

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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1.Ø ABSTRACT

The TC11 DECTape Formatter is a program for marking DECTapes on Unit Ø with a standard format of 578_{10} blocks of 256_{10} 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 6000_8 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 1050_8 .

- 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 ($11\emptyset 1_g$) 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_g . To format another tape, perform the operations in section 4. \emptyset then press CONTINUE.

7. \emptyset ERRORS

7.1 ERROR HALT

Address $3\emptyset 12_g$ 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.)

ITOG-11 V.03
ITC11 DECATAPE FORMATTER
JROBERT J. COLLINS
JUNE 27, 1970
IMODIFIED MAY 12, 1971
IMODIFIED JANUARY 22, 1972

IFORMAT DECAPES ON UNIT 0 IN STANDARD FORMAT OF
1570(10) BLOCKS WITH 256(10) 10 BIT WORDS PER BLOCK.

000000
000001
000002
000003
000004
000005
000006
000007
000008
000009
000010
177570
177776
177776
000240
000000
000040
000100
000140
000200
000240
000300
000340
000001
000002
000004
000010
000020
000040
000100
000200

R00X0
R10X1
R20X2
R30X3
R40X4
R50X5
R60X6
R70X7
SP0R6
PC0R7
XX0HALT
SR0177970
PS0177976
CC0PS
NC0240
P0000
P1040
P20100
P30140
P40200
P50240
P60300
P70340
0001
0102
0204
03010
04020
05040
060100
070200

REGISTER DEFINITIONS

ISWITCH REGISTER
IPROCESSOR STATUS

IPY PRIORITY LEVELS

IBYT POSITION CONSTANTS

000400
001000
002000
004000
010000
020000
040000
080000
100000
005726
022626
000015
000012
177560
177562
177564
177566
000060
000064
177342
177340
177350
177346
177344
104000
104400
000002
000004
000010
000020
000040

000400
0901000
01002000
01104000
012010000
013020000
014040000
0150100000
00005726
000022626
CR015
LF012
TK00177560
TK00177562
TP00177564
TP00177566
TKV060
TPV064
TC000177342
TC00177340
TC00177350
TC00177346
TC00177344
ERR0000
ERR00TRAP
G00001
ST0002
OAP03
BK004
VC005

IP0P STACK ONCE:BTST(6)+
IP0P STACK THREE:WCHP (6)+,(6)+
I'CARriage RETURN
I'LYNE REED
I'KEYBOARD STATUS
I'KEYBOARD BUFFER
I'TELEPRINTER STATUS
I'TELEPRINTER BUFFER
I'KEYBOARD VECTOR
I'TELEPRINTER VECTOR


```
.MACR  
BIC  
.ENDM
```

```
AND A,B  
#A=1,B
```

IMASK A APPLIED TO B

```
.MACR  
JSR  
.WORD  
.ENDM
```

```
ROTR A  
PC,RTT  
A
```

IRotate R0 A PLACES RIGHT

```
.MACR  
JSR  
.WORD  
.ENDM
```

```
ROTL A  
PC,RTL  
A
```

IRotate R0 A PLACES LEFT

```
.MACR  
JSR  
JMP  
JMP  
.ENDM
```

```
LOOP A,B  
PC,LERCHK  
A  
PC,LUPCHK  
A
```

ILoop TO A ON ERROR IF SR13=1

ILoop TO A IF SR12=1

B1

```
.MACR  
MOV  
JSR  
.ENDM
```

```
PNTM A  
#A,R0  
PC,TYPQUT
```

IPrint MESSAGE
IPointed TO BY A

000000	.#0	
000140	REPT 140	
000002	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000004	ENDR	
000006	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000010	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000012	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000014	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000016	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000020	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000022	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000024	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000026	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000030	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000032	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000034	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000036	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000040	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000042	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000044	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000046	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000050	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000052	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000054	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000056	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000060	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000062	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000064	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000066	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000070	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000072	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000074	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000076	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000100	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000102	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000104	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000106	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000110	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000112	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000114	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000116	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000120	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000122	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000124	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000126	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000130	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000132	20367	ISRT TRACE BIT WITH A DUMMY COMPARE
000134	20367	ISRT TRACE BIT WITH A DUMMY COMPARE

0003314	0003315	0003316	0003317	0003318	0003319	0003320	0003321	0003322	0003323	0003324	0003325	0003326	0003327	0003328	0003329	0003330	0003331	0003332	0003333	0003334	0003335	0003336	0003337	0003338	0003339	0003340	0003341	0003342	0003343	0003344	0003345	0003346	0003347	0003348	0003349	0003350	0003351	0003352	0003353	0003354	0003355	0003356	0003357	0003358	0003359	0003360	0003361	0003362	0003363	0003364	0003365	0003366	0003367	0003368	0003369	0003370	0003371	0003372	0003373	0003374	0003375	0003376	0003377	0003378	0003379	0003380	0003381	0003382	0003383	0003384	0003385	0003386	0003387	0003388	0003389	0003390	0003391	0003392	0003393	0003394	0003395	0003396	0003397	0003398	0003399	0003400
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PALX11	V003	19-APR-72	19:11	PAGE 6	
000664	012700	010101		MOV	#10101,R0
000670	032767	100200	LP2:	BIT	#B15+B7,TCCH
000676	0011774			BEG	.06
000700	100002			BPL	.06
000702	004767	002346		JSR	PC,ERROR
000706	010067	176366		MOV	R0,TCOI
000712	005204			INC	R4
000714	001365			RNE	LP2
000716	012703	176676		MOV	#578,R3
000722	004767	000130	LP3:	JSR	PC,FRMBLK
000726	005203			INC	R3
000730	001374			BNE	LP3
000732	012704	177471		MOV	#199,R4
000736	000736	010101		MOV	#10101,R0
000742	032767	100200	LP4:	BIT	#B15+B7,TCCH
000750	0011774			BEG	.06
000752	100002			BPL	.06
000754	004767	002274		JSR	PC,ERROR
000760	010067	176364		MOV	R0,TCOI
000764	005204			INC	R4
000766	001365			RNE	LP4
000770	012704	170000		MOV	#4096,R4

PALXi1	V003	19=APR=72	19i11	PAGE 7	
000774	012700	010010		MOV	#10010,R0
001000	032767	100200	LP5:	BIT	#815+87,TCCM
001006	001774			BEQ	,=6
001010	100002			BPL	,+6
001012	004767	002236		JSR	PC,SERR0R
001016	010067	176326		MOV	R0,TCDI
001022	009204			INC	R4
001024	001365			RNE	LP5
001026	032767	100200		BIT	#815+87,TCCM
001034	001774			BEQ	,=6
001036	100002			BPL	,+6
001040	004767	002210		JSR	PC,SERR0R
001044	009067	176272		CLR	TCCM
001050	000000		HLT1:	XX	
001052	000167	000044		JMP	WRTBNQ

```

IFORWARD END ZONE=22
IWAIT FOR ERROR OR READY
IHAVE NEITHER
IHAVE READY
ISTATUS ERROR
ILoad MARK CODE
IDONE ALL?
IIF NOT KEEP WRITING FEZ
IWAIT FOR ERROR OR READY
IHAVE NEITHER
IHAVE READY
ISTATUS ERROR
ISTOP TAPE, MARK & TIMING TRACKS ARE
WRITTEN, RESET WRTH SWITCH AND
ISET WALL SWITCH THEN CONTINUE.

```


001056	012704	177366	FRMBLK1	MOV	#=266, R4	COUNTER FOR 1 BLOCK'S WORTH OF MKTRACK
001062	012700	005526		MOV	#BLKMRK, R0	IPONTFR TO MARK CODE TABLE
001066	032767	100200	LP6:	BIT	#815+87, TCCM	IFWAIT FOR ERROR OR READY
001074	001774			BEG	.=6	IHAVE NEITHER
001076	100002			RPL	.+6	IHAVE READY
001100	004767	002150		JSR	PC, ERROR	STATUS ERROR
001104	011067	176240		MOV	(R0), TCDT	IFETCH MARK CODE
001110	002700	000002		ADD	#2, R0	ADVANCE POINTER
001114	005204			INC	R4	IDONE ALL?
001116	001363			RNE	LP6	IF NOT FETCH ANOTHER CODE
001120	000207			RTS	PC	IF SO, EXIT
001122	004767	001232	WRBNO1	JSR	PC, COBLKG	GENERATE TABLE OF CMPOBV BLK NUMBERS
001126	012700	177775		MOV	#=3, R0	THREE BLOCKS
001132	012767	004002		MOV	#4002, TCCM	SEARCH REVERSE
001140	105267	176176	WLP1:	INCB	TCCM	GO
001144	032767	100200		BIT	#815+87, TCCM	IFWAIT FOR ERROR OR READY
001152	001774			REQ	.=6	IHAVE NEITHER
001154	100002			RPL	.+6	IHAVE READY
001156	004767	002072		JSR	PC, ERROR	STATUS ERROR
001162	005200			INC	R0	FOUND THREE?
001164	001363			RNE	WLP1	IF NOT KEEP SEARCHING
001166	012700	076677		MOV	#76677, R0	COMPLEMENT OBVERSE OF 1011 (LAST BLOCK#)
001172	012767	000017		MOV	#17, TCCM	WRITEALL FORWARD
001176	032767	100200		BIT	#815+87, TCCM	IFWAIT FOR ERROR OR READY
001206	001774			REQ	.=6	IHAVE NEITHER
001210	100002			RPL	.+6	IHAVE READY
001212	004767	002036		JSR	PC, ERROR	STATUS ERROR
001216	152767	000003	WLP2:	BIT	#3, TCDT	IFSET XDA BITS FOR 0 REVERSE
001224	010067	176120		MOV	R0, TCDT	WRITE LAST BLOCK # FROM HERE TO END ZONE
001230	004767	001070		JSR	PC, FLAG1	IFWAIT TO SYNC UP FOR WRITING
001234	000770			BR	WLP2	KEEP WRITING 1011
001236	012767	001101		MOV	#1101, FBK	INITIALIZE PARAMETERS FOR LAST BLOCK,
001244	012705	002560		MOV	#BYST, R5	XDA BIT TABLE AND
001250	012703	006532		MOV	#RBN, R3	TABLE OF REVERSE
001254	012767	004017		MOV	#4017, TCCM	WRITEALL REVERSE
001262	005367	001264	WALUP:	DEC	FBK	IDCREMENT BLOCK NUMBER
001266	022767	177776		CMP	#=2, FBK	IFLAST BLOCK WRITTEN?
001274	001531			BEG	CHECK	IFYES, CHECK DATA AND BLOCK NUMBERS
001276	012704	177777		MOV	#=1, R4	IF1 REVERSE =0 FWD
001302	012767	177374		MOV	#260, TCG1	NUMBER OF WORDS
001310	032767	003352	WLP3:	BIT	#815+87, TCCM	IFWAIT FOR ERROR OR READ
001316	001774	176024		BEG	.=6	IHAVE NEITHER
001320	100002			RPL	.+6	IHAVE READY
001322	004767	001726		JSR	PC, ERROR	STATUS ERROR
001326	152767	000003		BIT	#3, TCDT	IF1 KBV=0 FWD
001334	010467	176010		MOV	R4, TCDT	IFLOAD DATA WORD
001340	005267	003316		INC	TCG1	IFWRITE IT 260 TIMES
001344	001361			RNE	WLP3	IFKEEP WRITING UNTIL FINISHED
001346	032767	100200		BIT	#815+87, TCCM	IFWAIT FOR ERROR OR READY
001354	001774			REQ	.=6	IHAVE NEITHER
001356	100002			RPL	.+6	IHAVE READY
001360	004767	001670		JSR	PC, ERROR	STATUS ERROR

PALX11	V003	19-APR-72	19111	PAGE 8-1	Code	Comments
001364	112567	175750		MOV B	(R5)+,TCST	IFETCH RELEVANT XDA BITS
001370	011367	175754		MOV	(R3)+,TCDT	IFETCH RELEVANT CMP,OBV,BLK#
001374	002703	200002		ADD	#2,R3	ADVANCE TABLE POINTER
001400	002527	002570		CMP	R5,#BYST+10	IFEE IF XDA BIT TABLE IS EXHAUSTED
001404	001002			BNE	.+6	IF NOT, PROCEED
001406	012705	002560		MOV	#BYST,R5	IF SO, REINITIALIZE POINTER
001412	012704	002546		MOV	#WALB,R4	ISUP, POINTER FOR LAST FIVE WORDS
001416	012767	177776		MOV	#2,T0G1	ICOUNT OF TWO
001424	032767	100200	003236	BIT	#B15+B7,TCCM	WAIT FOR ERROR OR READY
001432	001774		175710	BEQ	.+6	IHAVE NEITHER
001434	100022			BPL	.+6	IHAVE READY
001436	004767			JSR	PC,ERROR	STATUS ERROR
001442	152767	000003	175670	BISB	#3,TCST	SET XDA 17 & 16
001450	012467	175674		MOV	(R4)+,TCDT	IFETCH DATA WORD
001454	005267	003202		INC	T0G1	ADVANCE COUNT
001460	001361			RNE	WLP4	KEEP WRITING UNTIL FINISHED
001462	032767			BIT	#B15+B7,TCCM	WAIT FOR ERROR OR READY
001470	001774	100200	175652	BEQ	.+6	IHAVE NEITHER
001472	100022			BPL	.+6	IHAVE READY
001474	004767			JSR	PC,ERROR	STATUS ERROR
001500	142767	000003	175632	BICB	#3,TCST	CLEAR XDA 17 AND 16 FOR REVERSE BLK#
001506	012467	175636		MOV	(R4)+,TCDT	REVERSE BLOCK NUMBER
001512	012767	177776	003142	MOV	#2,T0G1	ICOUNT OF TWO
001520	032767	100200	175614	BIT	#B15+B7,TCCM	WAIT FOR ERROR OR READY
001526	001774			BEQ	.+6	IHAVE NEITHER
001530	100022			BPL	.+6	IHAVE READY
001532	004767			JSR	PC,ERROR	STATUS ERROR
001536	152767	000003	175574	BISB	#3,TCST	SET XDA 17 AND 16
001544	012467	175600		MOV	(R4)+,TCDT	IFETCH DATA WORD
001550	005267	003106		INC	T0G1	ADVANCE COUNT
001554	001361			RNE	WLP5	KEEP WRITING UNTIL FINISHED
001556	000641			BR	WALUP	FINISHED - DO NEXT BLOCK

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001560	032767	100200	175554	CHECKI
001566	001774			BIT
001570	100002			REQ
001572	004767			BPL
001576	112767	001456	175536	JSR
		000003		MOV B
001604	004767	000514		JSR
001610	000765			BR
001612	005067	175524		CLR
001616	005067	003042		CLR
001622	112767	000003	175512	MOV B
001630	032767	100200	175504	BIT
001636	001774			REQ
001640	100002			BPL
001642	004767	001406		JSR
001646	026767	003012	175474	CMP
001654	001654			BEG
001656	016767	175466	002764	MOV
001664	005067	175452		CLR
001670	016767	002770	002750	MOV
001676	104002			ERR+CB
001700	003725			EMES2
001702	012767	004003	175432	MOV
001710	012767	177377	002744	MOV
001716	012767	000007	175410	MOV B
001724	032767	100200	175410	BIT
001732	001774			BEG
001734	100002			BPL
001736	004767	001312		JSR
001742	005767	175402		TST
001746	001426			BEG
001750	005067	175366		CLR
001754	005067	002866		CLR
001760	016767	175364	002662	MOV
001766	016727	002672	000000	MOV
				BKN=-2
001772	001772			MOV
001774	012767	000401	002690	MOV
002002	066767	002054	002642	ADD
002010	104032			ERR+BK+CB+DA
002012	003774			EMES3

PALX11	V003	19-APR-72	1911	PAGE 10	
002014	012767	004003	175320	MOV	#4003, TCCM
002022	000670			BR	CHKL1
002024	0005267	002632		INC	TOG1
002030	001335			BNE	DCHKL1
002032	0005267	002626		INC	TOG2
002036	002767	001102	002620	CMP	#1102, TOG2
002044	001266			BNE	CHKL2
002046	112767	000003	175266	MOVB	#3, TCCM
002054	004767	000244		JSR	PC, FLAG1
002060	000401			BR	.+4
002062	000402			BR	.+6
002064	104000			ERR	
002066	004126			EMES4	
002070	012767	001101	002566	MOV	#1101, TOG2
002076	012767	004000	175236	MOV	#4000, TCCM
002104	012700	010736		MOV	#DATBUF, R0
002110	005010			CLR	(R0)
002112	002700	000002		ADD	#2, R0
002116	020027	011736		CMP	R0, #DATBUF+512
002122	001372			BNE	ZLUP
002124	112767	000003	175210	MOVB	#3, TCCM
002132	032767	100200	175202	BIT	#015+B7, TCCM
002140	001774			BEG	.+6
002142	100002			SPL	.+6
002144	004767	001104		JSR	PC, ERROR
002150	026767	002510	175172	CMP	TOG2, TCDT
002156	001421			BEG	WRTDTA
002160	016767	175164	002462	MOV	TCDT, BAD
002166	005067	175150		CLR	TCCM
002172	016767	002466	002446	MOV	TOG2, GOOD
002200	104002			ERR+GB	
002202	004200			EMES5	
002204	112767	000003	175130	MOVB	
002212	004767	000106		JSR	RST1
002216	000772			BR	
002220	000726			BR	
002222	012767	177400	175114	WRTDTA	
002230	012767	010736	175110	MOV	#400, TCWC
002236	112767	000015	175076	MOVB	#DATBUF, TCBA
002244	032767	100200	175070	BIT	#15, TCCM
002252	001774			BEG	#015+B7, TCCM
002254	100002			SPL	.+6
002256	000167	000306		BPL	.+6
002262	005367	002376		JMP	ERROR
002266	100316			DEC	TOG2
002270	112767	000003	175044	BPL	CHKL3
002276	004767	000022		MOVB	#3, TCCM
002302	000401			JSR	PC, FLAG1
002304	000402			BR	.+4
002306	104000			BR	.+6
002310	004247			ERR	
002312	005067	175024		EMES6	
002316	000000			CLR	
002320	000167	176254		XX	
				JMP	START

ITO TRY AGAIN
 IRESTART CHECK
 ICHECK ALL DATA IN BLOCK
 IKEEP CHECKING UNTIL DONE
 ISFTUP FOR NEXT BLOCK
 IHAVE ALL BLOCKS BEEN CHECKED?
 IF NOT KEEP CHECKING
 IYES = FIND FWD EZ
 ISKIP ON EZ
 IERROR
 IOK
 IBLK# FOUND AFTER 1101
 IFIRST REVERSE BLK# 1101
 ISET TAPE TO REVERSE
 IINITIALIZE DATA BUFFER POINTER
 IZERO DATA WORD
 IADVANCE POINTER
 IIS BUFFER FILLED?
 IF NOT KEEP CLEARING
 ISEARCH REVERSE AND
 IWAIT FOR ERROR OR READY
 IHAVE NEITHER
 IHAVE READY
 ISTATUS ERROR
 IIS REVERSE BLOCK# CORRECT?
 IYES = WRITE DATA
 INO = PUT INCORRECT BLK# IN BAD FOR DISPLAY
 ISTOP TAPE AND
 IREVERSE BLK# WRITTEN INC.
 ITO TRY PASS AGAIN
 IFIND FWD EZ AND
 IRESTART REVERSE
 ICHECK PASS
 INC FOR 1 BLOCK OF DATA
 ICA INITIALIZATION
 IWRITE DATA TO MAKE PARITY OK
 IWAIT FOR ERROR OR READY
 IHAVE NEITHER
 IHAVE READY
 IHAVE ERROR
 IDECREMENT BLOCK#
 IF BELOW 0 FINISH VP, OTHERWISE KEEP CHECKING
 IFIND REVERSE EZ
 ISKIP ON EZ
 IERROR
 IOK
 IBLK# FOUND IN REVERSE AFTER 0
 ISTOP TAPE AND
 IHALT: PROGRAM IS FINISHED, MOUNT NEW
 ITAPE, SET WRTM SWITCH AND CONTINUE

[illegible]

002456	066603	200004	ADD	4(SP),R3	INEXT BYTE
002462	004567	200046	JSR	R5,RTHL	ISHIFT
002466	066603	200002	ADD	2(SP),R3	INEXT BYTE
002472	004567	000036	JSR	R5,RTHL	ISHIFT
002476	061603	000030	ADD	(SP),R3	ILAST BYTE FROM STACK
002500	004567	000024	JSR	R5,RTHL	ISHIFT
002504	004567	000077	JSR	R5,RTHL	ISHIFT
002510	062703	000077	ADD	#77,R3	IS00 FWD
002514	010311	000010	MOV	R3,(R1)	ISTORE CMP,ORV,BLK# IN TABLE
002516	062701	000002	ADD	#10,SP	IADVANCE STACK
002522	062701	000002	ADD	#2,R1	IADVANCE TABLE POINTER
002526	005300		DEC	R0	IDECREMENT BLK#
002530	100317		BPL	CBKL1	ILOOP UNTIL IT PASSES 0
002532	000207		RTS	PC	ITHEN EXIT
002534	000241		CLC	R3	ITHREE BIT LEFT SHIFT; CLEAR CARRY
002536	006103		ROL	R3	ISHIFT 1
002540	006103		ROL	R3	ISHIFT 2
002542	006103		ROL	R3	ISHIFT 3
002544	000205		RTS	R5	ITHEN EXIT
002546	177777		WALBFI	-1	IF1 REVERSE #0 FORWARD
002550	177777			-1	
002552	001101		FBLKI	1001	IBLOCK NUMBER GOES HERE
002554	177777			-1	
002556	177777			-1	
002560	003		BYSTI	3	ITABLE OF XDA 17 & 18 FOR CMP,OBV,BLK#
002561	003			3	
002562	000			0	
002563	000			0	
002564	001			1	
002565	001			1	
002566	002			2	
002567	002			2	

```
002570 032767 040000 174772 ERROR: BIT #B14,SR
002576 001107 RNE EXIT2
002600 004567 JSR R5,SAV05
002604 012700 MOV #ERMS1,R0
002610 004767 JSR PC,TYP0UT
002614 016600 MOV 14(SP),R0
002620 162700 SUB #2,R0
002624 010005 MOV R0,R5
002626 004767 JSR PC,PNT0ZS
002632 012700 MOV #STPMS,R0
002636 004767 JSR PC,TYP0UT
002642 016600 MOV 16(SP),R0
002646 004767 JSR PC,PNT0ZS
002652 032715 BIT #B8,(R5)
002656 001402 BEQ GOGO
002660 004767 JSR PC,SUBR
002664 016600 MOV 14(SP),R0
002670 062766 ADD #2,14(SP)
002676 011000 MOV (R0),R0
002700 004767 JSR PC,TYP0UT
002710 032715 BIT #ST,(R5)
002712 001402 BEQ .+6
002716 032715 JSR PC,STYPE
002722 004402 BIT #GB,(R5)
002724 004767 BEQ .+6
002730 032715 JSR PC,CBTYPE
002734 001402 BIT #DA,(R5)
002736 004767 BEQ .+6
002742 032715 JSR PC,DATYPE
002746 001402 BIT #BK,(R5)
002750 004767 JSR PC,BKTYPE
002754 032715 BIT #VC,(R5)
002760 001402 BEQ .+6
002762 004767 JSR PC,VCTYPE
002766 004567 JSR R5,REST05
002772 012700 MOV #CR,R0
002776 004767 JSR PC,TTO
003002 032767 BIT #B15,SR
003010 001001 .+4
003012 000000 #2,(SP)
003014 000002 EXIT1
003016 062716 ERXIT2 ADD BR
003022 000767 BR
```

ITEST TTY DELETE SWITCH
IEXIT NOW IF TTY DELETE SWITCH IS UP
ISAVE AC0-5
IMESSAGE POINTER TO K0
IPRINT MESSAGE
IFETCH SAVED PC
IFIND ADDRESS OF ERROR CALL
IPUT POINTER IN R5
IPRINT PC
IMESSAGE POINTER
IPRINT "PSB"
IFETCH SAVED STATUS
IAND PRINT IT
ITRAP?
INO
ISUBROUTINE ERROR

ISTATUS?
INO
IYES
IGOOD/BAD?
ISKIP IF=0
IDATA? IG000/BAD
ISKIP IF=0 IDATA
IBLK NO:?
INO
IYES
IVECTOR?
INO
IYES
IRESTORE AC0-5
IPRINT
ICR & LF
ISR15(1)=DELETE ERROR HALT
ISKIP IF ZP0
IERROR HALT, CONTINUE
IEXIT ERROR ROUTINE

003024	032767	020000	174536	LERCHKI BIT	#B13,SR	ISRI3(I)=LOOP ON ERROR
003032	001002			SNE	.+6	IF 1
003034	062716	000024		ADD	#4,(SP)	IADVANCE RETURN VECTOR OVER LOOP JUMP
003040	000207			RTS	PC	IF 1
003042	032767	010000	174520	LUPCHKI BIT	#B12,SR	ISRI2(I)=LOOP ALWAYS
003050	001002			SNE	.+6	IF 1
003052	062716	000004		ADD	#4,(SP)	IADVANCE RETURN VECTOR OVER LOOP JUMP
003056	000207			RTS	PC	IF 1
003060	012700	003472		GBTYPEI PNTM	GBMS	IPRINT MESSAGE
003064	004767	001514		MOV	#GBMS,R0	IPOINTED TO BY GBMS
003070	016700	001552		JSR	PC,TYP0UT	IFETCH C(GOOD)
003074	004767	001306		JSR	GOOD,R0	IPRINT OCTAL NUMBER
003100	012700	003536		PNTM	PC,PNTORJ	
003104	004767	001474		MOV	SP2	IPRINT MESSAGE
003110	016700	001534		JSR	#SP2,R0	IPOINTED TO BY SP2
003114	004767	001266		MOV	PC,TYP0UT	IFETCH C(BAD)
003120	000207			JSR	BAD,R0	IPRINT OCTAL NUMBER
003122	012700	003513		RTS	PC,PNTORJ	IF 1
003126	004767	001492		STYPEI MOV	#STMS,R0	IPRINT MESSAGE
003132	016700	001520		JSR	PC,TYP0UT	IPOINTED TO "STATUS"
003136	004767	001236		MOV	STATUS,R0	IFETCH C(RPCS)
003142	000207			JSR	PC,PNTORJ	IPRINT OCTAL NUMBER
003144	012700	003550		RTS	PC,PNTORJ	IF 1
003150	004767	001430		DATYPEI MOV	#DAMS,R0	IPRINT MESSAGE
003154	016700	001472		JSR	PC,TYP0UT	IPOINTED TO "DATA"
003160	004767	001232		MOV	DATA,R0	IFETCH C(DATA)
003164	000207			JSR	PC,PNTORJ	IPRINT OCTAL NUMBER
003166	011627	000000		RTS	PC	IF 1
003172	162767	000006	177770	TRCTRI MOV	(SP),#0	ILOAD AND DEFINE BAD PI ADDRESS SLOT
003200	022626			BADPAD#02		
003202	104040			SUB	#6,BADPAD	IADJUST ADDRESS
003204	003574			POPPOP		IADJUST STACK
003206	000002			ERR+VC		IPRINT ERROR
				TRCMES		IUNEXPECTED INTERRUPT
				RTI		IF 1
003210	012700	003562		VCTYPEI PNTM	VECMES	IPRINT MESSAGE
003214	004767	001364		MOV	#VECMES,R0	IPOINTED TO BY VECMES
003220	016700	177744		JSR	PC,TYP0UT	IFETCH C(BAD)
003224	004767	001166		MOV	BADPAD,R0	IPRINT ADDRESS
003230	000207			JSR	PC,PNTORJ	IF 1
				RTS	PC	IF 1
003232	012700	003657		BKTYPEI PNTM	BKMS	IPRINT MESSAGE
003236	004767	001342		MOV	#BKMS,R0	IPOINTED TO BY BKMS
				JSR	PC,TYP0UT	

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0033242	016700	176524	MOV	BKN,R0	IGET BLK#
0033246	204767	001144	JSR	PC,PNT02S	IPRINT IT
0033252	200207		RTS	PC	IEXIT
0033254	016767	174062	MOV	TCCM,STATUS	
0033262	104404		ERS+ST		STATUS ERROR
0033264	003677		EMES1		
0033266	000207		RTS	PC	
0033270	012700	003436	MOV	#SUBENS,R0	
0033274	004767	001304	JSR	PC,TYPEOUT	
0033300	016000	000022	MOV	22(SP),R0	
0033304	162700	000006	SUB	#6,R0	
0033310	004767	001102	JSR	PC,PNT02S	
0033314	000207		RTS	PC	
			SUBER1		
			ERROR1		

003316	017627	002000	000000	RTI	MOV	@(SP),#0
003322	003322				ROTORG=,w2	
003324	062716	000002			ADD	#2,(SP)
003330	005767	177766			TST	ROTORG
003334	001001				BNE	,#4
003336	000207				RTS	PC
003340	000241			RRLUP	CLC	
003342	006000				ROR	R0
003344	009367	177752			DEC	ROTORG
003350	001373				BNE	RRLUP
003352	000207				RTS	PC
003354	017667	000000	177740	RTL	MOV	@(SP),ROTORG
003362	062716	000002			ADD	#2,(SP)
003366	005767	177730			TST	ROTORG
003372	001001				BNE	,#4
003374	000207				RTS	PC
003376	000241			RRLUP	CLC	
003400	006100				ROL	R0
003402	005367	177714			DEC	ROTORG
003406	001373				BNE	RRLUP
003410	000207				RTS	PC

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ERMS1: ,ASCII /&ERROR AT ADDRESS @/

003412 046
003413 046
003414 105
003415 122
003416 122
003417 117
003420 122
003421 040
003422 101
003423 124
003424 040
003425 101
003426 104
003427 104
003430 122
003431 105
003432 123
003433 123
003434 040
003435 100

SUBRMS: ,ASCII /&CALLED FROM SUBROUTINE AT @/

003436 046
003437 103
003440 101
003441 114
003442 114
003443 105
003444 104
003445 040
003446 106
003447 122
003450 117
003451 115
003452 040
003453 123
003454 125
003455 102
003456 122
003457 117
003460 125
003461 124
003462 111
003463 116
003464 105
003465 040
003466 101
003467 124
003470 040
003471 100

GBMS: ,ASCII /& GOOD BAD@/

003472 046
003473 040
003474 040
003475 107

003476 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

STMS: .ASCII /&STATUS= 0/

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

PASMS: .ASCII /&PASS# 07

003525 046
 003526 046
 003527 120
 003530 101
 003531 123
 003532 123
 003533 043
 003534 040
 003535 100

SP2: .ASCII / 0/

003536 040
 003537 040
 003540 100

STPMS: .ASCII / PS= 0/

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

DAMS: .ASCII /&DATA# 0/

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

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003557 040
003560 040
003561 100

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

VECMES1 ,ASCII /&VECTOR= @/

003574 046
003575 125
003576 116
003577 105
003578 130
003579 120
003580 105
003581 103
003582 124
003583 105
003584 104
003585 103
003586 111
003587 116
003588 124
003589 105
003590 122
003591 122
003592 125
003593 120
003594 124
003595 040
003596 124
003597 110
003598 122
003599 117
003600 125
003601 107
003602 110
003603 110
003604 040
003605 111
003606 116
003607 124
003608 105
003609 122
003610 122
003611 125
003612 120
003613 124
003614 105
003615 122
003616 125
003617 120
003618 124
003619 040
003620 124
003621 040
003622 124
003623 110
003624 122
003625 117
003626 125
003627 107
003628 110
003629 110
003630 040
003631 124
003632 124
003633 110
003634 105
003635 040
003636 106
003637 117
003638 114
003639 114
003640 117
003641 127

TRCMES1 ,ASCII /&UNEXPECTED INTERRUPT THROUGH THE FOLLOWING VECTOR@/

003644 111
003645 116
003646 127
003647 040
003650 126
003651 125
003652 103
003653 124
003654 117
003655 122
003656 100

BKMS1 ,ASCII /8BLOCK NUMBER: 0/

003657 046
003660 102
003661 114
003662 117
003663 103
003664 113
003665 040
003666 116
003667 125
003670 115
003671 102
003672 105
003673 122
003674 075
003675 040
003676 100

EMES1 ,ASCII /8DECTAPE STATUS ERROR/

003677 046
003700 104
003701 105
003702 103
003703 124
003704 101
003705 120
003706 105
003707 040
003710 123
003711 124
003712 101
003713 124
003714 125
003715 123
003716 040
003717 105
003720 122
003721 122
003722 117
003723 122
003724 100

EMES2 ,ASCII /8FORWARD BLOCK NUMBER WRITE-READ ERROR/

003725 046
003726 106
003727 117

V003	122
003730	127
003731	101
003732	122
003733	104
003734	040
003735	102
003736	114
003737	117
003740	103
003741	113
003742	040
003743	116
003744	125
003745	115
003746	102
003747	105
003750	122
003751	040
003752	127
003753	122
003754	111
003755	124
003756	103
003757	053
003760	122
003761	105
003762	101
003763	104
003764	040
003765	105
003766	122
003767	122
003770	117
003771	122
003772	100
003773	
003774	046
003775	104
003776	101
003777	124
004000	101
004001	040
004002	105
004003	122
004004	122
004005	117
004006	122
004007	056
004010	040
004011	042
004012	102
004013	101
004014	104
004015	042

EMESS1 ASCII /&DATA ERROR: "BAD" = WORD READ, "DATA" = WORD POSITION IN THE BLOCK/

004016	040
004017	075
004020	040
004021	127
004022	117
004023	122
004024	104
004025	040
004026	122
004027	105
004030	101
004031	104
004032	056
004033	042
004034	104
004035	101
004036	124
004037	101
004040	042
004041	040
004042	075
004043	040
004044	127
004045	117
004046	122
004047	104
004050	040
004051	120
004052	117
004053	123
004054	111
004055	124
004056	111
004057	117
004060	116
004061	040
004062	111
004063	116
004064	040
004065	124
004066	110
004067	105
004070	040
004071	102
004072	114
004073	117
004074	103
004075	113
004076	046
004077	050
004100	060
004101	040
004102	075
004103	040

.ASCII /8(0 = REVERSE CHECKSUM)0/

004126
004127
004128
004129
004130
004131
004132
004133
004134
004135
004136
004137
004138
004139
004140
004141
004142
004143
004144
004145
004146
004147
004148
004149
004150
004151
004152
004153
004154
004155
004156
004157
004158
004159
004160
004161
004162
004163
004164
004165
004166
004167
004168
004169
004170

EMES41 .ASCII /8FORWARD BLOCK NUMBER FOUND AFTER 1101(8)0/

046
106
117
122
127
101
122
104
040
102
114
117
103
113
040
116
125
113
102
105
122
040
106
117
125
116
104
040
101
106
124
105
122
040
061
100

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

EMES51 .ASCII /&REVERSE BLOCK NUMBER WRITE=READ ERROR0/

004200 046
 004201 122
 004202 105
 004203 126
 004204 105
 004205 122
 004206 123
 004207 105
 004210 040
 004211 102
 004212 114
 004213 117
 004214 103
 004215 113
 004216 040
 004217 116
 004220 125
 004221 115
 004222 102
 004223 105
 004224 122
 004225 040
 004226 127
 004227 122
 004230 111
 004231 124
 004232 105
 004233 055
 004234 122
 004235 105
 004236 101
 004237 104
 004240 040
 004241 105
 004242 122
 004243 122
 004244 117
 004245 122
 004246 100

EMES61 .ASCII /&REVERSE BLOCK NUMBER FOUND BEFORE 00/

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

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
004310	105
004311	040
004312	060
004313	100

2343

Address	Instruction	Comment
004314	MOV R4,=(SP)	ISAVE R0=R5 ON THE STACK
004316	MOV R3,=(SP)	IR5 WAS STACKED BY THE JSR
004320	MOV R2,=(SP)	IR4=R3 ARE STACKED ABOVE IT
004322	MOV R1,=(SP)	IR4=R3 ARE STACKED ABOVE IT
004324	MOV R0,=(SP)	IR4=R3 ARE STACKED ABOVE IT
004326	JMP (R5)	IR5 HOLDS THE RETURN PC, BUT AN
		IR5 WOULD POP THE STACK=SO JUMP OUT
004330	MOV (SP)+,R0	MOVE SP OVER WORD SAVED BY JSR
004332	MOV (SP)+,R1	IR0=R4
004334	MOV (SP)+,R2	IRARE POPPED
004336	MOV (SP)+,R3	IRIN LIFO
004340	MOV (SP)+,R4	IRSEQUENCE
004342	RTS R5	IR5 IS POPPED BY THE RTS AND
004344		IRTHE PC IS TAKEN FROM R5
005067	PNTDCL CLR	SCON
004346	BR	DECGO
004352	PNTDRJ MOV	#20,SCON
004354	BR	DECGO
004362	PNTDZS MOV	#60,SCON
004364	DECGO MOV	#10,R2
004372	BR	OCTGO+4
004376	PNTDCL CLR	SCON
004400	BR	OCTGO
004404	PNTDRJ MOV	#20,SCON
004406	BR	OCTGO
004414	PNTDZS MOV	#60,SCON
004416	OCTGO MOV	#0,R2
004424	CLR	#0
004430	ZSW,=2	
004432	JSR	PC,IDIVR
004434	MOV	R1,=(SP)
004440	INC	ZSW,#6
004442	CMR	POPTT
004446	BEQ	PC,DECREM
004454	JSR	ZSW
004462	DEC	#6
004466	BNE	SCON
004470	CLR	(SP)+,R0
004474	MOV	#60,R0
004476	BEQ	SCON
004482	CLR	SUB
004500	MOV	ADD
004504	MOV	
004510	MOV	

```

004514 032767 040000 173046 T701 BIT #B14,SR
004522 001010 BNE TTOLF=2
004524 010067 MOV R0,TPB
004530 105767 173030 TPS
004534 100375 TSTB TTOLP
004536 022700 SPL #CR,R0
004542 001401 CMP TTOLF
004544 000207 SEQ PC
004546 012700 RTS #LF,R0
004552 000760 MOV T70
BR

```

```

004554 012703 000020 #16,R3
004560 005001 MOV R1
004562 00A300 CLR R0
004564 006101 ROL R1
004566 020201 CMP R2,R1
004570 101002 BHI #6
004572 160201 SUB R2,R1
004574 005200 INC R0
004576 005303 DEC R3
004600 001370 BNE SD
004602 000207 RTS PC

```

```

004604 010046 T70OUT: MOV R0,=(SP)
004606 117600 TPOFCH: MOV R0,(SP),R0
004612 022700 CMP #100,R0
004616 001411 BEQ TPOUTX
004620 022700 CMP #46,R0
004624 001002 BNE #6
004626 012700 MOV #CR,R0
004632 004767 JSR PC,T70
004636 005216 INC (SP)
004640 000762 RR TPOFCH
004642 005726 POP PC
004644 000207 RTS

```

IVARIABLE SLOTS

```

004646 000000 GOOD: XX
004650 000000 BAD: XX
004652 000000 DATA: XX
004654 000000 DIVID: XX
004656 000000 STATUS: XX
004660 000000 SCOR: XX
004662 000000 TOG1: XX
004664 000000 TOG2: XX
004666 000000 TOG3: XX
004670 000000 TOG4: XX
004672 000000 WORK: XX
004674 000000 BTOG: XX
004676 000000 TEMP1: XX

```

```

IF SR14=1,DELETE TYPEOUT
EXIT
PRINT CONTENTS OF R0
DOONE YET?
INC - KEEP LOOPING
INWAS CHARACTER A CR?
IF YES - PRINT LINE FEED
RETURN TO POPIT OR MAIN PROGRAM
PRINT LF
EXECUTE PRINT

```

```

ISACK ADDRESS POINTER FOR MESSAGE
IFETCH ASCII BYTE
IS IT 0(TERMINATOR)?
IF YES - EXIT
IS IT CRLF FLAG?
INC
IF YES - CHANGE DATA TO CRLF
I PRINT
IMOVE POINTER TO NEXT BYTE
IFETCH NEXT CHARACTER
IPOP STACK TO REACH RETURN VECTOR
EXIT

```

PALX11	V003	19-APR-72	19111	PAGE 17-1
004700	300000		PASCNT	XX
004702	300020		MASKI	XX
004704	300020		LERRI	XX
004706	300020		DEBUC	XX
	305176			1=DEBUC+200
	305506			1=1+400

PALX11	V003	19 APR 72	1911	PAGE 18	BLKMRK1	WORD	
005506	010101					WORD	INTERBLOCK SYNC=25
005510	010110					WORD	IFORWARD BLOCK MARK=26
005512	011010					WORD	IREVERSE GUARD=32
005514	001000					WORD	LOCK=10
005516	001000					WORD	IREVERSE PARITY=10
005520	001000					WORD	IREVERSE FINAL=10
005522	001000					WORD	IREVERSE PRE-FINAL=10
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						ENDR	
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19111

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PALX11 V003

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006516	111011	WORD	111011	PARITY=73
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006522	111011	WORD	111011	GUARD=51
006524	101001	WORD	101001	REVERSE BLOCK MARK=45
006526	101011	WORD	101011	INTERLOCK SYNC=25
006530	010101	WORD	010101	

RBN1 , =, +2204

DATBUF1 , =, +1000

END

THAT'S ALL FOLKS!

011736
000001

B0	100001	EMES0	004247	POPTT	204	TPS	177564
B1	000002	ERMS1	003412	PS	177776	TPV	003064
B12	002000	ERR	104000	R0	000000	TRMES	003574
B11	004000	ERROR	002570	R1	000001	TRCTRP	003166
B12	010000	ERS	104400	R2	000002	TTO	204514
B13	020000	EXRIT	002766	R3	000003	TTOF	204546
B14	040000	EXRIT1	003002	R4	000004	TTOLP	224530
B15	100000	EXRIT2	003016	R5	000005	TPOUT	004604
B2	000004	FLK	002552	R6	000006	VC	000040
B3	000010	FINIS	002270	R7	000007	VCTYPE	003210
B4	000020	FLAG1	002324	RBN	000532	VECHES	003562
B5	000040	FRMGL	001056	RCH	002046	WALBF	002946
B6	000100	GB	000002	RECV	002070	WALUP	001262
B7	000200	GBMS	003472	RESTOS	004330	WLP1	001140
B8	000400	GBTYPE	003060	RLLUP	003376	WLP2	001216
B9	000650	GOOD	002664	ROTOG	003322	WLP3	001310
BAD	000370	HLTI	001050	RRLUP	003340	WLP4	001424
BADPAD	000020	IDIVR	004554	RST1	002204	WLP5	001520
BK	003657	LERCHK	003024	RTL	002534	WORK	004672
BKN	001772	LERR	004704	RTR	003316	WRTBND	001122
BKTYPE	002332	LERXT	003040	SAVOS	004314	WRTDTA	002222
BLKMRK	005506	LF	000012	SDON	004660	XX	000000
BTOG	004674	LPI	000632	SD	004562	ELUP	002140
BYST	002560	LP2	000670	SERROR	003254	ZSH	004432
CBK1	002370	LP3	000722	SP	000006		
CBK2	002420	LP4	000742	SP2	003536		
CC	177776	LP5	001000	SR	177570		
CHECK	001560	LP6	001066	ST	000004		
CHK1	001604	LUPCHK	003042	START	000600		
CHK2	001622	MASK	004702	STATUS	004656		
CHK3	002124	NCP	000240	STMS	003513		
COBLK	000015	OCTGO	004424	STPHS	003541		
CR	000010	P0	000000	STYPE	003122		
DAMS	003550	P1	000040	SUBRS	003436		
DATA	004652	P2	000140	TCBA	177346		
DATBUF	010736	P3	000200	TCM	177342		
DATCHK	001710	P4	000240	TCDT	177350		
DATOK	002024	P5	000300	TCST	177340		
DATYPE	003144	P6	000340	TCMC	177344		
DCHKL1	001724	P7	004700	TEMP1	004676		
DEBUG	004706	PASCNT	003525	TKB	177562		
DECGO	004372	PASMS	000007	TKS	177560		
DECREM	004434	PNTDAB	004346	TKV	000060		
DIVID	004654	PNTDRJ	004354	TGCL	004662		
EHALT1	003012	PNTDZS	004364	TGCL	004664		
EMES1	003677	PNTDAL	004400	TGCL	004666		
EMES2	003725	PNTORJ	004406	TGCL	004670		
EMES3	003774	PNTOS	004416	TPB	177566		
EMES4	004126	POP	005726	TPOFCH	004606		
EMES5	004200	POPPOP	022626	TPOUTX	004642		

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ERRORS DETECTED: 0

RUN-TIME: 11 SECONDS

5K CORE USED

