

IDENTIFICATION

PRODUCT CODE: DEC-11-YPTC-D

PRODUCT NAME: TC11 DECTAPE FORMATTER

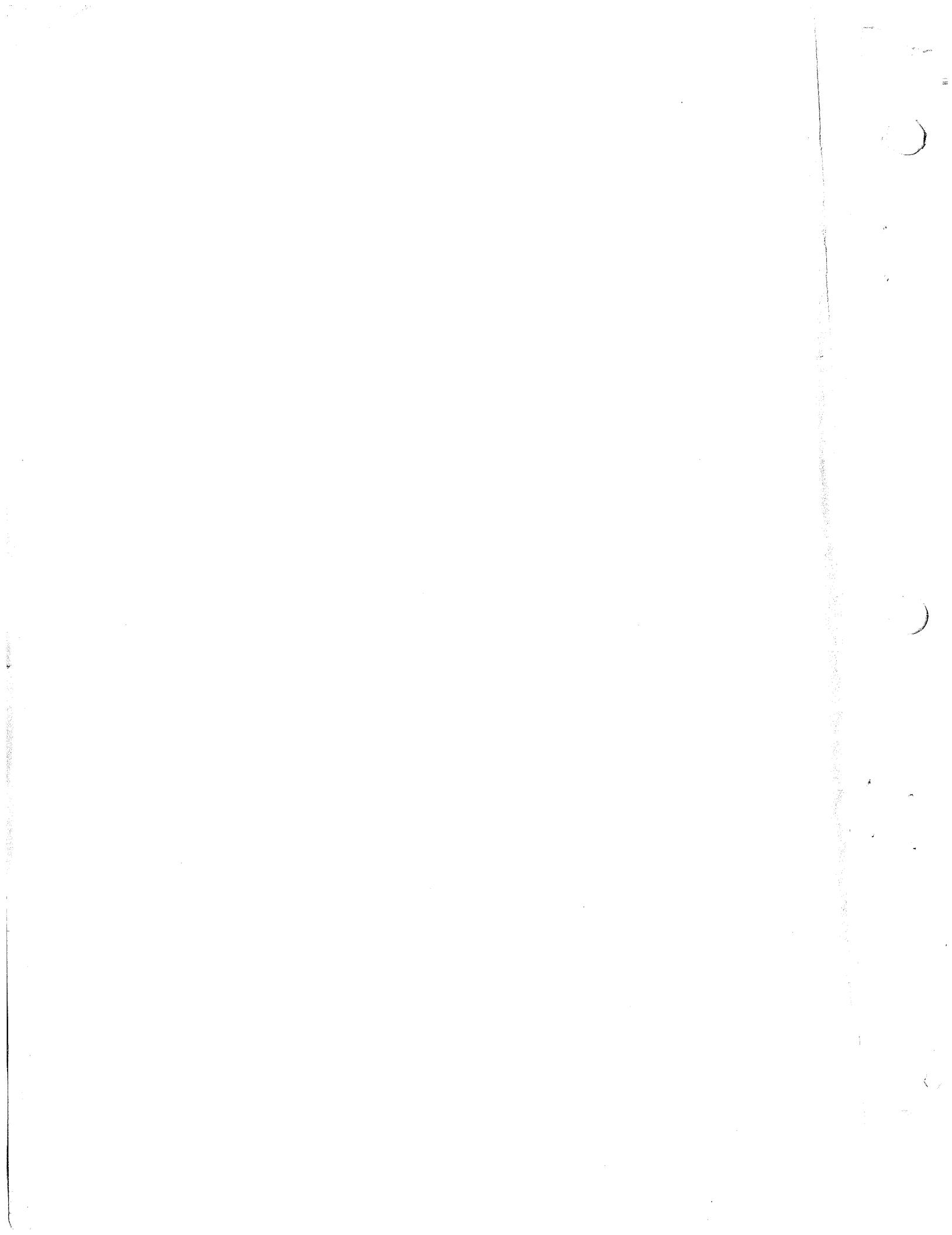
DATE CREATED: JANUARY 22, 1972

MAINTAINER: COMPUTER SPECIAL SYSTEMS

AUTHOR: ROBERT J. COLLINS

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DIGITAL EQUIPMENT CORPORATION



1.Ø ABSTRACT

The TC11 DECtape Formatter is a program for marking DECtapes on Unit Ø with a standard format of 578₁₀ blocks of 256₁₀ words each.

2.Ø REQUIREMENTS

- A. Minimum configuration PDP-11
- B. TC11 DECtape control and at least one transport.
- C. DECtape(s)

3.Ø LOADING PROCEDURE

The normal procedure for loading Absolute Binary tapes should be followed.

4.Ø PRELIMINARY OPERATIONS

- A. Mount a DECtape on Unit Ø, wrapping enough turns to insure tension.
- B. Set the transport On-line with Write Enable on.
- C. Set the TC11 WALL and WRTM switches (up).

5.Ø STARTING PROCEDURE

Load address 600₈ and press START.

6.Ø OPERATING PROCEDURE

- A. Once started the program writes all Timing and Mark Track information in one forward pass and then halts at address 1050₈.

- B. If the tape has run off the reel, remount it. Reset the WRTM switch (down) and press CONTINUE. The tape will back out for three blocks, then turn around and write the complement obverse of the last block number (1101_8) in Writeall in all data slots until the End Zone is sensed. The tape then reverses and writes relevant information in all blocks down through \emptyset in Writeall.
- C. The tape then reverses and alternately searches for each block number in sequence then changes to Readall to check each block for correct data (\emptyset 's).
- D. After all blocks have been verified forward, the tape is reversed again and alternately searches for each block number in reverse sequence then writes each block to \emptyset 's in Write Data mode. This insures parity conservation if the tape is to be read before being rewritten.
- E. The program then halts at address 2316_8 . To format another tape, perform the operations in section 4. \emptyset then press CONTINUE.

7. \emptyset ERRORS

7.1 ERROR HALT

Address 3012_8 is the common error halt. Press CONTINUE to proceed from it.

7.2 ERROR SWITCHES

SR15(1) Inhibit error halt

SR14(1) Inhibit error printout

7.3 ERROR PRINTOUTS

Error printouts consist of:

- A. Address of error.
- B. Address of subroutine call if error is in a subroutine.
- C. Processor status at time of error.
- D. An error message.
- E. Optional relevant data (Good, Bad, etc.)

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170G-11 V.03
 ITC11 DECTAPE FORMATTER
 ROBERT J. COLLINS
 JUNE 27, 1970
 MODIFIED MAY 12, 1971
 MODIFIED JANUARY 22, 1972

FORMAT STATEMENTS ON UNIT B IN STANDARD FORMAT OF
 1576(16) BLOCKS WITH 256(16) 16 BIT WORDS PER BLOCK.

REGISTER DEFINITIONS

00000001	R00X0
00000002	R10X1
00000003	R20X2
00000004	R30X3
00000005	R40X4
00000006	R50X5
00000007	R60X6
00000008	R70X7
00000009	SP0R6
00000010	PC0R7
00000011	XX0HAL ^T
00000012	SR0177970
00000013	PSSB177776
00000014	CC0CPS
00000015	NOPE240
00000016	P0E00
00000017	P1E40
00000018	P2E1D0
00000019	P3E3E40
00000020	P4E9E00
00000021	P5E9240
00000022	P6E9300
00000023	P7E9340
00000024	P8E8100
00000025	P9E8120
00000026	P0E840
00000027	P1E820
00000028	P2E840
00000029	P3E8100
00000030	P4E8120
00000031	P5E8200
00000032	P6E840
00000033	P7E8200
00000034	P8E840
00000035	P9E8200
00000036	P0E8100
00000037	P1E820
00000038	P2E840
00000039	P3E8120
00000040	P4E8200
00000041	P5E840
00000042	P6E8100
00000043	P7E8200
00000044	P8E840
00000045	P9E8200

SWITCH REGISTER
PROCESSOR STATUS

IPI PRIORITY LEVELS

BIT POSITION CONSTANTS

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000400	001000	002000	004000	010000	020000	040000	100000	160000	180000	200000	220000	260000	280000	300000	320000	340000	360000	380000	400000	420000	440000	460000	480000	500000	520000	540000	560000	580000	600000	620000	640000	660000	680000	700000	720000	740000	760000	780000	800000	820000	840000	860000	880000	900000	920000	940000	960000	980000	1000000	1020000	1040000	1060000	1080000	1100000	1120000	1140000	1160000	1180000	1200000	1220000	1240000	1260000	1280000	1300000	1320000	1340000	1360000	1380000	1400000	1420000	1440000	1460000	1480000	1500000	1520000	1540000	1560000	1580000	1600000	1620000	1640000	1660000	1680000	1700000	1720000	1740000	1760000	1780000	1800000	1820000	1840000	1860000	1880000	1900000	1920000	1940000	1960000	1980000	2000000	2020000	2040000	2060000	2080000	2100000	2120000	2140000	2160000	2180000	2200000	2220000	2240000	2260000	2280000	2300000	2320000	2340000	2360000	2380000	2400000	2420000	2440000	2460000	2480000	2500000	2520000	2540000	2560000	2580000	2600000	2620000	2640000	2660000	2680000	2700000	2720000	2740000	2760000	2780000	2800000	2820000	2840000	2860000	2880000	2900000	2920000	2940000	2960000	2980000	3000000	3020000	3040000	3060000	3080000	3100000	3120000	3140000	3160000	3180000	3200000	3220000	3240000	3260000	3280000	3300000	3320000	3340000	3360000	3380000	3400000	3420000	3440000	3460000	3480000	3500000	3520000	3540000	3560000	3580000	3600000	3620000	3640000	3660000	3680000	3700000	3720000	3740000	3760000	3780000	3800000	3820000	3840000	3860000	3880000	3900000	3920000	3940000	3960000	3980000	4000000	4020000	4040000	4060000	4080000	4100000	4120000	4140000	4160000	4180000	4200000	4220000	4240000	4260000	4280000	4300000	4320000	4340000	4360000	4380000	4400000	4420000	4440000	4460000	4480000	4500000	4520000	4540000	4560000	4580000	4600000	4620000	4640000	4660000	4680000	4700000	4720000	4740000	4760000	4780000	4800000	4820000	4840000	4860000	4880000	4900000	4920000	4940000	4960000	4980000	5000000	5020000	5040000	5060000	5080000	5100000	5120000	5140000	5160000	5180000	5200000	5220000	5240000	5260000	5280000	5300000	5320000	5340000	5360000	5380000	5400000	5420000	5440000	5460000	5480000	5500000	5520000	5540000	5560000	5580000	5600000	5620000	5640000	5660000	5680000	5700000	5720000	5740000	5760000	5780000	5800000	5820000	5840000	5860000	5880000	5900000	5920000	5940000	5960000	5980000	6000000	6020000	6040000	6060000	6080000	6100000	6120000	6140000	6160000	6180000	6200000	6220000	6240000	6260000	6280000	6300000	6320000	6340000	6360000	6380000	6400000	6420000	6440000	6460000	6480000	6500000	6520000	6540000	6560000	6580000	6600000	6620000	6640000	6660000	6680000	6700000	6720000	6740000	6760000	6780000	6800000	6820000	6840000	6860000	6880000	6900000	6920000	6940000	6960000	6980000	7000000	7020000	7040000	7060000	7080000	7100000	7120000	7140000	7160000	7180000	7200000	7220000	7240000	7260000	7280000	7300000	7320000	7340000	7360000	7380000	7400000	7420000	7440000	7460000	7480000	7500000	7520000	7540000	7560000	7580000	7600000	7620000	7640000	7660000	7680000	7700000	7720000	7740000	7760000	7780000	7800000	7820000	7840000	7860000	7880000	7900000	7920000	7940000	7960000	7980000	8000000	8020000	8040000	8060000	8080000	8100000	8120000	8140000	8160000	8180000	8200000	8220000	8240000	8260000	8280000	8300000	8320000	8340000	8360000	8380000	8400000	8420000	8440000	8460000	8480000	8500000	8520000	8540000	8560000	8580000	8600000	8620000	8640000	8660000	8680000	8700000	8720000	8740000	8760000	8780000	8800000	8820000	8840000	8860000	8880000	8900000	8920000	8940000	8960000	8980000	9000000	9020000	9040000	9060000	9080000	9100000	9120000	9140000	9160000	9180000	9200000	9220000	9240000	9260000	9280000	9300000	9320000	9340000	9360000	9380000	9400000	9420000	9440000	9460000	9480000	9500000	9520000	9540000	9560000	9580000	9600000	9620000	9640000	9660000	9680000	9700000	9720000	9740000	9760000	9780000	9800000	9820000	9840000	9860000	9880000	9900000	9920000	9940000	9960000	9980000	10000000
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POP STACK ONCE, TEST, {6}+
PDP STACK TWICE, {6}+
PDP STACK RETURN
CARRY PAGE SPEED
LINE BOARD STATUS
KEYBOARD BUFFER
TELEPRINTER STATUS
TELEPRINTER BUFFER
KEYBOARD VECTOR
TELEPRINTER VECTOR
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TCBAA9177340
TCNCB177344
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MACR AND A,B
    BIC #=A@1,B
    ,ENDM      MASK A APPLIED TO B
```

```
MACR ROTR A
    JSR PC,RTA
    ,WORD A
    ,ENDM      iROTATE R@ A PLACES RIGHT
```

```
MACR ROTL A
    JSR PC,RTL
    ,WORD A
    ,ENDM      iROTATE R@ A PLACES LEFT
```

```
MACR LOOP A,B
    JSR PC,LERCHKA
    JMP A           iLOOP TO A ON ERROR IF SR13=1
    JSR PC,LUPCHK
    JMP A           iLOOP TO A IF SR12=1
    ,ENDM
```

```
81 MACR PNTM A
    MOV #A,R0
    JSR PC,TYPOUT
    ,ENDM      iPRINT MESSAGE
                           iPRINTED TO RY A
```


0000136	020367	20367
0000142	000142	1 ⁴ 2
0000142	020367	20367
0000144	000146	1 ⁴ 2
0000146	020367	20367
0000150	000152	1 ⁴ 2
0000152	020367	20367
0000154	000156	1 ⁴ 2
0000156	020367	20367
0000160	000162	1 ⁴ 2
0000162	020367	20367
0000164	000166	1 ⁴ 2
0000166	020367	20367
0000170	000172	1 ⁴ 2
0000172	020367	20367
0000174	000176	1 ⁴ 2
0000176	020367	20367
0000200	000202	1 ⁴ 2
0000202	020367	20367
0000204	000206	1 ⁴ 2
0000206	020367	20367
0000210	000212	1 ⁴ 2
0000212	020367	20367
0000214	000216	1 ⁴ 2
0000216	020367	20367
0000220	000222	1 ⁴ 2
0000222	020367	20367
0000224	000226	1 ⁴ 2
0000226	020367	20367
0000230	000232	1 ⁴ 2
0000232	020367	20367
0000234	000236	1 ⁴ 2
0000236	020367	20367
0000240	000242	1 ⁴ 2
0000242	020367	20367
0000244	000246	1 ⁴ 2
0000246	020367	20367
0000250	000252	1 ⁴ 2
0000252	020367	20367
0000254	000256	1 ⁴ 2
0000256	020367	20367
0000260	000262	1 ⁴ 2
0000262	020367	20367
0000264	000266	1 ⁴ 2
0000266	020367	20367
0000270	000272	1 ⁴ 2
0000272	020367	20367
0000274	000276	1 ⁴ 2
0000276	020367	20367
0000300	000302	1 ⁴ 2
0000302	020367	20367
0000304	000306	1 ⁴ 2
0000306	020367	20367
0000310	000312	1 ⁴ 2
0000312	020367	20367

JSET TRACE BIT WITH A DUMMY COMPARE

```

C00314    000316          *2
C00316    020367          20367
C00320    000322          *2
C00322    020367          20367
C00324    000326          *2
C00326    020367          20367
C00330    000332          *2
C00332    020367          20367
C00334    000336          *2
C00336    020367          20367
C00340    000342          *2
C00342    020367          20367
C00344    000346          *2
C00346    020367          20367
C00348    000348          *2
C00350    020367          20367
C00352    000352          *2
C00352    020367          20367
C00354    000354          *2
C00356    000356          *2
C00356    020367          20367
C00360    000360          *2
C00362    020367          20367
C00364    000364          *2
C00364    020367          20367
C00366    000366          *2
C00366    020367          20367
C00370    000370          *2
C00372    020367          20367
C00374    000374          *2
C00374    020367          20367
C00376    000376          *2
C00376    020367          20367
C00378    000378          *2
C00378    020367          20367
C00380    000380          *2
C00380    020367          20367
C00382    000382          *2
C00382    020367          20367
C00384    000384          *2
C00384    020367          20367
C00386    000386          *2
C00386    020367          20367
C00388    000388          *2
C00388    020367          20367
C00390    000390          *2
C00390    020367          20367
C00392    000392          *2
C00392    020367          20367
C00394    000394          *2
C00394    020367          20367
C00396    000396          *2
C00396    020367          20367
C00398    000398          *2
C00398    020367          20367
C00400    000400          *2
C00400    020367          20367
C00402    000402          *2
C00402    020367          20367
C00404    000404          *2
C00404    020367          20367
C00406    000406          *2
C00406    020367          20367
C00408    000408          *2
C00408    020367          20367
C00410    000410          *2
C00410    020367          20367
C00412    000412          *2
C00412    020367          20367
C00414    000414          *2
C00414    020367          20367
C00416    000416          *2
C00416    020367          20367
C00418    000418          *2
C00418    020367          20367
C00420    000420          *2
C00420    020367          20367
C00422    000422          *2
C00422    020367          20367
C00424    000424          *2
C00424    020367          20367
C00426    000426          *2
C00426    020367          20367
C00428    000428          *2
C00428    020367          20367
C00430    000430          *2
C00430    020367          20367
C00432    000432          *2
C00432    020367          20367
C00434    000434          *2
C00434    020367          20367
C00436    000436          *2
C00436    020367          20367
C00438    000438          *2
C00438    020367          20367
C00440    000440          *2
C00440    020367          20367
C00442    000442          *2
C00442    020367          20367
C00444    000444          *2
C00444    020367          20367
C00446    000446          *2
C00446    020367          20367
C00448    000448          *2
C00448    020367          20367
C00450    000450          *2
C00450    020367          20367
C00452    000452          *2
C00452    020367          20367
C00454    000454          *2
C00454    020367          20367
C00456    000456          *2
C00456    020367          20367
C00458    000458          *2
C00458    020367          20367
C00460    000460          *2
C00460    020367          20367
C00462    000462          *2
C00462    020367          20367
C00464    000464          *2
C00464    020367          20367
C00466    000466          *2
C00466    020367          20367
C00468    000468          *2
C00468    020367          20367
C00470    000470          *2

```

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000492	020367	20367
000494	020476	1+2
000495	020367	20367
000500	000502	1+2
000502	020367	20367
000504	000506	1+2
000506	020367	20367
000510	000512	1+2
000512	020367	20367
000514	000516	1+2
000516	020367	20367
000520	000522	1+2
000522	020367	20367
000524	000526	1+2
000526	020367	20367
000530	000532	1+2
000532	020367	20367
000534	000536	1+2
000536	020367	20367
000540	000542	1+2
000542	020367	20367
000544	000546	1+2
000546	020367	20367
000550	000552	1+2
000552	020367	20367
000554	000556	1+2
000556	020367	20367
000560	000562	1+2
000562	020367	20367
000564	000566	1+2
000566	020367	20367
000570	000572	1+2
000572	020367	20367
000574	000576	1+2
000576	020367	20367
000014	003166	1+14
000016	000340	TRCTR P P7
000030	000030	1+30
000030	002570	ERROR P7
000032	000340	ERROR P7
000034	002570	ERROR P7
000036	000340	

```

000600 000005      START!      RESET      $START,SP
000602 012706      000600      MOV        #P7,PS
000604 012707      000340      MOV        #101101,R0
000606 012700      101101      MOV        #=4096,R4
000608 012701      170000      MOV        #13,TCCM
00060A 012704      000013      MOV        #B15+B7,TCCM
00060C 012707      000013      IGO       IWAIT FOR ERROR OR READY
00060E 032707      100200      LPI1:    BEQ       IHAVE NEITHER
000610 001302      176502      BIT       I=6
000612 001304      100002      BEQ       IHAVE READY
000614 004707      002404      JSR       ISTATUS,ERROR
000616 010007      176404      MOV        R0,TCDT
000618 003204      INC       RA
00061A 001303      SNE       LP1
00061C 012704      177471      MOV        #=199,R4
                                         ICOUNTER FOR IBS

```

CLEAR THE WORLD
INITIALIZE THE STACK POINTER
LOCKOUT BY RAISING CPU PRIORITY
REVERSE END ZONE#55
ICOUNTER FOR RFE

I=6

LOAD MARK TRACK
DONE ALL?
LOOP IF NOT FINISHED

PALX11	V003	19-Apr-72	19111	PAGE 6
000664	012700	010101		MOV #10101,R0
000670	032767	100200	LP21	#\$15+B7,TCCM
000676	001774			BIT 1+6 IHAVE NEITHER
000700	100072			BPL 1+6 IHAVE READY
000702	004767	002346		JSR PC,SError
000706	010067	176436		MOV RD,TCDT
000712	005204			INC R4 LOAD MARK CODE
000714	0041365			INC RNE IDONE ALL,1
000716	012703	176676		IIF NOT, KEEP LOADING
000718	004767	001301	LP31	ICOUNTER FOR NUMBER OF BLOCKS
000720	005203			INC R3,FRMBLK IWRITE CODES FOR ONE BLOCK
000726	004374			INC RNE IDONE ALL,1
000730	012704	177471		IIF NOT, WRITE ANOTHER BLOCK
000732	012704			ICOUNTER FOR IBS
000736	012700	010103	LP41	INTERBLOCK SYNC#29
000742	032767	100200	176372	#\$10101,R0
000750	001774			MOV #B15+B7,TCCM
000752	100002			BIT 1+6 IHAVE NEITHER
000754	004767	002274		BPL 1+6 IHAVE READY
000760	010067	176364		JSR PC,SError
000764	005204			MOV RD,TCDT
000766	001365			INC R4 LOAD MARK CODE
000770	012704	170000		IIF NOT, KEEP WRITING IBS
				LP4 #\$4096:,R4 ICOUNTER FOR FEZ

```

0010794 012700 010010 19111 PAGE 7
0010800 032767 100220 176334 LPS:    MOV    #10010,R0
0010806 00174 004767 100220 176334 LPS:    BIT    #B15+B7,TCEM
0010810 100002 004767 002236          BEQ    "6
0010812 004767 002236          BPL    "+6
0010814 JSR    PC,SError
0010816 MOV    R0,TCDT
0010818 INC    R4
0010822 009204          INC    R4
0010824 001365          INC    R4
0010826 032767 100200 176306          INC    R4
0010834 00174          INC    R4
0010836 100002          INC    R4
0010840 004767 002210          INC    R4
0010844 009067 176272          INC    R4
0010850 000000          CLR    XX
0010852 000167 000044          JMP    HL71:
WRTBNO

```

!FORWARD END ZONE=22
!WAIT FOR ERROR OR READY
!HAVE NEITHER
!HAVE READY
!STATUS ERROR
!LOAD MARK CODE
!DONE ALL?
!IF NOT KEEP WRITING FEZ
!WAIT FOR ERROR OR READY
!HAVE NEITHER
!HAVE READY
!STATUS ERROR
!STOP TAPE, MARK & TIMING TRACKS ARE
!WRITTEN, RESET WRTH SWITCH AND
!SET WALL SWITCH THEN CONTINUE.

```

;ENCOUNTER FOR 1 BLOCK'S WORTH OF MKTRACK
;POINTER TO MARK CODE TABLE
;WAIT FOR ERROR OR READY
;HAVE NEITHER
;HAVEV READY
;ISYSTATUS ERROR
;FETCH MARK CODE
;ADVANCE POINTER
;DONE ALL?
;IF NOT, FETCH ANOTHER CODE
;IF SO, EXIT

;GENERATE TABLE OF CHIP0BV BLK NUMBERS
;THREE BLOCKS
;SEARCH REVERSE
;GO
;WAIT FOR ERROR OR READY
;HAVE NEITHER
;HAVEV READY
;ISYSTATUS ERROR
;FOUND THREE?
;IF NOT, KEEP SEARCHING
;COMPLEMENT OVERSE OF 1011 (LAST BLOCK#)
;WRITE ALL FORWARD
;WAIT FOR ERROR OR READY
;HAVE NEITHER
;HAVEV READY
;ISYSTATUS ERROR
;SET XDA BITS FOR 0 REVERSE
;WRITETO LAST BLOCK # FROM HERE TO END ZONE
;WAIT POSING UP FOR WRITING
;KEEP WRITING 1011
;INITIALIZE PARAMETERS FOR LAST BLOCK
;XDA BIT TABLE AND
;TABLE OF REVERSE BLOCK NUMBERS
;WRITETABLE REVERSE
;DECREMENT BLOCK NUMBER
;LAST BLOCK WRITTEN?
;YES, CHECK DATA AND BLOCK NUMBERS
;NO, REVERSE 80 FWD
;NUMBER OF WORDS
;WAIT FOR ERROR OR READY
;HAVE NEITHER
;HAVEV READY
;ISYSTATUS ERROR
;KEY 8 FWD
;LOAD DATA WORD
;WRITE IT 262 TIMES
;KEEP WRITING UNTIL FINISHED
;WAIT FOR ERROR OR READY
;HAVE NEITHER
;HAVEV READY
;ISYSTATUS ERROR

```

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```

001364 112567 175730
001370 211367 175754
001374 062703 200002
001400 020527 202570
001404 201002
001406 212705 202560
001412 012704 002566
001416 012767 177776
001424 032767 100200
001432 001774 175710 WLP41
001434 100002
001436 004767 001612
001442 152767 000003 175670
001450 012467 005267
001454 001361
001460 032767 100200
001470 001774
001472 100002
001474 004767 001554
001500 142767 000003 175632
001506 012467 175636
001512 012767 177776
001520 032767 100200
001530 100002
001532 004767 004516
001536 152767 000003 175574
001544 012467 175600
001550 003267 003106
001554 001361
001556 000641

```

```

(M5) + TCSY
(R3) + TCDY
#2, R3
ADD
CMP
BNE
+6
MOV
#BYST, RS
MOV
#WALRF, R4
#2, TDG1
#B15+B7, TCCM
BIT
BEG
+6
BPL
JSR
BISB
MOV
(R4) + TCDY
INC
BNE
BIT
BEG
+6
BPL
JSR
BISB
MOV
(R4) + TDG1
INC
BNE
BIT
BEG
+6
BPL
JSR
BISB
MOV
(R4) + TDG1
INC
BNE
BIT
BEG
+6
BPL
JSR
BISB
MOV
(R4) + TDG1
INC
BNE
BR

```

IFETCH RELEVANT XDA BITS
 IADVANCE PABLE POINTER
 ISEE IF XDA BIT TABLE IS EXHAUSTED
 IF NOT, PROCEED
 IF SO, REINITIALIZE POINTER
 ISETUP POINTER FOR LAST FIVE WORDS
 ICOUNT OF TWO
 IWAIT FOR ERROR OR READY
 IHAVE NEITHER
 IHAVE READY
 ISTATUS ERROR
 ISET XDA 17 & 16
 IPATCH DATA WORD
 IADVANCE COUNT
 IKEEP WRITING UNTIL FINISHED
 IWUP
 IFETCH DATA WORD
 IADVANCE COUNT
 IKEEP WRITING UNTIL FINISHED
 IFINISHED " DO NEXT BLOCK

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001560	032767	19111	CHECK1	BIT	#B15+87, TCCM
001566	001774		REQ	:=6	
001570	100002		BPL	:+6	
001572	004767		JSR	PCI,SError	
001576	112767		MOV	#3,TCCM	
001604	004767	000514	CHKL4!	JSR	SKIP NEXT INSTRUCTION IF #2
001610	000765		BR	KEEP REWINDING	
001612	005967	175524	CLR	ISSTOP TAPE	
001616	005967	003042	CLR	ISPART WITH BLOCK #0	
001622	112767	000003	175512	CHKL2!	SEARCH FWD
001630	032767	100200	175504	BIT	WAIT FOR ERROR OR READY
001636	001774		REQ	:=6	
001640	100002		BPL	PCI,SError	
001642	004767	001406	003012	175474	TOC2,TCDT
001644	026767		CMP	DATCHK	YES = CHECK DATA
001654	001415	0016767	BEG	TCDT,BAD	NO = PUT INCORRECT BLK# IN BAD FOR DISPLAY
001656	175466	002764	MOV	TCCM	
001664	005067	175492	CLR	ISSTOP TAPE AND	
001670	016767	002770	MOV	IGOOD DATA	
001676	104002		ERR+GB	IPWD BLK # WRITTEN INCORRECTLY	
001700	083725	004003	175432	MOV	
001702	012767	002744	DATCHK1	MOV	
001710	012767	000007	175416	MOV	
001716	112767	100200	175410	DCHKL1!	#B15+87, TCCM
001724	032767		BIT	#B15+87, TCCM	
001732	001774		BEG	:=6	
001734	100002		BPL	PCI,SError	
001736	004767	001312	JST	ISSTATUS ERROR	
001742	005767	175402	TST	IP SHOULD	
001746	001426		BEG	IP SO PROCEED	
001750	005067	175366	CLR	IP NOT STOP TAPE	
001754	005067	002666	CLR	GOOD	
001760	016767	175364	MOV	TCDT,BAD	
001766	016727	002672	MOV	TOC2,#0	
001774	012767	000401	002650	BKN#=,^2	
002002	066767	002642	MOV	#257, !DATA	
002010	104032		ADD	TOC1,DATA	
002012	003732		ERR+BK+GB+DA	DATA ERROR: "BAD" !WORD READ;	
			EMES3	"DATA" !WORD POSITION	

```

002014 012767 004003 175320
002022 000670
002024 005267 002632 DATOKI
002030 001335
002032 005267 002626
002036 022767 001102 002620
002044 001266 000003 175266 RCHK1
002046 112767 000003 175266 RCHK1
002054 004767 0000244
002060 0000401
002062 000402
002064 104000
002066 004126
002070 012767 001101 002566 RERCV1
002076 012767 004000 175236
002104 012700 010736
002110 003010
002112 002700 000002
002116 020027 011736
002122 001372
002124 112767 000003 175210 RCHK3
002132 032767 100200 175202
002140 001774
002142 100002
002144 004767 001104
002150 026767 002510 175172
002156 001421
002160 016767 002462
002166 005067 175150
002172 016767 002466
002200 104002
002202 004200
002204 112767 000003 175130 RST1
002212 004767 000106
002216 000772
002220 000726
002222 012767 177400 175114 WRDSTA
002230 012767 010736 175110
002236 112767 000015 175076
002244 032767 100200 175070
002252 001774
002254 100002
002256 000167 000306
002262 005367 002376
002266 100016
002270 112767 000003 175044 FINISH
002276 004767 000022
002302 000401
002304 000402
002306 104000
002310 004247
002312 005067 175024
002316 000000
002320 000167 176254

MOV $40003,TCM
CHKL1
T0G1
INC
BNE
INC
T0G2
CMP #1102,T0G2
CHKL2
#3,TCM
PC,FLAG1
JSR
BR ,+4
BR ,+6
ERR
EMES4
MOV #1101,T0G2
MOV #40000,TCM
#DATBUF,REG
CLR
CR0
ADD #2,REG
#0,#DATBUF+512;
CMP BNE
#3,TCM
BIT #015+B7,TCM
BEQ ,+6
RPL PC,SError
JSR
CMP T0G2,T0DT
WRTDA
#CDT,BAD
#CCM
T0G2,0000
ERR+GB
EMES5
MOV #3,TCM
PC,FLAG1
RST1
RERCV
#4000,TCM
#DATBUF,TCBA
#15,TCM
$B15+B7,TCM
BIT BEQ ,+6
BPL JMP
DEC T0G2
BPL CHKL3
#C E
#DECREMENT BLOCK#
#IF BELOW D FINISH VP, OTHERWISE KEEP CHECKING
#IF FIND REVERSE EZ
JSR
PC,FLAG1
BR ,+4
BR ,+6
ERR
EMES6
CLR
XX
JMP
JBLK# FOUND IN REVERSE AFTER 0
JSTOP TAPE AND
HALT, PROGRAM IS FINISHED, MOUNT NEW
ITAPE, SEP WRTM SWITCH AND CONTINUE
START

```

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PALX11	V803	19-Apr-872	19111	175010	FLAG11	BIT	#B15-B7, TCCM
002324	032767	100200	175010	FLAG11	BEG	BEQ	WAIT FOR EITHER FLAG
002332	001774				AMI	PC	IF ERROR = CHECK FURTHER
002334	100401				RTS	TCST	IF READY = EXIT
002336	000207				TST		IS ERROR END ZONE?
002340	005767				BMI	PC	YES = SKIP
002344	100402				JSR	PC, SERROR	IS STATUS ERROR
002346	000467				ADD	#2,(SP)	INCREMENT EXIT POINTER TO SKIP ON RETURN
002352	002716				RTS	PC	EXIT
002356	000002				MOV	#11011,R0	IMPLEMENT OVERSIZE BLOCKS 1101-1
002359	000207				MOV	#RBN,R1	BUFSIZE POINTER INITIALIZATION
002360	012700				MOV	R0,R2	FETCH WORD TO BE PROCESSED
002364	012701				COM	R2	IMPLEMENT IT
002370	001002				MOV	#3,Y0G1	COUNT OF 3
002372	005102				MOV	R2,R3	MOVE WORD INTO WORK AREA
002374	012767				ROR	R2	SHIFT NEXT 3 BITS INTO POSITION
002402	010203				ROR	R2	FOR MANIPULATION
002404	006002				ROR	R2	ON NEXT PASS
002406	006002				ROR	R2	
002410	006002				ROR	R2	
002412	042703				AND	#1,R3	IMASK 1 APPLIED TO RS
002416	010346				BIC	#=1-R3	IMASK 1 APPLIED TO RS
002420	010203				MOV	RS,(SP)	STACK IT
002422	006002				MOV	R2,R3	MOVE BYTE(3) INTO WORK AREA
002424	006002				ROR	R2	ISHIFT
002426	006002				ROR	R2	NEXT 3 BITS
002430	042703				ROR	R2	INTO POSITION
002434	010346				AND	7,R3	IMASK 7 APPLIED TO RS
002436	000267				BIC	#=7-R3	IMASK 7 APPLIED TO RS
002442	001366				MOV	RS,(SP)	STACK BYTE
002444	005003				INC	TOG1	DONE ALL?
002446	006603				ANE	CBKL2	NO
002452	000006				CLR	RJ	YES = CLEAR WORK AREA
	004567				ADD	(SP),RS	ADD AND
					JSR	RS,RTHL	SHIFT BYTES IN REVERSE ORDER


```

032767 040000 174772 ERROR1 BIT #B14,SR
002516 001107 001510 ERXIT2
002600 004567 001200 JSR R5,SAV05
002604 012700 003412 #ERMS1,RS
002610 004767 001770 MOV PC,TYPOUT
002614 016600 000014 MOV 14(SP),R0
002620 162700 000002 SUB #2,RC
002624 010005 001564 IFEYCH SAVED PC
002626 004767 001564 IPRINT MESSAGE
002632 012700 003541 IPRINT ADDRESS OF ERROR CALL
002636 004767 001742 IPRINT MESSAGE
002642 016600 000016 IPRINT "PSB"
002646 004767 001544 IFEYCH SAVED STATUS
002652 032715 000400 IAND PRINT IT
002656 001402 000404 ITRAP?
002660 016600 000014 GOGO
002664 004767 000002 SUBROUTINE ERROR
002670 062766 000002 NO
002674 011000 000004 NO
002700 004767 001700 BEG
002704 032715 000004 JSR PC,SUBR
002710 001402 000004 MOV 14(SP),R0
002712 004767 000204 ADD #2,14(SP)
002716 032715 000002 JSR PC,TYPOUT
002720 001402 000002 #ST,(RS)
002724 004767 000130 BEG
002730 032715 000010 JSR PC,STYPE
002734 001402 000002 MOV #GB,(RS)
002736 032715 000002 BEG
002742 001402 000002 JSR PC,DATYP
002746 004767 000130 JSR #BK,(RS)
002750 032715 000010 BEG
002754 001402 000002 JSR PC,BKTYPE
002758 032715 000002 MOV #VC,(RS)
002762 004767 000222 BEG
002766 001402 000002 JSR PC,VCTYPE
002770 012700 000136 RESTORE AC0=5
002772 004767 000015 JSR R5,RS
002776 032767 001512 ICR & IF
003002 001001 100000 ISR15(I)=DELETE ERROR HALT
003010 001001 174560 ERXIT1 BIT +4
003012 000000 BNE .+4
003014 000002 XX EHALT1 RTI
003016 062716 000002 ERXIT2 ADD BR
003022 0000767 #2,(SP) ERXIT4

```

```

003024 032767 020000 174536 LERCHKI BIT #B13,SR
003032 001002 000000 174536 LERCHKI BNE *+6
003034 062716 000024 ADD #4,(SP)
003040 000207 000000 LERXPI RTS PC
                                !EXIT IF 1
                                !ADVANCE RETURN VECTOR OVER LOOP JUMP

003042 032767 010000 174520 LUPCHKI B17 #B12,SR
003050 001002 000004 ADD *+6
003052 062716 000004 ADD #4,(SP)
003056 000207 000004 RTS PC
                                !EXIT IF 1
                                !ADVANCE RETURN VECTOR OVER LOOP JUMP

003060 012700 003472 GBMS      PNTM   #GBMS,RO
003064 004767 001514 PC,TYPOUT
003070 016700 001552 MOV GOOD,RO
003074 004767 001306 JSR PC,PNTORJ
                                PNTM   SP2
                                MOV #SP2,RO
                                PC,TYPOUT
003100 012700 003536 JSR BAD,RO
003104 004767 001474 MOV PC,PNTORJ
003110 016700 001534 RTS PC
003114 004767 001266 JSR
003120 000207          RTS PC
                                !PRINT MESSAGE
                                !POINTED TO BY GBMS
                                !FETCH C(GOOD)
                                !PRINT OCTAL NUMBER

003122 012700 003513 STYPE1  PNTM   $TMS,RO
003126 004767 001432 PC,TYPOUT
003132 016700 001520 STATUSARD
003136 004767 001236 JSR PC,PNTORJ
003142 000207          RTS PC
                                !PRINT TEXT
                                !POINTED TO BY GBMS
                                !FETCH C(RPCS)
                                !PRINT OCTAL NUMBER
003144 012700 003590 DATYPE1 PNTM   $DAMS,RO
003148 004767 001430 JSR PC,TYPOUT
003154 016700 001492 DATA,RO
003160 004767 001232 JSR PC,PNTOZS
003164 000207          RTS PC
                                !PRINT MESSAGE
                                !POINTED TO BY GBMS
                                !FETCH C(GOOD)
                                !PRINT OCTAL NUMBER
                                !EXIT

003166 011627 000000 TRCTRPI PNTM   (SP),#0
003170 003170 BADPAD,2
003172 162767 000006 177770 SUB #6,BADPAD
003200 022626 POPPOP
003202 104040 ERR+VC
003204 203574 TRCMES
003206 000002 RY1
                                !LOAD AND DEFINE BAD PI ADDRESS SLOT
                                !ADJUST ADDRESS
                                !ADJUST STACK
                                !PRINT ERROR
                                !UNEXPECTED INTERRUPT
                                !EXIT

003210 012700 003562 VCTYPE1 PNTM   VECMES,RO
003214 004767 001364 JSR #VECMES,RO
003220 016700 177744 MOV BADPAD,RO
003224 004767 001166 JSR PC,PNTOZS
003230 000207          RTS PC
                                !PRINT MESSAGE
                                !POINTED TO BY VECMES
                                !GET BAD VECTOR
                                !PRINT ADDRESS
                                !EXIT

003232 012700 003657 BKTYPE1 PNTM   BKMES,RO
003236 004767 001342 JSR #BKMES,RO
                                !PRINT MESSAGE
                                !POINTED TO BY BKMES

```

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003242	016700	176524		MOV BKN,R0 JSR PC,PNT02S RTS PC
003246	204767	001144		;GET BLK# ;PRINT IT ;EXIT
003292	200207			
003294	216767	174062	001374	SERROR1 MOV TCCM,STATUS ERS+ST EMESS1 RTS PC
003262	104424			;STATUS ERROR
003264	003677			
003266	000207			
003270	012700	003436	SUBER1	MOV #SUBRMS,R0 PC,TYPOUT MOV 22(SP),R0 SUB \$6,R0 JSR PC,PNT02S RTS PC
003274	004767	001306		
003300	016600	000022		
003364	162700	000006		
003310	004767	001102		
003314	000207			

003316	017627	000000	000000	RTRI	MOV	0(SP),#0
003322	003322				ROTORG	,#2
003324	062716	000002			ADD	#2,(SP)
003326	005767	177766			TEST	
003330	001001				BNE	
003334	001001				RTS	*+4
003336	000207				PC	
003338	000241				CLC	
003340	000000				ROR	
003342	000000				DEC	
003344	005367	177752			BNE	
003350	001373				RTLUP	
003352	000207				PC	
003354	017667	000000	177740	RTL:	MOV	0(SP),ROTOG
003356	002716	000002			ADD	#2,(SP)
003358	005767	177730			TEST	
003362	001001				BNE	
003364	000207				RTS	*+4
003366	000241				PC	
003370	001373				CLC	
003372	000207				RDL	
003374	000000				DEC	
003376	000000				BNE	
003400	006100				RTLUP	
003402	005367	177714			PC	
003406	001373				RTS	
003410	000207				PC	

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ERMS11 ASCII //&ERROR AT ADDRESS @/

003413 046
003414 046
003415 046
003416 046
003417 046
003420 046
003421 046
003422 046
003423 046
003424 046
003425 046
003426 046
003427 046
003428 046
003429 046
003430 046
003431 046
003432 046
003433 046
003434 046
003435 046

003436 046
003437 046
003440 046
003441 046
003442 046
003443 046
003444 046
003445 046
003446 046
003447 046
003450 046
003451 046
003452 046
003453 046
003454 046
003455 046
003456 046
003457 046
003460 046
003461 046
003462 046
003463 046
003464 046
003465 046
003466 046
003467 046
003470 046
003471 046

003472 046
003473 046
003474 046
003475 046

SUBRMS11 ASCII //&CALLED FROM SUBROUTINE AT @/

GBMS11 ASCII //& GOOD BAD @/

003496	117
003477	117
003500	104
003501	040
003502	040
003503	040
003504	040
003505	040
003506	102
003507	101
003510	104
003511	046
003512	100

SYM11 :ASCII /&STATUS# @/

003513	046
003514	123
003515	124
003516	101
003517	124
003520	125
003521	123
003522	075
003523	040
003524	100

PASM1 :ASCII /&PASS# @/

003525	046
003526	046
003527	120
003528	101
003531	123
003532	123
003533	043
003534	040
003535	100

SP21 :ASCII / @/

SPM1 :ASCII / PS# @/

003536	040
003537	040
003540	100
003541	040
003542	040
003543	120
003544	123
003545	075
003546	040
003547	100

DAMS1 :ASCII /&DATA# @/

003550	046
003551	104
003552	101
003553	124
003554	101
003555	075
003556	040

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003557 046
003560 040
003561 100

003562 046
003563 126
003564 105
003565 103
003566 124
003567 117
003570 122
003571 075
003572 040
003573 100

VECMESI ! ASCII ! /&VECTOR= @/

003574 046
003575 125
003576 116
003577 105
003600 130
003601 120
003602 105
003603 103
003604 124
003605 105
003606 104
003607 111
003610 111
003611 116
003612 124
003613 105
003614 122
003615 122
003616 125
003617 120
003620 124
003621 040
003622 124
003623 110
003624 122
003625 117
003626 125
003627 107
003630 110
003631 040
003632 124
003633 110
003634 105
003635 040
003636 106
003637 117
003640 114
003641 114
003642 117
003643 127

TRMESS1 ! ASCII ! /&VECTOR= @/ INTERRUPT THROUGH THE FOLLOWING VECTOR@/

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003644 111
003645 116
003646 127
003647 040
003650 126
003651 135
003652 103
003653 124
003654 117
003655 122
003656 100

003657 046
003660 102
003661 114
003662 117
003663 103
003664 113
003665 040
003666 116
003667 125
003670 115
003671 102
003672 109
003673 122
003674 075
003675 040
003676 100

003677 046
003700 104
003701 105
003702 103
003703 124
003704 101
003705 120
003706 105
003707 040
003710 123
003711 124
003712 121
003713 124
003714 125
003715 123
003716 040
003717 105
003720 122
003721 122
003722 117
003723 122
003724 109
003725 046
003726 106
003727 117

BKMESS1 ASCII /&BLOCK NUMBER@ &/

EMES11 ASCII /&ECTAPE STATUS ERROR@/

EMES21 ASCII /&FORWARD BLOCK NUMBER WRITE-READ ERROR@/

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003780 122
003781 127
003782 101
003783 122
003784 104
003785 040
003786 102
003787 114
003788 117
003789 103
003790 040
003791 116
003792 125
003793 115
003794 102
003795 105
003796 122
003797 127
003798 040
003799 111
003800 124
003801 105
003802 122
003803 101
003804 104
003805 105
003806 122
003807 119
003808 122
003809 100
003810 040
003811 104
003812 105
003813 124
003814 121
003815 105
003816 122
003817 124
003818 121
003819 117
003820 122
003821 100
003822 040
003823 104
003824 105
003825 122
003826 122
003827 124
003828 121
003829 117
003830 122
003831 100
003832 040
003833 104
003834 105
003835 122
003836 122
003837 124
003838 121
003839 117
003840 122
003841 100
003842 040
003843 104
003844 105
003845 122
003846 122
003847 124
003848 121
003849 117
003850 122
003851 100
003852 040
003853 104
003854 105
003855 122
003856 122
003857 124
003858 121
003859 117
003860 122
003861 100
003862 040
003863 104
003864 105
003865 122
003866 122
003867 124
003868 121
003869 117
003870 122
003871 100
003872 040
003873 104
003874 105
003875 122
003876 122
003877 124
003878 121
003879 117
003880 122
003881 100
003882 040
003883 104
003884 105
003885 122
003886 122
003887 124
003888 121
003889 117
003890 122
003891 100
003892 040
003893 104
003894 105
003895 122
003896 122
003897 124
003898 121
003899 117
003900 122
003901 100
003902 040
003903 104
003904 105
003905 122
003906 122
003907 124
003908 121
003909 117
003910 122
003911 100
003912 040
003913 104
003914 105
003915 122

EMESII :ASCII /&DATA ERROR: "BAD" @ WORD POSITION 111 THE BLOCK/

004016 040
004017 075
004020 040
004021 127
004022 117
004023 122
004024 104
004025 040
004026 126
004027 105
004028 101
004029 104
004030 042
004031 042
004032 056
004033 101
004034 104
004035 101
004036 124
004037 101
004038 104
004039 104
004040 042
004041 040
004042 075
004043 040
004044 127
004045 117
004046 122
004047 104
004048 040
004049 129
004050 117
004051 123
004052 111
004053 124
004054 111
004055 124
004056 111
004057 117
004058 116
004059 040
004060 111
004061 040
004062 111
004063 116
004064 040
004065 124
004066 110
004067 105
004068 040
004069 102
004070 114
004071 117
004072 103
004073 113
004074 103
004075 113
004076 046
004077 050
004100 060
004101 040
004102 075
004103 040

ASCI! /&((= REVERSE CHECKSUM)@/

PAX

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EMESAI ASCII //FORWARD BLOCK NUMBER FOUND AFTER 1101(2) 0/

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004171 061
004172 060
004173 061
004174 050
004175 070
004176 051
004177 100

004200 046
004201 122
004202 105
004203 126
004204 105
004205 122
004206 123
004207 105
004208 104
004209 102
004210 102
004211 102
004212 114
004213 117
004214 103
004215 113
004216 049
004217 116
004218 125
004219 115
004220 102
004221 113
004222 102
004223 105
004224 122
004225 049
004226 127
004227 122
004228 111
004229 124
004230 105
004231 035
004232 105
004233 035
004234 122
004235 105
004236 101
004237 104
004240 049
004241 105
004242 122
004243 122
004244 117
004245 122
004246 100

EMES51 ASCII /&REVERSE BLOCK NUMBER WRITE-READ ERROR@/

EMES61 ASCII /&REVERSE BLOCK NUMBER FOUND BEFORE 00/

004247 046
004250 122
004251 105
004252 126
004253 105
004254 122
004255 123

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004256	105
004257	040
004260	122
004261	114
004262	117
004263	103
004264	113
004265	040
004266	116
004267	125
004270	115
004271	102
004272	105
004273	122
004274	040
004275	106
004276	117
004277	125
004300	116
004301	104
004302	040
004303	102
004304	105
004305	106
004306	117
004307	122
004308	105
004309	040
004310	060
004311	100
004312	060
004313	000

```

004314 010446      EVEN
004314 010346      SAV051 MOV R4,(SP)
004316 010246      MOV R3,(SP)
004320 010146      MOV R2,(SP)
004322 010046      MOV R1,(SP)
004324 010046      MOV R0,(SP)
004326 000115      JMP R5

004330 005726      MOVE SP OVER WORD SAVED BY JSR
004332 012600      IRO=4
004334 012601      IARE POPPED
004336 012602      LINLIFO
004340 012603      LINEQUENCE
004342 012604      IRY IS POPPED BY THE RTS AND
004344 000205      ITHE PC IS TAKEN FROM R5

004346 005067      REST051 TST (SP)+,R0
004352 000407      MOV (SP)+,R1
004354 012767      MOV (SP)+,R2
004362 000403      MOV (SP)+,R3
004364 012767      MOV (SP)+,R4
004372 012702      RTS
004376 000414      PNTDALI CLR
004400 003067      BR
004404 000407      DECCO
004406 012767      MOV #20,SCON
004408 000412      BR
004409 000254      DECCO
004409 000407      MOV #10,R2
004410 000254      OCTGO+4
004411 000407      CLR
004412 000220      SCON
004414 000403      OCTGO
004416 012767      MOV #60,SCON
004424 012702      MOV #0,R2
004430 003027      CLR
004432 000407      ZSW,,#2
004434 004767      DECREMI JSR
004440 010146      MOV R1,(SP)
004442 005267      INC ZSW
004446 026727      CMP ZSW,#6
004454 001402      BEQ POPTT
004456 004767      JSR
004462 005367      DEC R1
004466 001402      BNF SCON
004470 005067      CLR
004474 012600      MOV (SP)+,R0
004476 001402      BEQ
004500 005067      SCON
004504 166700      SUB #60,R0
004510 062700      ADD

```

;SAVE REGS ON THE STACK
 ;R5 WAS STACKED BY THE JSR
 ;R4-R3 ARE STACKED ABOVE IT
 ;R0 ON TOP
 ;R5 HOLDS THE RETURN PC, BUT AN
 ;IPOPS WOULD POP THE STACK-SO JUMP OUT

;MOVE SP OVER WORD SAVED BY JSR
 ;IRO=4
 ;IARE POPPED
 ;LINLIFO
 ;LINEQUENCE
 ;IRY IS POPPED BY THE RTS AND
 ;ITHE PC IS TAKEN FROM R5

;PNTDALI CLR
 ;BR
 ;DECCO
 ;MOV #20,SCON
 ;BR
 ;DECCO
 ;MOV #10,R2
 ;OCTGO+4
 ;CLR
 ;SCON
 ;OCTGO
 ;MOV #20,SCON
 ;BR
 ;OCTGO
 ;MOV #60,SCON
 ;MOV #0,R2
 ;CLR
 ;ZSW,,#2

;PC, IDIVR
 ;R1,(SP)
 ;ISACK REMAINDER

;YES = POP AND PRINT
 ;NO = DIVIDE NUMBER BY RADIX

;POP NUMBER FROM STACK
 ;IPOP NUMBER FROM STACK

;MAKE ASCII

```

004514 032767 040000 173046 770!     BIT    #B14,SR
004522 001010 173036      BNE    TTO,F*2
004524 010067 173030      MOV    R0,TPB
004530 105767 173030      TSTB   TPS
004534 100375      RPL
004536 022270 000015      CMP    #CR,RO
004542 001401      BEQ    TTOLF
004544 000207      RTS    PC
004546 012700 000012      MOV    #LF,R0
004552 000760      BR    TTO
                                         I EXECUTE PRINT

                                         J IF SR14=1, DELETE TYPEOUT
                                         J EXIT
                                         J PRINT CONTENTS OF R0
                                         J DONE YET?
                                         INC " KEEP LOOPING
                                         WAS CHARACTER A CRI!
                                         YES " PRINT LINE FEED
                                         RETURN TO POPY OR MAIN PROGRAM
                                         I PRINT LF
                                         I EXECUTE PRINT

004554 012703 000020      IDIVR1  #16,+R3
                                         MOV    R1
                                         CLR    RD
                                         SDI
                                         ASL    R1
                                         ROL    R1,R4
                                         CMP    R2,R4
                                         BH1   +6
                                         SUB   R2,R1
                                         INC    RD
                                         DEC   R1
                                         BNE   SD
                                         RTS    PC
                                         I SPACK ADDRESS POINTER FOR MESSAGE
                                         I PETCH ASCII BYTE
                                         I IS IT A TERMINATOR?
                                         YES - EXIT
                                         NO
                                         I SPACK CR/LF FLAG
                                         I PETCH DATA TO CR/LF
                                         I PRINT
                                         I MOVE POINTER TO NEXT BYTE
                                         I PETCH NEXT CHARACTER
                                         I POP SPACK TO REACH RETURN VECTOR
                                         J EXIT

004560 005001      MOV    #16,+R3
                                         CLR    RD
                                         SDI
                                         ASL    R1
                                         ROL    R1
                                         CMP    R2,R4
                                         BH1   +6
                                         SUB   R2,R1
                                         INC    RD
                                         DEC   R1
                                         BNE   SD
                                         RTS    PC
                                         R0=(SP)
                                         @((SP))RD
                                         #100,RD
                                         TPOUTX
                                         #40,RD
                                         CMP
                                         BNE   +6
                                         MOV    #CR,RD
                                         PC,TD
                                         INC
                                         RR
                                         TPOUTXI
                                         POP   RPS
                                         PC

                                         I VARIABLE SLOTS
                                         GOOD! XX
                                         BAD!  XX
                                         DATA! XX
                                         DIVID! XX
                                         STATUS! XX
                                         SCON!  XX
                                         TOG1! XX
                                         TOG2! XX
                                         TOG3! XX
                                         TOG4! XX
                                         WORK! XX
                                         BTOG! XX
                                         TEMP1! XX

004646 000000      000000
004650 000000      000000
004652 000000      000000
004654 000000      000000
004656 000000      000000
004660 000000      000000
004662 000000      000000
004664 000000      000000
004666 000000      000000
004670 000000      000000
004672 000000      000000
004674 000000      000000
004676 000000      000000

```

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004700 300000
004702 200020
004704 200020
004706 200020
1051-6
305506 1 = 1, +400

PASCNT! XX
MASK! XX
LERR! XX
DEBUG! XX
*DEBUG+200

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INTERBLOCK SYNC=25
FORWARD BLOCK MARKS=26
REVERSE GUARDS=32
BLOCKID
REVERSE PARITY=10
REVERSE FINAL=10
REVERSE PREFINAL=10

005694
005696
005698
005699
005664
005666
005667
005672
005674
005676
005678
005702
005704
005706
005710
005712
005714
005716
005722
005724
005726
005730
005732
005734
005736
005740
005742
005744
005746
005748
005750
005752
005754
005756
005760
005762
005764
005766
005770
005772
005774
005776
005778
005780
005782
005784
005786
005788
005790
005792
005794
005796
005798
005800
005802
005804
005806
005808
005810
005812
005814
005816
005818
005820
005822
005824
005826
005828
005830

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006032	111000	WORD	111000	IMARK DATA=70
006034	111000	WORD	111000	IMARK DATA=70
006036	111000	WORD	111000	IMARK DATA=70
006040	111000	WORD	111000	IMARK DATA=70
006042	111000	WORD	111000	IMARK DATA=70
006044	111000	WORD	111000	IMARK DATA=70
006046	111000	WORD	111000	IMARK DATA=70
006050	111000	WORD	111000	IMARK DATA=70
006052	111000	WORD	111000	IMARK DATA=70
006054	111000	WORD	111000	IMARK DATA=70
006056	111000	WORD	111000	IMARK DATA=70
006058	111000	WORD	111000	IMARK DATA=70
006060	111000	WORD	111000	IMARK DATA=70
006062	111000	WORD	111000	IMARK DATA=70
006064	111000	WORD	111000	IMARK DATA=70
006066	111000	WORD	111000	IMARK DATA=70
006070	111000	WORD	111000	IMARK DATA=70
006072	111000	WORD	111000	IMARK DATA=70
006074	111000	WORD	111000	IMARK DATA=70
006100	111000	WORD	111000	IMARK DATA=70
006102	111000	WORD	111000	IMARK DATA=70
006104	111000	WORD	111000	IMARK DATA=70
006106	111000	WORD	111000	IMARK DATA=70
006108	111000	WORD	111000	IMARK DATA=70
006112	111000	WORD	111000	IMARK DATA=70
006114	111000	WORD	111000	IMARK DATA=70
006116	111000	WORD	111000	IMARK DATA=70
006120	111000	WORD	111000	IMARK DATA=70
006122	111000	WORD	111000	IMARK DATA=70
006124	111000	WORD	111000	IMARK DATA=70
006126	111000	WORD	111000	IMARK DATA=70
006130	111000	WORD	111000	IMARK DATA=70
006132	111000	WORD	111000	IMARK DATA=70
006134	111000	WORD	111000	IMARK DATA=70
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006142	111000	WORD	111000	IMARK DATA=70
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006172	111000	WORD	111000	IMARK DATA=70
006174	111000	WORD	111000	IMARK DATA=70
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006206	111000	WORD	111000	IMARK DATA=70

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006214 111070 WORD 111000 iMARK DATA=70
006216 111070 WORD 111000 iMARK DATA=70
006220 111020 WORD 111000 iMARK DATA=70
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006224 111000 WORD 111000 iMARK DATA=70
006226 111000 WORD 111000 iMARK DATA=70
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006232 111000 WORD 111000 iMARK DATA=70
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006236 111000 WORD 111000 iMARK DATA=70
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006256 111000 WORD 111000 iMARK DATA=70
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006264 111000 WORD 111000 iMARK DATA=70
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006366 111000 WORD 111000 MARK DATA=70
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006530 1010101 WORD 1010101 MARK DATA=70

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111011 WORD 111011 FINAL=73
111011 WORD 111011 PARITY=73
111011 WORD 111011 REVERSE LOCK=73
111011 WORD 111011 GUARD=51
111000 WORD 111000 REVERSE BLOCK MARKS=45
111000 WORD 111000 INTERLOCK SYNC=25

710736

011736
300001

RBNI

DATBUFI
END

PHAT'S ALL FOLKS!

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B0	000001	EMESA	004247	POPTT	004	TPS	177564
81	000002	ERMS1	003412	PS	17776	TPV	00264
817	002000	ERR	104000	R0	000000	PRAMES	003574
814	004000	ERROR	002540	R1	000019	RCTRP	533166
812	010000	ERS	004400	R2	000028	770	204514
813	020000	ERX17	202756	R3	000038	TOLF	204546
814	040000	ERXIT1	003082	R4	000048	PTOLP	234530
815	100000	ERXIT2	003016	R5	000058	TYPEOUT	004604
82	000004	FBLK	003056	R6	000068	VC	000040
83	000010	FINIS	002276	R7	000078	VCTYPE	003210
84	000020	FLAG1	002324	R8N	000087	VECMES	003562
85	000040	FRMBLK	003056	R9H	000096	HALFR	002946
86	000100	GB	000002	R9K	000097	HALUP	003262
87	000200	GAMS	003472	R9L	000098	HLUP1	001140
88	000400	GBTYPE	003060	R9M	000099	HLUP2	001256
89	001000	GOOG	002604	R9N	000099	HLUP3	001310
BAD	004500	GODD	004646	R9P	000099	HLUP4	001424
BADPAD	003170	HLT1	001050	R9T	000099	HLUP5	001520
8K	0000020	IDIVR	004554	R9U	000099	WORK	004672
8KME5	003657	LERCHX	203024	R9V	000099	WRTBNO	001122
8KN	001772	LERCHY	204704	R9W	000099	WRDTOT	002222
8KTYPE	003232	LFP1	003060	R9X	000099	XK	000000
BLKMRK	005506	LFP2	000042	R9Y	000099	ELUP	002110
BT0G	004674	LFP3	000032	R9Z	000099	ESW	004432
BYST	002560	LFP4	000032	S1	000004	SP	000000
CBKL1	002390	LUPCK	000006	SP2	000006	SP2	000000
CBKL2	002420	MASK	003042	SP3	000006	SP3	000000
CC	17776	NOP	001000	SP4	000006	SP4	000000
CHECK	001560	OCTGO	002424	SP5	000006	SP5	000000
CHKL1	001604	P0	000000	SP6	000006	SP6	000000
CHKL2	001622	ST	000004	SP7	000006	SP7	000000
CHKL3	002124	STATUS	004702	SP8	000006	SP8	000000
COBLKG	002360	SYMS	002400	SP9	000006	SP9	000000
CR	600015	SYRMS	004424	SP10	000006	SP10	000000
DA	000010	STTYPE	003122	SP11	000006	SP11	000000
DAMS	003550	SUBER	003042	SP12	000006	SP12	000000
DATA	004652	SUBRMS	003436	SP13	000006	SP13	000000
DATBUF	010736	TCBA	179346	SP14	000006	SP14	000000
DATCBLK	001710	TCCM	179346	SP15	000006	SP15	000000
DATOK	002024	TCDT	179342	SP16	000006	SP16	000000
DATYPE	003144	TCST	179340	SP17	000006	SP17	000000
DCHKL1	001724	TCNG	179344	SP18	000006	SP18	000000
DEBUG	004706	TEMP1	004676	SP19	000006	SP19	000000
P6	000240	TKB	179562	SP20	000006	SP20	000000
P7	000300	TKS	179560	SP21	000006	SP21	000000
PASCN1	004700	TKV	000060	SP22	000006	SP22	000000
PASMS	003525	TOC1	004662	SP23	000006	SP23	000000
PC	000007R	TOC2	004662	SP24	000006	SP24	000000
DECREM	004434	TOC3	004664	SP25	000006	SP25	000000
DIVID	004654	TOC4	004670	SP26	000006	SP26	000000
EHALT1	003012	TOC5	179560	SP27	000006	SP27	000000
EMES1	003677	TOC6	179560	SP28	000006	SP28	000000
EMES2	003725	TOC7	179560	SP29	000006	SP29	000000
EMES3	003774	TOC8	179560	SP30	000006	SP30	000000
EMESA	004126	TOC9	179560	SP31	000006	SP31	000000
EMESS	004206	TOC10	179560	SP32	000006	SP32	000000
POPPOP	222626	TPOUTX	004642	SP33	000006	SP33	000000

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ERRORS DETECTED 0

RUN-TIME 11 SECONDS

5K CORE USED

