W
562	001524	000067	177144		CLR	PCNTR	:CLEAR PASS COUNTER

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564                                     ;TEST SCHEDULAR*****
565
566 001530 000240          TSCD:  NOP          STFLG          ;CLEAR SINGLE TEST FLAG
567 001532 005067 177134    CLR          STFLG          ;GET SWITCH REGISTER
568 001536 017700 177056    MOV          @SWR,RO        ;MASK TEST SELECT
569 001542 042700 177700    BIC          #177700,RO      ;SEE IF SINGLE TEST SELECT
570 001546 005700          TST          RO              ;IF SO: BR
571 001550 001046          BNE          STSCD          ;GET TABLE START
572 001552 012767 000732 177104    MOV          #TSTTBL,LTADD
573 001560 062767 000004 177076    TSCD0:  ADD          #4,LTADD
574 001566 016767 177072 177076    LTADD,ITRLP        ;SET ITERATION ADDRESS
575 001574 062767 000002 177064    ADD          #2,ITRLP
576 001602 005777 177056    TST          @LTADD        ;SEE IF END OF CYCLE
577 001606 001002          BNE          TSCD1          ;IF NOT: BR
578 001610 000167 000124          JMP          TEND        ;GO TO END ROUTINE
579 001614 005067 177074          TSCD1:  CLR          HDRFL        ;CLEAR HEADER FLAG
580 001620 017700 177040          MOV          @LTADD,RO    ;GET TEST ADDRESS
581 001624 000110          JMP          (RO)            ;GO TO TEST
582 001626 032777 002000 176764    TSCD2:  BIT          #2000,@SWR    ;SEE IF HALT ON TEST
583 001634 001401          BEQ          TSCD3          ;IF NOT: BR
584 001636 000000          HALT
585 001640 004767 003760          TSCD3:  JSR          PC,CKSWR        ;TEST FOR 1G
586 001644 005767 177022          TST          STFLG        ;SEE IF SINGLE TEST
587 001650 001743          BEQ          TSCD0          ;IF NOT: BR
588 001652 017700 176742          MOV          @SWR,RO        ;GET TEST NUMBER
589 001656 042700 177760          BIC          #177760,RO      ;SEE IF ALL TESTS
590 001662 005700          TST          RO              ;IF SO: BR
591 001664 001721          BEQ          TSCD            ;SET SINGLE TEST FLAG
592 001666 012767 000001 176776    STSCD:  MOV          #1,STFLG    ;SEE IF EXCEEDED TEST NUMBER
593 001674 022700 000005          CMP          #5,RO        ;IF SO: BR
594 001700 003417          BLE          TEND
595 001702 000241          CLC
596 001704 006100          ROL          RO
597 001706 006100          ROL          RO
598 001710 012767 000732 176746    MOV          #TSTTBL,LTADD    ;POSITION NUMBER
599 001716 060067 176742          ADD          RO,LTADD        ;GET START OF TABLE
600 001722 016767 176736 176736    MOV          LTADD,ITRLP    ;SET POINTER
601 001730 062767 000002 176730    ADD          #2,ITRLP
602 001736 000726          BR          TSCD1          ;SET ITERATION ADDRESS
603 001740 105767 177036          TEND:  TSTB          ACT11M    ;GO DO TEST
604 001744 001404          BEQ          $DONE          ;ACT MODE? ++ C.W
605 001746 105267 176636          INCB          UDES        ;BRANCH - IF NO ++ C.W
606 001752 000167 177354          JMP          ST          ;GET NEXT UNIT ++ C.W
607 001756 012704 006470          $DONE:  MOV          #MSG3,R4    ;AND CONTINUE TESTING ++ C.W
608 001762 004767 003024          JSR          PC,TOUT        ;PRINT END OF PASS
609 001766 016703 176702          MOV          PCNTR,R3
610 001772 004767 003212          JSR          PC,OCIP
611 001776 013700 000042          MOV          @#42,RO
612 002002 001405          BEQ          HERE
613 002004 000005          RESET
614 002006 004710          $ENDAD:  JSR          PC,(RO)
615 002010 000240          NOP
616 002012 000240          NOP
617 002014 000240          NOP
618 002016 000240          HERE:   NOP
619 002020 032777 004000 176572    BIT          #4000,@SWR    ;SEE IF HALT ON PASS

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F02

CZTSFDD TS03 SPLMTL INSTR
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SEG 0019

620	002026	001001		BNE	TENDX	: IF NOT: BP
621	002030	000000		HALT		
622	002032	105767	176744	TENDX: TS*B	ACT11M	: ACT MODE? ++ C.W
623	002036	001006		BNE	IS	: BRANCH - IF YES ++ C.W
624	002040	004767	003560	JSR	PC,CH SWR	: TEST FOR IG
625	002044	005267	176624	INC	PCNTR	: BUMP PASS COUNTER
626	002050	000167	177454	JMP	TSCU	: RESTART
627	002054	005267	176614	INC	PCNTR	: BUMP COUNTER IN ACT MODE ++ C.W
628	002060	000167	177234	JMP	SACT	: RESTART IN ACT MODE ++ C.W
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002064	000240			LT1:	NOP		
002066	012767	007075	176564		MOV	#LT1MSG,EMADDR	:SET HEADER
002074	012702	007352			MOV	#WDATA,R2	:GET BUFFER START
002100	112722	000377			MOVB	#377,(R2)+	:INSERT BACKGROUND DATA
002104	005000				CLR	R0	
002106	110022			LT1B:	MOVB	R0,(R2)+	
002110	005200				INC	R0	:LOAD WRITE BUFFER (0,1,2,3,4,5
002112	022700	000000			CMP	#6,R0	
002116	001373				BNE	LT1B	
002120	004767	001046			JSR	PC,PWNO	:GO REWIND
002124	012767	000004	176552		MOV	#4,FUN	:SET WRITE FUNCTION CODE
002132	012767	007353	176536		MOV	#WDATA+1,BADR	:SET DATA POINTER
002140	012767	177772	176532		MOV	#-6,BYTES	:SET SIZE OF RECORD
002146	012767	006715	176506		MOV	#MSG17,ERRAD	:SET WRITE ERROR CODE
002154	004767	001262			JSR	PC,EXEC	:GO EXECUTE COMMAND
002160	000240			LT1C:	NOP		
002162	004767	001504			JSR	PC,ERCHK	:GO CHECK FOR STATUS ERROR
002166	012767	177777	176506		MOV	#-1,SCNT	
002174	004767	001156			JSR	PC,BKSP	:GO BACKSPACE ONE RECORD
002200	012702	007454			MOV	#RDATA,R2	
002204	012700	000010			MOV	#10,R0	
002210	012722	177777		LT1D:	MOV	#-1,(R2)+	:BACKGROUND READ BUFFER
002214	005300				DEC	R0	
002216	001374				BNE	LT1D	:DO ALL
002220	012767	000002	176456		MOV	#2,FUN	:SET READ FUNCTION CODE
002226	012767	007454	176442		MOV	#RDATA,BADR	:SET READ POINTER
002234	012767	177772	176436		MOV	#-6,BYTES	:SET SIZE OF RECORD
002242	012767	006732	176412		MOV	#MSG18,ERRAD	:SET READ ERROR CODE
002250	004767	001166			JSR	PC,EXEC	:GO DO READ
002254	000240			LT1E:	NOP		
002256	004767	001410			JSR	PC,ERCHK	:GO CHECK ERRORS
002262	012701	007353			MOV	#WDATA+1,R1	:SET EXPT DATA POINTER
002266	012702	007454			MOV	#RDATA,R2	:SET RCVD DATA POINTER
002272	012700	000006			MOV	#6,R0	:SET SIZE OF RECORD
002276	004767	001656			JSR	PC,DCHK	:GO CHECK DATA
002302	004767	002146			JSR	PC,ITER	:GO SEE IF ITERATIONS
002306	000167	177314			JMP	*SCD2	:RETURN TO SCHEDULAR

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676 *****
677 :TEST 2: READ INTO ODD BYTE
678 :
679 :THIS TEST WILL WRITE A SIX (6) BYTE RECORD
680 :FROM AN EVEN BYTE STARTING ADDRESS. THE RECORD
681 :WILL BE READ BACK INTO AN ODD STARTING ADDRESS
682 :TO TEST FOR PROPER TRANSFER.
683 *****
684
685 002312 000240 LT2: NOP
686 002314 012767 007133 176336 MOV #LT2MSG,EMADDR ;SET HEADER POINTER
687 002322 012702 007352 MOV #WDATA,R2 ;POINT TO START OF WRITE BUFFER
688 002326 005000 CLR R0
689 002330 110022 LT2B: MOVB R0,(R2)+ ;LOAD DATA PATTERN
690 002332 005200 INC R0 ;BUMP PATTERN
691 002334 022700 000006 CMP #6,R0 ;SEE IF DONE
692 002340 001373 BNE LT2B ;IF NOT: BR
693 002342 004767 000624 JSR PC,RWND ;GO REWIND TO BOT
694 002346 012767 000004 176330 MOV #4,FUN ;SET WRITE OP-CODE
695 002354 012767 007352 176314 MOV #WDATA,BADR ;SET STARTING ADDRESS
696 002362 012767 177772 176310 MOV #-6,BYTES ;SET SIZE OF RECORD
697 002370 004767 001046 JSR PC,EXEC ;GO EXECUTE COMMAND
698 002374 000240 LT2C: NOP
699 002376 012767 006715 176256 MOV #MSG17,ERRAD ;SET ERROR CODE
700 002404 004767 001262 JSR PC,ERCHK ;GO CHECK FOR STATUS ERROR
701 002410 012767 177777 176264 MOV #-1,SCNT
702 002416 004767 000734 JSR PC,BKSP ;GO BACKSPACE ONE RECORD
703 002422 012702 007454 MOV #RDATA,R2 ;GET READ BUFFER POINTER
704 002426 012700 000010 MOV #10,R0 ;SET SIZE
705 002432 012722 177777 LT2D: MOV #-1,(R2)+ ;BACKGROUND POINTER
706 002436 005300 DEC R0 ;SEE IF DONE
707 002440 001374 BNE LT2D ;IF NOT: BR
708 002442 012767 000002 176234 MOV #2,FUN ;SET READ FUNCTION CODE
709 002450 012767 007455 176220 MOV #RDATA+1,BADR ;SET START OF READ BUFFER
710 002456 012767 177772 176214 MOV #-6,BYTES ;SET SIZE OF RECORD
711 002464 004767 000752 JSR PC,EXEC ;GO EXECUTE COMMAND
712 002470 000240 LT2E: NOP
713 002472 012767 006732 176162 MOV #MSG18,ERRAD ;SET ERROR CODE
714 002500 004767 001166 JSR PC,ERCHK ;GO CHECK FOR STATUS ERROR
715 002504 012701 007352 MOV #WDATA,R1 ;POINT TO EXPT DATA
716 002510 012702 007455 MOV #RDATA+1,R2 ;POINT TO RCVD DATA
717 002514 012700 000006 MOV #6,R0 ;SET SIZE OF RECORD
718 002520 004767 001434 JSR PC,DCHK ;GO CHECK DATA
719 002524 004767 001724 JSR PC,ITER ;GO SEE IF ITERATION
720 002530 000167 177072 JMP TS0D2 ;RETURN TO SCHEDULAR

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SEG 0021

TEST 3: OPI TOO LONG

THIS TEST WILL ERASE APPROXIMATELY TEN POINT FIVE
FEET OF TAPE BY WRITING WITH IRG, BACKSPACING
AND REPEATING THE SEQUENCE 32(10) TIMES. TAPE
WILL REWIND AND A READ FORWARD ISSUED. THE
OPI TIMER SHOULD SHUTDOWN THE UNIT BEFORE
REACHING THE FIRST RECORD ON TAPE.

733	002534	000240		LT3:	NOP		
734	002536	012767	007166		MOV	#LT3MSG,EMADDR	:SET TEST HEADER
735	002544	012700	000040		MOV	#40,RO	:SET NUMBER OF WRITE IRG BACKSPACE
736	002550	004767	000416		JSR	PC,RWND	:GO REWIND UNIT
737	002554	012767	000014	176122	LT3A:	#14,FUN	:SET WRITE IRG FUNCTION CODE
738	002562	012767	007352	176106	MOV	#WDATA,BADR	:SET BUS ADDRESS
739	002570	012767	177760	176102	MOV	#-20,BYTES	:SET SIZE OF RECORD
740	002576	004767	000640		JSR	PC,EXEC	:GO EXECUTE COMMAND
741	002602	012767	006715	176052	LT3B:	#MSG17,ERRAD	:SET ERROR CODE
742	002610	004767	001056		JSR	PC,ERCHK	:GO CHECK FOR STATUS ERROR
743	002614	012767	177777	176060	MOV	#-1,SCNT	
744	002622	004767	000530		JSR	PC,BKSP	:GO BACKSPACE ONE RECORD
745	002626	005300			DEC	RO	:SEE IF DONE ALL
746	002630	001351			BNE	LT3A	:IF NOT: BR
747	002632	000240		LT3IT:	NOP		
748	002634	004767	000332		JSR	PC,RWND	:GO REWIND
749	002640	012767	000230	175770	MOV	#230,STALL	:SET OPI STALL
750	002646	012767	007454	176022	MOV	#RDATA,BADR	:SET START OF READ BUFFER
751	002654	012767	177760	176016	MOV	#-20,BYTES	:SET SIZE OF RECORD
752	002662	012767	000002	176014	MOV	#2,FUN	:SET READ FUNCTION CODE
753	002670	012767	006746	175764	MOV	#MSG19,ERRAD	:SET ERROR CODE
754	002676	004767	000540		JSR	PC,EXEC	:GO EXECUTE COMMAND
755	002702	000240		LT3C:	NOP		
756	002704	012767	000040	175724	MOV	#40,STALL	:RESET NORMAL STALL
757	002712	032777	000400	175660	BIT	#400,QMTS	:SEE IF BTE IS SET
758	002720	001007			BNE	LT3X	:IF SO: BR
759	002722	012767	000001	175740	MOV	#1,SPFLG	:SET NO BA PRINT FLAG
760	002730	004767	001014		JSR	PC,ERPT	:GO PRINT ERROR
761	002734	005067	175730		CLR	SPFLG	:RESET FLAG
762	002740	012767	000002	175666	LT3X:	#2,ITAMT	:SET TO TWO (2) ITERATIONS
763	002746	004767	001502		JSR	PC,ITER	:GO SEE IF ITERATION
764	002752	012767	000010	175654	MOV	#10,ITAMT	:RESET ITERATIONS
765	002760	000167	176642		JMP	TSC02	:RETURN TO SCHEDULAR
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806002764 000240
002766 012767 007215 175664
002774 004767 000172
003000 012700 000014
003004 012767 000014 175672
003012 012767 007352 175656
003020 012767 177760 175652
003026 012767 006715 175626
003034 004767 000402
003040 004767 000626
003044 012767 177777 175630
003052 004767 000300
003056 005300
003060 001351
003062 000240
003064 004767 000102
003070 012767 000200 175540
003076 012767 007454 175572
003104 012767 177760 175566
003112 012767 000002 175564
003120 012767 006773 175534
003126 004767 000310
003132 004767 000534
003136 000240
003140 012767 000040 175470
003146 012767 000002 175460
003154 004767 001274
003160 012767 000010 175446
003166 000167 176434LT4:
LT4A:
LT4B:
LT4IT:
LT4C:*****
TEST 4: OPI TOO SHORT
*****THIS TEST WILL ERASE APPROXIMATELY FOUR (4) FEET
OF TAPE BY WRITING WITH IRG, BAC SPACING
ONE (1) RECORD AND REPEATING THIS SEQUENCE
12(10) TIMES. TAPE WILL REWIND AND BE READ
FORWARD. THE FIRST RECORD ON TAPE SHOULD BE
REACHED BEFORE OPI TIMES OUT.
*****NOP
MOV #LT4MSG,EMADDR ;SET HEADER
JSR PC,RWIND ;GO REWIND
MOV #14,RO ;SET NUMBER OF WRITE IRG/BACKSPACES
LT4A: MOV #14,FUN ;SET WRITE IRG FUNCTION CODE
MOV #WDATA,BADR ;SET START OF WRITE BUFFER
MOV #-20,BYTES ;SET SIZE OF RECORD
MOV #MSG17,ERRAD ;SET ERROR CODE
JSR PC,EXEC ;GO EXECUTE COMMAND
LT4B: JSR PC,ERCHK ;GO CHECK FOR STATUS ERROR
MOV #-1,SCNT
JSR PC,BKSP ;GO BACKSPACE ONE RECORD
DEC RO ;SEE IF DONE ALL SEQUENCES
BNE LT4A ;IF NOT: BR
LT4IT: NOP
JSR PC,RWIND ;REWIND
MOV #200,STALL ;SET OPI STALL
MOV #RDATA,BADR ;SET START OF READ BUFFER
MOV #-20,BYTES ;SET SIZE OF RECORD
MOV #2,FUN ;SET READ FUNCTION CODE
MOV #MSG20,ERRAD ;SET ERROR CODE
JSR PC,EXEC ;GO EXECUTE COMMAND
LT4C: JSR PC,ERCHK ;GO CHECK FOR STATUS ERRORS
NOP
MOV #40,STALL ;RESET NORMAL STALL
MOV #2,ITAMT ;SET TO TWO (2) ITERATIONS
JSR PC,ITER ;GO SEE IF ITERATIONS
MCV #10,ITAMT ;RESET ITERATIONS
JMP TSCD2 ;RETURN TO SCHEDULAR

K02

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SEQ 0023

;REWIND SUBROUTINE*****

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807
808
809 003172 000240          RWND:  NOP
810 003174 016777 175410 175400  MOV      UDES,DMTC      ;SELECT UNIT
811 003202 032777 000040 175370  BIT      #40,DMTS      ;SEE IF AT BOT
812 003210 001056          BNE      RWNDXX      ;IF SO: BR
813 003212 052777 000017 175362  BIS      #17,DMTC      ;START REWIND
814 003220 105777 175356 1$:      TSTB      DMTC
815 003224 100375          BPL      1$          ;AWAIT CUR
816 003226 032777 000001 175344  RWND1:  BIT      #1,DMTS      ;AWAIT TUR
817 003234 001774          BEQ      RWND1
818 003236 032777 000040 175334  BIT      #40,DMTS      ;SEE IF BOT SET
819 003244 001040          BNE      RWNDXX      ;IF SO: BR
820 003246 032777 020000 175344  BIT      #20000,DSWR      ;SEE IF PRINT ERROR
821 003254 001030          BNE      RWNDX      ;IF NOT: BR
822 003256 016704 175376          MOV      EMADDR,R4
823 003262 004767 001524          JSR      PC,TTOUT      ;PRINT HEADER
824 003266 012704 006511          MOV      #MSG4,R4
825 003272 004767 001514          JSR      PC,TTOUT      ;PRINT REWIND ERROR
826 003276 012704 006541          MOV      #MSG5,R4
827 003302 004767 001504          JSR      PC,TTOUT      ;PRINT MTS TAG
828 003306 017703 175266          MOV      DMTC,R3
829 003312 004767 001662          JSR      PC,OCTPE      ;PRINT MTS
830 003316 012704 006550          MOV      #MSG6,R4
831 003322 004767 001464          JSR      PC,TTOUT      ;PRINT MTC TAG
832 003326 017703 175250          MOV      DMTC,R3
833 003332 004767 001642          JSR      PC,OCTPE      ;PRINT MTC
834 003336 005777 175256          RWNDX:  TST      DSWR      ;SEE IF HALT ON ERROR
835 003342 100001          BPL      RWNDXX      ;IF NOT: BR
836 003344 000000          HALT
837 003346 004767 002252          RWNDXX:  JSR      PC,CKSWR      ;TEST FOR IG
838 003352 000240          NOP
839 003354 000207          RTS      PC      ;RETURN

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;BACKSPACE SUBROUTINE*****

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840
841
842
843 003356 000240          BKSP:  NOP
844 003360 016777 175224 175214  MOV      UDES,DMTC      ;SELECT UNIT
845 003366 016777 175310 175210  MOV      SCNT,DMTBC      ;SET NUMBER OF RECORDS TO SPACE
846 003374 052777 000013 175200  BIS      #13,DMTC      ;START SPACE REVERSE
847 003402 032777 000001 175170  BKSP1:  BIT      #1,DMTS
848 003410 001774          BEQ      BKSP1      ;AWAIT TUR
849 003412 012767 000001 175250  MOV      #1,SPFLG      ;SET SPACE FLAG
850 003420 012767 006577 175234  MOV      #MSG9,ERRAD
851 003426 004767 000240          JSR      PC,ERCHK      ;GO CHECK FOR ERROR
852 003432 005067 175232          CLR      SPFLG      ;CLEAR SPACE FLAG
853 003436 000240          NOP
854 003440 000207          RTS      FC      ;RETURN
855

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856                                     :COMMAND EXECUTE SUBROUTINE*****
857
858 003442 000240 EXEC: NOP
859 003444 005005 CLR R5
860 003446 032777 000200 175126 EXEC0: BIT #200,DMTC ;SEE IF CUR
861 003454 001021 BNE EXEC2 ;IF SO: BR
862 003456 005305 DEC R5 ;SEE IF TIMED OUT
863 003460 001372 BNE EXEC0 ;IF NOT: BR
864 003462 005767 175226 TST HDRFL ;SEE IF DONE HEADER
865 003466 001004 BNE EXEC1 ;IF SO: BR
866 003470 016704 175164 MOV EMADDR,R4
867 003474 004767 001312 JSR PC,TTOUT ;ELSE PRINT HEADER
868 003500 012704 006622 EXEC1: MOV #MSG10,R4
869 003504 004767 001302 JSR PC,TTOUT ;PRINT NOT READY ERROR
870 003510 005777 175104 TST QSWR ;SEE IF HALT ON ERROR
871 003514 100001 BPL EXEC2 ;IF NOT: BR
872 003516 000000 HALT
873 003520 004767 002100 EXEC2: JSR PC,CKSWR ;TEST FOR IG
874 003524 000240 NOP
875 003526 016777 175056 175046 MOV UDES,DMTC ;SELECT UNIT
876 003534 016777 175136 175044 MOV BADR,DMTBA ;SET BUS MEMORY ADDRESS
877 003542 016777 175132 175034 MOV BYTES,DMTBC ;SET BYTE COUNT
878 003550 016701 175130 MOV FUN,R1 ;GET FUNCTION
879 003554 052701 000101 BIS #101,R1 ;SET IN GO BIT AND INTERRUPT ENABLE
880 003560 050177 175016 BIS R1,DMTC ;LOAD COMMAND+GO+IE
881 003564 000240 NOP
882 003566 005077 175024 CLR QPSW ;ALLOW INTERRUPTS
883 003572 016767 175040 175052 MOV STALL,TEMP1 ;SET READY STALL
884 003600 005001 CLR R1
885 003602 005301 EXEC3: DEC R1
886 003604 001376 BNE EXEC3 ;AWAIT INTERRUPT
887 003606 005367 175040 DEC TEMP1
888 003612 001373 BNE EXEC3
889 003614 032777 020000 174776 BIT #20000,QSWR ;SEE IF PRINT ERROR
890 003622 001013 BNE EXECX ;IF NOT: BR
891 003624 005767 175064 TST HDRFL ;SEE IF DONE HEADER
892 003630 001004 BNE EXEC4 ;IF SO: BR
893 003632 016704 175022 MOV EMADDR,R4
894 003636 004767 001150 JSR PC,TTOUT ;PRINT HEADER
895 003642 012704 006637 EXEC4: MOV #MSG11,R4
896 003646 004767 001140 JSR PC,TTOUT ;PRINT NO INTERRUPT MESSAGE
897 003652 005777 174742 EXECX: TST QSWR ;SEE IF HALT ON ERROR
898 003656 100001 BPL EXECXX ;IF NOT: BR
899 003660 000000 HALT
900 003662 004767 001736 EXECXX: JSR PC,CKSWR ;TEST FOR IG
901 003666 000240 NOP
902 003670 000207 RTS PC ;RETURN TO CALLER
903

```

					:STATUS ERROR CHECK SUBROUTINE*****	
904						
905						
906	003672	005777	174704	ERCHK:	TST QMTC	;SEE IF ANY EPROR BITS
907	003676	100002			BPL ERCHK1	;IF NOT: BR
908	003700	000167	000044		JMP ERPT	;ELSE PRINT ERROR
909	003704	005777	174674	ERCHK1:	TST QMTBC	;SEE IF BYTE COUNT IS ZERO
910	003710	001402			BEQ ERCHK2	;IF SO: BR
911	003712	000167	000032		JMP ERPT	;ELSE PRINT ERROR
912	003716	016703	174756	ERCHK2:	MOV BYTES,R3	
913	003722	005403			NEG R3	
914	003724	066703	174746		ADD BADR,R3	;SET EXPT BUS ADDRESS
915	003730	005767	174734		TST SPFLG	;SEE IF SPACE OPERATION
916	003734	001401			BEQ ERCHK3	;IF NOT: BR
917	003736	000207			RTS PC	
918	003740	020377	174642	ERCHK3:	CMP R3,QMTBA	;SEE IF EXPT=RCVD
919	003744	001001			BNE ERPT	;IF NOT: BR
920	003746	000207			RTS PC	;ELSE EXIT
921	003750	000240		ERPT:	NOP	
922	003752	032777	020000		BIT #20000,QSWR	;SEE IF SHOULD PRINT
923	003760	001067			BNE ERPTX	;IF NOT: BR
924	003762	005767	174726		TST HDRFL	;SEE IF DONE HEADER
925	003766	001006			BNE ERPT1	;IF SO: BR
926	003770	016704	174664		MOV EMADDR,R4	
927	003774	004767	001012		JSR PC,TTOU	;ELSE PRINT HEADER
928	004000	005267	174710		INC HDRFL	;SET FLAG
929	004004	016704	174652	ERPT1:	MOV ERRAD,R4	
930	004010	004767	000776		JSR PC,TTOU	;PRINT ERROR CODE
931	004014	012704	006541		MOV #MSG5,R4	
932	004020	004767	000766		JSR PC,TTOU	;PRINT MTS TAG
933	004024	017703	174550		MOV QMTS,R3	
934	004030	004767	001144		JSR PC,OCTPE	;PRINT MTS
935	004034	012704	006550		MOV #MSG6,R4	
936	004040	004767	000746		JSR PC,TTOU	;PRINT MTC TAG
937	004044	017703	174532		MOV QMTC,R3	
938	004050	004767	001124		JSR PC,OCTPE	;PRINT MTC
939	004054	012704	006557		MOV #MSG7,R4	
940	004060	004767	000726		JSR PC,TTOU	;PRINT BYTE COUNT TAG
941	004064	017703	174514		MOV QMTBC,R3	
942	004070	004767	001114		JSR PC,OCTP	;PRINT BYTE COUNT
943	004074	005767	174570		TST SPFLG	;SEE IF PRINT BA
944	004100	001017			BNE ERPTX	;IF NOT: BR
945	004102	012704	006567		MOV #MSG8,R4	
946	004106	004767	000700		JSR PC,TTOU	;PRINT BUS ADDRESS TAG
947	004112	017703	174470		MOV QMTBA,R3	
948	004116	004767	001066		JSR PC,OCTP	;PRINT CURRENT ADDRESS
949	004122	016703	174552		MOV BYTES,R3	
950	004126	005403			NEG R3	
951	004130	066703	174542		ADD BADR,R3	
952	004134	004767	001050		JSR PC,OCTP	;PRINT EXPT ADDRESS
953	004140	005777	174454	ERPTX:	TST QSWR	;SEE IF HALT ON ERROR
954	004144	100001			BPL ERPTXX	;IF NOT: BR
955	004146	000000			HALT	
956	004150	004767	001450	ERPTXX:	JSR PC,CKSWR	;TEST FOR IG
957	004154	000167	000240		JMP SCOPE	;GO SEE IF SCOPE ON ERROR

```

958                                     ;DATA CHECK SUBROUTINE*****
959
960 004160 000240 DCHK: NOP
961 004162 005067 174522 DCHK0: CLR CRCNT ;CLEAR COUNTER
962 004166 121112 DCHK0: CMPB (R1), (R2) ;SEE IF EXPT DATA=RCVD DATA
963 004170 001007 DCHK0: BNE DCHKE ;IF NOT: BR
964 004172 005267 174512 DCHK1: INC CRCNT ;BUMP CHARACTER COUNTER
965 004176 122122 DCHK1: CMPB (R1)+, (R2)+
966 004200 005300 DEC R0 ;SEE IF DONE
967 004202 001371 DCHK0: BNE DCHKE ;IF NOT: BR
968 004204 000167 000150 DCHK0: JMP DCHKX ;ELSE GO TO EXIT ROUTINE
969 004210 000240 DCHKE: NOP
970 004212 012767 000001 174472 DCHKE: MOV #1, DERFL ;SET ERROR FLAG
971 004220 032777 020000 174372 DCHKE: BIT #20000, ASWR ;SEE IF PRINT ERROR
972 004226 001054 DCHKE: BNE DCHKX ;IF NOT: BR
973 004230 005767 174460 DCHKE: TST HDRFL ;SEE IF DONE HEADER
974 004234 001007 DCHKE: BNE DCHKE1 ;IF SO: BR
975 004236 016704 174416 DCHKE: MOV EMADDR, R4
976 004242 004767 000544 DCHKE: JSR PC, TTOUT ;PRINT HEADER
977 004246 012767 000001 174440 DCHKE: MOV #1, HDRFL ;SET HEADER FLAG
978 004254 012704 006657 DCHKE1: MOV MSG12, R4
979 004260 005767 174432 DCHKE1: TST PFLG ;SEE IF PRINTED DATA EPROP TAG
980 004264 001004 DCHKE1: BNE DCHKE2 ;IF SO: BR
981 004266 005267 174424 DCHKE1: INC PFLG
982 004272 004767 000514 DCHKE2: JSR PC, TTOUT ;ELSE PRINT DATA ERROR TAG
983 004276 012704 006673 DCHKE2: MOV MSG13, R4
984 004302 004767 000504 DCHKE2: JSR PC, TTOUT ;PRINT CHAR NUMBER TAG
985 004306 016703 174376 DCHKE2: MOV CRCNT, R3
986 004312 004767 000672 DCHKE2: JSR PC, OCTP ;PRINT CHAR NUMBER
987 004316 012704 006701 DCHKE2: MOV MSG14, R4
988 004322 004767 000464 DCHKE2: JSR PC, TTOUT ;PRINT GOOD TAG
989 004326 111103 DCHKE2: MOVB (R1), R3
990 004330 004767 001102 DCHKE2: JSR PC, DOUT ;PRINT GOOD CHARACTER
991 004334 012704 006706 DCHKE2: MOV MSG15, R4
992 004340 004767 000446 DCHKE2: JSR PC, TTOUT ;PRINT BAD TAG
993 004344 111203 DCHKE2: MOVB (R2), R3
994 004346 004767 001064 DCHKE2: JSR PC, DOUT ;PRINT BAD CHARACTER
995 004352 000240 DCHKX: NOP
996 004354 000167 177612 DCHKX: JMP DCHK1 ;CONTINUE FOR ALL BYTES
997 004360 000240 DCHKX: NOP
998 004362 005767 174324 DCHKX: TST DERFL ;SEE IF ANY ERROR
999 004366 001404 DCHKX: BEQ DCHKXX ;IF NOT: BR
1000 004370 005777 174224 DCHKX: TST ASWR ;SEE IF HALT ON ERROR
1001 004374 100001 DCHKX: BPL DCHKXX ;IF NOT: BR
1002 004376 000000 DCHKX: HALT
1003 004400 004767 001220 DCHKXX: JSR PC, CKSWR ;TEST FOR IG
1004 004404 000240 DCHKXX: NOP
1005 004406 005067 174304 DCHKXX: CLR PFLG ;CLEAR PRINT FLAG
1006 004412 005067 174274 DCHKXX: CLR DERFL ;CLEAR DATA ERROR FLAG
1007 004416 000207 DCHKXX: PC ;RETURN

```

```

1008                                     ;SCOPE LOOP ON ERROR SUBROUTINE*****
1009
1010 004420 004767 001200 SCOPE: JSR PC,CKSWF ;TEST FOR IG
1011 004424 000240 NOP ;
1012 004426 032777 040000 174164 BIT #40000,DSWP ;SEE IF LOOP ON ERROR
1013 004434 001001 BNE SCOPE1 ;IF SO: BR
1014 004436 000207 RTS PC ;ELSE EXIT
1015 004440 000240 SCOPE1: NOP ;
1016 004442 005726 TST (SP)+ ;RESET STACK
1017 004444 000240 NOP ;
1018 004446 017703 174212 MOV #ALTADD,R3 ;
1019 004452 000113 JMP (R3) ;LOOP ON ERROR
1020
1021                                     ;TEST ITERATION SUBROUTINE*****
1022
1023 004454 000240 ITER: NOP ;
1024 004456 004767 001142 JSR PC,CKSWF ;TEST FOR IG
1025 004462 032777 010000 174130 BIT #10000,DSWP ;SEE IF ITERATIONS
1026 004470 001403 BEQ ITER1 ;IF SO: BR
1027 004472 005067 174210 ITER0: CLR ITCNT ;CLEAR ITERATION COUNTER
1028 004476 000207 RTS PC ;ELSE EXIT
1029 004500 005267 174202 ITER1: INC ITCNT ;BUMP COUNTER
1030 004504 026767 174176 174122 CMP ITCNT,ITAMT ;SEE IF DONE ALL
1031 004512 001767 BEQ ITER0 ;IF SO: BR
1032 004514 005726 TST (SP)+ ;RESET STACK
1033 004516 017700 174144 MOV #ITRLP,R0 ;SET ITERATION POINTER
1034 004522 000110 JMP (R0) ;GO ITERATE
1035
1036                                     ;MAG TAPE INTERRUPT HANDLER*****
1037
1038 004524 000240 MTINT: NOP ;
1039 004526 022626 CMP (SP)+,(SP)+ ;RESET STACK POINTER
1040 004530 042777 000100 174044 BIC #100,IMTC ;CLEAR INTERRUPT ENABLE
1041 004536 000240 NOP ;
1042 004540 000240 NOP ;
1043 004542 000207 RTS PC ;RETURN TO CALLER
1044
1045                                     ;TTY INTERRUPT HANDLER*****
1046
1047 004544 000240 TTINT: NOP ;
1048 004546 000240 NOP ;
1049 004550 000240 NOP ;
1050 004552 000002 RTI ;
1051

```

```

1052 *****
1053 TTY ENTRY SUBROUTINE:
1054
1055 THIS SUBROUTINE IS USED BY THE TEST CONDITION
1056 ENTRY ROUTINE TO READ THE RESPONSE ENTERED
1057 AT THE TTY AND CHECK THEM FOR LEGALITY AND
1058 LIMITS. ALL RESPONSE MUST BE TYPED IN OCTAL
1059 (0-7) AND MUST FALL WITHIN THE LIMITS SET BY
1060 THE CALLING ROUTINE.
1061 IF AN ENTRY IS ILLEGAL OR OUTSIDE THE LIMITS,
1062 A QUESTION MARK IS TYPED (?) AND THE RESPONSE
1063 MAY BE REENTERED.
1064 ENTRIES MAY NOT EXCEED SIX (6) CHARACTERS AND
1065 MAY BE TERMINATED AT LESS THAN SIX BY TYPING A
1066 CARRIAGE RETURN
1067 *****
1068
1069 004554 005067 174072 TTR: CLR TEMP1 ;CLEAR FIRST CHARACTER FLAG
1070 004560 005000 CLR RO
1071 004562 004767 000152 TTR0: JSR PC,TTR1 ;GO READ CHARACTER
1072 004566 122767 000215 174054 CMPB #215,TIB ;SEE IF CR
1073 004574 001005 BNE TTR1 ;IF NOT: BR
1074 004576 005767 174050 TST TEMP1 ;SEE IF FIRST CHARACTER
1075 004602 001446 BEQ TTR5 ;IF SO: BR
1076 004604 000167 000066 JMP TTR2 ;ELSE GO LOAD VALUE
1077 004610 122767 000260 174032 TTR1: CMPB #260,TIB ;SEE IF CHAR IS LESS THAN 0
1078 004616 101402 BLOS TTR1A ;IF NOT: BR
1079 004620 000167 000076 JMP TTR1A ;ELSE GO TO ERROR
1080 004624 122767 000270 174016 TTR1A: CMPB #270,TIB ;SEE IF CHAR IS GREATER THAN 7
1081 004632 101002 BHI TTR1B ;IF NOT: BR
1082 004634 000167 000062 JMP TTR1B ;ELSE GO TO ERROR
1083 004640 005267 174006 TTR1B: INC TEMP1 ;SET FIRST CHARACTER FLAG
1084 004644 000241 CLC
1085 004646 006100 ROL RO
1086 004650 000241 CLC
1087 004652 006100 ROL RO ;SHIFT 3 LEFT
1088 004654 000241 CLC
1089 004656 006100 ROL RO
1090 004660 042767 177770 173762 BIC #177770,TIB ;STRIP ASCII
1091 004666 056700 173756 BIS TIB,RO ;LOAD CHARACTER
1092 004672 005301 DEC R1 ;SEE IF DONE
1093 004674 001332 BNE TTR0 ;IF NOT: BR
1094 004676 020002 *TTR2: CMP RO,R2 ;SEE IF EXCEEDED MAXIMUM LIMIT
1095 004700 101402 BLOS TTR3 ;IF OT: BR
1096 004702 000167 000014 JMP TTR3 ;ELSE GO TO ERROR
1097 004706 020300 TTR3: CMP R3,RO ;SEE IF BELOW MINIMUM LIMIT
1098 004710 101402 BLOS TTR4 ;IF NOT: BR
1099 004712 000167 000004 JMP TTR4 ;ELSE GO TO ERROR
1100 004716 010015 TTR4: MOV RO,(R5 ;LOAD VALUE
1101 004720 000207 TTR5: RTS PC ;EXIT
1102

```

D03

CZTSFDD TS03 SPLMTL INSTR
CZTSFDD.F11 15-FEB-78 14:04

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1103 ;TTY ENTRY ERROR SUBROUTINE*****
1104
1105 004722 012704 006713 T1NER: MOV MSG16,F4
1106 004726 004767 000060 JSR PC,TTOUT ;PRINT?
1107 004732 162716 000020 SUB #20,(SP) ;RESET SP TO START OF VALUE ROUTINE
1108 004736 000207 RTS PC ;REDO VALUE ENTRY
1109
1110 ;TTY READ SUBROUTINE*****
1111
1112 004740 005077 173660 TTIN: CLR @TKS
1113 004744 005077 173656 CLR @TKB
1114 004750 005067 173674 CLR TIB
1115 004754 005277 173644 INC @TKS
1116 004760 105777 173640 TTIN1: TSTB @TKS
1117 004764 100375 BPL TTIN1
1118 004766 017767 173634 173654 MOV @TKB,TIB
1119 004774 105777 173630 TTIN2: TSTB @TPS
1120 005000 100375 BPL TTIN2
1121 005002 116777 173642 173622 MOVB TIB,@TPB
1122 005010 000207 RTS PC
1123
1124 ;TTY OUTPUT SUBROUTINE*****
1125
1126 005012 112467 173630 TTOUT: MOVB (R4)+,TOB
1127 005016 122767 000043 173622 CMPB #43,TOB
1128 005024 001452 BEQ TEX
1129 005026 122767 000045 173612 CMPB #45,TOB
1130 005034 001407 BEQ TCRLF
1131 005036 122767 000041 173602 CMPB #41,TOB
1132 005044 001443 BEQ TBELL
1133 005046 004767 000064 JSR PC,TOG
1134 005052 000757 BR TTOUT
1135 005054 112767 000015 173564 TCRLF: MOVB #15,TOB
1136 005062 004767 000050 JSR PC,TOG
1137 005066 012703 000004 MOV #4,R3
1138 005072 005067 173550 TCRLFA: CLR TOB
1139 005076 004767 000034 JSR PC,TOG
1140 005102 005303 DEC R3
1141 005104 001372 BNE TCRLFA ;DC FILLERS
1142 005106 112767 000012 173532 MOVB #12,TOB
1143 005114 004767 000016 JSR PC,TOG
1144 005120 105767 173604 TSTB RDSW
1145 005124 100401 BMI IS
1146 005126 000731 BR TTOUT
1147 005130 005067 173574 IS: CLR RDSW
1148 005134 000406 BR TEX
1149 005136 105777 173466 TOG: TSTB @TPS
1150 005142 100375 BPL TOG
1151 005144 116777 173476 173460 MOVB TOB,@TPB
1152 005152 000207 TEX: RTS PC
1153 005154 012703 000002 TBELL: MOV #2,R3
1154 005160 012767 000007 173460 TBELA: MOV #7,TOB
1155 005166 004767 177744 JSR PC,TOG
1156 005172 005303 DEC R3
1157 005174 001371 BNE TBELA
1158 005176 000705 BR TTOUT

```

:OCTAL OUTPUT SUBROUTINE*****

```

1159
1160
1161 005200 012767 000001 300226 OCTPE: MOV #1,OFL
1162 005206 000402 OCTPE1: BR OCTPE1
1163 005210 005067 000220 OCTP: CLR OFL ;CLEAR FLAG FOR LEADING ZERO
1164 005214 010304 OCTPE1: MOV R3,R4 ;SEE IF NUMBER IS ZERO
1165 005216 001007 BNE OCTP0 ;IF NOT ZERO: BR
1166 005220 005767 000210 TST OFL ;SEE IF PRINT ALL 0
1167 005224 001004 BNE OCTP0 ;IF SO: BR
1168 005226 004767 000162 JSR PC,OCTPG1 ;ELSE PRINT ZERO
1169 005232 000167 000120 JMP OCTP3 ;SPACE AND EXIT
1170 005236 032704 100000 OCTP0: BIT #100000,R4 ;SEE IF MSD = 1
1171 005242 001406 BEQ OCTP1 ;IF NOT: BR
1172 005244 012704 000001 MOV #1,R4
1173 005250 004767 000116 JSR PC,OCTPG ;PRINT 1
1174 005254 000167 000006 JMP OCTP2
1175 005260 005004 OCTP1: CLR R4
1176 005262 004767 000104 JSR PC,OCTPG ;PRINT 0
1177 005266 010304 OCTP2: MOV R3,R4
1178 005270 006004 ROR R4
1179 005272 006004 ROR R4
1180 005274 006004 ROR R4 ;POSITION DIGIT
1181 005276 006004 ROR R4
1182 005300 000304 SWAB R4
1183 005302 004767 000064 JSR PC,OCTPG ;PRINT DIGIT 2
1184 005306 010304 MOV R3,R4
1185 005310 006004 ROR R4
1186 005312 000304 SWAB R4
1187 005314 004767 000052 JSR PC,OCTPG ;PRINT DIGIT 3
1188 005320 010304 MOV R3,R4
1189 005322 006104 ROL R4
1190 005324 006104 ROL R4
1191 005326 000304 SWAB R4
1192 005330 004767 000036 JSR PC,OCTPG ;PRINT DIGIT 4
1193 005334 010304 MOV R3,R4
1194 005336 006004 ROR R4
1195 005340 006004 ROR R4
1196 005342 006004 ROR R4
1197 005344 004767 000022 JSR PC,OCTPG
1198 005350 010304 MOV R3,R4
1199 005352 004767 000014 JSR PC,OCTPG ;PRINT DIGIT 5
1200 005356 012767 000240 173262 OCTP3: MOV #240,T09
1201 005364 004767 177546 JSR PC,T09 ;PRINT SPACE
1202 005370 000207 RTS PC ;EXIT

```

```

1203
1204
1205
1206 005372 042704 177770
1207 005376 001004
1208 005400 005767 000030
1209 005404 001001
1210 005406 000207
1211 005410 005267 000020
1212 005414 052704 000260
1213 005420 010467 173222
1214 005424 004767 177506
1215 005430 010304
1216 005432 000207
1217 005434 000000
1218
1219
1220
1221 005436 005067 173204
1222 005442 012704 000010
1223 005446 110367 173174
1224 005452 105777 173152
1225 005456 100375
1226 005460 132767 000200 173160
1227 005466 001404
1228 005470 012777 000061 173134
1229 005476 000403
1230 005500 012777 000060 173124
1231 005506 006167 173134
1232 005512 005304
1233 005514 001356
1234 005516 000207
1235 005520 016703 173132
1236 005524 000303
1237 005526 004767 177704
1238 005532 016703 173120
1239 005536 004767 177674
1240 005542 000207
1241
1242
1243
1244
1245 005544 013746 000006
1246 005550 013746 000004
1247 005554 012737 005574 000004
1248 005562 022777 177777 173030
1249 005570 001402
1250 005572 000407
1251 005574 022626
1252 005576 012767 000176 173014
1253 005604 012767 000174 173010
1254 005612 012637 000004
1255 005616 012637 000006
1256 005622 000207
1257
1258

```

OCTAL PRINT SUBROUTINE*****

```

OCTPG: BIC      #177770,R4
        BNE     OCTPG0
        TST     OFL
        BNE     OCTPG0
        RTS     PC
OCTPG0: INC     OFL
OCTPG1: BIS     #260,R4
        MOV     R4,T0B
        JSR     PC,T0B
        MOV     R3,R4
        RTS     PC
OFL:    0

```

;FIRST CHAR FLAG

DATA CHARACTER OUTPUT SUBROUTINE*****

```

DOUT:   CLR     T0B
        MOV     #10,R4
        MOV     R3,T0B
        TST     #TPB
        BPL     DOUT1
        BIT     #200,T0B
        BEQ     DOUT2
        MOV     #061,TPB
        BR      DOUT3
DOUT2:  MOV     #060,TPB
DOUT3:  ROL     T0B
        DEC     R4
        BNE     DOUT1
        RTS     PC
DOUTD:  MOV     TEMP3,R3
        SWAB    R3
        JSR     PC,DOUT
        MOV     TEMP3,R3
        JSR     PC,DOUT
        RTS     PC

```

;SET NUMBER TO PRINT

SUSWR: MOV #6,-(SP)
 MOV #4,-(SP)
 MOV #15,#4
 CMP #-1,SWR
 BEQ 2\$
 BR 3\$
1\$: CMP (SP)+(SP)+
 MOV #SWREG,SWR
 MOV #DISPREG,DISPLAY
 MOV (SP)+,#4
 MOV (SP)+,#6
 RTS PC

;SAVE VECTORS

;SET UP FOR TIMEOUT

;REFERENCE HARDWARE SWITCH REGISTER

;ADJUST STACK

;POINT TO SOFTWARE SWITCH REG

;POINT TO SOFT DISPLAY REG

;RESTORE VECTORS

1259	005624	022767	000176	172766	CKSWR:	CMP	#SWREG,SWR	:SOFTWARE SWITCH REG PRESENT
1260	005632	001041				BNE	OUT	:NO GET OUT
1261	005634	105777	172764			TSTB	ATKS	:YES WAIT FOR
1262	005640	100036				BPL	OUT	:READY GET CHARACTER
1263	005642	017767	172760	173000		MOV	ATKB,TIB	:AND STRIP OFF
1264	005650	042767	177600	172772		BIC	#177600,TIB	:THE GARBAGE
1265	005656	022767	000007	172764		CMP	#7,TIB	:IS IT A 'G
1266	005664	001024				BNE	OUT	
1267	005666	012704	007245			MOV	#SCNTG,R4	
1268	005672	004767	177114			JSR	PC,TTOUT	
1269	005676	012704	007251		CNTLU:	MOV	#MSWR,R4	
1270	005702	004767	177104			JSR	PC,TTOUT	
1271	005706	017703	172706			MOV	MSWR,R3	
1272	005712	004767	177262			JSR	PC,CTPE	
1273	005716	012704	007263			MOV	#MNEW,R4	
1274	005722	004767	177064			JSR	PC,TTOUT	
1275	005726	005037	000726			CLR	#TEMPST	:GO READ A LINE
1276	005732	004767	000002			JSR	PC,\$READ	:RETURN TO MAIN BODY OF PROGRAM
1277	005736	000207			OUT:	RTS	PC	
1278								
1279	005740	005067	172762		\$READ:	CLR	TEMPST	
1280	005744	012767	000007	172752		MOV	#7,COUNT	
1281	005752	004767	176762		1\$:	JSR	PC,TTIN	:GO READ A CHARACTER
1282	005756	042767	177600	172664		BIC	#177600,TIB	:STRIP OFF GARBAGE
1283	005764	122767	000025	172656		CMPB	#25,TIB	:IS IT A 'U'?
1284	005772	001002				BNE	11\$	:BRANCH IF NOT
1285	005774	005726			3\$:	TST	(SP)+	:POP THE STACK
1286	005776	000737				BR	CNTLU	:START OVER
1287	006000	122767	000012	172642	11\$:	CMPB	#12,TIB	:IS IT A 'LF'?
1288	006006	001016				BNE	2\$	:BRANCH IF NOT
1289	006010	005767	172032			TST	46	:TEST FOR ACT-11 HOOKS
1290	006014	001406				BEQ	10\$	:NO HOOKS-'LF' WAS MISTAKE
1291	006016	005726				TST	(SP)+	:POP THE STACK
1292	006020	016716	172022			MOV	46,(SP)	:MAKE ACT-11 ADDRESS
1293	006024	062716	000010			ADD	#10,(SP)	
1294	006030	000742				BR	OUT	:GO TO THAT ADDRESS
1295	006032	012704	007273		10\$:	MOV	#NOACT,R4	:LET OPR KNOW IT
1296	006036	004767	176750			JSR	PC,TTOUT	:AND RETURN
1297	006042	000754				BR	3\$	:FOR ANOTHER TRY
1298	006044	122767	000015	172576	2\$:	CMPB	#15,TIB	:IS IT A 'CR'?
1299	006052	001013				BNE	4\$	:BRANCH IF NOT
1300	006054	012767	000200	172646		MOV	#200,RDSW	
1301	006062	004767	176766			JSR	PC,TCRLF	:ECHO IT WITH 'LF'
1302	006066	022767	000007	172630		CMP	#7,COUNT	:WAS IT FIRST CHARACTER
1303	006074	001037				BNE	7\$	:CHANGE SWR IF NOT FIRST ONE
1304	006076	005726			8\$:	TST	(SP)+	:POP THE STACK
1305	006100	000716				BR	OUT	:GET OUT
1306	006102	122767	000060	172540	4\$:	CMPB	#60,TIB	
1307	006110	003004				BGT	5\$	
1308	006112	122767	000067	172530		CMPB	#67,TIB	
1309	006120	003005				BGT	6\$	
1310	006122	012704	007345		5\$:	MOV	#SQUEST,R4	
1311	006126	004767	176660			JSR	PC,TTOUT	
1312	006132	000720				BR	3\$	:START OVER IF NOT LEGAL CHARACTER
1313	006134	006367	172566		6\$:	ASL	TEMPST	
1314	006140	006367	172562			ASL	TEMPST	

H03

CZTSFDD TS03 SPLMTL INSTR
CZTSFD.P11 15-FEB-78 14:04

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SEC 0033

1315	006144	006367	172556	ASL	TEMPST	
1316	006150	142767	000060	BICB	#60,TIB	:GET NITTY-GRITTY
1317	006156	156767	172466	BISB	TIB,TEMPST	
1318	006164	005367	172534	DEC	COUNT	:ONLY WANT 6 DIGITS
1319	006170	001754		BEG	55	
1320	006172	000667		BR	15	
1321	006174	016777	172526	MOV	TEMPST,DSWR	:CHANGE SWITCH REGISTER CONTENTS
1322	006202	000735		BR	85	
1323						

CZTSFDD TS03 SPLMTL INSTR
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SEG 0034

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1324
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1332 006204 005067 172570
1333 006210 105067 172566
1334 006214 105067 172563
1335 006220 105067 172560
1336 006224 105067 172555
1337 006230 005737 000042
1338 006234 001425
1339 006236 005267 172536
1340 006242 032737 020000 000052
1341 006250 001402
1342 006252 000167 000054
1343 006256 023737 000042 000046 6$:
1344 006264 001403
1345 006266 105267 172511
1346 006272 000416
1347 006274 105267 172502 1$:
1348 006300 012777 177777 172312
1349 006306 000410
1350 006310 105737 000041 2$:
1351 006314 001003
1352 006316 105267 172462
1353 006322 000402
1354 006324 105267 172455 3$:
1355 006330 000207 5$:
1356
1357
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MODIFIED JAN 24 1978

++
CHECK FOR DUMP MODE OR AUTOMATIC/ACT11-XXDP MODE
--

CKMODE: CLR AUTOM : INIT AUTOMATIC MODE INDICATOR
CLRB ACT11M : INIT ACT11 AUTO MODE INDICATOR
CLRB XXDPM : INIT XXDP AUTO MODE INDICATOR
CLRB ADUMPM : INIT ACT11 DUMP MODE INDICATOR
CLRB XDUMPM : INIT XXDP DUMP MODE INDICATOR
TST @#42 : AUTO MODE?
BEQ 2\$: BRANCH - IF NO
INC AUTOM : SET AUTO MODE INDICATOR
BIT @20000,@#52 : MANUAL INTERVENTION?
BEQ 6\$: BRANCH - IF NO
JMP ABORT : ABORT THE PROGRAM
CMP @#42,@#46 : ACT11 MODE?
BEQ 1\$: BRANCH - IF YES
INCB XXDPM : INDICATE XXDP AUTO MODE
BR 5\$: AND EXIT
INCB ACT11M : INDICATE ACT11 AUTO MODE
MOV @177777,@SWP : SET SWITCH REGISTER
BR 5\$: AND EXIT
TSTB @#41 : MAN/MODE VIA ACT11/PAPER TAPE?
BNE 3\$: BRANCH - IF NOT
INCB ADUMPM : INDICATE MAN/MODE VIA ACT11/PAPER TAPE
BR 5\$: AND EXIT
INCB XDUMPM : INDICATE MANUAL MODE VIA XXDP
RTS PC : RETURN

CZTSFDO TS03 SPLMTL INSTR
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SEC 0035

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1371
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*****  
:                                     MODIFIED JAN 24 1978  
:  
:++  
:      CHECK FOR DUMP MODE OR AUTOMATIC/ACT11-XXDP MODE  
:--  
  
ABORT: RESET                                ;CLEAR THE WORLD  
MOV      #MSGD,R4                          ;GET THE MESSAGE  
JSR      PC,TTOUT                         ;PRINT ABORT MESSAGE  
TSTB     XXDPM                            ;XXDP AUTO MODE?  
BEQ      IS                               ;BRANCH - IF NO  
MOV      @#42,R0                          ;GET MONITOR EXIT ADDRESS  
CLR      @#42                             ;USE AS ABORT FLAG  
JSR      PC,R0                           ;EXIT TO XXDP MONITOR  
IS:      BR      .                        ;AND HANG  
:  
*****
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K03

CZTSFDD TS03 SPLMTL INSTR
CZTSFD.P11 15-FEB-78 14:04

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SEC 0036

1379

;MESSAGE TABLE*****

1380									
1381									
1382	006366	022445	051120	043517	MSG0:	.ASCII	/%PROGFAM ABORTED#		
1383	006374	040522	020115	041101					
1384	006402	051117	042524	021504					
1385	006410	022445	055103	051524	MSG1:	.ASCII	/%CZTSFDO TS03 SPLMTL INSTR#		
1386	006416	042106	020060	051524					
1387	006424	031460	051440	046120					
1388	006432	052115	020114	047111					
1389	006440	052123	021522						
1390	006444	042445	052116	051105	MSG2:	.ASCII	/%ENTER UNIT NUMBER: #		
1391	006452	052440	044516	020124					
1392	006460	052516	041115	051105					
1393	006466	021472							
1394	006470	022445	042441	042116	MSG3:	.ASCII	/%!END OF PASS: #		
1395	006476	047440	020106	040520					
1396	006504	051523	020072	043					
1397	006511	045	030441	042522	MSG4:	.ASCII	/%!!REWIND ERROR: NO BOT#		
1398	006516	044527	042116	042440					
1399	006524	051122	051117	020072					
1400	006532	047516	041040	052117					
1401	006540	043							
1402	006541	045	052115	035123	MSG5:	.ASCII	/%MTS: #		
1403	006546	021440							
1404	006550	046445	041524	020072	MSG6:	.ASCII	/%MTC: #		
1405	006556	043							
1406	006557	045	052115	041502	MSG7:	.ASCII	/%MTBC: #		
1407	006564	020072	043						
1408	006567	045	052115	040503	MSG8:	.ASCII	/%MTCA: #		
1409	006574	020072	043						
1410	006577	045	020441	040502	MSG9:	.ASCII	/%!!BACKSPACE ERROR#		
1411	006604	045503	050123	041501					
1412	006612	020105	051105	0522					
1413	006620	021522							
1414	006622	020445	047041	052117	MSG10:	.ASCII	/%!!NOT READY#		
1415	006630	051040	040505	054504					
1416	006636	043							
1417	006637	045	020441	047516	MSG11:	.ASCII	/%!!NO INTERRUPT#		
1418	006644	044440	052116	051105					
1419	006652	052522	052120	043					
1420	006657	045	040504	040524	MSG12:	.ASCII	/%DATA ERROR#		
1421	006664	042440	051122	051117					
1422	006672	043							
1423	006673	045	047103	020072	MSG13:	.ASCII	/%CN: #		
1424	006700	043							
1425	006701	045	035107	021440	MSG14:	.ASCII	/%G: #		
1426	006706	041045	020072	043	MSG15:	.ASCII	/%B: #		
1427	006713	077	043		MSG16:	.ASCII	/%?#		
1428	006715	045	051127	052111	MSG17:	.ASCII	/%WRITE ERROR#		
1429	006722	020105	051105	047522					
1430	006730	021522							
1431	006732	051045	040505	020104	MSG18:	.ASCII	/%READ ERROR#		
1432	006740	051105	047522	021522					
1433	006746	047045	020117	050117	MSG19:	.ASCII	/%NO OPI IN 10.5 FEET#		
1434	006754	020111	047111	030440					
1435	006762	027060	020065	042506					

M03

CZTSFDD TS03 SPLMTL INSTR
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SEQ 0038

1436	006770	052105	043		
1437	006773	045	050117	020111	MSG20: .ASCII /%OPI WITHIN 4.0 FEET#
1438	007000	044527	044124	044111	
1439	007006	032040	030056	043040	
1440	007014	042505	021524		
1441	007020	020440	047041	052117	MSG21: .ASCII / !!NOT AVAILABLE#
1442	007026	040440	040526	046111	
1443	007034	041101	042514	043	
1444	007041	045	042522	044507	MSG22: .ASCII /%REGISTER START: #
1445	007048	052123	051105	051440	
1446	007054	040524	052122	020072	
1447	007062	043			
1448	007063	045	042526	052103	MSG23: .ASCII /%VECTOR: #
1449	007070	051117	020072	043	
1450					
1451					;TEST HEADER*****
1452					
1453	007075	045	052045	051505	LT1MSG: .ASCII /%TEST 1: WRITE FROM ODD BYTE#
1454	007102	020124	035061	053440	
1455	007110	044522	042524	043040	
1456	007116	047522	020115	042117	
1457	007124	020104	054502	042524	
1458	007132	043			
1459	007133	045	052045	051505	LT2MSG: .ASCII /%TEST 2: READ TO ODD BYTE#
1460	007140	020124	035062	051040	
1461	007146	040505	020104	047524	
1462	007154	047440	042104	041040	
1463	007162	052131	021505		
1464	007166	022445	042524	052123	LT3MSG: .ASCII /%TEST 3: OPI TOO LONG#
1465	007174	031440	020072	050117	
1466	007202	020111	047524	020117	
1467	007210	047514	043516	043	
1468	007215	045	052045	051505	LT4MSG: .ASCII /%TEST 4: OPI TOO SHORT#
1469	007222	020124	035064	047440	
1470	007230	044520	052040	047517	
1471	007236	051440	047510	052122	
1472	007244	043			
1473					
1474	007245	045	047536	043	\$CNTG: .ASCII /%IG#
1475	007251	045	020445	051441	\$MSWR: .ASCII /%!!SWR= #
1476	007256	051127	020075	043	
1477	007263	040	047040	053505	\$MNEW: .ASCII / NEW= #
1478	007270	020075	043		
1479	007273	045	047045	020117	\$NOACT: .ASCII /%NO ACT-11 HOOKS (LF) =INVALID --RETRY%#
1480	007300	041501	026524	030461	
1481	007306	044040	047517	051513	
1482	007314	036040	043114	020076	
1483	007322	044475	053116	046101	
1484	007330	042111	026440	051055	
1485	007336	052105	054522	022445	
1486	007344	043			
1487	007345	045	022477	021445	\$QUEST: .ASCII /%?%#
1488					.EVEN
1489					
1490	007352	177777			WDATA: -1
1491		007454			.=.+100

N03

CZTSF00 T503 SPLMTL INSTR
CZTSFD.F11 15-FEB-78 14:04

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SEQ 0039

1492 007454 000000
1493 000001

RDATA: 0
.END

804

CZTSFDO TS03 SPLMTL INSTR
CZTSFD.P11 15-FEB-78 14:04MACY11 30A(1052) 15-FEB-78 14:05 PAGE 41
CROSS REFERENCE TABLE -- USER SYMBOLS

SEG 0040

ABORT	006332	1342	1367*										
ACT11M	001002	362*	476	526	545	560	603	622	1333*	1347*			
ADUMPM	001004	364*	1335*	1352*									
AUTOM	001000	361*	1332*	1339*									
BADR	000676	436*	650*	664*	695*	709*	738*	750*	783*	795*	876	914	951
BCNT	000722	446*											
BKSP	003356	657	702	744	789	843*							
BKSP1	003402	847*	848										
BYTES	000700	437*	651*	665*	696*	710*	739*	751*	784*	796*	877	912	949
CCNT	000614	408*											
CKMODE	006204	475	1332*										
CKSWR	005624	585	624	837	873	900	956	1003	1010	1024	1259*		
CNTLU	005676	540	1269*	1286									
CJUNT	000724	447*	1280*	1302	1318*								
CRCNT	000710	441*	961*	964*	985								
DCHK	004160	673	718	960*									
DCHKE	004210	963	969*										
DCHKE1	004254	974	978*										
DCHKE2	004276	980	983*										
DCHKX	004360	968	972	997*									
DCHKXX	004400	939	1001	1003*									
DCHKO	004166	962*	967										
DCHK1	004172	964*	996										
DERFL	000712	442*	970*	998	1006*								
DISPLA	000622	411*	1253*										
DISPRE	000174	380*	1253										
DOUT	005436	990	994	1221*	1237	1239							
DOUTD	005520	1235*											
DOUT1	005452	1224*	1225	1233									
DOUT2	005500	1227	1230*										
DOUT3	005506	1229	1231*										
DRIVE	000040	331*											
EMADDR	000660	429*	640*	686*	734*	779*	822	866	893	926	975		
ERCHK	003672	655	669	700	714	742	787	800	851	906*			
ERCHK1	003704	907	909*										
ERCHK2	003716	910	912*										
ERCHK3	003740	916	918*										
ERPT	003750	760	908	911	919	921*							
ERPTX	004140	923	944	953*									
ERPTXX	004150	954	956*										
ERPT1	004004	925	929*										
ERRAD	000662	430*	652*	666*	699*	713*	741*	753*	785*	798*	850*	929	
EXEC	003442	653	667	697	711	740	754	786	799	858*			
EXECX	003652	890	897*										
EXECXX	003662	898	900*										
EXEC0	003446	860*	863										
EXEC1	003500	865	868*										
EXEC2	003520	861	871	873*									
EXEC3	003602	885*	886	888									
EXEC4	003642	892	895*										
FUN	000704	439*	649*	663*	694*	708*	737*	752*	782*	797*	879		
HDRFL	000714	443*	579*	864	891	924	928*	973	977*				
HERE	002016	612	618*										
ITAMT	000634	416*	762*	764*	803*	805*	1030						
ITCNT	000706	440*	1027*	1029*	1030								
ITER	004454	674	719	763	804	1023*							

C04

CZTSFDO TS03 SPLMTL INSTR
CZTSFDO.P11 15-FEB-78 14:04MACY11 30A(1052) 15-FEB-78 14:05 PAGE 42
CROSS REFERENCE TABLE -- USER SYMBOLS

SEG 0041

ITER0	004172	1027#	1031									
ITER1	004500	1026#	1029#									
ITRLP	000666	432#	574*	575*	600*	601*	1033					
LTADD	000664	431#	572*	573*	574	576	580	598*	599*	600	1018	
LT1	002064	455	456	639#								
LT1B	002106	644#	647									
LT1C	002167	654#										
LT1D	002210	660#	662									
LT1E	002254	668#										
LT1MSG	007075	640	1453#									
LT2	002312	457	458	685#								
LT2B	002330	689#	692									
LT2C	002374	698#										
LT2D	002432	705#	707									
LT2E	002470	712#										
LT2MSG	007133	686	1459#									
LT3	002534	459	733#									
LT3A	002554	737#	746									
LT3B	002602	741#										
LT3C	002702	755#										
LT3IT	002632	460	747#									
LT3MSG	007163	734	1464#									
LT3X	002740	758	762#									
LT4	002764	461	778#									
LT4A	003004	782#	791									
LT4B	003040	787#										
LT4C	003132	800#										
LT4IT	003062	462	792#									
LT4MSG	007215	779	1468#									
MEDIUM	000041	335#										
MSG0	006366	1368	1382#									
MSG1	006410	483	1385#									
MSG10	006622	868	1414#									
MSG11	006637	895	1417#									
MSG12	006657	978	1420#									
MSG13	006673	983	1423#									
MSG14	006701	987	1425#									
MSG15	006706	991	1426#									
MSG16	006713	1105	1427#									
MSG17	006715	652	699	741	785	1428#						
MSG18	006732	666	713	1431#								
MSG19	006746	753	1433#									
MSG2	006444	514	1390#									
MSG20	006773	798	1437#									
MSG21	007020	549	1441#									
MSG22	007041	485	1444#									
MSG23	007063	494	1448#									
MSG3	006470	607	1394#									
MSG4	006511	824	1397#									
MSG5	006541	826	931	1402#								
MSG6	006550	830	935	1404#								
MSG7	006557	939	1406#									
MSG8	006567	945	1408#									
MSG9	006577	850	1410#									
MTBA	000606	405#	876*	918	947							
MTBC	000604	404#	845*	877*	909	941						

[illegible]

CZTSFDO TS03 SPLMTL INSTR MACY11 30A(1052) 15-FEB-78 14:05 PAGE 44
CZTSFDP11 15-FEB-78 14:04 CROSS REFERENCE TABLE -- USER SYMBOLS

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CZTSFDO.P11 15-FEB-78 14:04

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CROSS REFERENCE TABLE -- USER SYMBOLS

[illegible]

F04

CZTSFDD TS03 SPLMTL INSTR
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CROSS REFERENCE TABLE -- USER SYMBOLS

SEC 0044

\$NOACT	007273	1295	1479#															
\$QUES	007345	1310	1487#															
\$READ	005740	1276	1279#															
\$SVPC	= 001000	328#	349															
.	= 007456	319#	328	330#	334#	338#	342#	345#	349#	372#	379#	385#	389#	395#				
		399#	465#	1375	1491#													

. ABS. 007456 000

ERRORS DETECTED: 0

CZTSFD,CZTSFD.SEG CRF SOL NL:TOC=CZTSFD.F11

RUN-TIME: 13.5 SECONDS

RUN-TIME RATIO: 96.6=15.3

CORE USED: 7K (13 PAGES)

DOCUMENT PAGES: 44