

LISTING

096-000101-05

PROGRAM

MEMORY CHECKERBOARD IV

TAPE

095-000132-05

ABSTRACT

CHECKERBOARD IV IS A MAINTENANCE PROGRAM DESIGNED TO PRODUCE WORST NOISE CONDITIONS ON THE SENSE/INHIBIT WIRES. THE PROGRAM SHOULD BE RUN TO INSURE PROPER OPERATION OF THE SENSE AMPS, INHIBIT DRIVERS, AND MEMORY CURRENTS.

0001 .MAIN

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*****
/ NAME: CHECKIV.SR          PART NUMBER: 094-000439
/
/ DESCRIPTION: CHECKERBOARD IV
/
/ REVISION HISTORY:
/
/      REV.      DATE
/
/      00      05/21/73
/      01      01/25/74
/      02      02/22/74
/      03      06/07/74
/      04      04/18/75
/      05      06/11/76
/
/
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/ ALL RIGHTS RESERVED.
/*****
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0002 .MAIN

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CHECKERBOARD IV

11.  ABSTRACT
/    CHECKERBOARD IV IS A MAINTENCE PROGRAM DESIGNED
/    TO PRODUCE WORST CASE NOISE CONDITIONS ON THE
/    SENSE/INHIBIT WIRES. THE PROGRAM SHOULD BE RUN
/    TO INSURE PROPER OPERATION OF SENSE AMPS, INHIBIT
/    DRIVERS, AND MEMORY CURRENTS.

12.  MACHINE REQUIREMENTS
12.1  NOVA/SUPERNOVA/ECLIPSE PROCESSOR
12.2  4K READ/WRITE MEMORY

13.  SWITCH SETTINGS
13.1  STARTING ADDRESS      #000002
13.2  SWITCH 0(1)          #1024 READ/WRITE DISTURB
13.3  SWITCH 2(1)          #INHIBIT I/O PRINTOUT
13.4  SWITCH 5(1)          #PRINT TO LPT

14.  OPERATING PROCEEDURE
14.1  LOAD THE PROGRAM VIA THE BINARY LOADER
14.2  SET SWITCHES TO 000002
14.3  PRESS START
14.3.1 THE PROGRAM WILL PRINT THE HIGHEST
/      LOCATION THE PATTERN IS TO USE.
/      IF THE FAILURES ARE MARGINAL, SETTING SWITCH
/      0 MAY AID IN INDUCING A FAILURE TO OCCURE.
14.4  WHEN SCOPING OR ADJUSTING CURRENTS, THE
/      BELL WILL STILL BE RUNG.
14.5  PROGRAM MODIFICATIONS
/      C(3)=AOR      THE STARTING PATTERN ADD
/      C(5)=INHIBIT  INHIBIT THE CHECKERBOARD
/                      PATTERN ON CLEARED BITS.
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A 0003 .MAIN

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01
02
03 15. PROGRAM OUTPUT/ERROR DISCRIPTION
04 15.1 AT EACH OCCURANCE OF ERROR, IF THE TELETYPE IS N
05 15.2 RUSY THE BELL WILL BE RUNG,
06 SYNC PULSES
07
08 A "P" PULSE (A74) IN STORE CYCLE.
09
10 16. PROGRAM DISCRIPTION
11 16.1 STORE THE CHECKERBOARD PATTERN
12 16.2 IF SWITCH 0(1) DISTURB THE CONTENTS OF MEMORY BY
13 REFERENCING LOCATIONS 0101,0202,0303,ETC. 512
14 TIMES. THIS PRODUCES 1024 READ/WRITE DISTURBS.
15 CHECK THE PATTERN WORD
16 16.3 COMPLEMENT AND CHECK THE WORD
17 16.4 RESTORE THE WORD
18 16.5 WHEN THE END OF THE PATTERN IS REACHED THE
19 PROGRAM COMPLEMENTS THE PATTERN WORD AND RE-
20 TURNS TO STEP 6.1 .
21
22 17. PATTERN DESCRIPTION
23
24 1 THE PROGRAM SEQUENTIALLY USES:
25 1) A SLIDING FLOATING ONE BIT
26 2) A SLIDING FLOATING ZERO BIT
27
28 18. LIMITATIONS
29 NONE

```

A 0004 .MAIN

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01
02 000000 .LOC 0
03 00000 001117 DIRT
04 00001 000000
05 00002 000230 JMP MSIZ
06 00003 001100 ADR: 1100
07 00004 007577 FINAL: 7577
08 00005 177777 INH: -1
09 00006 000001 PATT: 1
10 00007 000000 ERET: 0
11
12 00000 000000 .LOC 40
13 00000 000101 C101: 101
14 00001 000400 C400: 400
15 00002 000077 C77: 77
16 00003 007777 C7777: 7777
17 00004 000207 C2071: 207
18 00005 000045 .LOC 45
19 00006 000046 EGGS
20 00007 000000 EGGS: 0
21 00008 000000
22 00009 000000
23 00010 000000
24 00011 000000
25 00012 000000
26
27 00013 000000 C000: 00
28 00014 000377 C3771: 377
29 00015 177400 C17741: 177400
30 00016 177773 MS1: -5
31 00017 070000 C070000: 070000
32 00018 000000 MODUAL1: 0
33 00019 000000 EDIST1: 0
34 00020 001000 K10001: 1000
35 00021 175777 M2001: -2001
36 00022 000315 CMA1: MMA2
37 00023 177407 PSIZE: BEGIN=CEND
38 00024 000000 PLOC: 0
39 00025 000000 BPROG1: 0
40 00026 000000 EPROG1: 0
41 00027 012345 RANDOM1: 12345
42 00028 000020 C201: 20
43 00029 177740 M401: -40
44 00030 000040 C401: 40
45 00031 010000 C100K1: 10000
46 00032 177776 KNT1: -2
47 00033 000000 WHICH1: 0
48 00034 000020 CX1: 20
49 00035 000400 CY1: 400
50 00036 177777 CMASK1: -1
51 00037 000000 FLAG1: 0
52 00038 000000 THES1: 0
53 00039 000000 MKTK1: 0
54 00040 001025 TABL1: TABS
55 00041 001024 TABL01: TABS-1
56 00042 000000 BEGL1: 0
57 00043 000474 CBEG1: BEGIN
58 00044 000000 RETURN1: 0
59 00045 000275 ICAT1: MMA

```

10TOS DIRT BLK PNTR

1PATTERN STARTING ADDR(MUST BE XXXXX)
1PATTERN FINAL ADDRESS
1MASK FOR INHIBITED BITS
1PATTERN WORD

10TOS EGGS BLK PNTR

10TOS AUTO RUN SW
1DEVICE CODE
1CAT SWITCH
1# OF PASSES IN AUTO MODE
10TOS RTN ADDRESS
1SWITCH REGISTER

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0005 .MAIN
01 00115 176400 M1400: -1400

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* 0006 .MAIN
01
02 00116 004202 SEND: JSR ,RAND IGET A RNADOM #
03 00117 000072 RANDOM
04 00120 024004 LDA 1,FINAL
05 00121 030066 LDA 2,PSIZE
06 00122 147000 ADD 2,1
07 00123 101220 MOVZ R,0
08 00124 122422 SUBZ 1,0,SZC
09 00125 000124 JMP ,+1
10 00126 123000 ADD 1,0 IACB## MODULO C(FINAL).
11 00127 024074 LDA 1,M40
12 00130 123400 AND 1,0
13 00131 024003 LDA 1,ADR
14 00132 122433 SUBZ# 1,0,SNC IF # TO SMALL USE
15 00133 121000 MOV 1,0 IC(ADR) FOR STARTER.
16 00134 040067 STA 0,PLOC
17 00135 040111 STA 0,BEGL
18 00136 010111 ISZ BEGL
19 00137 010111 ISZ BEGL
20 00140 034074 LDA 3,M40
21 00141 117000 ADD 0,3
22 00142 054070 STA 3,0PRUG
23 00143 142400 SUB 2,0
24 00144 024074 LDA 1,M40
25 00145 122400 SUB 1,0
26 00146 123400 AND 1,0
27 00147 040071 STA 0,EPRUG
28
29 00150 145000 MOVE: MOV 2,1
30 00151 030112 LDA 2,CBEG
31 00152 021000 LDA 0,0,2 IMOVE A COPY OF
32 00153 041440 STA 0,40,3 ICHECKERBOARD TO
33 00154 175400 INC 3,3 ISELECTED SPOT.
34 00155 151400 INC 2,2
35 00156 125404 INC 1,1,SZR ITEST FOR LAST REG
36 00157 000152 JMP MOVE+2 ITO BE MOVED.
37 00160 034067 LDA 3,PLOC
38 00161 005401 JSR 1,3
39 00162 004335 JSR MESS IPRINT PASS
40 00163 000457 PASS
41 00164 024046 LDA 1,EGGS
42 00165 125005 MOV 1,1,SNR
43 00166 000176 JMP ,+8.
44 00167 014051 DSZ EGGS+3
45 00170 000176 JMP ,+6
46 00171 002677 IURST
47 00172 034052 LDA 3,EGGS+4
48 00173 024051 LDA 1,EGGS+3
49 00174 045776 STA 1,-2,3
50 00175 001400 JMP 0,3
51 00176 010050 ISZ EGGS+2
52 00177 000275 JMP MMA
53 00200 000114 JSR ICAT
54 00201 000275 JMP MMA

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A 0007 .MAIN
01
02 00202 054224 .RAND: STA 3,UD03 ;GENERATE A RANDOM #
03 00203 010224 ISZ UD03
04 00204 031400 LDA 2,0,3
05 00205 021000 LDA 0,0,2
06 00206 024227 LDA 1,,UD21
07 00207 044225 STA 1,,UD10
08 00210 105120 MOVZL 0,1
09 00211 125120 MOVZL 1,1
10 00212 014225 DSZ UD10
11 00213 000211 JMP .-2
12 00214 107000 ADD 0,1
13 00215 125120 MOVZL 1,1
14 00216 125120 MOVZL 1,1
15 00217 123000 ADD 1,0
16 00220 034226 LDA 3,,UD20
17 00221 103000 ADD 3,0
18 00222 041000 STA 0,0,2
19 00223 002224 JMP 0,UD03 ;RETURN
20
21 00224 000000 .UD03: 0
22 00225 000000 .UD10: 0
23 00226 033031 .UD20: 33031
24 00227 000010 .UD21: 10

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A 0008 .MAIN
01
02 00230 020063 MSIZ1: LDA 0,K1000 ;SIZE THE MEMORY
03 00231 115000 MOV 0,3
04 00232 031400 MSIZ1: LDA 2,0,3 ;SAVE C(MEM)
05 00233 055400 STA 3,0,3
06 00234 025400 LDA 1,0,3
07 00235 051400 STA 2,0,3 ;RESTORE MEMORY
08
09 00236 125014 MOVW 1,1,SZR
10 00237 124015 COMW 1,1,SNR
11 00240 000250 JMP MSIZ2 ;END OF MEMORY
12 00241 136414 SUBW 1,3,SZR ;AC1=BAD, AC3=GOOD
13 00242 063077 HALT ;MEMORY FAILED.
14 00243 117000 ADD 0,3
15 00244 175113 MOVW 3,3,SNR ;INCREMENT MEMORY ADDRESS.
16 00245 000232 JMP MSIZ1 ;TEST FOR 32K.
17 00246 000250 JMP MSIZ2 ;
18
19 00247 177577 M201: -201
20 00250 020115 MSIZ2: LDA 0,M1400
21 00251 163000 ADD 3,0
22 00252 024050 LDA 1,EGGS+2
23 00253 125004 MOV 1,1,SZR
24 00254 040114 STA 0,ICAT
25 00255 020247 LDA 0,M201
26 00256 125004 MOV 1,1,SZR
27 00257 020064 LDA 0,M2001
28 00260 163000 ADD 3,0
29 00261 040004 STA 0,FINAL
30 00262 120000 ADC 1,1
31 00263 065111 DOAS 1,TTO
32 00264 024046 LDA 1,EGGS
33 00265 125004 MOV 1,1,SZR
34 00266 000275 JMP MMA
35 00267 004335 JSR MESS
36 00270 000446 MESIZE
37 00271 024004 LDA 1,FINAL
38 00272 004335 JSR POCT
39 00273 004335 JSR MESS
40 00274 000465 CRLF
41
42 00275 020052 MMA1: LDA 0,EGGS+4 ;IS THIS DTOS LOAD?
43 00276 101005 MOV 0,0,SNR ;YES,SKIP
44 00277 000303 JMP .+4 ;NO,GO TO DD THIS PART
45 00300 020050 LDA 0,EGGS+2 ;IS CAT ALREADY STARTED?
46 00301 100014 COMW 0,0,SZR ;NO,DD THIS PART
47 00302 000116 JMP SEND ;YES,SKIP THIS PART
48 00303 063011 SKPDN TTO
49 00304 000303 JMP .-1 ;WAIT FOR TTO DONE.
50 00305 020065 LDA 0,CMA
51 00306 040001 STA 0,1
52 00307 152520 SUBZL 2,2 ;SET INTERRUPT RETURN.
53 00310 102000 MMA1: ADC 0,0 ;THIS PROG TEST FOR INTERRUPT
54 00311 040000 STA 0,0 ;ABILITY TO CLEAR MA.
55 00312 025000 LDA 1,0,2
56 00313 060177 NIOS CPU ;ENABLE INTERRUPT
57 00314 005000 JSR 0,2 ;SET BIT INTO MA

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A 0009 .MAIN

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01
02 00315 045000 MMA2: STA 1,0,2
03 00316 020000 LDA 0,0
04 00317 112414 SUB# 0,2,SZR IAC0=PC STORED
05 00320 000325 JMP .+5 IAC2=CORRECT. MEMORY FAILED!
06 00321 151120 MOVZL 2,2
07 00322 151113 MOVLN 2,2,SNC
08 00323 000310 JMP MMA1
09 00324 000116 JMP SEND
10 00325 034046 LDA 3,EGGS
11 00326 175004 MOV 3,3,SZR
12 00327 000332 JMP .+3
13 00330 063077 HALT
14 00331 000321 JMP MMA2+4
15 00332 062677 TORST
16 00333 034052 LDA 3,EGGS+4
17 00334 001400 JMP 0,3

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A 0010 .MAIN

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01
02 00335 054443 MESS: STA 3,MESSR IPRINT A TEXT MESSAGE
03 00336 110442 ISZ MESSR
04 00337 031400 LDA 2,0,3 IC(2) POINTS TO MESSAGE
05 00340 020055 MESSP: LDA 0,C377 IA 8 BIT MASK
06 00341 025000 LDA 1,0,2 IC(2)=DATA WORD
07 00342 123405 AND 1,0,SNR
08 00343 002435 JMP 0MESSR
09 00344 004435 JSR TYPE
10 00345 020056 LDA 0,C1774
11 00346 123705 ANDS 1,0,SNR
12 00347 002431 JMP 0MESSR
13 00350 004431 JSR TYPE
14 00351 151400 INC 2,2
15 00352 000340 JMP MESS0
16
17 00353 054425 POCT: STA 3,MESSR
18 00354 030054 LDA 2,C60
19 00355 102400 SUB 0,0
20 00356 125120 MOVZL 1,1
21 00357 101100 MOVL 0,0
22 00360 143000 ADD 2,0
23 00361 004420 JSR TYPE
24 00362 030057 LDA 2,M5
25 00363 102400 POCT0: SUB 0,0
26 00364 125120 MOVZL 1,1
27 00365 101100 MOVL 0,0
28 00366 125120 MOVZL 1,1
29 00367 101100 MOVL 0,0
30 00370 125120 MOVZL 1,1
31 00371 101100 MOVL 0,0
32 00372 034054 LDA 3,C60
33 00373 163000 ADD 3,0
34 00374 004405 JSR TYPE
35 00375 151400 INC 2,2,SZR
36 00376 000363 JMP POCT0
37 00377 002401 JMP 0MESSR
38
39 00400 000000 MESSR: 0
40

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A 0011 ,MAIN

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01
02 00401 054442 TYPE1 STA 3,TYPRET
03 00402 074477 READS 3
04 00403 175100 MOVL 3,3
05 00404 177122 ADDZL 3,3,SZC
06 00405 000420 JMP TYPE2
07 00406 061111 DOAS 0,TTO
08 00407 063511 SKPBZ TTO
09 00410 000777 JMP ,=1
10 00411 000414 JMP TYPE2
11 00412 034432 TYPE1: LDA 3,P,377
12 00413 175220 MOVZL 3,3
13 00414 163400 AND 3,0
14 00415 116043 ADCO 0,3,SNC
15 00416 034424 LVA 3,P,C40
16 00417 162432 SUBZM 3,0,SZC
17 00420 010425 ISZ CHORZ
18 00421 034417 LVA 3,P,C15
19 00422 116445 SUBO 0,3,SNR
20 00423 054422 STA 3,CHORZ
21 00424 002417 JMP TYPRET
22 00425 175100 TYPE2: MOVL 3,3
23 00426 177103 ADDL 3,3,SNC
24 00427 000763 JMP TYPE1
25 00430 001117 DOAS 0,LPT
26 00431 063517 SKPBZ LPT
27 00432 000777 JMP ,=1
28 00433 060217 NIOC LPT
29 00434 000756 JMP TYPE1
30 00435 000007 P,C7: 7
31 00436 000011 P,C11: 11
32 00437 000012 P,C12: 12
33 00440 000015 P,C15: 15
34 00441 000240 P,240: 240
35 00442 000040 P,C40: 40
36 00443 000000 TYPRET: 0
37 00444 000377 P,377: 377
38 00445 000000 CHORZ: 0

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!TYPE THE C(0)R IF
!SWITCH 2(0).

!YES,GO TO LPT
!NO,GO TO TTO

!SKIP NON-PRINTING CHAR

!CLR HORZ POS

A 0012 ,MAIN

```

01
02 MESIZE: ,TXTE !<15><12>LAST LOCATION TESTED IS = !
00446 005215
00447 040714
00450 152123
00451 146240
00452 141717
00453 152101
00454 147711
00455 120116
00456 142724
00457 152123
00460 042305
00461 144640
00462 120123
00463 120275
00464 000000
03 CRLF: ,TXTE !<15><12>!
00465 005215
00466 000000
04 PASS: ,TXTE !<15><12>PASS !
00467 005215
00470 040520
00471 051523
00472 000240

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4 0013 .MAIN

```

01
02 00473 063077 HALT
03 00474 004401 BEGIN: JSR .+1-.,1 IOPERATOR ERROR FIX C(ADR)
04 00475 054113 STA 3,RETURN
05 00476 034003 LDA 3,ADR
06 00477 030060 LDA 2,C070000
07 00500 020004 LDA 0,FINAL
08 00501 143400 AND 2,0
09 00502 040062 STA 0,EDIST
10 00503 173400 AND 3,2
11 00504 050061 STA 2,MODUAL JTHE MEMORY MODUAL
12 00505 034107 MKT: LDA 3,TABL
13 00506 024073 LDA 1,C20
14 00507 044106 STA 1,MKTK
15 00510 020006 LDA 0,PATT
16 00511 024005 MKT0: LDA 1,INH
17 00512 107400 AND 0,1
18 00513 045400 STA 1,0,3
19 00514 100000 COM 0,0
20 00515 024005 LDA 1,INH
21 00516 107400 AND 0,1
22 00517 045420 STA 1,20,3
23 00520 100000 COM 0,0
24 00521 101122 MUVZL 0,0,SZC
25 00522 101400 INC 0,0
26 00523 175400 INC 3,3
27 00524 014106 DSZ MKTK
28 00525 000764 JMP MKT0
29
30 00526 030003 IPAT: LDA 2,ADR
31 00527 102400 SUR 0,0
32 00530 024102 LDA 1,CY
33 00531 147414 ANDM 2,1,SZM
34 00532 100000 IPAT0: COM 0,0
35
36 00533 060300 FILL: NIOP 0 JSYNC AT A74
37 00534 024103 LDA 1,CMSK
38 00535 044105 STA 1,TMES
39 00536 024070 LDA 1,APRUG
40 00537 132033 ADCZM 1,2,SNC
41 00540 000404 JMP FILL1
42 00541 024071 LDA 1,EPRUG
43 00542 132433 SURZM 1,2,SNC
44 00543 000452 JMP FILL2
45 00544 024073 FILL1: LDA 1,C20
46 00545 034107 FILL2: LDA 3,TABL
47 00546 101014 MUV 0,0,SZM
48 00547 137000 ADD 1,3

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4 0014 .MAIN

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01
02 00550 025400 LDA 1,0,3
03 00551 045000 STA 1,0,2
04 00552 025401 LDA 1,1,3
05 00553 045001 STA 1,1,2
06 00554 025402 LDA 1,2,3
07 00555 045002 STA 1,2,2
08 00556 025403 LDA 1,3,3
09 00557 045003 STA 1,3,2
10 00560 025404 LDA 1,4,3
11 00561 045004 STA 1,4,2
12 00562 025405 LDA 1,5,3
13 00563 045005 STA 1,5,2
14 00564 025406 LDA 1,6,3
15 00565 045006 STA 1,6,2
16 00566 025407 LDA 1,7,3
17 00567 045007 STA 1,7,2
18 00570 025410 LDA 1,10,3
19 00571 045010 STA 1,10,2
20 00572 025411 LDA 1,11,3
21 00573 045011 STA 1,11,2
22 00574 025412 LDA 1,12,3
23 00575 045012 STA 1,12,2
24 00576 025413 LDA 1,13,3
25 00577 045013 STA 1,13,2
26 00600 025414 LDA 1,14,3
27 00601 045014 STA 1,14,2
28 00602 025415 LDA 1,15,3
29 00603 045015 STA 1,15,2
30 00604 025416 LDA 1,16,3
31 00605 045016 STA 1,16,2
32 00606 025417 LDA 1,17,3
33 00607 045017 STA 1,17,2
34 00610 024073 LDA 1,C20
35 00611 133000 ADD 1,2
36 00612 010105 ISZ TMES
37 00613 000732 JMP FILL2
38 00614 000403 JMP FILL3
39 00615 024073 FILL0: LDA 1,C20
40 00616 133000 ADD 1,2
41 00617 024042 FILL3: LDA 1,C77
42 00620 133414 ANDM 1,2,SZM
43 00621 000711 JMP IPAT0-.,1
44 00622 024004 LDA 1,FINAL
45 00623 146432 SURZM 2,1,SZC
46 00624 000703 JMP IPAT+1-.,1

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A 0015 .MAIN

```

01
02 00625 030061 DISTUR: LDA 2,MUOUAL 10DISTURB MODULE SELECT
03 00626 020043 LDA 0,C7777 10DISTURB AT LOCATION
04 00627 024062 LDA 1,EDIST 10101,0202,0303,ETC.
05 00630 123000 ADD 1,0
06 00631 024040 LDA 1,C101 10EVERY OTHER CORE IN MEMORY
07 00632 133000 ADD 1,2 10IS DISTURBED AT LEAST
08 00633 074477 READS 3 10024 TIMES+INWHIRL DISTURBS.
09 00634 175112 MOVL# 3,3,SZC 10BUT ONLY IF SWITCH 0
10 00635 142433 SURZ# 2,0,SNC 10IS SET TO A ONE.
11 00636 000406 JMP ICHK 10END OF DISTURB
12 00637 176400 SUR 3,3 10REFERENCE MEMORY
13 00640 025000 LDA 1,0,2
14 00641 175704 INCS 3,3,SZR
15 00642 000776 JMP ,+2
16 00643 000766 JMP DISTURB+4
17
18 00644 030003 ICHK1: LDA 2,ADR
19 00645 102400 SUR 0,0
20 00646 024102 LDA 1,CY
21 00647 147414 AND# 2,1,SZR
22 00650 100000 ICHK0: COM 0,0
23 00651 040104 STA 0,FLAG
24
25 00652 024103 ICHK1: LDA 1,CMSK
26 00653 044105 STA 1,TMES
27 00654 024070 LDA 1,BPROG
28 00655 132033 ADCZ# 1,2,SNC
29 00656 000404 JMP CHEK
30 00657 024071 LDA 1,EPROG
31 00660 132433 SURZ# 1,2,SNC
32 00661 000436 JMP CHEK0

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A 0016 .MAIN

```

01
02 00662 024073 CHEK1: LDA 1,C20
03 00663 044106 STA 1,MKT0
04 00664 034110 LDA 3,TARL0
05 00665 167000 ADD 3,1
06 00666 054020 STA 3,20
07 00667 044021 STA 1,21
08 00670 020104 LDA 0,FLAG
09 00671 101015 MOV# 0,0,SNR
10 00672 000403 JMP ,+3
11 00673 044020 STA 1,20
12 00674 054021 STA 3,21
13 00675 022020 CHEK1: LDA 0,020
14 00676 025000 LDA 1,0,2
15 00677 100434 SURZ# 0,1,SZR
16 00700 004467 JSR ERR1
17 00701 022021 LDA 0,021
18 00702 041000 STA 0,0,2
19 00703 025000 LDA 1,0,2
20 00704 122434 SURZ# 1,0,SZR
21 00705 004463 JSR ERR2
22 00706 014020 DSZ 20
23 00707 036020 LDA 3,020
24 00710 055000 STA 3,0,2
25 00711 151400 INC 2,2
26 00712 014106 DSZ MKTK
27 00713 000762 JMP CHEK1
28 00714 010105 ISZ TMES
29 00715 000745 JMP CHEK
30 00716 000403 JMP CHEK3
31 00717 024073 CHEK0: LDA 1,C20
32 00720 133000 ADD 1,2
33 00721 020104 CHEK3: LDA 0,FLAG
34 00722 024042 LDA 1,C77
35 00723 133414 AND# 1,2,SZR
36 00724 000724 JMP ICHK0
37 00725 024004 LDA 1,FINAL
38 00726 146432 SUBZ# 2,1,SZC
39 00727 000716 JMP ICHK+1

```

A 0017 .MAIN

```

01
02 00730 024006 UPDT: LDA 1,PATT
03 00731 130000 COM 1,2
04 00732 125122 MOVZL 1,1,SZC
05 00733 125400 INC 1,1
06 00734 020432 LDA 0,UPDTC
07 00735 101233 MOVZPW 0,0,SNC
08 00736 145000 MOV 2,1
09 00737 044006 STA 1,PATT
10 00740 014426 DSZ UPDTC
11 00741 002111 JMP 0BEGL
12 00742 024075 LDA 1,C40
13 00743 044423 STA 1,UPDTC
14 00744 020100 LDA 0,WHICH
15 00745 101400 INC 0,0
16 00746 040100 STA 0,WHICH
17 00747 024073 LDA 1,C20
18 00750 030041 LDA 2,C400
19 00751 176000 ADC 3,3
20 00752 101223 MOVZR 0,0,SNC
21 00753 000404 JMP UPDT0
22 00754 024075 LDA 1,C40
23 00755 030076 LDA 2,C10K
24 00756 176120 ADCZL 3,3
25 00757 044101 UPDT0: STA 1,CX
26 00760 050102 STA 2,CY
27 00761 054103 STA 3,CMSK
28 00762 101223 MOVZR 0,0,SNC
29 00763 002111 JMP 0BEGL
30 00764 034113 LDA 3,RETURN
31 00765 001400 JMP 0,3
32
33 00766 000040 UPDTC: 40

```

A 0018 .MAIN

```

01
02 00767 101020 ERR1: MOVZ 0,0
03 00770 054007 ERR2: STA 3,ERET ;DISTURB ENTRY
04 00771 040430 STA 0,,SV0 ;UNDISTURB ENTRY
05 00772 044430 STA 1,,SV1 ;C(1)=ERROR WORD
06 00773 050430 STA 2,,SV2 ;C(2)=ERROR ADDRESS
07 00774 024425 LDA 1,,SV0
08 00775 004353 JSR POCT
09 00776 004335 JSR MESS
10 00777 001024 PTAB
11 01000 024422 LDA 1,,SV1
12 01001 004353 JSR POCT
13 01002 004335 JSR MESS
14 01003 001024 PTAB
15 01004 024417 LDA 1,,SV2
16 01005 004353 JSR POCT
17 01006 004335 JSR MESS
18 01007 000465 CWLF
19 01010 034046 LDA 3,EGGS ;IS DTOS AUTO MODE?
20 01011 175004 MOV 3,3,SZR ;NO,SKIP
21 01012 000404 JMP BACK ;YES,RETURN TO DTOS
22 01013 034067 LDA 3,PLOC
23 01014 054113 STA 3,RETURN
24 01015 002007 JMP 0ERET ;TO NOISEY.
25
26 01016 062077 BACK: IORST
27 01017 034052 LDA 3,EGGS+4 ;RETURN TO DTOS
28 01020 001400 JMP 0,3
29 01021 000000 .SV0: 0
30 01022 000000 .SV1: 0
31 01023 000000 .SV2: 0
32 01024 000040 PTAB: 40
33 000040 TABS: .BLK 40
34 01065 001065 CEND: .
35

```

A 0019 .MAIN

01 .TXT /COPYRIGHT(C)DGC,1973,74,75,76

02 01066 047503
01067 054520
01070 044522
01071 044107
01072 024124
01073 024503
01074 043504
01075 026103
01076 034461
01077 031467
01100 033454
01101 026064
01102 032467
01103 033454
03 01104 040466 ALL RIGHTS RESERVED/
01105 046114
01106 051040
01107 043511
01110 052110
01111 020123
01112 042522
01113 042523
01114 053122
01115 042105
01116 000000

04 DIRT: .TXTE ICHECKER 4051

05 01117 044303
01120 141705
01121 142513
01122 120322
01123 030264
01124 000065

06 01125 000000 000000
07 01126 000002 000002
08 01127 000002 000002
09 01130 000000 000000
10 01131 000000 000000
11 01132 000000 000000
12 01133 000000 000000
13 01134 000000 000000

14 .END
15

0220 .MAIN

ADR 000003 4/06 6/13 13/05 13/30 15/18
BACK 001016 10/21 18/26
BEGIN 000474 4/37 4/57 13/03
BEG1 000111 4/56 6/17 6/18 6/19 17/11 17/29
BPR0G 000070 4/39 6/22 13/39 15/27
C0700 000060 4/31 13/06
C101 000040 4/13 15/06
C10K 000076 4/45 17/23
C1774 000056 4/29 10/10
C20 000073 4/42 13/13 13/45 14/34 14/39 16/02 16/31 17/17
C207 000044 4/17
C377 000055 4/28 10/05
C40 000075 4/44 17/12 17/22
C400 000041 4/14 17/18
C60 000054 4/27 10/18 10/32
C77 000042 4/15 14/41 16/34
C7777 000043 4/16 15/03
CBEG 000112 4/57 6/30
CEND 001065 4/37 10/34
CHEK 000662 15/29 10/02 16/29
CHEK0 000717 15/32 16/31
CHEK1 000675 16/13 16/27
CHEK3 000721 16/30 16/33
CHORZ 000445 11/17 11/20 11/30
CMA 000065 4/36 8/50
CM5K 000103 4/50 13/37 15/25 17/27
CRLF 000465 8/40 12/03 10/10
CX 000101 4/48 17/25
CY 000102 4/49 13/32 15/20 17/26
DIRT 001117 4/03 19/05
DISTU 000625 15/02 15/16
EDIST 000062 4/33 13/09 15/04
EGGS 000046 4/19 4/20 6/41 6/44 6/47 6/48 6/51 8/22
4/32 8/42 8/45 9/10 9/16 10/19 10/27
EPROG 000071 4/40 6/27 13/42 15/30
ERET 000007 4/10 10/03 10/24
ERR1 000707 16/16 10/02
ERR2 000770 16/21 10/03
FILL 000533 13/36
FILL0 000615 13/44 14/39
FILL1 000544 13/41 13/45
FILL2 000545 13/46 14/37
FILL3 000617 14/38 14/41
FINAL 000004 4/07 6/04 8/29 8/37 13/07 14/44 16/37
FLAG 000104 4/51 15/23 16/00 16/33
ICAT 000114 4/59 6/53 8/24
ICMK 000644 15/11 15/18 16/39
ICMK0 000650 15/22 16/36
ICMK1 000652 15/25
INH 000005 4/08 13/16 13/20
IPAT 000526 13/30 14/46
IPAT0 000532 13/34 14/43
K1000 000063 4/34 8/02
KNT 000077 4/46
M1400 000115 5/01 8/20
M2001 000064 4/35 8/27
M201 000247 8/19 8/25
M40 000074 4/43 6/11 6/20 6/24
M5 000057 4/30 10/24

0021 .MAIN

MESIZ	000446	8/36	12/02					
MESS	000335	8/39	8/35	8/39	10/02	18/09	18/13	18/17
MESS0	000340	10/05	10/15					
MESSR	000400	10/02	10/03	10/08	10/12	10/17	10/37	10/39
MKT	000505	13/12						
MKT0	000511	13/16	13/28					
MKTK	000106	4/53	13/14	13/27	16/03	16/26		
MMA	000275	4/59	6/52	6/54	8/34	8/42		
MMA1	000310	8/53	9/08					
MMA2	000315	4/36	9/02	9/14				
MODUA	000061	4/32	13/11	15/02				
MOVE	000150	6/29	6/36					
MSIZ	000230	4/05	8/02					
MSIZ1	000232	8/04	8/16					
MSIZ2	000250	8/11	8/17	8/20				
PASS	000467	6/40	12/04					
PATT	000006	4/09	13/15	17/02	17/09			
PLDC	000067	4/38	6/16	6/37	18/22			
POCT	000353	8/30	10/17	18/08	18/12	10/16		
POCT0	000363	10/25	10/36					
PSIZE	000066	4/37	6/05					
PTAB	001024	10/10	18/14	18/32				
P_240	000441	11/34						
P_377	000444	11/11	11/37					
P_C11	000436	11/31						
P_C12	000437	11/32						
P_C15	000440	11/18	11/33					
P_C40	000442	11/15	11/35					
P_C7	000435	11/30						
RAND0	000072	4/41	6/03					
RETUR	000113	4/50	13/04	17/30	18/23			
SEND	000116	6/02	8/47	9/09				
TABL	000107	4/54	13/12	13/46				
TABL0	000110	4/55	16/04					
TABS	001025	4/54	4/55	18/33				
THES	000105	4/52	13/38	14/36	15/26	16/28		
TYPE	000401	10/09	10/13	10/23	10/34	11/02		
TYPE1	000412	11/11	11/24	11/29				
TYPE2	000425	11/06	11/10	11/22				
TYPRE	000443	11/02	11/21	11/36				
UPDT	000730	17/02						
UPDT0	000757	17/21	17/25					
UPDTC	000766	17/06	17/10	17/13	17/33			
WHICH	000100	4/47	17/14	17/16				
.RAND	000202	6/02	7/02					
.SV0	001021	18/04	18/07	18/29				
.SV1	001022	18/05	18/11	18/30				
.SV2	001023	18/06	18/15	18/31				
.UD03	000224	7/02	7/03	7/19	7/21			
.UD10	000225	7/07	7/10	7/22				
.UD20	000226	7/16	7/23					
.UD21	000227	7/06	7/24					