

IDENTIFICATION

PRODUCT CODE: DEC-11-YPTC-D

PRODUCT NAME: TC11 DECTAPE FORMATTER

DATE CREATED: JANUARY 22, 1972

MAINTAINER: COMPUTER SPECIAL SYSTEMS

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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	POP STACK ONCE:BTST(6)+
001000	POP STACK THREE:WCHP (6)+,(6)+
002000	CARRIAGE RETURN
004000	LYNE FEED
010000	KEYBOARD STATUS
020000	KEYBOARD BUFFER
040000	TELEPRINTER STATUS
05726	TELEPRINTER BUFFER
022626	KEYBOARD VECTOR
000015	TELEPRINTER VECTOR
000012	
177560	
177562	
177564	
177566	
000060	
000064	
177342	
177340	
177350	
177346	
177344	
104000	
104400	
000002	
000004	
000010	
000020	
000040	

```
.MACR  
BIC  
.ENDM
```

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

IMASK A APPLIED TO B

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

```
ROTR A  
PC,RTN  
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
IPRINTED TO BY A

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

PALX11	V003	19-APR-72	19:11	PAGE 6
000664	012700	010101		MOV
000670	032767	100200	LP2:	BIT
000676	001774			BEG
000700	100002			BPL
000702	004767			JSR
000706	010067	002346		MOV
000712	005204	176336		INC
000714	001365			RNE
000716	012703	176676		MOV
000722	004767	000130	LP3:	JSR
000726	005203			INC
000730	001374			BNE
000732	012704	177471		MOV
000736	012700	010101		MOV
000742	032767	100200	LP4:	BIT
000750	001774			BEG
000752	100002			BPL
000754	004767			JSR
000760	010067	002274		MOV
000764	005204	176364		INC
000766	001365			RNE
000770	012704	170000		MOV

```

IINTERBLOCK SYNC=25
IWAIT FOR ERROR OR READY
IHAVE NEITHER
IHAVE READY
ISTATUS ERROR
ILOAD MARK CODE
IDONE ALL?
IIF NOT, KEEP LOADING
ICOUNTER FOR NUMBER OF BLOCKS
IWRITE CODES FOR ONE BLOCK
IDONE ALL?
IIF NOT, WRITE ANOTHER BLOCK
ICOUNTER FOR IBS
IINTERBLOCK SYNC=25
IWAIT FOR ERROR OR READY
IHAVE NEITHER
IHAVE READY
ISTATUS ERROR
ILOAD MARK CODE
IDONE ALL?
IIF NOT, KEEP WRITING IBS
ICOUNTER FOR FEZ

```

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,SERROR
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,SERROR
001044	005067	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	WAIT 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),TCOT	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,C0BLKG	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	WAIT 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	WAIT 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:	BITSB	#3,TCST	SET XDA BITS FOR 0 REVERSE
001224	010067	176120		MOV	R0,TCOT	WRITE LAST BLOCK # FROM HERE TO END ZONE
001230	004767	001070		JSR	PC,FLAG1	WAIT TO SYNC UP FOR WRITING
001234	000770			BR	WLP2	KEEP WRITING 1011
001236	012767	001101		MOV	#1101,FBLK	INITIALIZE PARAMETERS FOR LAST BLOCK,
001244	012705	002560		MOV	#BYST,R3	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	FBLK	DECREMENT BLOCK NUMBER
001266	022767	177776		CMP	#2,FBLK	LAST BLOCK WRITTEN?
001274	001531			BEG	CHECK	YES, CHECK DATA AND BLOCK NUMBERS
001276	012704	177777		MOV	#1,R4	REVERSE 0 FWD
001302	012767	177374		MOV	#260,TCOT	NUMBER OF WORDS
001310	032767	003352	WLP3:	BIT	#815+87,TCCM	WAIT 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		BITSB	#3,TCST	1 KBV 0 FWD
001334	010467	176010		MOV	R4,TCOT	LOAD DATA WORD
001340	005267	003316		INC	TCOT	WRITE IT 260 TIMES
001344	001361			RNE	WLP3	KEEP WRITING UNTIL FINISHED
001346	032767	100200		BIT	#815+87,TCCM	WAIT 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,TGG1	ICOUNT OF TWO
001424	032767	100200	003236	BIT	#B15+B7,TCOM	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	TGG1	ADVANCE COUNT
001460	001361			RNE	WLP4	KEEP WRITING UNTIL FINISHED
001462	032767			BIT	#B15+B7,TCOM	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,TGG1	ICOUNT OF TWO
001520	032767	100200	175614	BIT	#B15+B7,TCOM	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	TGG1	ADVANCE COUNT
001554	001361			RNE	WLP5	KEEP WRITING UNTIL FINISHED
001556	000641			BR	WALUP	FINISHED - DO NEXT BLOCK

[illegible]

PALX11	V003	19-APR-72	19111	PAGE 10	
002014	012767	004003	175320		MOV
002022	000670				BR
002024	005267	002632		DATOKI	INC
002030	001335				BNE
002032	005267	002626			INC
002036	022767	001102	002620		CMP
002044	001266				BNE
002046	112767	000003	175266	ROH1	MOVB
002054	004767	000244			JSR
002060	000401				BR
002062	000402				BR
002064	104000				ERR
002066	004126				EMES4
002070	012767	001101	002566		MOV
002076	012767	004000	175236	RERCV1	MOV
002104	012700	010736			MOV
002110	005010			ZLUP1	CLR
002112	062700	000002			ADD
002116	020027	011736			CMP
002122	001372				BNE
002124	112767	000003	175210	CHKL31	MOVB
002132	032767	100200	175202		BIT
002140	001774				SEQ
002142	100002				SPL
002144	004767	001104			JSR
002150	026767	002510	175172		CMP
002156	001421				BEG
002160	016767	175164	002462		MOV
002166	005067	175150			CLR
002172	016767	002466	002446		MOV
002200	104002				ERR+GB
002202	004200				EMES5
002204	112767	000003	175130	RST11	MOVB
002212	004767	000106			JSR
002216	000772				BR
002220	000726				BR
002222	012767	177400	175114	WRTDTA1	MOV
002230	012767	010736	175110		MOV
002236	112767	000015	175076		MOVB
002244	032767	100200	175070		BIT
002252	001774				BEG
002254	100002				SPL
002256	000167	000306			JMP
002262	005367	002376			DEC
002266	100316				BPL
002270	112767	000003	175044	FINIS1	MOVB
002276	004767	000022			JSR
002302	000401				BR
002304	000402				BR
002306	104000				ERR
002310	004247				EMES6
002312	005067	175024			CLR
002316	000000				XX
002320	000167	176254			JMP

```

I TO TRY AGAIN
I RESTART CHECK
I CHECK ALL DATA IN BLOCK
I KEEP CHECKING UNTIL DONE
I SETUP FOR NEXT BLOCK
I HAVE ALL BLOCKS BEEN CHECKED?
I IF NOT KEEP CHECKING
I YES = FIND FWD EZ
I SKIP ON EZ
I ERROR
I OK
I BLK# FOUND AFTER 1101

I FIRST REVERSE BLK# 1101
I SET TAPE TO REVERSE
I INITIALIZE DATA BUFFER POINTER
I ZERO DATA WORD
I ADVANCE POINTER
I IS BUFFER FILLED?
I IF NOT KEEP CLEARING
I SEARCH REVERSE AND
I WAIT FOR ERROR OR READY
I HAVE NEITHER
I HAVE READY
I STATUS ERROR

I IS REVERSE BLOCK# CORRECT?
I YES = WRITE DATA
I NO = PUT INCORRECT BLK# IN BAG FOR DISPLAY
I STOP TAPE AND
I REVERSE BLK# WRITTEN INC:

I TO TRY PASS AGAIN
I FIND FWD EZ AND
I RESTART REVERSE
I CHECK PASS
I INC FOR 1 BLOCK OF DATA
I CA INITIALIZATION
I WRITE DATA TO MAKE PARITY OK
I WAIT FOR ERROR OR READY
I HAVE NEITHER
I HAVE READY
I HAVE ERROR
I DECREMENT BLOCK#
I IF BELOW 0 FINISH VP, OTHERWISE KEEP CHECKING
I FIND REVERSE EZ
I SKIP ON EZ
I ERROR
I OK
I BLK# FOUND IN REVERSE AFTER 0

I STOP TAPE AND
I HALT: PROGRAM IS FINISHED, MOUNT NEW
I TAPE, 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		WORD	-1	IF1 REVERSE #0 FORWARD
002550	177777		WORD	-1	
002552	001101		WORD	1001	IBLOCK NUMBER GOES HERE
002554	177777		WORD	-1	
002556	177777		WORD	-1	
002560	003		BYTE	3	
002561	003		BYTE	3	
002562	000		BYTE	0	
002563	000		BYTE	0	
002564	001		BYTE	1	
002565	001		BYTE	1	
002566	002		BYTE	2	
002567	002		BYTE	2	

RTHL:

WALBFI:

FBLKI:

BYSTI:

ITABLE OF XDA 17 & 18 FOR CMP,OBV,BLK#

002570	032767	040000	174772	ERROR1	BIT	#B14,SR	ITEST YTO DELETE SWITCH
002576	001107				RNE	EXIT12	IFEXIT NOW IF YTO DELETE SWITCH IS UP
002600	004567	001510			JSR	R5,SAV05	ISAVE AC0-5
002604	012700	003412			MOV	#ERMS1,R0	MESSAGE POINTER TO K0
002610	004767	001770			JSR	PC,TYP0UT	PRINT MESSAGE
002614	016600	000014			MOV	14(SP),R0	IFETCH SAVED PC
002620	162700	000002			SUB	#2,R0	IFIND ADDRESS OF ERROR CALL
002624	010005				MOV	R0,R5	IFUT POINTER IN R5
002626	004767	001564			JSR	PC,PNT0ZS	PRINT PC
002632	012700	003541			MOV	#STPMS,R0	MESSAGE POINTER
002636	004767	001742			JSR	PC,TYP0UT	PRINT "PSB"
002642	016600	000016			MOV	16(SP),R0	IFETCH SAVED STATUS
002646	004767	001544			JSR	PC,PNT0ZS	AND PRINT IT
002652	032715	000400			BIT	#B0,(R5)	ITRAP?
002656	001402				BEG	GOGO	INO
002660	004767	000404			JSR	PC,SUBER	ISUBROUTINE ERROR
002664	016600	000014			MOV	14(SP),R0	
002670	062766	000002	000014	GOGO1	ADD	#2,14(SP)	
002676	011000				MOV	(R0),R0	
002700	004767	001700			JSR	PC,TYP0UT	
002704	032715	000004			BIT	#ST,(R5)	
002710	001402				BEG	.+6	
002712	004767	000204			JSR	PC,STYPE	
002716	032715	000002			BIT	#GB,(R5)	
002722	001402				BEG	.+6	
002724	004767	000130			JSR	PC,GBTYPE	
002730	032715	000010			BIT	#DA,(R5)	
002734	001402				BEG	.+6	
002736	004767	000202			JSR	PC,DATYPE	
002742	032715	000020			BIT	#BK,(R5)	
002746	001402				BEG	.+6	
002750	004767	000256			JSR	PC,BKTYPE	
002754	032715	000040			BIT	#VC,(R5)	
002760	001402				BEG	.+6	
002762	004767	000222			JSR	PC,VCYTYPE	
002766	004567	001336			JSR	R5,REST05	
002772	012700	000015			MOV	#CR,R0	
002776	004767	001512			JSR	PC,TTO	
003002	032767	100000	174560	ERROR11	BIT	#B15,SR	ICR & LF
003010	001001				BNE	.+4	ISR15(1)=DELETE ERROR HALT
003012	000000				XX		ISKIP IF ZP0
003014	000002			EHALT11	RTI		IFERROR HALT, CONTINUE
003016	062716	000002		EXIT121	ADD		IFEXIT ERROR ROUTINE
003022	000767			BR		#2,(SP)	
						EXIT11	

003024	032767	020000	174536	LERCHKI BIT	#B13,SR +6	ISRI3(I)=LOOP ON ERROR IEXIT IF 1 IADVANCE RETURN VECTOR OVER LOOP JUMP IEXIT
003032	001002			SNE		
003034	062716	000024		ADD	#4,(SP)	
003040	000207			RTS	PC	
003042	032767	010000	174520	LUPCHKI BIT	#B12,SR +6	ISRI2(I)=LOOP ALWAYS IEXIT IF 1 IADVANCE RETURN VECTOR OVER LOOP JUMP IEXIT
003050	001002			SNE		
003052	062716	000004		ADD	#4,(SP)	
003056	000207			RTS	PC	
003060	012700	003472		GBTYPEI PNTM	GBMS	IPRINT MESSAGE IPOINTE TO BY GBMS
003064	004767	001514		MOV	#GBMS,R0	
003070	016700	001552		JSR	PC,TYP0UT	
003074	004767	001306		MOV	GOOD,R0	IFETCH C(GOOD)
003100	012700	003536		JSR	PC,PNTORJ	IPRINT OCTAL NUMBER
003104	004767	001474		PNTM	SP2	
003110	016700	001534		MOV	#SP2,R0	IPRINT MESSAGE IPOINTE TO BY SP2
003114	004767	001266		JSR	PC,TYP0UT	IFETCH C(BAD)
003120	000207			RTS	BAD,R0	IPRINT OCTAL NUMBER IEXIT
003122	012700	003513		STYPEI MOV	#STMS,R0	IPRINTER TO "STATUS"
003126	004767	001492		JSR	PC,TYP0UT	IPRINT TEXT
003132	016700	001520		MOV	STATUS,R0	IFETCH C(RPCS)
003136	004767	001230		JSR	PC,PNT0AL	IPRINT OCTAL NUMBER
003142	000207			RTS	PC	
003144	012700	003550		DATYPEI MOV	#DAMS,R0	IPRINTER TO "DATA"
003150	004767	001430		JSR	PC,TYP0UT	IPRINT TEST
003154	016700	001472		MOV	DATA,R0	IFETCH C(DATA)
003160	004767	001232		JSR	PC,PNT0ZS	IPRINT OCTAL NUMBER
003164	000207			RTS	PC	IEXIT
003166	011627	000000		TRCTRPI MOV	(SP),#0	ILOAD AND DEFINE BAD PI ADDRESS SLOT
003172	162767	000006	177770	BADPAD=,02		
003200	022626			SUB	#6,BADPAD	IADJUST ADDRESS
003202	104040			POPPOP		IADJUST STACK
003204	003574			ERR+VC		IPRINT ERROR
003206	000002			TRCMES		IUNEXPECTED INTERRUPT
003210	012700	003562		RTI		IEXIT
003214	004767	001364		VECTYPEI PNTM	VECMES	IPRINT MESSAGE
003220	016700	177744		MOV	#VECMES,R0	IPOINTE TO BY VECMES
003224	004767	001166		JSR	PC,TYP0UT	IGET BAD VECTOR
003230	000207			RTS	BADPAD,R0	IPRINT ADDRESS
003232	012700	003657		PC,PNT0ZS	PC	IEXIT
003236	004767	001342		PC		
003238	012700	003657		BKTYPEI PNTM	BKMS	IPRINT MESSAGE
003236	004767	001342		MOV	#BKMS,R0	IPOINTE TO BY BKMS
				JSR	PC,TYP0UT	

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003242	016700	176524	MOV	BKN,R0	IGET BLK#
003246	004767	001144	JSR	PC,PNT02S	IPRINT IT
003252	000207		RTS	PC	IFEXIT
003254	016767	174062	ERROR:	TCCM,STATUS	STATUS ERROR
003262	104424		ERS+ST		
003264	003677		EMES1		
003266	000207		RTS	PC	
003270	012700	003436	SUBER:	#SUBENS,R0	
003274	004767	001304	JSR	PC,TYPEOUT	
003300	016600	000022	MOV	22(SP),R0	
003304	002700	000006	SUB	#6,R0	
003310	004767	001102	JSR	PC,PNT02S	
003314	000207		RTS	PC	

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

STMS1 .ASCII /&STATUS= 0/

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

PASMS1 .ASCII /&PASS# 07

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

SP21 .ASCII / 0/

003536 040
 003537 040
 003540 100

STPMS1 .ASCII / PS= 0/

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

DAMS1 .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

VECMES: .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 040
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

TRCMES: .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

003730 122
003731 127
003732 101
003733 122
003734 104
003735 040
003736 102
003737 114
003740 117
003741 103
003742 113
003743 040
003744 116
003745 125
003746 115
003747 102
003750 105
003751 122
003752 040
003753 127
003754 122
003755 111
003756 124
003757 103
003760 033
003761 122
003762 103
003763 101
003764 104
003765 040
003766 105
003767 122
003770 122
003771 117
003772 122
003773 100

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

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

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/

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

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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
004310	105
004311	040
004312	060
004313	100

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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	IR0=R4
004336	MOV (SP)+,R3	IR0=R4
004340	MOV (SP)+,R4	IR0=R4
004342	RTS R5	IR0=R4
004344	RTS R5	IR0=R4
005726	TST (SP)+,R0	ARE POPPED
012600	MOV (SP)+,R1	IN LIFO
012601	MOV (SP)+,R2	SEQUENCE
012602	MOV (SP)+,R3	IR5 IS POPPED BY THE RTS AND
012603	MOV (SP)+,R4	IR5 IS POPPED BY THE RTS AND
012604	MOV (SP)+,R5	IR5 IS POPPED BY THE RTS AND
000205	RTS R5	IR5 IS POPPED BY THE RTS AND
		IR5 IS POPPED BY THE RTS AND
005067	CLR PNTDAL	SCON
004346	BR	DECO
004352	MOV PNTDRJ	#20,SCON
004354	BR	DECO
004362	MOV PNTDZS	#60,SCON
004364	MOV DECGO	#10,R2
004372	BR	OCTGO+4
004376	CLR PNTDAL	SCON
004400	BR	OCTGO
004404	MOV PNTDRJ	#20,SCON
004406	BR	OCTGO
004414	MOV PNTDZS	#60,SCON
004416	MOV OCTGO	#0,R2
004424	CLR	#0
004430	ZSW,=2	
004432	JSR PC,IDIVR	IDIVIDE (R0) BY (R2) WITH REMAINDER
004434	MOV R1,=(SP)	STACK REMAINDER
004440	INC ZSW,#6	
004442	CMF	
004446	BEG	POP AND PRINT
004450	JSR PC,DECREM	NO - DIVIDE NUMBER BY RADIX
004456	ZSW	
004462	BNE	
004466	CLR	
004470	MOV (SP)+,R0	POP NUMBER FROM STACK
004474	MOV	
004476	BEG	
004482	CLR	
004486	MOV	
004490	SUB	
004494	ADD	
004498	ADD	
004504	ADD	
004510	ADD	

```

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
004536 022700 SPL
004542 001401 CMP #CR,R0
004544 000207 SEQ TTOLF
004546 012700 RTS PC
004552 000760 MOV #LF,R0
004552 000760 BR T70

```

```

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
004644 000207 RTS PC

```

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 CRI
IYES - PRINT LINE FEED
RETURN TO POPIT OR MAIN PROGRAM
PRINT LF
EXECUTE PRINT

```

```

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

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004700	300000		PASCNT	XX
004702	300020		MASKI	XX
004704	300020		LERRI	XX
004706	300020		DEBUC	XX
	305176			1=DEBUC+200
	305506			1=1+400

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005506	010101		BLKMRK1	,WORD	010101	INTERBLOCK SYNC=25	
005510	010110			,WORD	010110	IFORWARD BLOCK MARK=26	
005512	011010			,WORD	011010	IREVERSE GUARD=32	
005514	001000			,WORD	001000	LOCK=10	
005516	001000			,WORD	001000	IREVERSE PARITY=10	
005520	001000			,WORD	001000	IREVERSE FINAL=10	
005522	000374			,REPT	374	IREVERSE PRE-FINAL=10	
				,WORD	111000	IMARK DATA=70	
				,ENDR			
005524	111000			,WORD	111000	IMARK DATA=70	
005526	111000			,WORD	111000	IMARK DATA=70	
005530	111000			,WORD	111000	IMARK DATA=70	
005532	111000			,WORD	111000	IMARK DATA=70	
005534	111000			,WORD	111000	IMARK DATA=70	
005536	111000			,WORD	111000	IMARK DATA=70	
005540	111000			,WORD	111000	IMARK DATA=70	
005542	111000			,WORD	111000	IMARK DATA=70	
005544	111000			,WORD	111000	IMARK DATA=70	
005546	111000			,WORD	111000	IMARK DATA=70	
005550	111000			,WORD	111000	IMARK DATA=70	
005552	111000			,WORD	111000	IMARK DATA=70	
005554	111000			,WORD	111000	IMARK DATA=70	
005556	111000			,WORD	111000	IMARK DATA=70	
005560	111000			,WORD	111000	IMARK DATA=70	
005562	111000			,WORD	111000	IMARK DATA=70	
005564	111000			,WORD	111000	IMARK DATA=70	
005566	111000			,WORD	111000	IMARK DATA=70	
005570	111000			,WORD	111000	IMARK DATA=70	
005572	111000			,WORD	111000	IMARK DATA=70	
005574	111000			,WORD	111000	IMARK DATA=70	
005576	111000			,WORD	111000	IMARK DATA=70	
005600	111000			,WORD	111000	IMARK DATA=70	
005602	111000			,WORD	111000	IMARK DATA=70	
005604	111000			,WORD	111000	IMARK DATA=70	
005606	111000			,WORD	111000	IMARK DATA=70	
005610	111000			,WORD	111000	IMARK DATA=70	
005612	111000			,WORD	111000	IMARK DATA=70	
005614	111000			,WORD	111000	IMARK DATA=70	
005616	111000			,WORD	111000	IMARK DATA=70	
005620	111000			,WORD	111000	IMARK DATA=70	
005622	111000			,WORD	111000	IMARK DATA=70	
005624	111000			,WORD	111000	IMARK DATA=70	
005626	111000			,WORD	111000	IMARK DATA=70	
005630	111000			,WORD	111000	IMARK DATA=70	
005632	111000			,WORD	111000	IMARK DATA=70	
005634	111000			,WORD	111000	IMARK DATA=70	
005636	111000			,WORD	111000	IMARK DATA=70	
005640	111000			,WORD	111000	IMARK DATA=70	
005642	111000			,WORD	111000	IMARK DATA=70	
005644	111000			,WORD	111000	IMARK DATA=70	
005646	111000			,WORD	111000	IMARK DATA=70	
005650	111000			,WORD	111000	IMARK DATA=70	
005652	111000			,WORD	111000	IMARK DATA=70	

005654	111000	WORD	111000	MARK DATA=70
005656	111000	WORD	111000	MARK DATA=70
005660	111000	WORD	111000	MARK DATA=70
005662	111000	WORD	111000	MARK DATA=70
005664	111000	WORD	111000	MARK DATA=70
005666	111000	WORD	111000	MARK DATA=70
005670	111000	WORD	111000	MARK DATA=70
005672	111000	WORD	111000	MARK DATA=70
005674	111000	WORD	111000	MARK DATA=70
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006514	111011	WORD	111011	PRE-FINAL=73
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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	FRMLK	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	RTHL	002534	WORK	004672
BKN	001772	LERR	004704	RTL	003354	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	ST	000600		
CHK2	001622	MASK	004702	START	004656		
CHK3	002124	NCP	000240	STATUS	003513		
COBLK	000015	OCTGO	004424	STMS	003541		
CR	000010	P0	000000	STPMS	003122		
DAMS	003550	P1	000040	STYPE	003436		
DATA	004652	P2	000140	SUBRS	003270		
DATBUF	010736	P3	000200	TCBA	177346		
DATCHK	001710	P4	000240	TCM	177342		
DATOK	002024	P5	000300	TCDT	177350		
DATPE	003144	P6	000340	TCST	177340		
DCHKL	001724	P7	004700	TCMC	177344		
DEBUG	004706	PASCNT	003525	TEMP1	004676		
DECGO	004434	PASMS	000007	TKB	177562		
DECREM	004654	PNTDAB	004346	TKS	177560		
DIVID	003012	PNTDRJ	004354	TKV	000060		
EHALT1	003677	PNTDZS	004400	TOG1	004662		
EMES1	003725	PNTORJ	004406	TOG2	004666		
EMES2	003774	PNTORS	004416	TOG3	004670		
EMES3	004126	POP	005726	TOG4	177566		
EMES4	004200	POPP0P	222626	TPFCH	004606		
EMES5				TPOUTX	004642		

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ERRORS DETECTED: 0

RUN-TIME: 11 SECONDS

5K CORE USED

