

IDENTIFICATION

PRODUCT CODE: MAINDEC-X8-DITCB-C-D
PRODUCT NAME: DEC/X8 MODULE "TC58MT"
TC58 DECMAGTAPE EXERCISER
DATE CREATED: SEPTEMBER 7, 1972
MAINTAINER: DIAGNOSTIC GROUP
AUTHOR: LEONARD E. BEYERSDORFER

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MAYNARD, MASS. 01754

1. MODULE DESCRIPTION

.....
"TC58MT" IS A DEC/X8 SOFTWARE MODULE WHICH EXERCISES A TC58
DECMAGTAPE SYSTEM WITH UP TO EIGHT TRANSPORTS. THE MAIN CHARACTERISTICS
OF THIS MODULE ARE:

1. RECORD LENGTH VARIES RANDOMLY FROM 30 TO 1000 WORDS OCTAL.
2. FILE LENGTH VARIES RANDOMLY FROM 1 TO 200 RECORDS OCTAL.
(EOF IS NOT WRITTEN.)
3. THE TAPE OPERATIONS PERFORMED ARE WRITE/READ-COMPARE/READ FOR EACH "FILE".
SPACE REVERSE IS USED TO MOVE FROM THE END TO THE BEGINNING
OF THE FILE. REWIND IS USED ONLY WHEN EOF IS SENSED.
4. ALL OPERATIONS ARE DONE AT 800 BPI, NORMAL GAP IN CORE DUMP
MODE (9 TRACK TREATED AS 7 TRACK). GAP AND DENSITY MAY BE
CHANGED BY THE USER AS INDICATED LATER; HOWEVER, NO PROVISIONS
HAVE BEEN INCLUDED TO OPERATE IN STANDARD 9TRACK COMPATIBLE
MODE.
5. ALL DRIVES WITHIN THE LIMITS OF THE LOWEST AND HIGHEST DRIVES
SPECIFIED ARE RANDOMLY UTILIZED.
6. UNLIKE MANY OTHER DECMAGTAPE EXERCISERS, THIS MODULE STARTS AT
THE CURRENT TAPE POSITION. TAPE IS FORCED TO BOT ONLY
WHEN EOF IS SENSED.
7. CONTINUE MODE IS NEVER UTILIZED.
8. THE MODULE WILL HANG IF A SELECTED DRIVE IS OFF LINE OR OTHERWISE NOT READY.

2. REQUIREMENTS

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1. PROCESSORS: PDP-8,8/I,8/L,8/E,8/M AND PDP-12.
 2. OPTIONS: TC58 DECMAGTAPE CONTROL WITH UP TO EIGHT 7 AND/OR 9
TRACK TRANSPORTS (TU20, TU30, TU10 OR EQUIVALENTS).
 3. SPECIAL: INDUSTRY CERTIFIED STANDARD MAGNETIC TAPE.

3. RESTRICTIONS

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9 TRACK COMPATIBLE MODE MAY NOT BE USED. ALL 9 TRACK TRANSPORTS
WILL BE OPERATED IN CORE DUMP MODE.

4. OPERATING INFORMATION

4.1 SPECIAL CONSIDERATIONS

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THIS MODULE REQUIRES EXTERNAL BUFFERS.

4.2 BUILDING

1. JOB TYPE: INTERRUPT DRIVEN
2. PRIORITY: SHOULD BE ASSIGNED THE LOWEST INTERRUPT PRIORITY.
3. JOB SLOTS: JF1 OR JF2 ONLY; 4 PAGES REQUIRED.
4. STANDARD DEVICE CODES: 0700,0710,0720
5. STANDARD WORD COUNT: 7752
6. STANDARD CURRENT ADDRESS: 7753

4.3 INITIALIZING

AFTER THE INDICATED CODE LETTER IS PRINTED RESPOND BY TYPING THE PARAMETER IN THE MANNER SHOWN BELOW.

CODE -----	DEFINITION -----	RESPONSE -----	LIMITS -----	PRESET -----
A	LOWEST DRIVE	N	0-7	0
B	HIGHEST DRIVE	N	0-7	0
C	TYPE OF DATA	0 FOR RANDOM 1 NNNN FOR CONSTANT	ANY DATA WORD	RANDOM
D	RECORD LENGTH	0 FOR RANDOM 1 NNNN FOR CONSTANT	0030-1000	RANDOM
E	FILE LENGTH	0 FOR RANDOM 1 NNNN FOR CONSTANT	0001-0200	RANDOM
F	BUFFER TO USE	0 FOR RANDOM 1 NNNN FOR CONSTANT	LEGAL DESIGNATOR	RANDOM

IN ADDITION LOCATION "K606A" (0325) MAY BE CHANGED TO SPECIFY ANY LEGAL GAP OR DENSITY SELECTION EXCEPT 9 TRACK COMPATIBLE. CORE BUMP MODE MUST ALWAYS BE USED. BIT ASSIGNMENT IS THE SAME AS THE COMMAND REGISTER. CONTINUE MODE MAY BE FORCED BY CHANGING TC58MT LOCATION 0265 FROM 9263 TO 4777.

4.4 DEVICE SETUP

ALL DRIVES TO BE UTILIZED MUST BE ON LINE WITH TAPE POSITIONED AT OR AFTER BOT. THE WRITE PERMISS RING MUST BE IN PLACE.

4.5 RUNNING

1. CNTR: UPDATED AFTER A COMPLETE FILE HAS BEEN WRITTEN, READ COMPARED, READ AND DATA CHECKED.
2. SR10: WHEN SET TO A 1, THE BUFFER CURRENTLY ASSIGNED IS RETAINED.
3. SR11: WHEN SET TO A 1, THE DRIVE CURRENTLY IN USE IS RETAINED.

5. ERROR INFORMATION

ALL STATUS REGISTER INDICATED ERRORS ARE REPORTED AS STATUS ERRORS,
ALL DATA ERRORS AS DATA ERRORS.

5.1 ERROR SYMBOL DEFINITIONS

CODE: 0010 REWIND
0020 READ
0030 READ-COMPARE
0040 WRITE
0070 SPACE REVERSE

0021 FALSE DATA ERROR (BAD SOFTWARE CHECKSUM BUT
BUT DATA LOOKED GOOD ON WORD BY WORD CHECK).

00X3 TRANSFER INCOMPLETE (WORD COUNT NON-ZERO BUT NO
ERROR BIT WAS SET).

SA: FINAL CONTENTS OF STATUS REGISTER

SB: CURRENT BUFFER DESIGNATOR

SC: INITIAL WORD COUNT

SD: FINAL WORD COUNT

SE: INITIAL CURRENT ADDRESS

SF: FINAL CURRENT ADDRESS

SG: INITIAL COMMAND REGISTER

SH: FINAL COMMAND REGISTER

SI: RECORD TALLY (THE LAST RECORD IN A FILE IS 7777. THIS WORD
MAY BE USED TO COMPARE READ-COMPARE ERRORS WITH DATA
ERRORS FOUND DURING READ.)

CA: BUFFER ADDRESS

CB: GOOD DATA WORD

CC: BAD DATA WORD

6. LISTING (ATTACHED)

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/DEC/X8 EXTERNAL SYMBOL TABLE "EXTSYM"
/FOR USE IN ASSEMBLING DEC/X8 SOFTWARE MODULES;
/COPYRIGHT 1972, DIGITAL EQUIPMENT CORP., MAYNARD, MASS,
XLIST
PAUSE

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/MAINDEC-X8-DITCB-C-L "DEC/X8" TC58MT
/TC58 DECHATAPE SYSTEM MODULE FOR DEC/X8
/COPYRIGHT 1972, DIGITAL EQUIPMENT CORP., MAYNARD, MASS;
/THIS MODULE OPERATIONAL ON PDP-8,8/1,8/L,8/E AND PDP-12
/PRG: LEN BEYERSDORFER (X2537)

/BUILDER INSTRUCTIONS:

- /1. PRIORITY: SHOULD BE ASSIGNED THE LOWEST INTERRUPT PRIORITY.
- /2. JOB SLOT: 4 PAGES REQUIRED, SLOT JX1 OR JX2.

/INITIALISER INSTRUCTIONS:

/CODE	DEFINED	RESPONSE	PRESET
/A:	LOWEST DRIVE TO USE	0=7	0
/B:	HIGHEST DRIVE TO USE	0=7	0
/C:	TYPE OF DATA	0=RANDOM; 1 NNNN=CONSTANT	0 RANDOM
/D:	RECORD LENGTH	0=RANDOM; 1 NNNN=CONSTANT (0000-1000)	0 RANDOM
/E:	FILE LENGTH	0=RANDOM; 1 NNNN=CONSTANT (0001-0200)	0 RANDOM
/F:	BUFFER ASSIGNMENT	0=RANDOM; 1 NNNN=CONSTANT	0 RANDOM

/ALLOWABLE PROGRAM MODIFICATION VIA *0:
/LOCATION K606 MAY BE CHANGED TO LEGAL GAP AND DENSITY SELECTION;
/DO NOT USE 9 TRK COMPATIBLE MODE.

/REPORT SYMBOL DEFINITIONS:

/1. REFER TO MODULE TABLE IN THIS LISTING FOR DESCRIPTION
/OF CNTR,SAI-SII, AND DAI-DDI

/2. "CODE" DEFINITIONS:

/CODE	DEFINED
/0010	REWIND
/0020	READ
/0030	READ COMPARE
/0040	WRITE
/0070	SPACE REVERSE
/00X1	FALSE DATA ERROR (BAD CHECKSUM BUT DATA LOOKED GOOD ON WORD BY WORD CHECK.)
/00X3	TRANSFER INCOMPLETE (NO NON-ZERO, BUT NO STATUS ERROR BIT WAS SET.)

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/TC58 STANDARDS:

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/WORD COUNT:7752
/CURRENT ADDRESS:7753
/DEVICE CODES:70,71,72.

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/TC58 IOT DEFINITIONS:

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6701 MTRF=6701 /PC+1 => PC IF MTF OR EF
6711 MTCR=6711 /PC+1 => PC IF CONTROL READY
6721 MTTR=6721 /PC+1 => PC IF DRIVE READY
6712 MTAF=6712 /CLEAR STATUS (CLEAR ALL IF CONTROL READY)
6724 MTRC=6724 /AC + CM => AC
6714 MTCM=6714 /ACB=0,9=11 + CM AND AC6=0 => CM
6716 MTLG=6716 /AC => CM (ALSO MTAF)
6706 MTRS=6706 /SR => AC
6722 MT00=6722 /GO (ALSO LOAD BREAK FIELD FROM AC 6=0)

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/FUNCTION DESIGNATIONS:

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REWIND=10;READ=20;RDCOMP=30;WRITE=40;NEOP=50;SPCFW=60;SPOREV=70

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/MODULE TABLE

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*200
JOB, 0 /JOB NUMBER
TEXT1, TEXT "TC58MT"
TEXT "DITCB-C"
HOMEDF, 0 /OP=IF
HLT/CPF
JMP I HOMEDF

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0214 6202 INTACK, CIF 00 /ACKNOWLEDGE INTERRUPT;
0215 4426 JMS I IHRETP
0216 7777 -1 /PRIORITY
0217 7777 -1 /COMMAND TO KILL JOB.
0220 7777 KILLED, -1 /MODULE SETS TO -1 WHEN JOB KILLED;
0221 0000 CNTR, 0 /NUMBER OF EXERCISER LOOP PASSES;
0222 0000 ERROR, 0 /ERROR CALL.
0223 3234 DCA ,+11
0224 7604 LAB
0225 0073 AND E K4
0226 7440 SEA
0227 3217 DCA KILL
0230 4211 JMS HOMEDF
0231 6002 IOF
0232 6202 CIF 00
0233 4461 JMS I ERRP
0234 0000 0
0235 5622 JMP I ERROR
0236 0000 CODE, 0 /ERROR CODE;
0237 7767 -11 /STATUS ERROR ENTRY TALLY;
0240 0000 ERRSA, 0 /STATUS RES.
0241 0000 ERRSB, 0 /BUFFER WORD
0242 0000 ERRSC, 0 /INIT WC
0243 0000 ERRSD, 0 /FINAL WC
0244 0000 ERRSE, 0 /INIT CA
0245 0000 ERRSF, 0 /FINAL CA
0246 0000 ERRSG, 0 /INIT CM
0247 0000 ERRSH, 0 /FINAL CM
0250 0000 ERRSI, 0 /RECORD TALLY
0251 7775 -3 /DATA ERROR ENTRY TALLY.
0252 0000 ERROA, 0 /BUFFER ADDRESS
0253 0000 ERROB, 0 /GOOD DATA
0254 0000 ERROD, 0 /BAD DATA

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/END OF MODULE TABLE

/MAG TAPE DO IT!

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/ JMS GO
/ FUNC
/ RETURNS HERE IF NO STATUS ERRORS OR IF ERROR IS PE, RG, ST OR ORL;

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/REPEATED FUNCTION MAY REENTER BY DOING JMP NONSTP;

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GO, 0 /INITIAL ENTRY
TAD ERRSC /MAKE INIT CM
AND K70000
TAD I GO
TAD K686A
OCA ERRSC
JMS SETUP
JMP STRSTP

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/SET UP WC AND CA
/START STOP OPERATION

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172 0265 5263 NONSTP, JMP ,+2 /CHANGE TO JMS SETUP TO FORCE CONTINUE MODE ATTEMPT,
173 0266 6711 DC71A, MTRC /CONTROL READY?
174 0267 5385 STRSTP, MTRC MAGTAP=1 /NO, GO NON STOP
175 0270 6711 /GO START STOP
176 0271 5270 TAD KILL
177 0272 1217 SNA
178 0273 7450 JMP ,+4
179 0274 5388 DCA KILLED
180 0275 3220 JMS I (RELEASE
181 0276 4776 SERVEX
182 0277 5084 TAD ERRSG
183 0300 1246 DC71B, MTRC /LOAD CM
184 0301 6716 CLA CHA /AC INDICATES START/STOP
185 0302 7248 DC72A, MTRC /WAIT FOR DRIVE
186 0303 6721 JMP ,+1
187 0304 5383 IOP /SET UP BREAK FIELD
188 0305 6082 DCA MODSET /SAVE *1 FOR START/STOP, * FOR CONTINUE MODE;
189 0306 3370 TAD ERRSB
190 0307 1241 AND E K78
191 0310 0185 DC72C, MTRC /GO
192 0311 6722 I98 MODSET /CONTINUE MODE?
193 0312 2378 DC71C, MTRC /YES, GO SET?
194 0313 6711 JMP ,+4 /YES, OK;
195 0314 5320 GONOST, MTRC /NO, CLEAR PLADS;
196 0315 6712 ION /GO START STOP;
197 0316 6081 JMP NONSTP=2 /ALLOW ONE INTERRUPT
198 0317 5263 CLA CHA
199 0320 7248 DCA RENTRY /OUT
200 0321 3775 SERVEX
201 0322 5084 TC58MC, 7752
202 0323 7752 TC58CA, 7753
203 0324 7753 K688A, 688
204 0325 0686 K7000B, 7000 /888 SPI, NORMAL GAP, ENI, COREDUMP;
205 0326 7000

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/DEFERRED SERVICE:

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211 0327 6281 DEFSRV, CDF 88
212 0330 1723 TAD I TC58MC /SAVE FINAL WC AND CA
213 0331 3243 DCA ERRSD
214 0332 1724 TAD I TC58CA
215 0333 3245 DCA ERRSF
216 0334 4211 JMS HOMEDP
217 0335 1655 TAD I GO
218 0336 3236 DCA CODE
219 0337 1248 TAD ERRSA /ERROR FLAG?
220 0340 7588 SNA
221 0341 5353 JMP DEFC1 /NO;
222 0342 7186 CLL RTL /BOT?
223 0343 7518 SPA
224 0344 5365 JMP DEFERR+3 /YES, OK;
225 0345 0110 AND E K288 /NO;
226 0346 7658 SNA CLA /EOT?

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227 0347 5362 JMP DEFERR /NO;
228 0350 4255 JMS GO /YES, REMIND
229 0351 0810 REWIND
230 0352 5774 JMP I (EXER
231 0353 7200 DEFC1, CLA
232 0354 1243 TAD ERRSD /MC=8?
233 0355 7650 SNA CLA
234 0356 5655 JMP I GO /YES, ALL IS OK! OR,
235 0357 1236 K1236, TAD CODE /IT ISN'T, ERROR;
236 /PNR0 CWK1-1236 (OUCH!)
237
238 0360 1072 TAD E K3
239 0361 3236 DCA CODE
240 0362 4222 DEFERR, JMS ERROR
241 0363 1240 TAD ERRSA /IS ERROR PARITY, R/C, RL, DNL AND/OR BAD TAPE?
242 0364 0387 AND K1236
243 0365 7640 SNA CLA
244 0366 5655 JMP I GO /YES, CONTINUE IN SEQUENCE;
245 0367 5773 JMP I (EXERA /FORCE RETURN TO INTERNAL LOOP;
246 /-START/STOP, GOCONTINUE;
247 0370 0800 MODSET,
248 0371 1253 DATCON, 8
249 0372 5770 TAD ERRSB
250 0373 0373 JMP I DATCON
251 0373 0642
252 0374 0688
253 0375 0421
254 0376 1088
255 0377 1131
256 0488

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/INTERRUPT SERVICE:

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261 0400 0888 INT, 8
262 0401 2221 I98 RENTRY /REENTRANT?
263 0402 5213 JMP ,+11 /YES
264 0403 4777 JMS HOMEDP
265 0404 6786 DC78A, MTRC /SAVE STATUS
266 0405 3776 DCA ERRSA
267 0406 6724 DC78B, MTRC /SAVE CM
268 0407 3775 DCA ERRSH
269 0410 6712 DC71D, MTRC /CLEAR AT LEAST *1 AND MTP
270 0411 1374 TAD (DEFSRV /DEFER THE REST
271 0412 5773 JMP INTACK
272 0413 3221 DCA RENTRY /REENTRANT
273 0414 6814 ROP
274 0415 1028 TAD E K0IFDP
275 0416 3217 DCA ,+1
276 0417 7482 MLT/CIF CDF
277 0420 5688 JMP I INT
278 0421 0888 RENTRY, 8
279
280 0422 0888 LGTCON, 8

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281 0423 1772' TAD LENGTH
282 0424 5622 JMP I LGTCON
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286 /RANDOM NUMBER GENERATOR
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288 0425 0000 RANDOM, 0
289 0426 2257 ISR RAN1
290 0427 7000 NOP
291 0430 1260 TAD RAN2
292 0431 1263 TAD K1111A
293 0432 7104 CLL RAL
294 0433 7420 SNL
295 0434 7001 IAG
296 0435 3260 DCA RAN2
297 0436 1257 TAD RAN1
298 0437 1260 TAD RAN2
299 0440 5625 JMP I RANDOM
300 0441 0000 SAVRAN, 0 /PRESET
301 0442 3260 DCA RAN2
302 0443 4777 JMS I (HOMEDP
303 0444 1257 TAD RAN1
304 0445 3261 DCA SAV1
305 0446 1260 TAD RAN2
306 0447 3262 DCA SAV2
307 0450 5641 JMP I SAVRAN
308 0451 0000 RESRAN, 0 /RESTORE
309 0452 1261 TAD SAV1
310 0453 3257 DCA RAN1
311 0454 1262 TAD SAV2
312 0455 3260 DCA RAN2
313 0456 5651 JMP I RESRAN
314 0457 0000 RAN1, 0
315 0460 0000 RAN2, 0
316 0461 0000 SAV1, 0
317 0462 0000 SAV2, 0
318 0463 1111 K1111A, 1111
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323 0464 0000 DATCHK, 0 /CHECK DATA,
324 0465 1771 TAD I (ERRSD /SET FINAL NO.
325 0466 4770 JMS I (SUMCHK /SUMCHECK,
326 0467 7041 CIA
327 0470 1767 TAD I (SUMSAV
328 0471 7650 SNA CLA /0000?
329 0472 5664 JMP I DATCHK /YES, OUT.
330 0473 4291 JMS RESRAN /NO, RESTORE DATA GENERATOR;
331 0474 1771 TAD I (ERRSD /PRESET TO CHECK DATA.
332 0475 4325 JMS DATSET
333 0476 3303 DCA ,+5
334 0477 1764 TAD I (DATGEV /SAVE COP TO BUFFER FIELD;
335 0500 3325 DCA DATSET /MOVE DATA GENERATOR POINTER TO THIS
/PAGE

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336 0501 4725 JMS I DATSET
337 0502 3765 DCA I (ERRDB /GENERATE I WORD,
338 0503 7402 HLT/CDP /SAVE IN GOOD,
339 0504 1417 AUD, TAD I AUTO /OP TO BUFFER FIELD;
340 0505 4777 JMS I (HOMEDP /GET WORD IN BUFFER,
341 0506 3764 DCA I (ERRDC /OP=IP
342 0507 1517 AUD, TAD AUTO /SAVE IN BAD;
343 0510 3763 DCA I (ERRDA /GET ADDR AND SAVE;
344 0511 1764 TAD I (ERRDC
345 0512 7041 CIA /0000READY?
346 0513 1765 TAD I (ERRDB
347 0514 7440 SNA
348 0515 4762 JMS I (ERROR /NO, DATA ERROR (AG NOT 0)
349 0516 2761 ISR I (BUFTAL /DONE?
350 0517 5301 JMP ,=16 /NO,
351 0520 1760 TAD I (CODE /YES, SET CODE=0001
352 0521 7001 IAG
353 0522 3760 DCA I (CODE
354 0523 4762 JMS I (ERROR /CLOSE ERROR ROUTINE;
355 0524 5664 JMP I DATCHK /OUT.
356 0525 0000 DATSET, 0 /SET UP FOR DATA GENERATE OR CHECK;
357 0526 7041 CIA /COMPUTE LENGTH TO FILL OR CHECK.
358 0527 1737 TAD I (ERRDC
359 0530 7450 SNA
360 0531 5664 JMP I DATCHK
361 0532 3761 DCA I (BUFTAL /SAVE IT;
362 0533 1756 AUD, TAD I (ERRSE /PUT CA IN AUTO INDEX;
363 0534 3017 DCA AUTO
364 0535 1755 TAD I (ERRSB /COMPUTE COP TO BUFFER FIELD;
365 0536 0105 AND Z K90
366 0537 1864 TAD Z K90
367 0540 5725 JMP I DATSET /EXIT WITH IT IN AG.
368 0541 0000 INISR1, 0 /INITIALIZE SERVICE 1.
369 0542 4794 JMS I (INISR /SERVICE 3.
370 0543 7112 CLL RTR /MOVE TO BITS [-3
371 0544 7012 RTR
372 0545 7010 RAR
373 0546 7041 CIA /NEGATE
374 0547 5741 JMP I INISR1 /OUT
375 0550 0000 FILCON, 0
376 0551 1753' TAD RECORD
377 0552 5750 JMP I FILCON
378 /END OF PAGE
379
380 0553 0727
381 0554 1120
382 0555 0241
383 0556 0244
384 0557 0242
385 0560 0236
386 0561 0722
387 0562 0222
388 0563 0252
389 0564 0254
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391 0565 0253
 392 0566 0760
 393 0567 0723
 394 0570 0732
 395 0571 0243
 396 0572 0726
 397 0573 0214
 398 0574 0327
 399 0575 0247
 400 0576 0240
 401 0577 0211
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/START OF EXERCISER LOOP

407 0600 7604 EXER, LAS /CHANGE DRIVES?
 408 0601 7010 RAR
 409 0602 7620 SNL CLA
 410 0603 4777 JMS I (RANDOM /YES
 411 0604 1776 TAD I (ERRSG /NO,
 412 0605 0304 AND K7000A
 413 0606 3776 DCA I (ERRSG
 414 0607 1776 TAD I (ERRSG
 415 0610 7110 CLL RAR
 416 0611 1324 TAD LDRV
 417 0612 7710 SPA CLA
 418 0613 5203 JMP ,=10
 419 0614 1776 TAD I (ERRSG
 420 0615 7110 CLL RAR
 421 0616 1325 TAD HIDRV
 422 0617 7740 SMA SEA CLA
 423 0620 5203 JMP ,=15
 424 0621 4757 JMS I BUFGEV /GENERATE BUFFER AND CA
 425 0622 1775 TAD I (ERRSB
 426 0623 0131 AND E K7600
 427 0624 1331 TAD M1A
 428 0625 3774 DCA I (ERRSE
 429 0626 4762 JMS I FILGEV /# OF RECORDS (1-0000)
 430 0627 0130 AND E K177
 431 0630 1131 TAD E K7600
 432 0631 3327 DCA RECORD /RECORD LENGTH
 433 0632 4761 JMS I LGTGEV /{(30-1000 WORDS)
 434 0633 0330 AND K777A
 435 0634 1304 TAD K7000A
 436 0635 3326 DCA LENGTH
 437 0636 1326 TAD LENGTH
 438 0637 1103 TAD E K30
 439 0640 7740 SMA SEA CLA
 440 0641 5232 JMP ,=7
 441 0642 4306 EXERA, JMS WRTSET /SET UP TO WRITE
 442 0643 6201 CDF 00
 443 0644 1466 TAD I E K0 /PRESET RANDOM
 444 0645 4773 JMS I (SAVRAN

445 0646 4772 JMS I (DATSET /FILL BUFFER
 446 0647 3250 DCA ,+1
 447 0650 7402 HLT/CDF
 448 0651 4760 AUE, JMS I DATGEV
 449 0652 3417 DCA I AUTO
 450 0653 2322 ISR BUFTAL
 451 0654 5251 JMP ,=3
 452 0655 4771 JMS I (HOMEDF
 453 0656 4332 JMS BUNCHK /BUNCHK
 454 0657 3323 DCA SUMSAV
 455 0658 4770 JMS I (GO /WRITE A RECORD STREAM
 456 0661 0040 WRITE
 457 0662 2767 ISR I (ERRSI
 458 0663 5766 JMP NONSTP
 459 0664 4314 JMS SPACE /BACKSPACE TO 1ST RECORD
 460 0665 4306 JMS WRTSET /READ/COMPARE
 461 0666 4770 JMS I (GO
 462 0667 0030 RDCOMP
 463 0670 2767 ISR I (ERRSI
 464 0671 5766 JMP NONSTP
 465 0672 4314 JMS SPACE
 466 0673 4306 JMS WRTSET
 467 0674 4346 JMS CLRBUF
 468 0675 4770 JMS I (GO /READ AND CHECK DATA
 469 0676 0020 READ
 470 0677 4765 JMS I (DATCHK /CHECK DATA
 471 0700 4346 JMS CLRBUF
 472 0701 2767 ISR I (ERRSI
 473 0702 5766 JMP NONSTP
 474 0703 2764 ISR I (CNTR /UPDATE PASS COUNTER
 475 0704 7000 K7000A, 7000/NOP
 476 0705 5200 JMP EXER /LOOP
 477 0706 0000 WRTSET, 0 /SET UP FOR WRITE RDCOMP READ
 478 0707 1327 TAD RECORD
 479 0710 3767 DCA I (ERRSI
 480 0711 1326 TAD LENGTH
 481 0712 3763 DCA I (ERRSG
 482 0713 5706 JMP I WRTSET
 483 0714 0000 SPACE, 0
 484 0715 1327 TAD RECORD /SPACE REVERSE ALL RECORDS
 485 0716 3763 DCA I (ERRSG
 486 0717 4770 JMS I (GO
 487 0720 0070 SPGREV
 488 0721 5714 JMP I SPACE
 489 0722 0000 BUFTAL, 0
 490 0723 0000 SUMSAV, 0
 491 0724 0000 LDRV, 0
 492 0725 0000 HIDRV, 0
 493 0726 0000 LENGTH, 0
 494 0727 0000 RECORD, 0
 495 0730 0777 K777A, 777
 496 0731 7777 M1A, -1
 497 0732 0000 SUMCHK, 0 /BUNCHK BUFFER
 498 0733 4772 JMS I (DATSET
 499 0734 3335 DCA ,+1

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500 0739 7402 HLT/CDP
501 0736 7100 CLL
502 0737 1417 AUG, TAD I AUTO
503 0740 7430 SEL
504 0741 7001 IAC
505 0742 2322 ISB BUFTAL
506 0743 5336 JMP .+5
507 0744 4771 JMS I (HOMEDF
508 0745 5732 JMP I SUMCHK
509 0746 0000 CLRBUF, 0 /CLEAR BUFFER
510 0747 4772 JMS I (DATSET
511 0750 3391 DCA .+1
512 0751 7402 HLT/CDP
513 0752 3417 AUY, DCA I AUTO
514 0753 2322 ISB BUFTAL
515 0754 5352 JMP .+2
516 0755 4771 JMS I (HOMEDF
517 0756 5746 JMP I CLRBUF
518
519
520 /END OF PAGE
521
522 0757 *
523 /NOTE! THESE LOC'S ARE SPECIFIED BELOW THE *, SO THAT THE ADDRESSES
524 /INDICATED ARE MODIFIED PROPERLY BY THE DEC-X8 LOADER;
525 0757 1017 BUFGEV, BUFRAN /BUFCON
526 0760 0425 DATGEV, RANDOM /DATCON
527 0761 0425 LGTGEV, RANDOM/LGTCON
528 0762 0425 FILGEV, RANDOM/FILCON
529 0763 0242
530 0764 0221
531 0765 0464
532 0766 0265
533 0767 0250
534 0770 0255
535 0771 0211
536 0772 0225
537 0773 0441
538 0774 0244
539 0775 0241
540 0776 0246
541 0777 0425
1000
542
543
544
545 1000 1000 LTRCOD=,
546 1000 0000 RELEAS, 0 /ROUTINE TO RELEASE EXTERNAL BUFFERS
547 1001 1777 TAD I (ERRSB
548 1002 6002 IOF
549 1003 0202 CIF 00
550 1004 4457 RLBUFF
551 1005 5600 JMP I RELEAS
552
553

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554
555
556 /ROUTINE TO ASSIGN AND HOLD A SPECIFIED BUFFER WHICH MUST BE
557 /LEGALLY SPECIFIED IN CONBUF (STANDARD BUFFER DESIGNATOR)
558
559 1006 0000 BUFCON, 0
560 1007 1777' TAD ERRSB /GET CURRENT BUFFER WORD;
561 1010 7041 CIA
562 1011 1216 TAD CONBUF
563 1012 7090 SNA CLA /SPECIFIED BUFFER ASSIGNED;
564 1013 5006 JMP I BUFCON /YES, EXIT;
565 1014 4217 JMS BUFRAN /NO, GET NEW BUFFER;
566 1015 5207 JMP BUFCON+1 /CHECK IT
567 1016 0000 CONBUF, 0 /MUST CONTAIN LEGAL BUFFER DESIGNATOR;
568
569 /ROUTINE TO ASSIGN A BUFFER OBSERVING BR 10;
570
571 1017 0000 BUFRAN, 0
572 1020 7004 LAB /PUT BR 10 (NOT) IN LINK;
573 1021 7012 RTR
574 1022 7220 CLA CML
575 1023 1777' TAD ERRSB /BUFFER WORD IN AC;
576 1024 7460 SNL SEA
577 1025 5233 JMP .+6 /EXIT IF: AO NON ZERO AND LINK SET;
578 1026 7040 SEA CLA
579 1027 4200 JMS RELEAS /RELEASE BUFFER IF: AO NON ZERO;
580 1030 6002 IOF /ASSIGN A BUFFER
581 1031 6202 CIF 00
582 1032 4460 ASSUFF
583 1033 3777' DCA ERRSB /SAVE BUFFER DESIGNATOR;
584 1034 5617 JMP I BUFRAN /EXIT;
585
586
587
588 /RUNNER
589
590 1035 3776' RUN, DCA CNTR
591 1036 3777' DCA ERRSB
592 1037 5775' JMP EXER
593
594
595 /INITIALIZER
596
597 1040 4444 INIT, MESSAGE /"INIT" IS INITIALISING ADDRESS;
598 1041 0201 TEXT1
599 1042 1117 INITLP, TAD Z K301 /SET CODE TO "A"
600 1043 3200 DCA LTRCOD
601 1044 4774 JMS I (INISR1 /GET LOW DRIVE;
602 1045 3773 DCA I (LDRV /SAVE IN BITS 1-3 NEGATED
603 1046 4774 JMS I (INISR1 /SAME FOR HIGH DRIVE;
604 1047 3772 DCA I (HIDRV
605 1050 4307 JMS INISR2 /TYPE OF DATA;
606 1051 5255 JMP .+4 /RANDOM
607 1052 3771 DCA I (ERRDB /CONSTANT=SAVE IN GOOD DATA;
608 1053 1370 TAD (DATCON /PRESET POINTERS;

```

609	1854	7410	SKP				
610	1855	1367	TAD	(RANDOM			
611	1856	3766	DCA I	(DATGEV			
612	1857	4387	JMS	INISR2	/RECORD LENGTH		
613	1868	5265	JMP	,+5			
614	1861	7841	CIA				
615	1862	3765	DCA I	(LENGTH			
616	1863	1364	TAD	(LGTCO			
617	1864	7410	SKP				
618	1865	1367	TAD	(RANDOM			
619	1866	3763	DCA I	(LGTCGEV			
620	1867	4387	JMS	INISR2	/# OF RECORDS PER FILE		
621	1870	5275	JMP	,+5			
622	1871	7841	CIA				
623	1872	3762	DCA	RECORD			
624	1873	1361	TAD	(FILCON			
625	1874	7410	SKP				
626	1875	1367	TAD	(RANDOM			
627	1876	3760	DCA	FILGEV			
628	1877	4387	JMS	INISR2	/BUFFER ASSIGNMENT		
629	1180	5304	JMP	,+4	/RANDOM		
630	1181	3216	DCA	CONBUF	/CONSTANT=SAVE IN HOLDER;		
631	1182	1387	TAD	(BUFCON	/PRESET POINTERS;		
632	1183	7410	SKP				
633	1184	1386	TAD	(BUFRAN			
634	1185	3755	DCA I	(BUFGEV			
635	1186	5820	INITEX		/OUT;		
636	1187	0800	INISR2, 0		/SERVICE 2		
637	1110	4320	JMS	INISR3	/OO SERVICE 3;		
638	1111	7630	SNA CLA				
639	1112	5787	JMP I	INISR2	/RANDOM BUT		
640	1113	2387	ISE	INISR2	/NOT 0 IS CONSTANT;		
641	1114	4455	SPACE2		/2 SPACES;		
642	1115	4443	FOROCT		/GET 4 OCTAL NUMBERS		
643	1116	5242	JMP	INITLP	/ERROR;		
644	1117	5787	JMP I	INISR2	/OUT		
645							
646	1120	0800	INISR3, 0		/SERVICE 3;		
647	1121	4454	CRLF		/CARRIAGE RET=LINE FEED.		
648	1122	1200	TAD	LTRCOD	/GET LETTER CODE;		
649	1123	4450	TYPE		/PRINT IT		
650	1124	4455	SPACE2		/2 SPACES		
651	1125	4442	ONEOCT		/GET ONE OCTAL NUMBER;		
652	1126	5242	JMP	INITLP	/ERROR;		
653	1127	2280	ISE	LTRCOD	/UPDATE LETTER CODE.		
654	1130	5720	JMP I	INISR3	/OUT;		
655							
656	1131	0800	SETUP, 0		/SET UP WC AND CA		
657	1132	7200	CLA				
658	1133	1754	TAD	ERRSC			
659	1134	3320	DCA	INISR3			
660	1135	1753	TAD	ERRSE			
661	1136	6201	COF	00			
662	1137	3744	DCA I	TC58CB			
663	1140	1320	TAD	INISR3			

664	1141	3745	DCA I	TC58WD			
665	1142	4752	JMS	MONEDP			
666	1143	5731	JMP I	SETUP			
667	1144	7753	TC58CB, 7753				
668	1145	7752	TC58WD, 7752				
669							
670							
671							
672							
673		1146	EOP4,				
674		1841	*INIT*1				
675	1841	0201	TEXT1				
676		1146	*EOP4				
677	1152	0211					
678	1153	0244					
679	1154	0242					
680	1155	0757					
681	1156	1017					
682	1157	1086					
683	1160	0762					
684	1161	0550					
685	1162	0727					
686	1163	0741					
687	1164	0422					
688	1165	0726					
689	1166	0740					
690	1167	0425					
691	1170	0370					
692	1171	0233					
693	1172	0725					
694	1173	0724					
695	1174	0541					
696	1175	0600					
697	1176	0221					
698	1177	0241					

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0100

0200 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
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7100

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0001 FIELD 1
699
700 /LOADER CALL
701
702 1200 1040 INIT:RUN:INT
703 1201 1035
704 1202 0400
705
706 1203 6701 MTSF:0:1:HLT:HLT:HLT
    1204 0000
    1205 0001
707 1206 7402
708 1207 7402
709 1210 7402
710 1211 7772 =6:AUB:AUQ:AUD:Aug:AUE:AUU
711 1212 0504
712 1213 0507
713 1214 0534
714 1215 0737
715 1216 0692
716 1217 0792
717
718 1220 7775 =3
719
720 1221 0700 0700:-2:1:0C78A
    1222 7776
    1223 0001
    1224 0404
721
722
723 1225 0710 0710:-6:0C71A:0C71B:0C71C:0C71D:STR:TP:00N08T
    1226 7772
724 1227 0266
725 1230 0301
726 1231 0313
727 1232 0410
728 1233 0270
729 1234 0315
730
731 1235 0720 0720:-3:0C72A:0C72B:0C72C
    1236 7775
732 1237 0303
733 1240 0406
734 1241 0311
735
736 1242 7777 =1:7752:1-2:TC58WC:TC58WD
    1243 7792
    1244 7776
737 1245 0323
738 1246 1145
739
740 1247 7777 =1:7753:1-2:TC58CA:TC58CB
    1250 7753
    1251 7776
741 1252 0324
742 1253 1144

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1200 11111111 11111111 11111111 11111111 11111111 11110000 00000000 00000000
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ASBUFF	4460	EXINIT	0020	K5402	0003	MYCM	6714
ASBUFF	0060	EXSERV	0004	K606A	0325	MYCR	6711
AUB	0504	EXTMEM	0161	K64	0070	MYGO	6722
AUC	0507	FILCON	0550	K7	0075	MYLC	6716
AUD	0534	FILGEV	0762	K70	0105	MYRC	6724
AUG	0737	FOROCP	0043	K7000A	0704	MYRS	6706
AUTO	0017	FOROCT	4443	K7000B	0326	MYSF	6701
AUY	0752	GO	0255	K7510	0125	MYTR	6721
AUE	0692	GONOST	0315	K7520	0126	MUL20P	0045
BUFCON	1006	HIDRV	0725	K7540	0127	NONSTP	0245
BUFGEV	0757	HOMEDP	0211	K7600	0131	ONEOCR	0042
BUFRAN	1017	IHRETP	0026	K77	0106	ONEOCT	4442
BUFFAL	0722	INISR1	0941	K7735	0132	PRNT1	4491
CHK1	1236	INISR2	1107	K7740	0133	PRNT1P	0091
CLRBUF	0746	INISR3	1120	K7750	0134	PRNT2	4492
ENR	0221	INIT	1040	K7760	0135	PRNT2P	0092
CODE	0236	INITEX	0020	K7771	0136	PRNT4	4493
CONBUF	1016	INITLP	1042	K7773	0137	PRNTAP	0093
CRLF	4454	INT	0400	K7774	0140	RAN1	0497
CRLFP	0094	INTACK	0214	K7779	0141	RAN2	0460
DATCHK	0444	IOPMSP	0096	K777A	0730	RANDON	0425
DATCON	0370	JOB	0200	KDOP	0044	RDCOMP	0090
DATGEV	0760	K0	0066	KDIF	0005	READ	0090
DATSET	0525	K10	0076	KDIFOF	0020	RECORD	0727
DC70A	0404	K100	0107	KILL	0217	RELEASE	1000
DC71A	0246	K11	0077	KILLED	0230	RETRY	0481
DC71B	0301	K1111A	0463	KIP	0004	RETRAN	0401
DC71C	0313	K116	0071	LENGTH	0726	RETRND	0010
DC71D	0410	K1236	0357	LGTCON	0402	RLBUFF	4497
DC72A	0303	K13	0100	LGTCOV	0701	RLBUFF	0097
DC72B	0406	K17	0101	LIN	4440	RUN	1039
DC72C	0311	K177	0130	LINP	0040	SAV1	0461
DEFCL	0393	K20	0102	LODRV	0724	SAV2	0462
DEFERR	0362	K200	0110	LTRCOD	1000	SAVRAN	0441
DEFSRV	0327	K2000	0122	MA	0731	SERVEX	0004
ZOP4	1146	K212	0111	M00	0135	SETUP	1131
ERRDA	0292	K215	0112	M200	0131	SPACE	0714
ERRDB	0293	K240	0113	M240	0107	SPACE2	4495
ERRDC	0294	K260	0114	M260	0120	SPACE3	0095
ERRDR	0222	K272	0115	M270	0125	SPCFND	0060
ERRP	0041	K277	0116	M3	0141	SPCREV	0070
ERRSA	0240	K3	0072	M30	0134	STRSTP	0270
ERRSB	0241	K30	0103	M4	0140	SUNCHK	0732
ERRSC	0242	K301	0117	M40	0133	SUNSAV	0733
ERRSD	0243	K32	0067	M43	0132	T000CA	0304
ERRSE	0244	K323	0120	M5	0137	T000CB	1144
ERRSF	0245	K4	0073	M7	0130	T000CC	0323
ERRSG	0246	K40	0104	MA0TAP	0300	T000CD	1145
ERRSH	0247	K400	0121	MESSAGE	4444	TEXT1	0201
ERRSI	0250	M5	0074	MESSAGEP	0044	THO0CP	0041
EXER	0600	M5000	0123	MODSET	0370	THO0CT	4441
EXERA	0642	M500	0124	MTAF	6712	TYPE	4490

TYPEP 0090
 WOPF 0090
 WRITE 0040
 WRTSET 0706

ERRORS DETECTED: 0
 LINKS GENERATED: 22
 RUN-TIME: 7 SECONDS
 3K CORE USED