MK11,M211,MKA11

CEMKAAO

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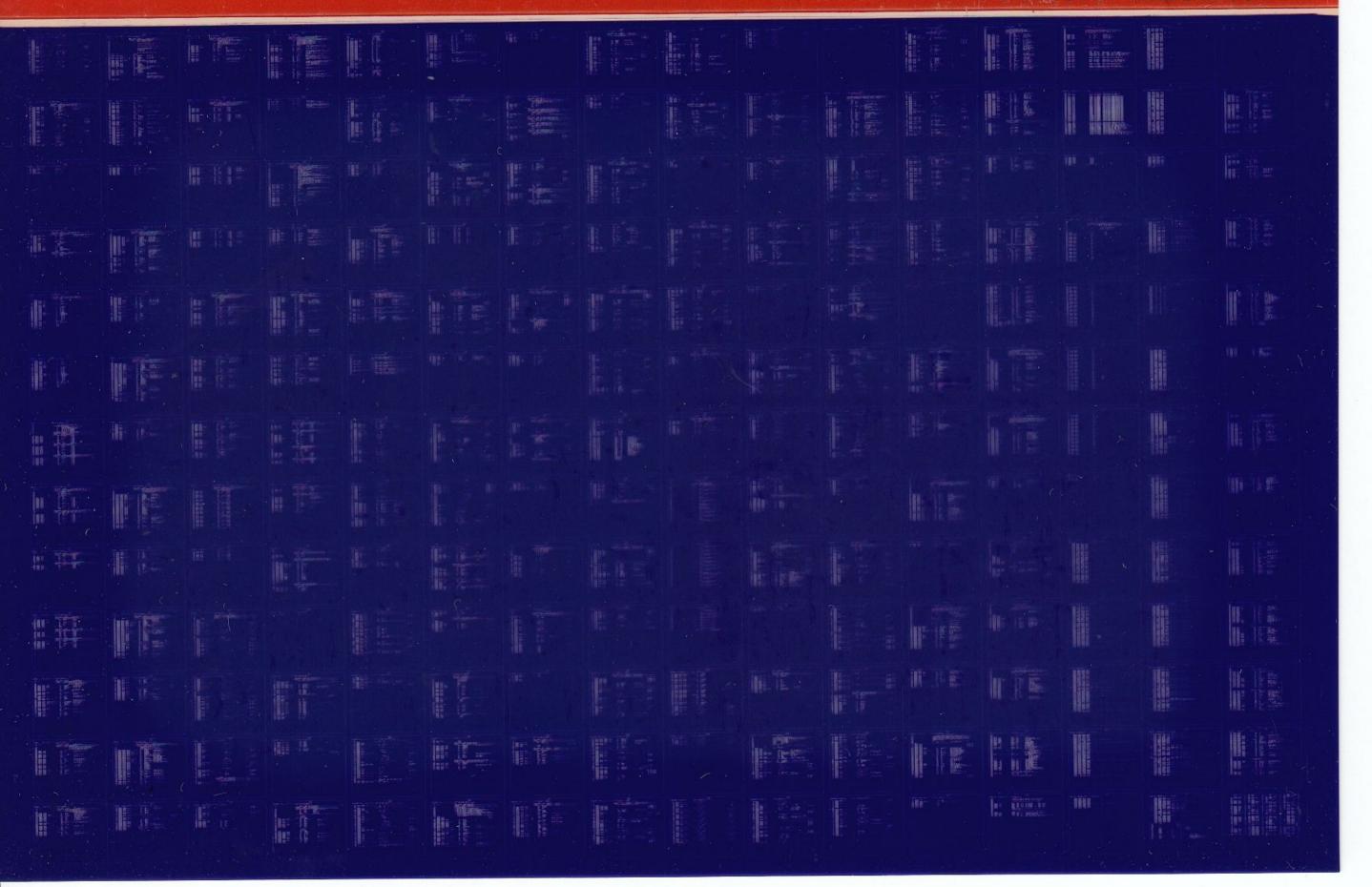
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MK11,M211,MKA11

11/70 MAIN MEMORY
CEMKAAO

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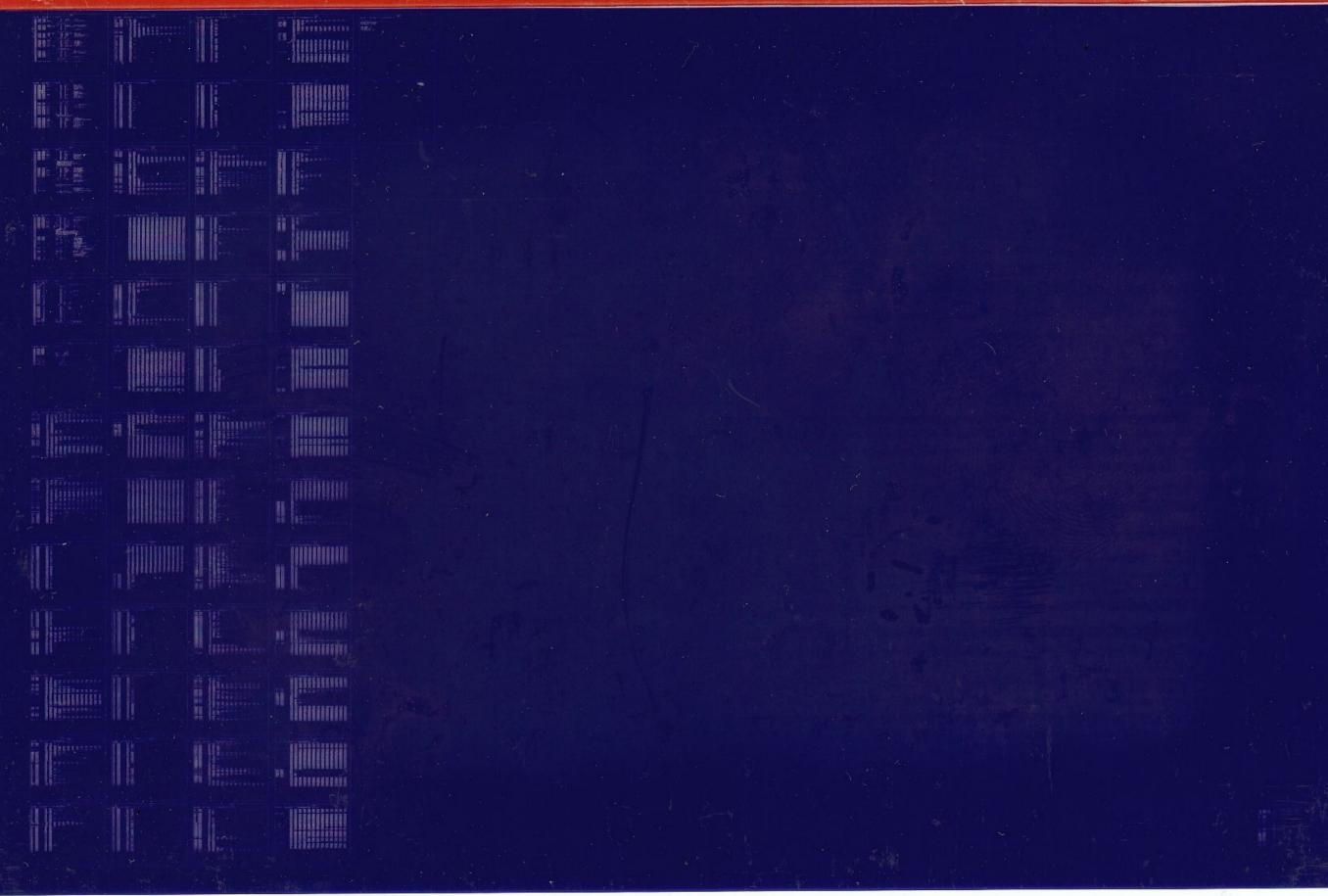
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B-HDRICEMKAASEG

780330 SEG COC:

PRODUCT CODE: AC-C644A-MC

PRODUCT NAME:

CEMKAAD 1170 MAIN MEMORY DIAG

DATE CREATED:

24-Feb-78

MAINTAINER:

CIAGNOSTIC ENGINEERING (Memory Test Systems-CC34T)

ALTHUR:

KAY R. FISHER

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E.C FLOW CHARTS

- 1.5 GENERAL PROGRAM INFORMATION
- 1.1 Program Purpose (Abstract)

This program will verify correct operation of main memory in PDP-11.70 computers and provide diagnostic error reports.

It has special a maintenance mode (Field Service Mode) to provide specific functional capabilities.

- 1.2 System Requirements
 - 1. Hardware Requirements

PDP-11/70 CPU with a minimum of 32K of MJ11 Memory or (64K of MK11 memory in a single box).

There must be no UNIBUS response to UNIBUS Address 752100 thru 752136. If a special device or memory (other than MK11) resides there it must be removed in order to run this diagnostic. The lower 16K of physical memory must have no uncorrectable errors (DBE's).

2. Software Requirements

This program is designed to run stand alone or under any of the following monitors:

XXDP ACT APT RT-!!

- 1.3 Related Documents And Standards
 - 1. PDP-11/70 Processor Handbook
 - 2. MJ11 Maintenance Manual
 - 3. MK11 Maintenance Manual
 - 4. Programming Practices (175-003-009-01)
 - 5. System Macro Manual (MAINDEC-11-DXGAC-C-D)
 - 6. SUPER-MAC Reference Guide (130-380-007-00)
 - 7. APT11.MAN (APT/11-317-07-09)
 - B. ACTILMAN (AUTOCAT-11-QZAUB-B-D)
- 1.4 Diagnostic Hierarchy Prerequisites

If the program hangs, dies, goes out to lunch, heads west, hiccups, vomits, eats itself, stutters, bombs, or in any way misbehaves, then:

- 1. Try it again with Cache off (reference Section 2.3.3.1)
- 2. Inhibit relocation (reference section 2.3.1)
- 3. Try CPU diagnostics
- H. Try Memory Management Diagnostics
- 5. Try Cache Diagnostics
- E. Tr. UNIBUS MAP Diagnostics

1.5 Assumptions

This program assumes the correct operation of the CPU. Memory Management. Cache, and the UNIBUS Map. This program occupies ciritially Bank D (D-16K). The XXDP loaders are in bank 1.

- 2.0 OPERATING INSTRUCTIONS
- 2.1 Loading & Starting Procedures
- 2.1.1 Quick Starting -
 - 1. Load address 200
 - 2. Set switch register for options (normally G)
 - 3. Start
- 2.1.2 Stoping -
 - 1. Set SWB.
 - 2. Type control "C" (Reference section 2.3.4.1).
- 2.1.3 Restarting (Reserve Configuration Table) -
 - 1. Load address 202
 - 2. Set switch register for options (Normally 0)
 - 3. Start

2.1.4 Switch Register Options -

SWITCH	USE
15	HALT ON ERROR
1 4	LOOP ON TEST Inhibit error typeouts
70040F6	INHIBIT RELOCATION
11	QUICK VERIFY / INHIBIT MARGIN TESTING
īŝ	BELL ON ERROR
Ť	LOOP ON ERROR
5	HALT PROGRAM (UNRELOCATED & RESTORE LOADERS)
· ·	DETAILED ERROR REPORTS
6	PRINT CONFIGURATION MAP
5	LIMIT MAX ERRORS PER BANK FAT TERMINAL (132 COLUMNS OR BETTER
=	TEST MODE - SEE DOCUMENT
Ę	TEST MODE - SEE DOCUMENT
:	TEST MODE - SEE DOCUMENT
-	DETECT SINGLE BIT ERRORS

2.2 SPECIAL ENVIRONMENTS

2.2.1 XXDP -

The first pass will be a quick verify pass if and only if it is in chair mode.

2.2.2 ACT & APT Automatic Mode -

The program will not create double bit errors (DBE's) after the 1st pass.

The first pass will be a quick verify pass

2.2.3 No SBE Free Banks -

If the program cannot find any SBE (Single Bit Error) free locations (in non-protected MK11 memory) it will print out an error message and continue testing by-passing the CSR tests.

2.2.4 Mixed Core & MOS Configurations -

The program will function normally in mixed environments. The sequence of testing may seem strange due to the recursive test mode algorithm reference sections 2.3.1.1, 2.3.1.2, 8 2.3.1.3).

2.3 Program Options

2.3.1 Switch Register Details -

If a hardware switch register is not available then the software switch register is in location 176. If under APT if BIT7 is set in the E-TABLE symbolic location "SENVM" the APT software switch register will be used (location SSWREG).

To change the software switch register contents: Type "control G". This will cause display the current value of the SWR and prompt for the cotal input of the new SWR value from the terminal. This routine will ignore you (not respond to control "G") if you have a hardware switch register.

•		
Smis	2	HALT ON ERROR (100000)
		Continuing from this halt will first check for a change in the soltware switch register ("Control G" in the TTY input buffer) then it will continue testing.
SHIH	=	LOOP ON TEST (40000)
		This will cause looping on the present test or patern (back to last scope trap). If in a pattern then the looping will be for an entire bank of 16K addresses.
5w13	=	INHIBIT ERROR TYPEOUTS (20000)
		This will cause returns from the error routine without the typed messages. Other on error functions are not affected.
5w12	=	INHIBIT RELOCATION (1900)
		This prevents the program from moving and consequently prevents the program from testing at least 16K of memory — in the case of MK11 memory up to 128K of memory may be bypassed because of PROTECTION POINTER coverage (reference section 5.2.4).
Swil	=	QUICK VERIFY/INHIBIT MARGIN TESTING (4000)
		Each pass of the diagnostic normally runs all margins and checks all combinations of SBE's & DBE's. If this switch is selected no margins are run (shortening pattern tests by a factor of 5) and approximately one byth of the possible combinations of SBE's & DBE's are tested.
		Each pass complete typeout will indicate this mode by preceding the pass number with "GV".
Sw1C	=	BELL ON ERROR (2000)
		This causes a bell (or beep or click) on each error trap
5W9	=	LOOP ON ERROR
		This will cause looping from failure point back to the last correctly initialized area of the current test. This loop will frequently be too large for scoping

purposes. Tighter loops are provided for in Field Service Mode reference section 2.3.4.5.10.

SWE = HALT PROGRAM (400)

This initiates the following sequence:

- 1. clears margins in "MAINT" REGISTER
- 2. If program is relocated it moves back to bank zero
- 3. flush out all possible DBE's.
- 4. turns off memory management
- 5. restore loaders
- E. unmap the Unibus Map
- 7. Halt if under APT or ACT branch sel.

SW7 = DETAILED ERROR REPORTS

After any normal error report is typed this option causes the contents of the following registers to be typed:
RD, RI, R2, R3, R4, R5, SP, "MEMERR", "MAINT", "CONTROL", "LOADRS", "HIADRS", "CPUERR"

SWE = PRINT CONFIGURATION MAP

This prints a map showing the memory configuration - reference section 7.4.

SWE = LIMIT MAX ERRORS PER BANK

This will limit the number of error typeouts per bank. The default is 10. DECIMAL, however this can be changed by changing location "ERRMAX" manually or with OTT (T-reference Section 2.3.4.2).

SW4 = FAT TERMINAL (20)

This informs the program that the console terminal has a width of at least 132 columns (LA36 with wide paper).

.

SW3-1	=	TEST MODE			
		Test modes det during pattern	termine the recursion algor i tests.	1thm to Le used	
		MODE NAME	DESCRIPTION	***	****
ENCO		1 2 0	BAFPAF Banks forward, pat BAFPAR Banks forward, pat BAWPAF Banks worst first, forward.	iterns reverse	
(5		3	BAWPAR Banks worst first,	patterns	
(10) (12)		4 5	PAFBAF Patterns forward, PAFBAW Patterns forward, first	banks forward banks worst	
(16)		6 7	PARBAF Patterns reverse, PARBAW Patterns reverse, first.	banks forward banks worst	
		NOTE:	Margins follow patterns Forward 1: (0,2,3,4,5) Reverse 1: (5,4,3,2,0)		
		For more detai	1s reference section 2.3.1	.1 and 2.3.1.2.	
5w0	-	DETECT SINGLE	BIT ERRORS (SBI's)		•
		For manufactur on. For fie always be off.	ing purposes this switch sid service purposes thi	hould always be s switch should	
		This switch will reported by di	ll allow all MKII Single B sabling error correction.	lit errors to be	
		Error printout DBE's.	s of SBE's are not distin	iguishable from	

```
2.3.1.1 Test Mode Example -
  Example analysis of mode 5 "PAFBAH". Assume Banks 0 & 1 are MJ11 (core) and Banks 2,3,4,8 5 are MK11 (MOS).
  Assume also that Bank 3 is known bad by the program (via the sizing routine or previous runs reference section 3.1 and 6.1 test 22). The testing sequence would be as follows:
    :TEST MK11 MEMORY TYPES FIRST
   :TEST KNOWN BAD MEMORY (BANK 3)
  PATTERN 17,
                                                                                                                                                                   MARGIN O
                                                                                    BANK 3.
PATTERN 17.
PATTERN 17.
PATTERN 7.
PATTERN 7.
PATTERN 7.
                                                                                  BANK 3,
BANK 3,
BANK 3,
BANK 3,
BANK 3,
                                                                                                                                                                  MARGIN 2
MARGIN 3
MARGIN 0
MARGIN 2
   PATTERN
PATTERN
                                                                                                                                                                   MARGIN
MARGIN
                                                                                                                                                                 MARGIN 2
MARGIN 3
MARGIN 0
MARGIN 2
MARGIN 3
MARGIN 0
                                                                                   BANK 3,
   PATTERN
                                                                                  BANK 3,
BANK 3,
BANK 3,
   PATTERN
   PATTERN
PATTERN
   PATTERN
                                                                                  BANK 3,
BANK 3,
BANK 3,
BANK 3,
   PATTERN
                                                                                                                                                                  MARGIN 2
MARGIN 3
MARGIN 0
MARGIN 2
   PATTERN
   PATTERN
   PATTERN
                                                                                  BANK 3,
BANK 3,
BANK 3,
BANK 3,
BANK 3,
   PATTERN
                                                                                                                                                                  MARGIN
MARGIN
MARGIN
   PATTERN
  PATTERN 21.
PATTERN 21.
PATTERN 21.
PATTERN 20.
                                                                                                                                                                  MARGIN 3
MARGIN 0
                                                                                                                                                                 TREGIL DO LO DE LA CONTROL DE 
   PATTERN 20.
   PATTERN 20.
                                                                                   BANK 3.
  PATTERN 22.
PATTERN 22.
PATTERN 22.
PATTERN 26.
                                                                                  BANK 3,
BANK 3,
BANK 3,
                                                                                  BANK 3,
BANK 3,
BANK 3,
                                                                                                                                                                  MARGIN 2
MARGIN 3
   PATTERN 26.
   PATTERN 26.
    :TEST PRESUMED GOOD MEMORY (BANKS 2.4.5)
PATTERN 17,
PATTERN 17,
PATTERN 17,
PATTERN 17,
PATTERN 17,
                                                                                  BANK 2,
BANK 2,
BANK 2,
                                                                                                                                                                   MARGIN 2
MARGIN 3
                                                                                                                                                                   MARGIN D
                                                                                   BANK 4.
  PATTERN 17
PATTERN 17
PATTERN 17
PATTERN 17
PATTERN 17
PATTERN 7
                                                                                   BANK 4,
                                                                                                                                                                   MARGIN 3
                                                                                  BANK 5
BANK 5
BANK 5
                                                                                                                                                                   MARGIN C
                                                                                                                                                                  MARGIN 2
MARGIN 3
```

MARGIN D

PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTER	ดลอดอออกการการการการการการการการการการการการการ			MARGINA MARGINA MARGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGI	ดนกดนกดนกดนกดนกดนกดนกดนกดนกดนกดนกดนกดนกด	
;RELOCAT	E &	TEST PROGRA	M SPACE	(BANK D	-8	1
PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTERN PATTER				MARGINA MARGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGGINA MARGG	NOUTENDOUTEN	

PATTERN 26. BANK C. PATTERN 1. BANK 1. PATTERN 1. BANK 1. PATTERN 2. BANK 1. PATTERN 2. BANK 1. PATTERN 2. BANK 1. PATTERN 2. BANK 1. PATTERN 3. BANK 1. PATTERN 4. BANK 1. PATTERN 4. BANK 1. PATTERN 4. BANK 1. PATTERN 4. BANK 1. PATTERN 5. BANK 1. PATTERN 26. BANK 1.	DAMINOAMINOAMINOAMINOAMINOAMINOAMIN ELETELE ELETELE ELETELET
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NOTE

Tris is an example 3 rct ar actua. sequence.

The pattern sequence was forward (the simple patterns first, complex patterns last) sequence of patterns (MK11 = 17, 7, 1, 2, 4, 5, 21, 20, 22, 26)(MJ11 = 1, 2, 3, 4, 5, 26).

Since the patterns were forward so were the margins (0,2,3,4,5).

If the patterns were run in reverse (MKII=26,22,20,21.5.4,2,1,7,17, (MJII=26,5,4,3,2,1.) then the margins would also have been in reverse (5.4,3,2,0)

If the bank selection is forward the banks will be tested in the following order:

- 1. MKII banks that are not protected or program space (from D to 167).
- 2. MJII banks that are not program space (from 0 to 167).
- 3. The program now relocates & tests:
- 4. Mk11 banks that were protected or program space (from 0 to 167).
- 5. MJ11 banks that were program space (from 0 to 167).

If bank selection is worst first the configuration table will be consulted and banks will be tested in the following order.

- 1. MKII banks that are known bad and are not protected ar program space (from 0 to 167).
- 2. MJ11 banks that are known bad and are not program space (from C to 167).
- 3. MKII banks that are presumed good and are not protected or program space (from 0 to 167).
- 4. MJ11 banks that are presumed good and are not program space (from 0 to 167).
- 5. The program now relocates 8 tests:
- 6. MK11 banks that are known bad and were protected or program space (from 0 to 167).
- 7. MJ11 banks that are known bad and were program space (from 0 to 167).
- B. MK11 banks that are presumed good and were protected or program space (from G to 167).
- 9. MJ11 banks that are presumed good and were program space (from C to 167).

2.3.1.2	Test	Mode Details -
MODE D	2	"BAFPAF" banks forward, patterns forward
		This is the default and simplest mode.
		This mode tests each bank completely from 0 to 167 except those requiring relocation*.
		While testing each bank the patterns are run with the simple ones first building to the more complex.
MODE 1	=	"BAFPAR" = banks forward, patterns reverse
		This mode tests each bank completely from 0 to 167 except those requiring relocations.
		While testing each bank the patterns are run with the most complex ones first, working to the simple ones.
MCDE 2	=	"BAWPAF" = Banks worst first, patterns forward
		This mode first tests each known bad bank completely from 0 to 167 except those requiring relocations, then presumed good banks are tested from 0 to 167 except those requiring relocations.
		While testing each bank the patterns are run with the simple ones first, building to the more complex.
MUDE 3	=	"BAHPAR" = Banks worst first, patterns reverse
		This mode first tests each known bad bank completely from 0 to 167 except those requiring relocation*, then presumed good banks are tested from 0 to 167 except those requiring relocation*.
		While testing each bank the patterns are run with the most complex ones first, working to the simple ones.
MODE 4	=	"PAFBAF" = Patterns forward, banks forward
		This mode tests each pattern completely with the simple ones first, building to the more complex.
		While testing each pattern the banks are run from 0 to 167 except those requiring relocation*.
MODE 5	=	"PAFBAW" = Patterns forward, banks worst first
		This mode tests each pattern completely with the simple ones first, building to the more complex.
		While testing each pattern first each known bad bank from 0 to 167 except those requiring relocation= is

run, then presumed good banks are run from 0 to 167 except those requiring relocation*.

MODE 6 = "PARBAF" = Patterns Reverse, Banks Forward

This mode tests each pattern completely with the most complex ones first, working to the simple ones.

While testing each pattern the banks are run from $\ensuremath{\mathsf{D}}$ to 167 except those requiring relocation*.

MCDE ? = "PARBAM" = Patterns Reverse, Banks Worst First

This mode tests each pattern completely with the most complex ones first, working to the simple ones.

while testing each pattern first each known bad bank from 0 to 167 except those that require relocation# is run, then presumed good banks are run from 0 to 167 except those requiring relocation#.

NOTE

* Relocation is required to test the bank(s) in program space and also to test any MKII banks protected by diagnostic checkmode with the inhibit mode pointer off (zero)!

2.3.1.3 Test Mode Applications -

1. To verify correct operation of the memory system use Mode C "BAFPAF".

Advantages: Easy to understand.

Disadvantages: In case of a failing Bank, it may take a long time to find the failure.

2. To get detailed error information on known bad Banks (found by sizing routine) use Mode 2 "BAWPAF".

Advantages: Seeks Bad Banks. Easy to understand.

Disadvantages: Failures other than zeros & ones may take a long time to find.

3. To get good error info on any memory problem fast use Mode 4 "PAFBAF".

Advantages: Covers all banks fast. Easy to understand.

Disadvantages: Failures from only complex patterns may take a long time to find.

→. To find any problem fast use Mode ? "PARBAH".

Advantages: Covers all Banks fast.

Disadvantages: Difficult to understand failures reported are not necessarily the most basic failure modes.

2.3.2 Display Register -

A software display register exists in location 174 in addition to any hardware display existence.

Display fields are as follows:

FATTERN + = Tre number of the pattern presently being run. All patterns are described in section 6.2. Any pattern can be found in the Diagnostic by Looking up the symbolic Tags "MTONN" and "MTFNN" - where "NN" is the Pattern number.

MTONN refers to the routine that sets up for the test Fattern whereas MTPNN is the actual pattern itself.

NOTE

The pattern # is not necessarily an indication of degree of difficulty.

MARGINS = The 3 bit value loaded into the Maintenance register (17777750) Bits (3:1). Margins are decoded as follows:

Margin	MJ11(core)	MK11(MOS)
מאפאט	Normal Operation Early Strobe Late Strobe Low Current High Current	Normal Operation Early MDR Load Late Refresh Reserved (Normal) Reserved (Normal)

Margin 1 = Forces "wrong address parity" error

- BANK = The number of the Bank (16K) of memory under test (9-167). these bits directly map to physical address bits (21:15).
- RELOCATED = This BIT indicates that the program is relocated and no longer in Bank D. It will be relocated to the first known good non-protected memory bank indicated on the configuration map reference section 7.4).

2.3.3 Special Memory Locations -

2.3.3.1 CACHE Canstant -

The CACHE constant is located at symbolic location "CACHK" and is used to enable CACHE.

If you desire to run with group O disabled change this CACHE constant to 9 or 5, if you desire to run with group I disabled change the CACHE constant to 10 or 11, if you desire to disable all of CACHE change the CACHE constant to 14 or 15.

NOTE

Bit O in the CACHE constant has no effect since it is unconditionally set by the program whenever it tries to enable CACHE.

2.3.3.2 Configuration Table

The configuration table is located at symbolic location "CONFIG" and has the following format:

CONFIG: First 16K Configuration words (3 each) 2rd 16K Configuration words (3 each)

167th 16K configuration words (3 each)

Configuration Words:

BIT 0-2 Interleave factor BIT 3 External Interleave BIT 4 CPU can access
BIT 5-7 Spare
BIT 8-10 Box number (0-7) BIT II Errors present BIT 12 Protected region of a MK11 box BIT 13-14 Memory type: D=MJ11: 1=MK11 BIT 15 Protected (Program space) BIT 0-5 Not used

Med: BIT 6-8 BIT 9-14 BIT 15 MK11 ČŠŘ Address

Not used Loader's home bank High:

Indicates Bank is addressed by CSR 172100 Indicates Bank is addressed by CSR 172104 Indicates Bank is addressed by CSR 172110 Indicates Bank is addressed by CSR 172114 BIT 4 Indicates Bank is addressed by CSR 172120 BIT 5 Indicates Bank is addressed by CSR 172124 BIT 6 Indicates Bank is addressed by CSR 172130 BIT 7 Indicates Bank is addressed by CSR 172134 BIT 8-15 Not used

This table is used as the source for the configuration Map (reference, section 7.4).

2.3.4 Terminal Commands -

2.3.4.1 Central "C"

This command will:

- 1. Clear any margin conditions.
- 2. Inrelocate if program was relocated.
- 3. Flush out any DBE's.
- 4. Turn off Memory management.
- 5. Attempt to Boot RKO5 Drive O.
- 6. Failing 5, attempt to Boot RKOS Drive 1.
- 7. Failing 6, go to 5.

This command will only be recognized at the completion of the current test or pattern.

2.3.4.2 Cartral "D" (DEBUG)

This command will enter a modified version of ODT.

This is a subset of the ODT as documented in the RTII System Reference Manual with the addition of Control "C", Control "F". & control "E" which furction as outlined here.

NOTE

It is advisable not to enter ODT when the program is relocated.

2.3.4.3 Control "E" (procEEd,

This command will allow you to exit ODT. It is the reverse of the control "D" command. If you type control "E" after a Breakpoint - you're on your own!

2.3.4.4 Control "T" (Tell me what's happening)

This command will print out the information encoded in the display register. This is mainly intended for CPU's without a hardware display register.

Example:

RELOCATED BANK = 23 MAR = 3 PAT = 26

2.3.4.5 Control "F" (Field Service Mode)

This command will cause you to enter a mode Looking for sub commands.

When the program is looking for a sub-command any number that is not a legal command will cause a mini help message to be typed. Therefore when in doubt type 99 (CR) and you will get help.

NOTE

Typing just carriage return is a default command O.

2.3.4.5.1 Field Service command 0 (Exit)

This command will exit Field Services Mode and return to whatever task it was in prior to typing control "F". Note typing just carriage return is a default O.

2.3.4.5.2 Field Service command 1 (Read CSR)

This command will typeout the contents of the MKII CSR.

If there is more than one CSR on the CPU (or if the program has not yet determined the CSR status yet), it will Ask you "WAICH CSR(0-7)" to which you must respond with an Octal number from 0 to 7. Note typing just carriage return is a default 0.

If the CSR you select causes a trap to 4 the program will type "THIS CSR DOES NOT EXIST".

NOTE

CSR references are done in accordance with section 5.1.

2.3.4.5.3 Field Service command 2 (Load CSR)

This command will enable you to load the MKII CSR.

If there is more than one CSR on the CPU (or if the program has not yet determined the CSR status yet) it will ask you "WHICR CSR(Ω -7)" to which you must respond with an Octal number from D to 7. Note typing just carriage return is a default D.

If the CSR you select causes a trap to 4 the program will type "THIS CSR DOES NOT EXIST".

The CS5 will be read and displayed as in command 1.

The program will then ask you for the "FIRST CSR WORD" to which you must respond with an Octal number. Note typing just carriage return is a default D.

The program will then ask you for the "2ND CSR WORD" to which you must respond with an Octal number.

The program will then load the CSR and Read it again displaying its new contents.

2.3.4.5.4 Field Service command 3 (Examine Memory)

This command will allow you to exemine any physical address and does the necessary memory management mapping for you.

The program will ask you for the "PHYSICAL ADDRESS (0-16777776)" to which you must respond with an Octal number.

If the address access causes a trap to 4 the program will type "TIMEOUT TRAP". If the address access causes a trap to 114 the program will type "PARITY ABORT".

The contents of your physical address will be typed.

2.3.4.5.5 Field Service command 4 (Mcdify Memory)

This command allows you to modify any physical address and does the necessary memory management mapping for you.

The program will ask you for the "PHYSICAL ADDRESS (0-16777776)" to which you must respond with an Octal number.

If the address access causes a trap to 4 the program will type "TIMEOUT TRAP". If the address access causes a trap to 114 the program will type "PARITY ABORT".

The program will type "GLD DATA WAS" and the contents of your physical address.

The program will then type "INPUT NEW DATA" to which you must respond with an Octal number. Note typing just carriage return is a default O.

The program will attempt to write this new data into your physical address after which it will read it again and type "DATA IS NOW" and the new contents of your physical address.

NOTE

If you can't change the data, that would indicate that you have a double bit error in that double word pair.

2.3.4.5.6 Field Service command 5 (Select Bank, Margin & Pattern)
This command allows you to run any bank at any margin with any pattern forever.

The program will ask you "BANK(0-167)" to which you must respond with an Octal number. If the bank is not accessible. The program will type "BANK NOT ACCESSIBLE" and ask question over.

The program will then ask "PATTERN (0-37)" to which you must respond with an Octal number.

NOTE

Any pattern can be run including those that are not part of the APT E-TABLE defaults (reference section 6.2.1). If you select Pattern 0, the program will ask "PATTERN 0 DATA IS?" to which you must respond with an Octal number.

The program will then ask "MARGIN (0,2,3,4,5)?" to which you must respond with an Octal number of the set (0,2,3,4,5). If SW5 is set in the Switch register the program will type "MARGINS INHIBITED BY SW5" and ask you for the margin again. You must then either turn off SW5 or select a margin of 0.

If the Bank you selected requires relocation the program will type "BANK REQUIRES RELOCATION" and exit this command. Note normally this is true for Bank O.

The program will ther arm the console keyboard for interrupts and type "TO ESCAPE TYPE ANY KEY!".

The test pattern will be entered and run until a console key is depressed to escape this loop.

2.3.4.5.7 Field Service command 6 (Type Configuration Map)

This command types the configuration map.

This is useful after a long run (overnight) to see all the banks that are marked as bad. (Especially if your console is a video terminal).

For a detailed explanation of the map reference section 7.4.

2.3.4.5.8 Field Service Command 7 (Battery Backup Test)

This command will check that memory does not forget while powered down.

It will write and check the address pattern in every non-protected Memory Bank.

It will then prompt with "REMOVE SYSTEM POWER FOR 10 SECONDS MAX!".

If you change your mind and do not wish to power down the system type any character and the program will think that it has gone thru a power fall/auto restart sequence.

The program will then read check each non-protected bank for the address pattern and when done type "TEST COMPLETE" and exit this command.

2.3.4.5.9 Field Service Command 8 (SOB-A-LONG TEST)

This command allows execution of the SOB-A-LONG Test on all non-protected Banks reference Section 6.2.2.26. Operation is identical to command 5 except that no Pattern or Bank is entered and each pass causes a Beli.

2.3.4.5.10 Field Service Command 9 (Super Tight scope loop)

This command allows super tight scope loops on any physical address with any margin setting.

The program will ask for "PHYSICAL ADDRESS" to which you must respond with an octal number.

The program will then ask "MARGIN (0.2.3,4.5)?" to which you must respond with an Octal number of the set (0.2.3,4.5). If SW5 is set in the Switch register the program will type MARGIN INHIBITED B: SW5" and ask you for the margin again. You must then either turn off SW5 or select a margin of 0.

The program will then type "SWR ---> MEM.MEM ---> DISPLAY" indicating that it will move the switch register into the physical address, move the physical address into the Display Register, and loop.

The the program arms the console keyboard for interrupts and types "TO ESCAPE TYPE ANY KEY!".

The program now enters a loop at symbolic location "CMD9LOOP" which consists of the following code:

CMD9LCOP:

MOV JSWR.(RD) MOV (RD) JDISPLAY BP CMD9LOOP :WRITE SWITCH REGISTER INTO MEMORY :READ MEMORY INTO DISPLAY REGISTER :LOOP TILL KEYBOARD INTERRUPT

Typing and key will exit this command.

2.3.4.5.11 Field Service Command 10 (Error Summary)

This command types out the number of passes and the total number of errors. If there were any errors it will type out the Banks and the number of errors per bank up to 255 DECIMAL.

This becomes useful after long runs (all night) on systems with a video console terminal.

2.3.4.5.12 Field Service Command 11 (Refresh TEST)

This command allows execution of the Refresh Test on all non-protected Banks reference Section 6.2.2.19. Operation is identical to command 5 except that no Pattern or Bank is entered and each pass causes a Bell.

2.3.4.5.13 Field Service Command 12 (Set Fill Count)

This command allows setting of the terminal fill count (necessary for LA30's. ASR33's, and VTO5's). It is normally set to zero for LA36's, VT52's, VT61's, etc.

```
2.4.1 Typical (System) -

Execution time depends an many variables however here are some measured times.

CEMKAR(70 MEM)
128k of MJ11 (core) Memory Normal Pass 2 Min MS Sec 2 Min M1 Sec 3 Min M1 Sec 2 Min M1 Sec 3 Min M1 Sec 3
```

2.4.3 Typical (Patterns)

Pattern Time	Description
MT0000 (1 SEC MT0001 (1 SEC MT0002 (1 SEC MT0003 1 SEC MT0004 1 SEC MT0005 1 SEC MT0006 (1 SEC MT0007 (1 SEC MT0010 (1 SEC MT0011 (2 SEC MT0012 (1 SEC MT0013 1 SEC MT0014 1 SEC MT0015 (1 SEC MT0015 (1 SEC MT0016 (1 SEC MT0017 (1 SEC MT0017 (1 SEC	DATA PATTERN TEST ADDRESS TEST COMPLIMENT ADDRESS TEST 3 XOR 9 WORST CASE NOISE TEST ROTATING ZEROS TEST ROTATING ONES TEST INITIAL DATA TEST ADDRESS BIT TEST BYTE ADDRESSING TEST CREATE SINGLE BIT ERROR TEST WRITE BYTE CLEARS SBE TEST CREATE DOUBLE BIT ERROR TEST WRITE INHIBIT DURING DATIP WITH DBE WRITE INHIBIT OF BYTE WITH DBE WRITE INHIBIT OF WORD WITH DBE HOLDING 1'S & O'S TEST MARCHING 1'S & O'S IN CHECK BITS

D	03
Page	29

1E0 0029

MT0026 (1 SEC RANDOM DATA TEST MT0027 1 SEC UNIQUE BANK TEST MT003C 1 SEC FLUSH OUT DBE'S TEST MT0031 3 SEC SOB-A-LONG TEST	TEST
--------------------------------------------------------------------------------------------------------------------------------------	------

3.6 ERROR INFORMATION

3.1 Error Reporting

Most errors are reported using the EMT trap and handler provided by SYSMAC.SML. Most errors will be of the "MEMORY DATA FRROR" type which will be described here. MEMORY DATA ERRORS will also cause the bank to be marked as Bad in the configuration table.

Other errors are best explained by referencing the specific typeout and if necessary the program listing.

Example:

MEMORY DATA ERROR XOR MAR BOX MT PE INT PAT ARRAY PC BANK PADD GOOD BAD VADD 0000 15 15 15 15 022132 060006 000100 000100 MKII 37 03700006 000000 0 055135 37 000100 060006 03700006 000000 000100 MKII 03700006 03700006 000100 WK 11 37 060006 37 060006 000000 000000 000100 000100 MKII

While testing Bank 37 at virtual address 60006 (virtual addresses are always between 60000 and 157776 for mapping purposes), physical address 3700006 (that's Bank 37 physical 6 within the Bank) with Pattern 6 (Initial Data Test), the good data expected was 0 but the data actually read (BAD) was 100, the exclusive OR at Good & Bad yields 100 which indicates only failing bit(s) (Bit 6). The margins were at 0 ino margin) and the memory resides in Box 0, it is an IKII (MOS) Nemory and its interleave factor is 0 (not interleaved). The CSR identified an error in slot AI (reference Section 7.5).

NOTE

Subsequent errors of the same test do not type a new heading.

The Box Interleave and slot would be a "?" if the memory type was MJ11 (Core).

If an MJII Core, gives Parity Aborts then the Bad Data & XOR will be

If no MVII has no CSR with a SBE or DBE than slot will be a "".

3.2 Error Halts

There are several Halts in the program.

All unused trap vectors contain a trap catcher (.WORD .+2.HALT).

An undefined TRAP instruction halts at symbolic location "ShALT2".

The APT down load sequence will halt at symbolic location "APTHLT".

Halt or Error option (SW15 Set) at symbolic location "SHALT".

Halt program (SH8 Set) at symbolic location "SEXHALT".

Power Fail will normally halt at the end of the shut down sequence symbolic location "SDOAN").

Power Fail has a fatal Halt at symbolic location "SILLUP" which can be caused by power up occurring before power down sequence completed or by power down before a power up sequence is completed.

→. □ PROGRESS REPORTS

Pass complete typeouts as follows:

END PASS # (END PASS #) END PASS #QV &

NOTE

Fass 2 was flagged as a Guick Verify Fass. (Because of a change in SWS)

.

3E0 0032

S.O DEVICE INFORMATION TABLES (CSR'S)

1st Word

SBE	:	14 13 12 11 Check Syndrom	e Capacity	8	Bed	6 5 array	SBE	Protect Painter	CHECK DIAC S	ECC DIS	ENA PAR TRUP
					:		•	•	•	•	

Erd mora

15	:	:4	13	:2	::	•	10	:	9	•	9	7	6	5	4	3	2	1	
DBE	!	14 13 12 11 Interleave				Interieave &	;	Bad			art	179	Ad	idra					
							aretrida was	•	Cuntr	• • •									

5.1 Address(s) Of The CSR

The CSR is accessed as a 32-bit word on the 11.70 main memory bus. (To the processor, the CSR looks like two corsecutive 16 bit words.)

A switch on the MBISB address buffer module selects one of two options for CSR address access, either Direct or Indirect.

5.1.1 Direct Address

(For this option the 11.70 processor requires modification.) Switches on the M8158 address buffer module select one of the following eight CSR (double word: locations (octal addresses):

17777210C 177772104 177772110 177772114 17777212C 177772124 17777213C

5.1.2 Indirect Address

No il 70 modifications required for this option but its use is quite complex. Suitches on the M8158 address buffer module select one of the following eight CSP (double word) locations (octal addresses):

NOTE

These addresses are in the upper 125% word section of the existing 11/70 2M word address space. Normally this is reserved address space rever implemen edir memory and not directly accessible by tre processor.

Mowever, these CSR locations may be accessed for diagnostic purposes through the unibus map with cache turned off. It is not recommended to use this method in an operating system environment since the unibus map is required if other NPR activity is present. One cookbook method of implementing a CSR access (within this diagnostic program, is:

- 1. Halt all NPR activity on the system.
- 2. Turn cache off.
- 3. Far & --- 177400 (other Par's Normal)
- →. Enable memory management in 22 bit mode.
- 5. Mag 36 (--- 17760000 (other Maps = 0).
- E. Turn or unibus Map.
- T. Access virtual 152100 through 152136 as ISR's.

5.1.2.1 Historical Note

This Indirect path to the CSR's was discovered in early 1977 by an expedition consisting of my three brothers and myself.

Field Service Engineer. Memory Engineer. System Engineer, and myself Software Engineer, departed the CPU on our search for the CSR's. Memory Engineer promised that CSR's would conditionally reside in the shadow of a giant memory depending on whether or not they felt switched.

We began our search for the first CSR believing that if we found one, that the rest of the tribe would surely be nearby. Our task was clear, find CSR 17772100 behind the grant memory 0 through 16777776 (2 Meg words).

Field Service Engineer suggested that since we could arrive in the east by heading west. Then surely we could find 17772100 by heading for 152100. This didn't make too much sense to my other brothers and myself, however, since Field Service was willing to pay for the expedition, we all left CPU city in search of 152100.

The first village we came upon was managed by an old experienced relocator named Kay Tee. We told Mr. Tee of our expedition and our high expectations of finding 17772100 by looking for 152100. He expressed doubt that the feat could be accomplished, but he said since our three most significant bits were six that perhaps his most trusted friend Six (on of the Par brothers) could help us. So we proceeded to see Six Par.

We found Six Par at a busy highway control center directing traffic with his brothers. He greeted us warmly and assured us that we had come to the right place. Six said that his older brother Seven was not to be trusted since he preferred devices to people. Also, Six told us how his younger brothers were much too inexperienced to guide us and that they usually only do I to I relocations. So, at Six Par's highway we were given 177400 which he said to multiply by 64 and add to our 12100 (IS2100 less 3 MSB's). Thus, we were leaving Kay Tee's village with a total address of 17752100.

At the outskirts of the village there were two toll gates one to Cash and one to Uni. We decided to take the Cash route at System Engineer's suggestion that "Cash makes no enemies". However, the gate guard would not let us pass because he thought we were a device. We tried to explain but he insisted that unless our most significant bits were 16, we could not pass. Reluctantly, we decided to try the Unigate. Here the guard was more negotiable and he let us pass charging only four bits. Just outside the gate we boarded a Unibus with address 752100.

The bus trip was supposed to be quite long with many stops, however, it turned out the first stop was the last stop for anybody without a device address. Here we departed the Unibus to find a long row of 36 checkout girls at special registers called Maps. Each Map register had a ramker D through 36 and a checkout girl with a matching bust

size. We all agreed to visit Map register 36. The checkout girl was very cordial and went on to say that she preferred customers whose most significant five bits were 36 also. She charged us our five most significant bits and added her favorite number 17760000 to our address of 12100 and we departed with 17772100, which Memory Engineer promised would lead to the CSR.

Next we came to the cash highway, but since the cash register was turned off, we were declared amiss and allowed to pass all the way down the highway toll free where we arrived at the Memory bus. We gave the driver our address of 17772100 and proceeded on our way. The driver warned us that no one ever goes there and he waited for us at our stop as it was not a regular part of his route.

Here westing at the bus stop with open arms, we found the CSR and the entire tribe. We briefly exchanged data and climbed back on the Memory bus as we had to return to CPU city before the last Unibus timed out.

The journey home was without incident. It is interesting to note that once home none of the engineers including myself, could remember what the checkcut girl's face looked like.

5.1.3 Indirect Manual Mode:

- 1. Turn off Cache 17777746 <--- 14
- 2. Set up MAPO 17770200 <--- 170000 17770202 <--- 77
- 3. Turn on Unibus Map 17772516 <--- 40
- H. Turr display switch to CONS PHY
- 5. Examine or deposit 17002100 through 17002136 as CSR's

5.2 Allocation Of CSR Bits

5.2.1 Enable Parity Traps (BitO - of 1st word

If this bit is set, it allows bad parity to be asserted (for a READ operation: if a double error occurs or a single error occurs with ECC disabled. Section 5.2.5 summarizes the operation of this bit along with other control bits. This bit is set on power up and can be written or read by the main memory bus.

5.2.2 ECC Disable (Bit1 - 1st word)

If this bit is set, the error correction circuits are disabled and no single bit error correction will occur. However, error detection circuitry is enabled and any single or double bit error may still be detected on a READ operation and correct check bits are still written into memory on a write operation.

This is a diagnostic aid to allow writing and reading data from memory without interference from the error correction logic. This is a REAC WRITE bit cleared on power up.

5.2.3 Diagnostic Check (Bit2 - 1st word)

This mode allows a means of writing data stored in CSR Bits (14:8) into the MOS chips used for check bit storage. A READ cycle to memory will read the check bits from MOS storage into CSR bits (14:8).

This allows an integrity check on the check bit storage chips and a cneck on the error correction logic.

This bit is cleared on power up and can be written or read by the main memory bus.

5.2.4 Protection Pointer (Bit3 - 1st word)

This bit selects the 16K section of memory which will be protected inot be affected by ECC disable and diagnostic check). This 16K section will contain the diagnostic program. When this bit is unasserted, the first 16K associated with each control card is protected. When this bit is asserted the second 16K associated with each control card will be protected. This is a READ/WRITE bit cleared on power up.

5.2.5 Summary of Bits(3:C) of 1st word

CSR	BIT3	BIT2	BITI	BITO	FUNCTION
	Ö	0	Ď	Ó	Parity trap, disable (Normal Mode) Enable traps on DBE's (Initialized Value from power up, Disable error correction & traps
	200) C	ļ	Ģ	Disable error correction & traps
	Ö	ļ	Ď	ģ	Enable traps on SBE's R/W checkbits
	ט	1	Į.	Ç	Not used by program Not used by program Read Box Capacity
	1	i C	1	1,	Read Box Capacity Read Box Capacity in Bits (14:8) of 1st word
	<u>:</u>	0	1 1	0	Read Box Capacity in Bits (14:8) of 1st word Disable error correction & traps (Program relocated) Enable traps on SBE's (Program relocated) R/W Checkbits (Program relocated)
	1	1	Ö	Ō	R/W Checkbits (Program relocated)
	<u>ī</u>	Ī	Ī	Õ	Not used by program Not used by program Not used by program

" = DON'T CARE

5.2.6 Single Bit Error Indication (Bit4 - 1st word)

On a READ cycle to memory, if a single bit error occurs, this bit is set. Simultaneously, the syndrome bits are latched into CSR Bits (14:8) and the array identification and controller selected are latched into CSR (Bits [7:5] lst word) and Bit9 2nd word.

An examination of the CSR can thus be performed to see if a single bit error had occurred and the array that failed if such error occurred. This is a PEAD/WRITE bit cleared on power up.

5.2.7 Array Select (Bits (7:5) 1st word)

During a READ cycle to memory, latched address bits on the selected control board will be stored in these locations upon an error. Any DBE will rewrite these bits & SBE's from protected memory will not be latched.

5.2.8 Check Sit Syndrome Bit Storage Box Capacity (Bits (14:8) 1st word)

5.2.8.1 Check Bit Storage (DIAG CK = 1)

During a diagnostic check, bits are read from or written into memory as described in Section 5.2.3.

5.2.8.2 Syndrome Bit Storage

If a single bit error occurs on a read cycle, then the syndrome bits indicating what bit failed are stored into those CSR bits.

These CSR bits can be written or read by the main memory bus. They are neither set nor reset on power up.

5.2.8.3 Hamming Code Matrix

Each check bit (C1-C32) is the result of odd parity generated on the data bits designated by X_{\star}

C1 = f(1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31) C2 = f(2,3,6,7,10,11,14,15,18,19,22,23,26,27,30,31) C4 = f(4-7,12-15,20-23,28-31) C8 = f(0-15,24-31) C16= f(0-7,16-31) C32= f(8-31)

Check bit CT (check total) is the result of even parity generated on the data bits.

CT = 1(0.3,5,6,P,11,13,14,16,19,21,22,25,26,28,31)

Syndrone bits (S1-ST) are formed by a comparison of the check bits read from memory and new check bits generated on the data read from

memory.

A single error will cause an odd number of syndrome bits to go high. If Bit 4 should fail S16, S8, & S4 would be set.

An examination of the syndrome bits can disclose the failing bit.

If there are more than one syndrome bits set and still an cdd number of bits then the following simplification exists. SY-SI indicate in octal the failing Bit (0-7). S32-SB indicate the Bad Byte. The cleared bit in S32-SB indicates which Byte from left to right. S32-SB = 3 = Byte 0: 5 = Byte 1. 6 = byte 2; and all set = 7 = Byte 3. ST (Syndrome total) should be set or cleared to produce an odd number of syndrome.

If only one syndrome but is set it directly indicates which check but is bad.

If ar even rumber of syndrome bits are set something is wrong with the hardware.

			SYN	NDROM	E BI	TS		
	BIŢ	ST X	532	216	28	54	52	51
	· <u>į</u>	^		ŝ	ŝ		v	X
BYTE C	3	X		\$16 X X X X X X X X	Ś	U	X	X
``	Ş	X		ŝ	ŝ	×××	v	X
	`			â	Ŝ	â	X	X
	7 89	X	ŝ		Š		U	X
BYTE 1	11	×	Š		Ŝ	U	×	X
`\	13	X	ŝ		58 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	×××	U	X
	15		Ŝ	v	â	Ŷ	X	X
,	BIO-1237567-8901237567890	X	**************************************	*****			U	X
BYTE 2	19	X	ŝ	ŝ		U	X	X
	ŽĪ	X	ŝ	ŝ		X X X	v	X
	\ 23 23 25 25	*	Ŝ	Š	U	Ŷ	X	X
	/ 25	×	8	ŝ	××××××		J	X
BYTE 3 /	27 29	X	ŝ	ŝ	ŝ	U	X	×
	59	^	8	Ŷ	8	×××	U	X
	\ 31 \ C1	X	Ŷ	â	ŝ	Ŷ	×	×
,	ÇŞ					×	X	^
HECK BITS	Č8				×	^		
	535 516	>	X					
	•	-						

5.2.8.4 Box Capacity

Multiplexed with the locations for reading and or writing check bits or reading syndrome bits is the ability to read the total number of 16k \times 32 sections (double blocks) in memory. In order to read this box capacity, the special code as indicated in Section 5.2.5 (bits (3:1) = 1,0.0) will have to be loaded into the CSR 1st word prior to performing the READ cycle.

Note that if ECC is manually disabled writing a Zero into CSR Bit2 ist word is overridden and a One remains. In order to read the box capacity for this case, an internal flip-flop is used whose state is what was written into CSR Bit2 lst word. Hence writing Bits(3:1) = 1.0.0 lst word will still allow box capacity to be read even though CSR BIT2 lst word is still a One.)

5.2.9 Double Error Indication (Bit 15 of 1st or 2nd word)

On a READ cycle, these bits are set if a double error occurs. Simultaneously the array select bits latched on the control board selected are stored into CSR Bits (7:5) list word and the latched control is stored in Bit 9 2nd word. It should be noted that Bits 15 of 1st 8 2nd word are separate and independent. Clearing one bit via a write to that bute will not affect the other. They are however asserted by the addressed controller simultaneously. These are READ/WRITE bits reset on power up.

5.2.10 Starting Address (A24-A16) (Bits (B:0) 2nd word)

These bits are used to load a starting box address through the CSR on a WRITE cycle or can be used to read the starting address of the memory box if the address is set by switches on the data interface card or remotely from the processor. The starting address can be reconfigured on a 32K word segment. These bits are READ/WRITE. On power up the switch settings on the data interface card are loaded into these CSR locations. In order to load the starting address Bit 10 2rd word must accompany the load.

5.2.11 Cortrol Select (Bit 9 2nd word)

If a single or double bit error occurs during a READ cycle, then the address of the controller selected is stored in this CSR bit location.

This bit is read only and cleared on power up.

5.2.12 Starting Address Selector (Bit 10 2nd word)

This bit controls selection of the starting address & External Interleave loaded into the CSR or the starting address and external interleave dictated by the switches on the data buffer board or control panel. A Zero in this bit indicates selection of the switches, a One indicates selection of the starting address loaded into CSR bits (8:0) 2nd word and External Interleave bits (14-12) 2nd word?

Note that a READ operation to the CSR will always give the actual box starting address in Bits (8:0) 2nd word regardless of its origin.)

This is a READ-WRITE bit cleared on power up. (However, a switch on the data buffer board can hold this bit cleared, thereby defeating any attempt at loading the starting address and External Interleave through the CSR.)

5.2.13 Internal Interleaving (Bit 11 2nd word)

It is bit indicates if there is internal interleaving within a memory box. If this bit is cleared there is no internal interleaving and if it is set, there is internal interleaving.

NOTE

Coly if each controller has identical memory capacity is this bit capable of being set. However, writing a Zero to this bit disables all possible internal interleaving. This is a READ/WRITE bit set on power up if each of the two control card sets has identical memory capacity.

5.2.14 External Interleaving (Between Boxes) (Bits (14:11) 2nd word)
These bits indicate how the system is configured for external interleaving as follows:

BIT14	B1115	BIT13	NUMBER OF WAYS EXTERNALLY INTERLEAVED
3	CO	00	No External Interleaving Not Used
3	1	00	2 Way: Memory Responds to Even Double Words : Memory Responds to Odd Double Words
0101	00:11	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Hay: Memory Selected If: AO2=0; AO3=0 : Memory Selected If: AO2=1; AO3=0 : Memory Selected If: AO2=0; AO3=1 : Memory Selected If: AO2=1; AO3=1

The bits will be treated in a similar manner to the Start Address as described in Section 5.2; i.e., CSR Bit10 2nd word will determine the origin. Also, on power up the corresponding switch settings will be loaded into these CSP bit locations.

BITIM	BIT13	BIT12	BIT11	DESCRIPTION
0	0	0	C	No Interleave
Ö	2	C	1	Internal 2-1
3	0	: :	0	External 2-1 Even Double Words
3	C		1	Ext 2-1 & Int Even Double Hords
C		S	9	Ext 4-1 A3=0 A2=0
2	1	3	1	Ext 4-1 & INT A3=0 A2=0
2		1	9	Ext 4-1 A3=1 A2=0
2	:	:	1	Ext 4-1 & Int A3=1 A2=0
•	C	3	0	Impossible (ERROR)
:	S	5	1	Impossible (ERROR)
•		•	9	Ext 2-1 Odd Double Words
	5	1	1	Ext 2-1 & Int Odd Double Words
<u>;</u>		3	С	Ext 4-1 A3=0,A2=1
:		Э	•	Eit 4-1 & Int A3=0,A2=1
•			0	Ext 4-1 A3=1,A2=1
•	1	•	1	Ext 4-1 & Irt A3=1.A2=1

H04

5.3 CSR Bit Summary

```
ISR BIT ALLOCATION - AS DESIGNED
                                                                                                         COMMENTS
                                                                                                         : Set on Power Up (Read/Write)
: Clear on Power Up (R/W)
: Clear on Power Up (R/W)
                                  Enable Parity Traps
ist word Bito
                                  ECC Disable
Diagnostic Check
Protection Pointer
                   Bitl
                    B112
E113
                                                                                                                Clear on Power Up (R/W)
                                  Single Bit Error Indication
Array Sel ADI
Array Sel ADZ
Array Sel ADZ
                                                                                                         Clear on Power Up (R/W)
Clear on Power Up (Read Only)
Clear on Power Up (Read Only)
                    51t4
                    Bit5
                    Bit6
Bit
                                                                                                               Clear on Power Up (Read Only
                                  CK Bit1/Syndrome I/Capacity I:
CK Bit2/Syndrome 2/Capacity 2:
CK Bit4/Syndrome 4/Capacity 4:
CK Bit8/Syndrome 8/Capacity 8:
CK Bit8/Syndrome 16/Capacity 8:
CK Bit16/Syndrome 32/Capacity 6:
CK Bit32/Syndrome 32/Capacity 32:
CK Bit T/Syndrome T/Capacity 64
Double Bit Error Indication
Start Address (A1E)
Start Address (A1E)
                                                                                                        : (Read/Write) Bits, Neither
: Set nor Reset on Power
: Up; Based on CSR Bit2 & bit3 Check
                    E: 18
                    8:19
                    Bitlo
                                                                                                                Bits Alone are Read from or
                    Bitll
                                                                                                                Written into these locations
Otherwise Syndromes are Written on SBE's
                    B: 112
B: 113
                    Bi 114
                                                                                                                Clear on Power Up (R/W) (Read/Write) Bits Capable of
                    B: 115
2-a word BitO
                                                                                                       : Read write; Bits Capable of Being Loaded via the Main Data : Bus or Switches on the Data : Card. On Power Up, the switch : Settings are loaded into : These Locations.
                    9: t1
                                   Start Address (A17)
                    B: 12
                                   Start Address (A18)
                    B. t3
                                   Start Address (A19)
                                  Start Address (A20)
Start Address (A21)
Start Address (A22)
Start Address (A23)
                    B. 14
                    B1 15
                    Bi th
                    Bit?
                                   Start Address (A24)
                    BitB
                                                                                                     : Cleared on Power Up (Read Only)
: Loaded on Power Up (Read/Write)
: Loaded on Power Up (Read/Write)
: Loaded Same as Bits (8:0) 2nd word
: Loaded Same as Bits (8:0) 2nd word
: Loaded Same as Bits (8:0) 2nd word
: Clear on Power Up (R:W)
                    B: 19
                                   Controller Select
                    Bitio
                                   Start Address Selector
                                   Internal Interleaving
                    B1:11
                    B: 112
B: 113
                                   Two Way
                                  Four Way
                    8.115
                                  Double Bit Error Indications
```

```
6.0 SUB-TEST SUMMARIES
6.1 Tests
TES"
             ANALIZE CONFIGURATION (CSR Access may cause wrong Type of Traps)
TEST
             TEST BANK D ACCESSES
             Failures are fatal.
TEST
             TEST BANKS 1-167 (OCTAL) FOR ZEROS & ONES Errors are not typed here - only logged in the configuration table
TEST
             INHIBIT MODE POINTER TEST
TEST
             CIAGNOSTIC MODE DISPATCH ROUTINE
This test runs all the patterns in the mode selected.
TEST
             UNIQUE BANK TEST
Pattern 27 18 run
TEST
             FORCE ADDRESS PARITY ERRORS
Insures that no bank responds when there is an address parity error.
```

6.2 Patterns

6.2.1 General Pattern Information

Actual patterns are identified by symbolic locations "MTPXYY" where X may be any sub program indicator (A,B,C,etc) or 0 and YY will be the number of the pattern.

Setup procedures for each pattern are identified by symbolic locations "MTDDYY" where YY will be the number of the pattern.

Patterns reside in 4 scripts that are scanned for execution. Symbolic location "MKCSRT" is a table of patterns that can run once for each MK11 controller (twice per MK11 Box). Symbolic location "MKPAT" is a table of patterns that can run on each Bank of MK11 memory. Symbolic location "MJPAT" is a table of patterns that can run on each Bank of MJ11 memory. Symbolic location "FSPAT" is a table of patterns that can be run in Field Service Mode (command 5).

The ist 3 scripts are completely controlled by the APT E-table (even if not running under APT). Modifications to this table can be made (1) with APT, (2) manually, or (3) with ODT reference Section 2.3.4.2.

Example E-table Segment:

:THE FOLLOWING LOCATIONS SPECIFY WHICH PATTERNS :ARE TO BE RUN FOR PARTICULAR MEMORIES

REFERENCE THE TABLE LISTED BELOW TO RELATE BITS TO PATTERNS. BITO SET WILL RUN THE FIRST ENTRY IN THE TABLE, BITO SET IN THE SECOND WORD WILL RUN THE 17TH ENTRY IN THE TABLE...

:NOTE**NULL TESTS DO NOT TAKE ANY TIME

i				
SCOWD:	. HORD	177777	:MK11 CSR TESTS	TABLE = MKCSRT:
SDDW1:	. WORD	177777	MKII CSR TESTS	TABLE = MKCSRT:
SDOW2:	. WORD	161777	MKII PATTERNS	TABLE = MKPAT:
\$DDW3:	. WOPD	177777	MKII PATTERNS	TABLE = MKPAT:
SDDW4:	. WORD	177677	:MJII PATTERNS	TABLE = MJPAT:
\$ 50,45:	. WOPD	177777	MJII PATTĒRNS	TABLE = MJPAT:

6.2.2 Specific Patterns

6.2.2.1 Pattern 0 Basic Data Test

writes & Reads R2 into a 16K Bank.

This is used for Zeros and Ones testing and in Field Service Mode for any console selected pattern.

It executes out of the USER Instruction PAR's.

NCTE

It is frequently modified dynamically such that (1) it returns after writing only (the 1st NOP is replaced with a RETORN) or (2) it only counts Errors the code PERRO2 and NOP are replaced with INC Dapaters).

5.2.2.2 Pattern 1 Address Test

Writes & Reads an incrementing pattern equivalent to physical addressed into a 16K Bank.

It executes out of the USER Instruction PAR's.

5.2.2.3 Pattern 2 Complement Address Test

Writes the complement of the physical address from high addresses to low 'write down') and reads from low addresses to high (read up).

Inis provides the complement of the coverage of Pattern 1 in both data pattern and addressing sequence.

It executes out of the USER Instruction PAR's.

6.2.2.4 Pattern 3 3 XOR 9

Writes 3 Reads a pattern that complements as address bits 4 and 10 change. This is because the PDP-11/70 fetches double words therefore a classical 3 XOR 9 in a small PDP-11 must look like a 4 XOR 10 in a PDP-11 70.

This pattern is run 4 times (1) with Zeros & Ones, (2) with Ones & Zeros, (3) with 401 & Ones, and (4) with Ones & 401. The pattern of the 401 is to force a the parity bits to become involved.

It executes out of the USER Data PDR's, the User Instruction PAR's, the Kernel Data PAR's and the Supervisor Data PAR's.

5.2.2.5 Pattern 4 Rotating Zeros Test

Writes a background pattern of Ones... Rotates a Zero Carry Bit left thru each par of bytes (18 times) and then checks that the carry is Zero and the word (2 bytes) is still all Ones.

It executes out of the User Data PAR's and the Kernel Data PAR's.

NOTE

It is not uncommon to observe the good data equal to the bad data. This indicates that the carry was not clear after 18 ROLB's.

5.2.2.6 Pattern 5 Rotating Ones Test

Writes a background pattern of Zeros. Rotates a One carry bit left thru each pair of bytes (18 times) and then checks that the Carry is a One and the Word (2 Bytes) is still all Zeros.

This provides the complement of the coverage of Pattern 4 in data.

It executes out of the User Data PAR's and the Kernel Data PAR's.

NOTE

It is not uncommon to observe the good data equal the bad data. This indicates that the Carry was not set after 18 ROLB's.

6.2.2.7 Pattern 6 INITIAL DATA TEST

Writes & Reads a double word first with all bits D except 1 (for every bit position). Second with all bits 1 except 1 (for every bit position).

This is a very quick check of the data paths.

5.2.2.8 Pattern 7 Address Bit Test

Writes a backgr and of all Zeros.

Read Address I ... a D Byte.

Complement Address 1.

Read Address 1 for a non D Byte.

for each Address Bit position from Bit 1:

Virtual (2, 4, 10, 20, 40, 100, 200, 400, 1000, 2000, 4000, 10000, 60000)

Physical (60002, 60004, 60010, 60020, 60040, 60100, 60200, 60400, 61000, 62000, 64000, 70000, 140000, 100000)

Read Address for a D word.

Complement Address contents.

Read Address for a non-zero word.

This is a very quick check of the address bit uniqueness.

5.2.2.9 Pattern ID Byte Addressing Test

With ECC Disabled.
Writes all ones to a double word.
For each of the 4 Bytes in the Double Word.
Clears one byte.
Reads all 4 bytes from double word.
Checks for only proper byte clear.
All other bytes set to all ones.

This is only done or one double word address.

6.2.2.10 Pattern 11 Single Bit Error Test

- 1. Create a Single Bit Error.
- 2. Read data Uncorrected (with ECC Disable).
- 3. Read First Word of data corrected (with ECC Enabled)
- 4. Check that the CSR Single Bit Error Flag was set.
- 5. Clear SBE Flag.
- 6. Read Second word of data corrected (with ECC Enabled).
- 7. Check that the CSR Single Bit Error Flag was set.
- B. Do (1-7) for a Single Bit Error in each of 32 positions of a double word. i.e. (32 TIMES)
- 9. If not in Quick Verify Mode then Do (1-8) for data consisting of 1 bit set in each of 32 positions of a double word.

 1.e. (32 X 32 = 1024 Times)
- 10. Do (1-9) for complemented data (1 Bit clear in each of 32 positions of a double word).

 1.e. (1024 X 2 = 2048 Times)
 or (32 X 2 = 64 Times (Quick Verify))
- il. Clear any errors out of test locations.

This insures that all Single Bit Errors can be corrected and detected.



6.2.2.11 Pattern 12 Write Byte Clears SBE Test

- 1. Create a Single Bit Error.
- 2. Write a Byte of Double Word to Ones.
- 3. Read a Byte of Double Word.
- 4. If Byte that had SBE then the SBE Flag should be OFF. If Byte that did not have SBE then SBE Flag should be set.
- 5. Byte should have been equal to Ones.
- 6. Do (1-5) for each of the 4 Bytes of the Double Word
- 7. Dc (1-6) for a Single Bit Error in each of 32 positions of a Double Word i.e. (32 Times)
- B. If not in Quick Verify Mode then do (1-7) for data consisting of 1 Bit set in each of 32 positions of a double word. 1.e. (32 X 32 = 1024 Times)
- 9. Clear any errors out of test locations.

This insures that single bit errors in the data portion (not in checkbits) can be cleared by writing the corresponding byte and that writing any other byte does not change the existing single bit error.



6.2.2.12 Pattern 13 Create Double Bit Error Test

- 1. Create a Double Bit Error.
- 2. Access the Data (TST instruction).
- 3. Check that the CSR DBE Flags are both set.
- 4. Initialize CSR to allow parity traps on DBE's.
- 5. Access the Data (TST Instruction).
- 6. Check that a parity trap occurred.
- 7. Do (1-6) for the 2nd Bit of each Double Bit Error in each of 32 positions of a double word less the one position of the lst Bad Bit.
 1.c. (31 Times)
- B. If not in Quick Verify Mode then Do (1-7) for the 1st Bit of each of Double Bit Error in each of 32 positions of a double word.

 1.e. (31 X 32 = 992 Times)
- 9. Do (I-8) for complemented data (Ones versus Zeros in Double Word)
 1.e. (992 X 2 = 1984 Times)
 or (31 X 2 = 62 Times (Quick Verify);
- 10. Clear any errors out of test locations.

This insures that all Double Bit Errors can be created and detected and cause traps.

NOTE

This test is only run during the first GV: PASS when under ACT or APT.

6.2.2.13 Pattern 14 Write Inhibit During DATIP with DBE Test

- i. Create a Double Bit Error.
- 2. Do ASRB on Test Location.
- 3. Check that Double Word is STILL Bad (Unchanged-with DBE).
- 4. Do (2-3) on all 4 Bytes of Double Word.
- 5. Do (1-4) for the 2nd bit of each Double Bit Error in each of 32 positions of a Double Word less the one position of the lat Bad Bit.
 1.e. (31 Times)
- 6. If not in Quick Verify Mode then Do (1-5) for the 1st Bit of each Double Bit Error in each of 32 positions of a double word.

 1.e. (32 × 32 = 922 Times)
- 7. Do (1-6) for complemented data (Ones versus Zeros in Double Word).
 1.e. (922 X 2 = 1984 Times)
 or (31 X 2 = 62 Times (Quick Verify))
- 2. Clear any errors out of test locations.

This insures that the Double Bit Error can be cleared by a DATIP to any affected Byte.

NOTE

This test is only run during the first was pass when under ACT or APT.

6.2.2.14 Pattern 15 Write Inhibit of Byte with DBE

- 1. Create a Double Bit Error.
- 2. Do a MOVB immediate to test byte.
- 3. Check that Double Word is still Bad (unchanged-with DBE).
- 4. Do (2-3) on all 4 Bytes of Double Word.
- 5. Do (1-4) for the 2nd Bit of each Double Bit Error in each of 32 positions of a double word less the one position of the 1st Bad Bit.
 1.e. (31 Times)
- 6. If not in Quick Verify Mode then Do (1-5) for the 1st Bit of each Double Bit Error in each of 32 positions of a Double Word.

 1.e. (31 x 32 = 922 Times)
- 7. Dc (1-6) for Complemented Data (Ones versus Zeros in Double Word). 1.e. (992 X 2 = 1984 Times) or (31 X 2 = 62 Times (Quick Verify))
- B. Clear any errors out of test locations.

This insures that no Double Bit Error can be cleared by a MOVB to any affected By*a.

NOTE

This test is only run during the first Gr. pass when under ACT or APT.

6.2.2.15 Fattern 16 Write Inhibit of Word with DBE Test

- 1. Create a Double Bit Error.
- 2. Do MOV immediate on test location.
- 3. Check that Double Hord is STILL Bad Sunchanged-with DBE !.
- 4. Do (2-3) on both Double Wards.
- 5. Do (1-4) for the 2nd Bit of each Double Bit Error in each of 32 positions of a Double Word less the one position of the 1st Bad Bit.
 1.e. (31 Times)
- 6. If not in Guick Verify Mode then Do (1-5) for the 1st Bit of each Double Bit Error in each of 32 positions of a Double word.

 1.e. (32 × 32 = 992 Times)
- 7. Dc (1-6) for Complemented Data (Ones versus Zeros in Double word).
 1.e. 1992 X 2 = 1984 Times;
 or 31 X 2 = 62 Times (Quick Verify)
- B. Clear any errors out of test locations.

This insures that no Double Bit Error can be cleared by a MOV to any affected word.

NOTE

This test is only run during the first is pass when under ACT or APT.

s.2.2.16 Fatterr 17 Holding 1's & O's Test

- i. write a 164 Bank with alternating Bytes of Zeros 8 Ones writing a Byte at a time.
- 2. Read each word for correct pattern.
- 3. Do 1-2, again for a complement pattern.

Tris creaks the memory for the capability of holding G's S 1's.

- marching 0's \$ 1's in Check Bits Test
 - i. Hrite Double Words of 000000.,100000 which causes check bits to equal 100 while addressing increments.

 Hrite Up 100 --> check bits?
 - 2. If in Quick Verify Mode then Go to Step (5).
 - 3. REad Double Words & check while writing Zeros and addressing decrements.

 (Down / 100 --> 077;
 This flips all the checkbits.
 - 4. Read Double Words & check while writing 000000, 100000 while addressing increments.
 (up = 577 --> 100)
 - 5. Read Double Words & check while writing Zeros & addressing increments.
 (Up < 100 --> 077)
 - 6. Feed Double Words & check while writing 000000, 100000 while addressing decrements.

 (Down 077 -- 100)
 - T. Read Double Words & check while Addressing increments. Up 100:

This crecks the integrity of the MOS chaps that stone the checkbits.

5.2.2.18 Pattern 21 Marching D's & 1's Test

- 1. Write a Background of alternating Bytes of Zeros & Ones
- E. For the 16K Bank addressing Down
 (a Read check a word
 b) Byte Swap a word
 c) Read check a word
- 3. For the I6K Bank addressing Up
 (a. Read check a word
 (b) Byte Swap a word
 (c) Read check a word
- H. For the 16K Bank addressing Up
 (a) Read check a word
 (b) Byte Swap a word
 (c) Read check a word
- 5. For the 16K Bank addressing Down
 (a) Read check a word
 (b) Byte Swap a word
 (c) Pead check a word

This checks the integrity of the 32 Bit Double Words.

It executes out of the User Data PAR's.

6.2.2.19 Pattern 22 Refresh Test

Write a diagonal pattern of ones on every kDIAG(TH) stripe & write zeros elsewhere.

This pattern is on addresses not bit positions.

Example:

NOTE

Example uses KDIAG of value 4 more typical is a value of B. Consult the symbolic definition of "KDIAG" in the program listing to be sure.

- 2. Disturb each row for >2ms
- 3. Read check diagonal pattern
- 4. Do (1-3) KDIAG times moving the placement of the diagonal stripe to cover all address positions.
- 5. Do (1-4) for a complement pattern (zeros in a background of ones)

This test is not in the normal script of execution but may be added via the APT E-TABLE, reference symbolic locations "MKPAT", "SDDW2-5". Field Service Mode command 11 is the normal method of running this pattern.

6.2.2.20 Pattern 23 Shifting Diagonal Pattern Test

Similar in overall operation to pattern 22 except

- 1. uses patterns of 0's & 1's in alternating Bytes.
- 2. uses code that gives an effect of using a KDIAG or 64 (one stripe every 64th call) or in other words at 4k boundaries only 1 stripe.
- 3. operates on 46 Boundaries and hence runs 4 times.
- 4. Takes forever (6.9 Seconds)

NOTE

This pattern is not in the normal script of execution but may be added via the APT E-Table reference symbolic locations "MKPAT." "MJPAT", "SDDW2-5".

5.2.2.21 Pattern 24 Fast Galloping Pattern Test

This does a classical galloping pattern except that addressing is incremented by 200 Octal (every 64 call)

This test takes 58 seconds to run.

NOTE

This pattern is not in the normal script of execution but may be added via the APT E-Table, reference symbolic locations "MKPAT", "SDDW2-5".

6.2.2.22 Pattern 25 Interrupt Enable Test

- i. Set CSR to Allow DBE Traps.
- 2. Access Test Double Words.
- 3. Check for no Double Bit Error Trap.
- 4. Enable CSR for SBE Traps.
- 5. Access Test Double Words.
- 6. Check for no SBE Trap.
- 7. Write a SBE in 1 Bute.
- 8. Disable CSR for Parity Traps.
- 9. Access Test Double Words.
- 10. Check for no Traps.
- 11. Enable CSR for SBE Traps.
- 12. Access Test Double Hords.
- 13. Check to Insure Trap Occurred.
- 14. do (7-13) for the 3 other Bytes in the Double Word.
- 15. Create a DBE in 1 Byte.
- 16. Disable CSR for Parity Traps.
- 17. Access the Test Double Word.
- 18. Check for no Traps.
- 19. Enable CSR for DBE Traps.
- 20. Access the Test Double Hord.
- 21. Check to Insure Trap Occurred.
- 22. Enable CSR for SBE Traps.
- 23. Access the Test Double Hord.
- 24. Check to Insure Trap Occurred.
- 25. Do (15-24) for the 3 other Bytes in the Double Word.

This insures that SBE's & DBE's give the correct type of traps.

6.2.2.23 Pattern 26 Random Data Test

Write Random Data in a 16k Bank while incrementing the Addresses.

Read check Random Data.

This routine regenerates the same random numbers by using the same seed as the write sequence. After the read check the seed is updated so that the next use of this pattern will not invoke the same sequence of random numbers.

If you wish to change the random sequence so that it is different than any other run in the same configuration then there are 2 ways of doing so.

- 1. Modify symbolic locations "SEEDHI" and "SEEDLO" to any number you like.
- 2. Enter Field Service Mode and execute this pattern (command 5) on some (any good) bank for a short time (30 sec or so).

This executes out of the User Data PAR's, the Kernel Data PAR's, and the Supervisor Data PAR's.

5.2.2.24 Pattern 27 Unique Bank Test

This pattern uses Pattern O to write & read the Bank number in each bank.

It does not test Banks that require relocation to test.

It does not run as part of any script but rather is always run after normal pattern tests are complete.

5.2.2.25 Pattern 3C Flush out DBE's Test

This Reads each location then moves the old value tack in. This is done with ECC Disabled and therefore corrects any DBE's or SBE's (if possible).

It does not run as part of any script but rather is always run just price to the End of Pass Code, as part of a Control "C" (Boot) command, as part of End of Pass shutdown for ACT or XXDP Chain Mode, as part of hanging sequence after an error if under ACT or APT, and as part of a shutdown sequence directed by Switch B (Halt Program).

6.2.2.26 Pattern 31 SOB-A-LONG Test

Rationalization

In order to concentrate the memory cycles of a test into a particular address, we must cut the overhead cycles to a minimum. Frequently, the instruction itself may provide adequate data or set up a background in which any complemented bit may find it hard to survive.

The SOB instruction is the only PDP-11 instruction that is (1) a single operand, (2) can be repeatedly executed at the same PC and, (3) can escape this repetitious loop.

Hence. I believe it is possible to SOB a MOS cell to death (or at least brain wash him), and to SOB a core into over-heating (or at least warm discomfort).

The SOB Routine will be loaded and called with RD set equal to the SOB constant "SOBK". RI set equal to the complement of a "SOB RD.." Instruction "100776".

Simplified SOB Example:

15:	SOB RO.15 MOV RI.15 CMP RI.15 BEQ SOBFAIL	;50B till RO underflows ;Write complement of 50B ;Read & check not 50B ;Skip if OK ;Trap & report error
2\$:	SOBMOVI SOBMOVE SOBMOVE SOBMOVE SOBMOVE	:Code to get self moved ;Forward I word and run again

The value of the SOB constant can be found at symbolic location "SOBK" (typical 25 decimal).

This test is not in the normal script of execution but may be added via the APT E-TABLE, reference symbolic locations "MKPAT", "MJPAT", "SDDH2-5". Field Service Mode command 8 is the normal method of running this pattern.

NOTE

Since this test executes out of the memory under test most errors detected will be fatal to the program. The display register will indicate which bank is at Fault (unless clobbered by crash).

SEG 0065

6.2.2.27 Pattern 999 Null Test

This is an instant return added to preserve the software structure.

This pattern replaces any real patterns when the APT E-Table does not specify a pattern to be run.

7.0 PROGRAM FEATURES

7.1 Fast Data Access Rates

One of the main areas of concern in testing memory in systems environments is speed. It is my belief that one of the prime reasons that system programs like RSTS, IAS and MUMPS can crash due to memory failures not detectable by memory diagnostics (0-124K, 0-2 MEG, etc.) is because of multiple NPR devices contending for the bus. After some delay a NPR device becomes bus master with his silo backed up (perhaps only 3-8 words) and does several memory transfers at memory data rates.

On the other hand most diagnostics when writing reading and/or checking patterns spend most of their time fetching instructions and operands out of their program space and proportionally little time accessing the memory under test.

I have attempted to optimize this diagnostic's error detecting abilities around the primary design criteria of speed. To this end I have taken the following steps.

7.1.1 Fast City

Utilization of Memory Management Registers as Non Memory Bus, Non UNIBUS, Bipolar Memory. Since user mode is only used for relocation and data space is never used then subroutines can be executed from the UIPAR's, UDPAR's, SDPAR's and with some Bit Pattern restrictions the UIPDR's, UDPDR's, KDPDR's, and SDPDR's.

The program runs in Kernel mode and Patterns are executed in Supervisor mode for mapping purposes. All core patterns and some MOS Patterns are subroutines that are moved to this Bipolar region referred to in the program as Fast City.

7.1.2 50B's

Utilization of the PDP-11/70 Instruction Set to speed pattern algorithms (principally the SOB). No attempt is made to support anything less than a PDP-11/70.

7.1.3 CACHE

CACHE is used between pattern tests to decrease program pass times. CACHE can be defeated or partially disabled by the operator (reference section 2.3.3.1).

7.2 Bank Zero Testing

Bank Zero has been traditionally neglected by memory diagnostics for the following reason.

The vector space exists there and ALL traps must not access test pattern data. If the area is tested the diagnostic must not use any traps and it is against the rules for power to fail.

Systems with memory management can overcome this because all traps are to Kernel Virtual space even power fail (caution must be observed because power up goes to physical address 24 (because the Memory Management Unit comes up off).

However, Catch 22 is that the diagnostic is not APT compatible in this mode because APT Accesses Physical Memory Locations.

PDP-11/70 Systems can over come this because the UNIBUS MAP can fool APT.

Because of the previous arguments this program does not relocate in the true since of the word (i.e. no position independent code was written (at least not on purpose)), but rather this program moves and remaps (hereafter referred to as relocates). This enables the complete testing of Bank Zero or any other program space or privileged space exactly as all other banks are tested. [The conditional test to see if a bank is protected is complemented when relocated).



- 7.3 Differences In Core Testing With 0-2 MEG (DEMJA)
- 7.3.1 Delta noise test only performed with 3 XOR 9 Test

Reason: DEMJA performed the delta noise lest with constant data however, it will only have an adverse effect if performed with a worst-case pattern.

7.3.2 B XOR 13 Test deleted

Reason: Designed for a PDP11-20 Memory not presently in use.

7.3.3 3 XOR 9 Rewritten

Reason: was actually a 4 XOR 9 and should have been a 4 XOR 10 for 11 70's to account for reading Double Words.

7.4 Memory Configuration Map

This map is printed out immediately after sizing the memory if SWB is set treference section 2.3.1). It can also be printed at any later time in Field Service Mode treference section 2.3.4.3.7)

Example:

MEMORY CONFIGURATION MAP 16K BANKS

D12345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345670123456701234567012345

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Displayed are Banks 0-167 Octal (2 meg words). If the Fat Terminal Switch was set (reference section 2.3.1) then all Banks would fit on one line.

The sizing routine could not write zeros and ones in Banks 20-8-21 hence they are marked as bad with X's.

The CPU was able to access banks 0-37 (512 K words).

The interleaving on Banks 0-37 is 2 way. This may be external with no internal or internal with no external - however since there is only one box of MOS (BOX 0) it must be internal interleave.

Banks 0-37 are Memory Type K (MK11) and Banks 40-167 do not exist. Memory Type J would indicate MJ11 memory.

Banks 0-37 are located in box 0. Boxes are assigned to CSR locations in order and MJII Boxes will never have a Box number only a question mark.

Banks O, 1 and 2 are protected. Bank O & 1 are protected because they are program space. Bank 2 is protected because it is in the bottom 16K of an MK11 controller. Bank O is also protected for this same reason however, the protection is hierarchical and program space gvershadows MK11 protection. Banks O, 1 & 2 will not be tested until the program relocates.

7.5 Banks & Boards (Mkl1)

Boards with 4k MOS chips are 32k words each. Boards with 16k MOS chips are 128k words each.

Imagine that the front view of the memory box is as follows:

BL.15.13.11.9.7.5.3.1.08.0A.DA.BL.AD.BL.CA.CB.D.2.4,6,8,10,12,14,BL

Where I thru 15 are the MOS array cards. CB is Control "B". CA is Control "A". DA is the Data Interface. AD is the Address Interface. BL is a Blank unwired) slot in the backplane.

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37 33 27 23 17 13
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11 15
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4-1 External & Internal Interleaving
16k Parts with
                                           4, 6, 8, 10, 12, 14
                                       Array
Banks
       15, 13, 11, 9, 7,
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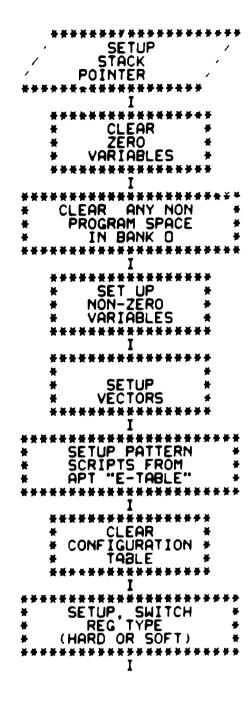
8.0 FLOW CHARTS

8.1 Main Program

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****	**************************************	*
* * *	RUN SYSTEM LEVEL TESTS	* *
***** * *	I FLUSH OUT DBE'S	* * * *
***** * *	I END OF PASS CODE	* * * * *

B.1.1 Instablize -



B07

SE2 0073

SET_P FOR
APT, ACT.
XXDP

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PRINT
TITLE

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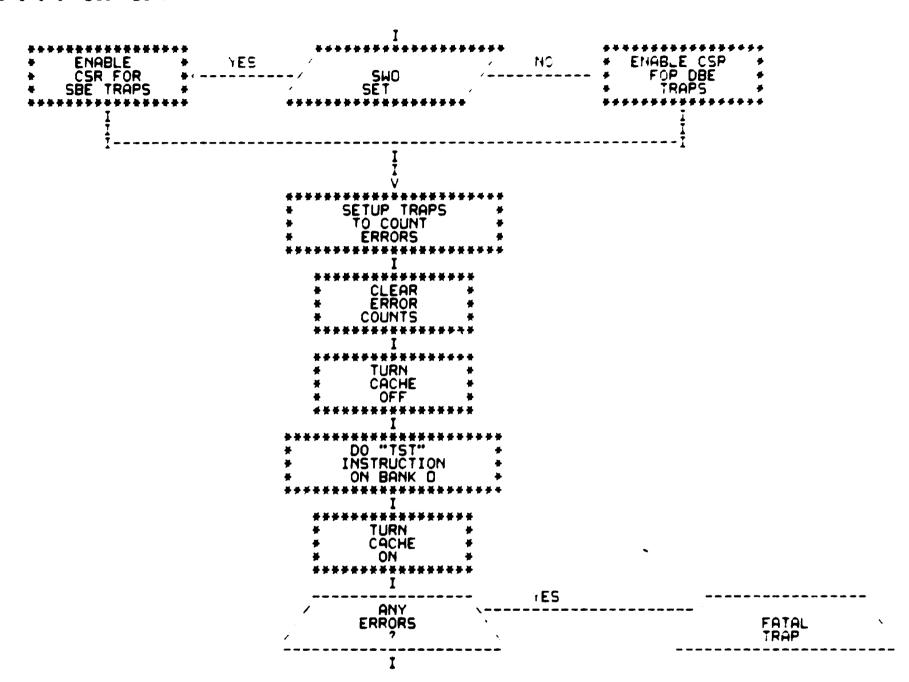
GO TO NEXT TEST

8.1.2 Test Hardcore Hardware -

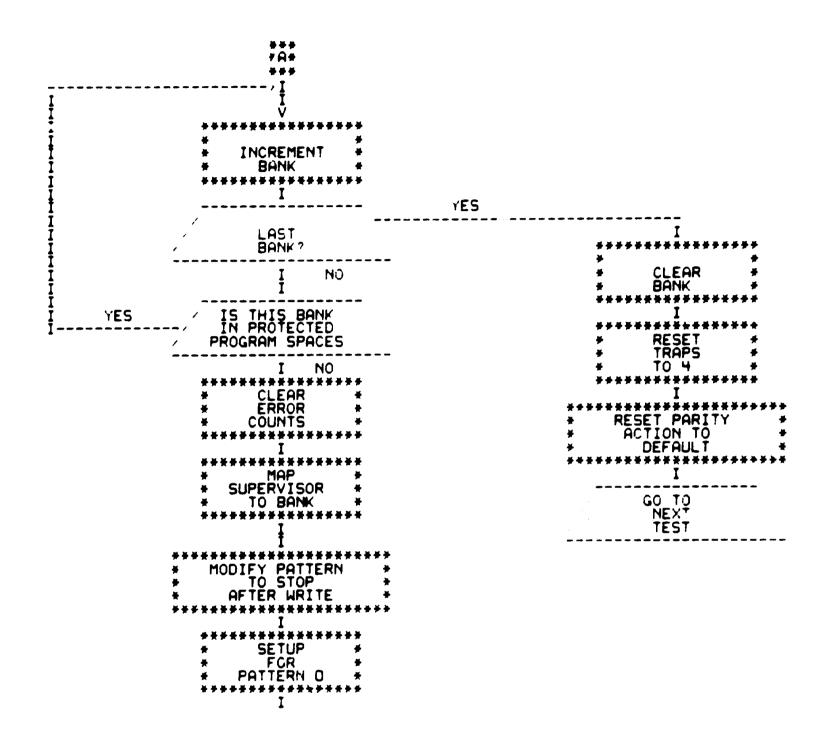
# # # # #	M	KII.	MINE CSR MET	!	**
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操作 操作 操作		TUP STI POI	USE PCK NTER	R	**
****	GET SW	SOF ITCH NECE	**** TWA H RE ESSA ***	RE G RY	***
**************************************		SE UNIE MA ***	ΆΡ΄ **** [***	* * *
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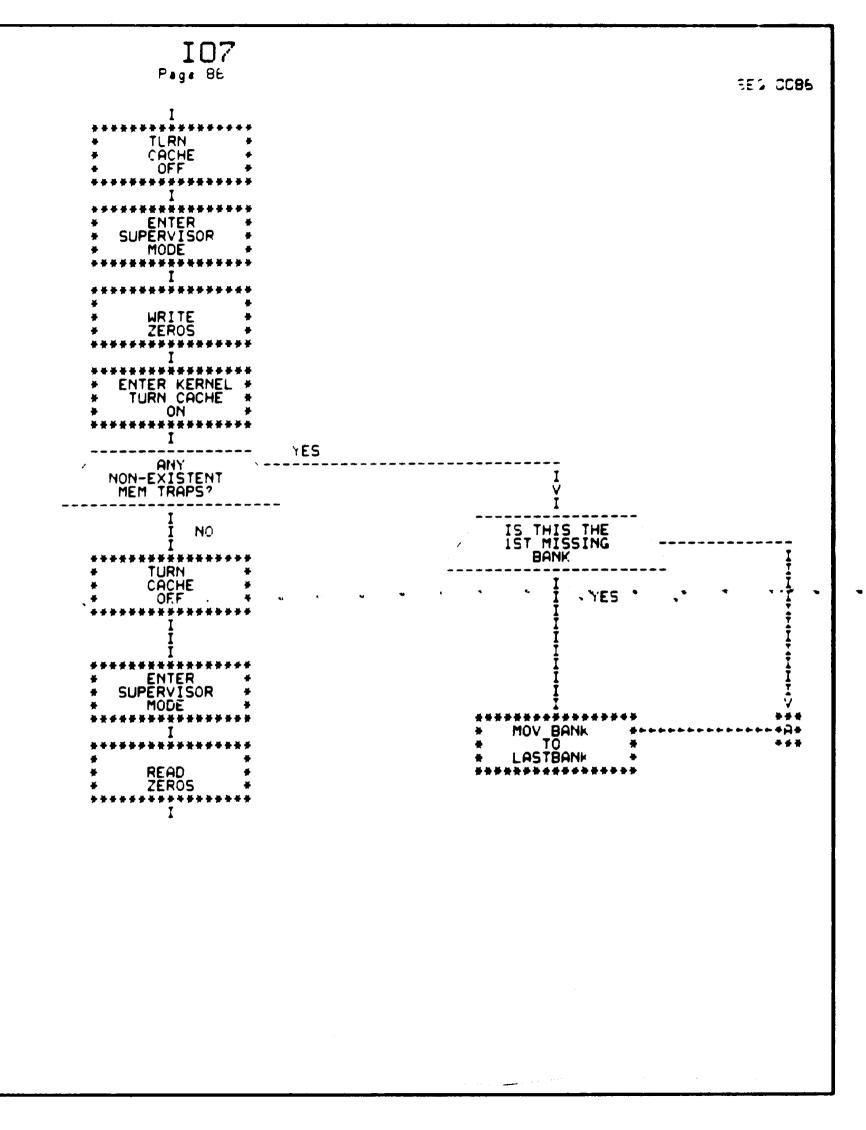
8.1.3 Analize Configuration -SELECT IST CSR DOES CSR EXIST? NO I SET BIT IN "MKCSRS" INTERNAL INTERLEAVE YES SET BIT H IN "MKCSRS" NO I SAVE INTERLEAVE CALL GETSIZE SELECT 1ST BANK OF CSR

B.1.4 Size & Test C's & 1's On Each Bank -



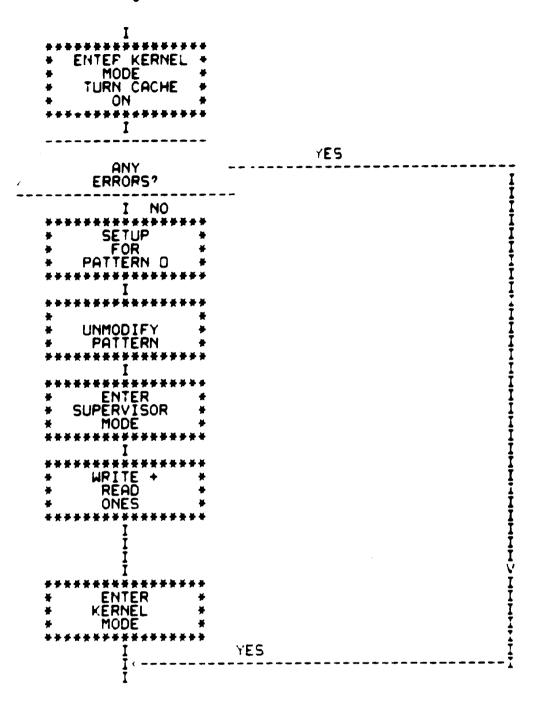
	I NC	
• • • • • • • • • • • • • • • • • • •	SET ACCESSED BIT FOR BANK D	
****	*****	
**************************************	CLEAR "BANK" + "LASTBANK" +	
•	**************************************	
	SETUP TRAPS + TO COUNT + ERRORS +	
****	I	
*	MOVE MODIFIED * PATTERN D TO * FASTCITY *	
	I *** *A* **	

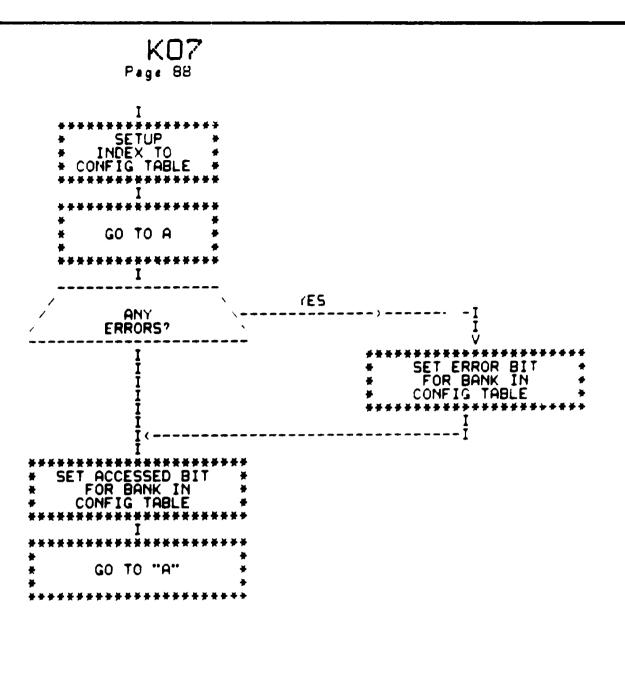




J	07
Page	87

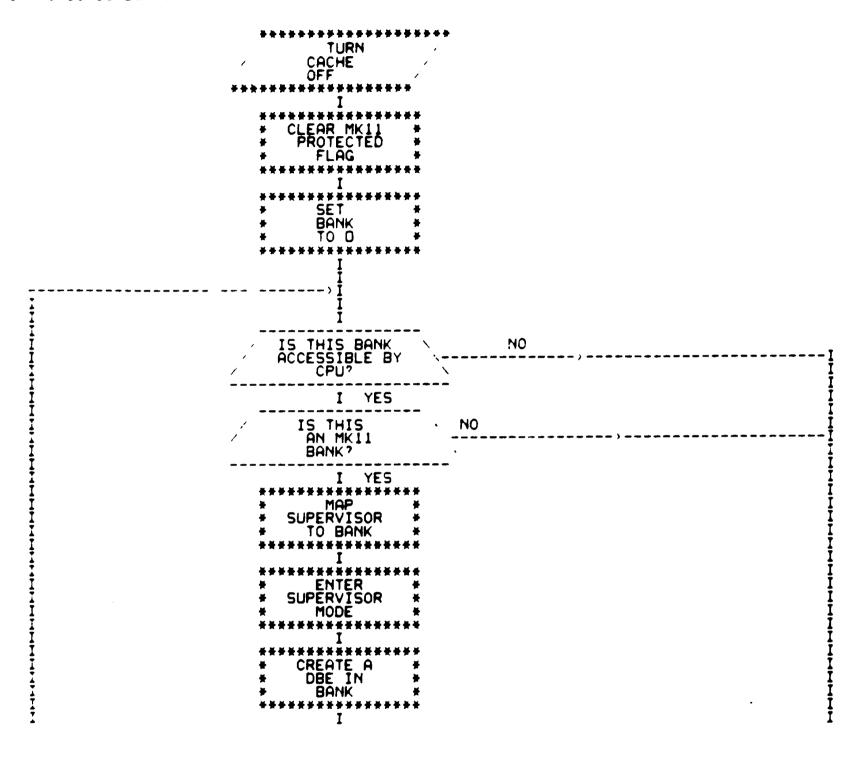
SEG CC87

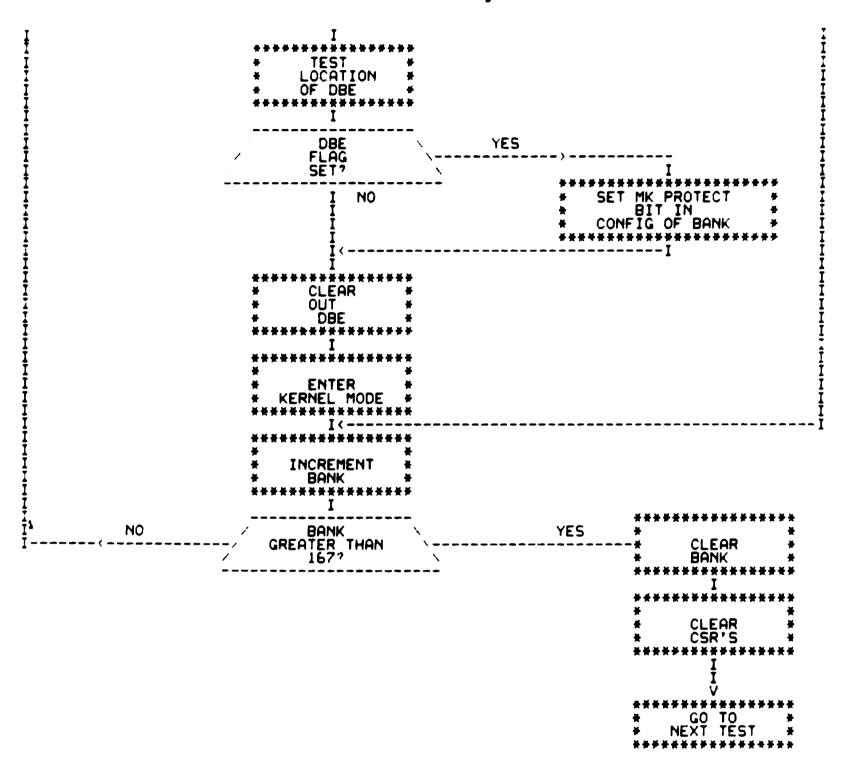




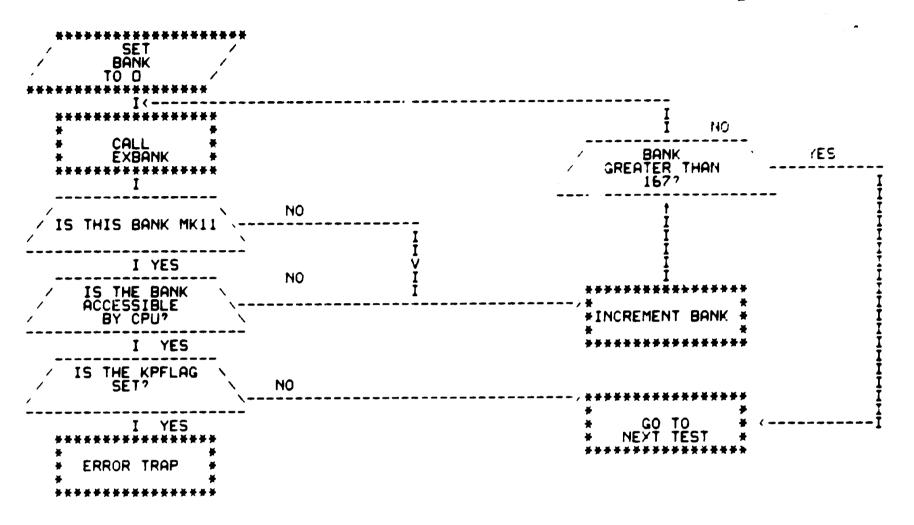
SE0 0088

B.1.5 Cetermine Protected Banks Of Mk11 -

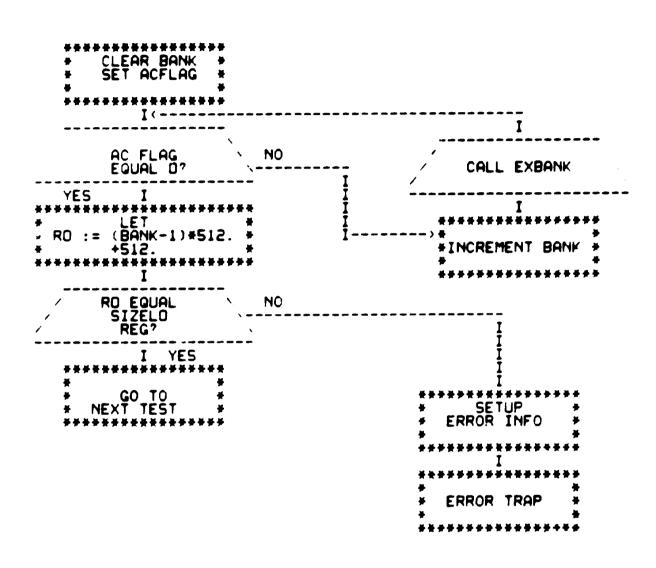




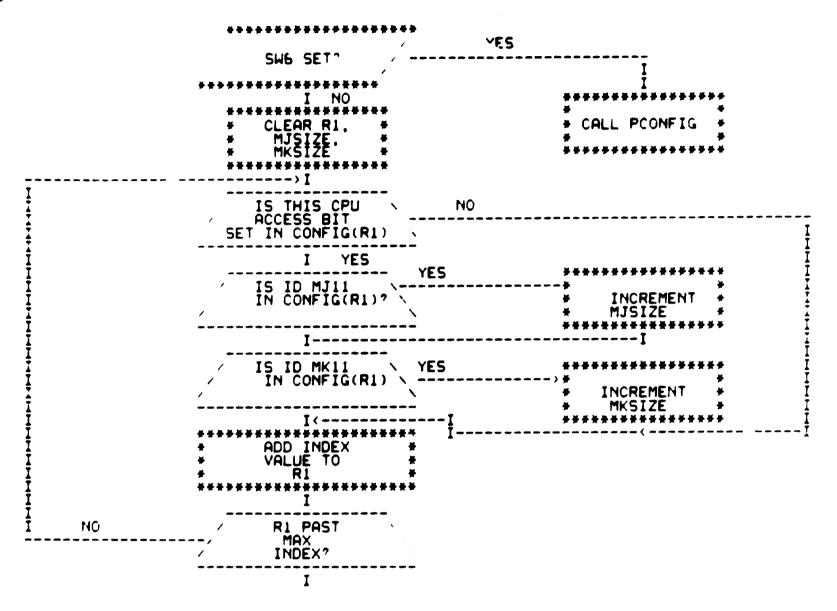
8.1.6 Test Mk11 Protection Pointer -



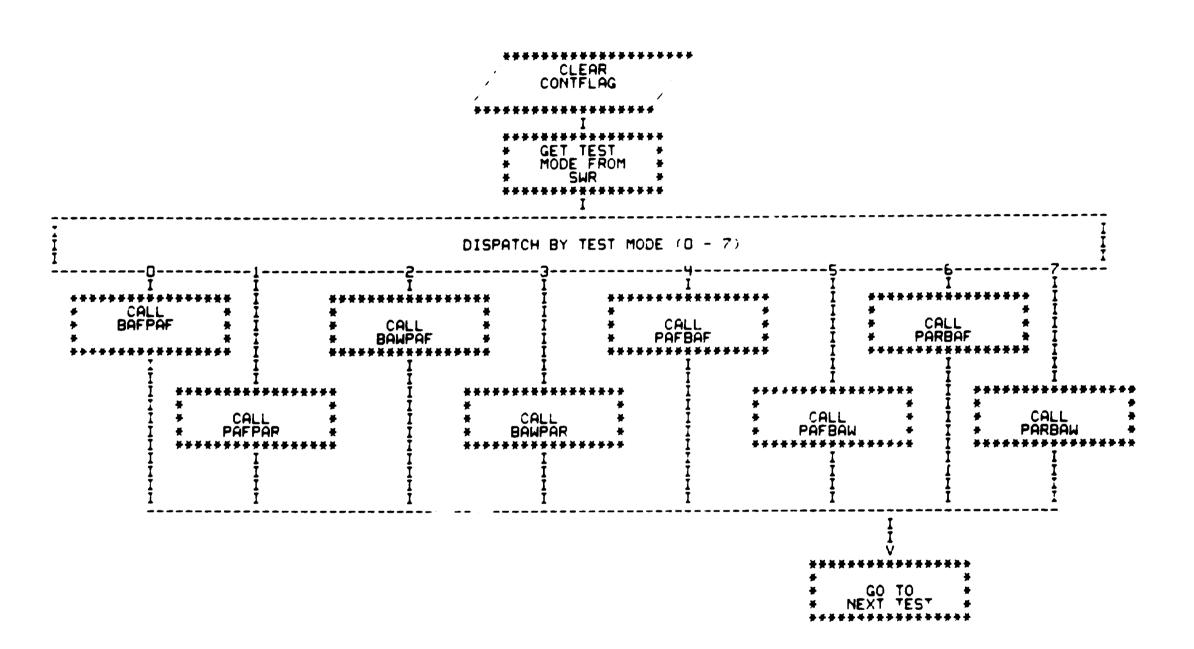
8.1. Test System Size Register -



8.1.8 Type Configuration -

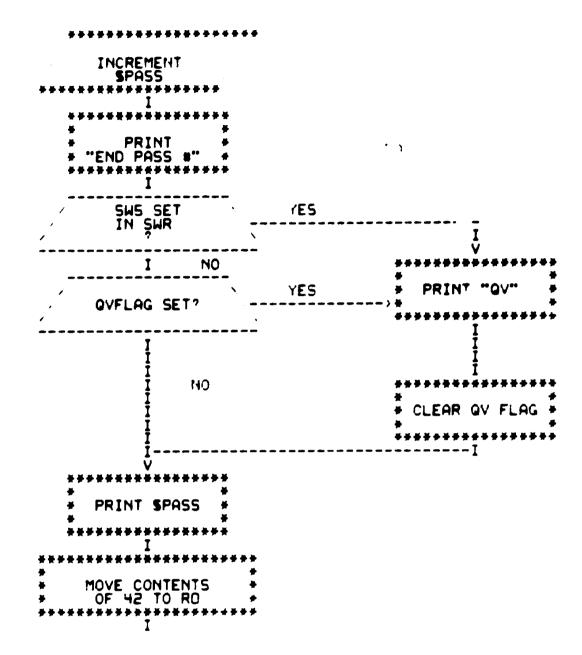


8.1.9 Run Bank Level Tests -

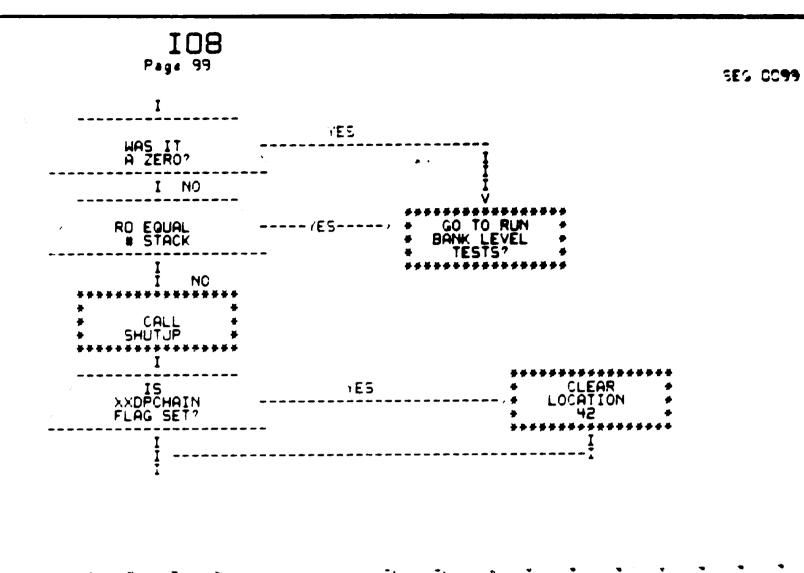


8.1.10 Run System Level Tests -

B.i.il End Of Pass Code -



.



SES GIOO

RESET

I

NOTE: THE FOLLOWING CODE IS MODIFIED BY ACT & THEREFORE MAY APPEAR AS 3 TYPES OF ACTION

XXDP CHAIN

ACT QV

ACT A

 NOP

INC IFLAG

NOP

GO TO RUN
BANK LEVEL
TESTS

```
MACY11 30A(1052) 28-FEB-78 09:20 TABLE OF CONTENTS
 CEMKAAD 1170 MAIN MEMORY DIAG
ČEMKAA.MAI
                           24-FEB-78 11:01
                  OPERATIONAL SWITCH SETTINGS : SWITCH REGISTER DEFINITIONS
        33333311
333333111
                                                                                 USE
                   *
                                 SWITCH
                   .
                                                                HALT ON ERROR
LOOP ON TEST
                                    15
                   .
                                                                INHIBIT ERROR TYPEOUTS
INHIBIT RELOCATION
QUICK VERIFY / INHIBIT MARGIN TESTING
        42
                                                               QUICK VERIFY / INHIBIT MARGIN TESTING
BELL ON ERROR
LOOP ON ERROR
HALT PROGRAM (UNRELOCATED & RESTORE LOADEPS)
DETAILED ERROR REPORTS
PRINT CONFIGURATION MAP
LIMIT MAX ERRORS PER BANK
FAT TERMINAL (132 COLUMNS OR BETTEP)
TEST MODE - SEE DOCUMENT
DETECT SINGLE BIT ERRORS
                   ; +
        45
      יים בניים מיים ברב
מיים מומים ברב
מיים מומים ברב
                                DEFINE TRAPS
                                DEFINE
                                                BASIC PDP11 STUFF
                                DEFINE
DEFINE
DEFINE
DEFINE
      284
568
568
                                                CACHE REGISTERS
                                                CPU REGISTERS
MEMORY MANAGEMENT REGISTERS
UNIBUS MAP REGISTERS
      413
                                                SOFTHARE SHITCH & DISPLAY REGISTERS
                                DEFINE
DEFINE
DEFINE
MACRO
      481
485
      488
                                                PARAMETERS
      494
                                                FATAL
      51C
523
572
                                MACRO
                                                TYPE
                                MACRO
                                                NEWTST
                                MACRO
                                                SSNEWTEST
                                MACRO
MACRO
MACRO
MACRO
      593
                                                SUBTST
      626
615
                                                SSUBTST
                                                TYPOCT
      661
                                                TYPOCS
      712
750
803
837
                                MACRO
MACRO
                                                TYPDEC
                                                BMOV
                                MACRO
MACRO
                                                MAP
                                                SUPERVISOR
      854
871
                                MACRO
MACRO
                                                USER
                                                 SET
      889
                                 MACRO
                                                SETH & RESH
      917
                                 MACRO
                                                DLEFT
                                ACTII HOOKS
APTII HOOKS
      34E
      965
                                VARIABLES
VARIABLES
                                                                 INITIALIZED TO ZERO INITIALIZED TO NON ZERO
     1146
                                TABLE CONFIGURATION INITIALIZE VARIABLES TO ZERO CLEAR NON-PROGRAM SPACE
    1189
    1246
    1262
```

INITIALIZE VARIABLES TO NON ZEPO INITIALIZE VECTORS INITIALIZE PATTERNS

1271 1283 1300

SEG CIGI

```
MACY11 30A(1052 28-FEB-78 09:20
MAIN SKELETON
                                                                                                                            TABLE OF CONTENTS
                                           24-FEB-78 11:01
CEMKAA. MAI
                                                 SUBR PLUG IN NULL PATTERNS
CLEAR THE CONFIGURATION TABLE
SIZE FOR A HARDWARE SWITCH REGISTER
      1318
1327
1337
                                                SIZE FOR A HARDWARE SWITCH REGISTER
SETUP ACT, APT, & XXDP
BEFORE FIRST LOOP CODE
PROTECT PROGRAM & LOADERS
DETERMINE MK11 ACCESS METHOD
SETUP MAP & USER & SUPERVISOR STACK
GET SOFTHARE SWITCH REGISTER IF NECESSARY
SETUP UNIBUS MAP
GET MEMORY MANAGEMENT READY
      1351
      1378
      1379
      1386
      1398
      1411
     1420
                                                  GET MEMORY MANAGEMENT READY
      1434
                                                                          ANALIZE CONFIGURATION
                                                 Ti
                                                TEST BANK D ACCESSES
ENABLE MK11 FOR CORRECT TRAPS
T3 TEST BANKS 1-167 (OCTAL) FOR ZEROS & ONES
DETERMINE PROTECTED BANKS
       1522
      1545
     1645
                                                MOVE LOADERS IF NECESSARY
TH MK11 PROTECTION POINTER TEST
CHECK SYSTEM SIZE REGISTER
     1747
1761
                                                  MULTIPORT HOOK
      1826
                                                CHECK FOR UNIQUE SERIAL NUMBERS
PRINT MULTIPORT DIRECTORY
LOAD CSR'S FROM E-TABLE SCOW! & SCOW!
      1881
      1901
      1914
                                                 PRINT MEMORY CONFIGURATION MAP
      1929
                                                CHECK APT SIZING
TS DIAGNOSTIC MODE DISPATCH ROUTINE
TE UNIQUE BANK TEST
TO FORCE ADDRESS PARITY ERRORS
FLUSH OUT DBE'S
      1964
     1999
2017
2024
2056
     5060
                                                 END OF PASS ROUTINE
                                                END OF PASS ROUTINE
BANKS FORWARD PATTERNS FORWARD
BANKS FORWARD PATTERNS REVERSE
BANKS WORST FIRST PATTERNS FORWARD
BANKS WORST FIRST PATTERNS REVERSE
PATTERNS FORWARD BANKS FORWARD
PATTERNS FORWARD BANKS WORST FIRST ##RECURSIVE##
PATTERNS REVERSE BANKS WORST FIRST ##RECURSIVE##
PATTERNS REVERSE BANKS WORST FIRST ##RECURSIVE##
PATTERNS REVERSE BANKS WORST FIRST ##RECURSIVE##
SUBR SETUP MEMORY TEST
SUBR TEST MK11 CONTROLLER LOGIC DISPATCH
IS ECC ON?
     5119
     5304
5563
5185
      2352
      2393
      2442
                                              SUBR TEST MK11 CONTROLLER LOGIC DISPATCH
IS ECC ON?
CHECK FOR SBE FREE LOCATIONS
SETUP INTERLEAVE INFO
SUBR GET SIZE FROM CSR
CSR PATTERN CASE STATEMENT
DETERMINE ADDRESSING ACCORDING TO INTERLEAVE
DETERMINE IF BANK BELONGS TO CORRECT SIDE
SUBR MK11 TEST DISPATCH
SUBR MJ11 TEST DISPATCH
MEMORY TEST SETUP ROUTINES
MTODOO SETUP DATA PATTERN TEST
MTODOO SETUP ADDRESS TEST
MTODOO SETUP COMPLEMENT ADDRESS TEST
MTODOO SETUP OMPLEMENT ADDRESS TEST
MTODOO SETUP ROTATING ZEROS TEST
MTODOO SETUP ROTATING ZEROS TEST
MTODOOS SETUP ROTATING ONES TEST
     2462
2516
2537
2594
     2625
      2695
      2828
      285€
      2908
2956
2957
      2965
      2974
      2984
       3009
```

SE0 0102

```
THECY 11 30A (1052) 28-FEB-78 09:20

24-FEB-78 11:01

MITOR SETUP INITIAL DATA TEST
MITOR SETUP ADDRESS BIT TEST
MITOR SETUP MERITE BYTE CLEARS SBE TEST
MITOR SETUP MERITE INHIBIT OF BYTE MITH DBE
MITOR SETUP MITH BYTE ADDRESS TEST
MITOR SETUP MITH BYTE ADDRESS TEST
MITOR SETUP SETUP MITH BYTE MERITE TEST
MITOR SETUP SETUP MITH BYTE MERITE TO BE ADDRESS TEST
MITOR SETUP SETUP MITH BYTE MERITE MITH BYTE
MITOR SETUP SETUP MITH BYTE MERITE MITH BYTE
MITOR SETUP SETUP MITH BYTE MERITE
MITOR MITH BYTE MERITE MITH BYTE
MITOR MITH BYTE MERITE
MITOR MITH BYTE MERITE
MITOR MITH BYTE MERITE
MITOR MITH BYTE MITH BYTE MITH BYTE
MITOR MITH BYTE MITH BYTE MITH BYTE
MITOR MITH BYTE MITH BYTE MITH BYTE
MITOR MITH BYTE MITH BYTE
MITOR MITH BYTE MITH BYTE
MITOR MITH BY
                                                                                                             MACY11 30A(1052) 28-FEB-78 09:20
 PATTERNS
CEMKAA. MAI
               3038
3049
3056
                3065
               3074
3093
3093
               3111
               3116
               3212
              3224
               3565
               3311
               3350
3364
               3370
               3437
               3447
               3458
               3470
               3484
               3509
               3526
               3535
               3544
3557
               3566
               358Q
               3623
               3662
               3698
               3808
               3886
3953
               4035
               4110
               4188
4221
               4429
                4498
               4566
                                                                                                                                                                   SHIFTING DIAGONAL PATTERN TEST
FAST GALLOPING PATTERN TEST
INTERRUPT ENABLE TEST
RANDOM DATA (WRITE)
RANDOM DATA (READ)
                                                                                                             MTP023
MTP024
MTP025
MTP026
               4589
               4656
               4734
               4823
               4830
                                                                                                               MTPB26
                                                                                                             RANDOM NUMBER SUBPROGRAM
RANDOM NUMBER SUBSUBPROGRAM
MT0030 FLUSH OUT DBE'S
               4848
               4861
               4868
```

SEG 0103

```
SEG 0104
```

```
MACY11 30A(1052) 28-FEB-78 09:20
PATTERNS
                                                            24-FEB-78 11:01
                                                                                                                                                                           TABLE OF CONTENTS
CEMKAA. MAI
                                                                                        31 SOB-A-LONG TEST
COPY RO TO RY RI TO R3, & R2 TO R5
WARNING CONSTANTS IN WORST CASE NOISE TESTS
                                                                     MTP031
                                                                                                  COPY RO TO REAR I TO R3 & R2 TO R5
WRNING CONSTRANTS IN WORST CASE NOISE TESTS
WRNING CONSTRANTS IN WORST CASE NOISE TESTS
WRITE BACKGROUND
PRINT CONFIGURATION
PARITY ERROR MANDLER
TYPE CONFIGURATION
PARITY ERROR MANDLER
NON-EXISTANT MEMORY (HOLES) HANDLER
TIMEOUT (TRAP TO 4) HANDLER
MEMORY MANAGEMENT (TRAP TO 250) HANDLER
RESERVED INSTRUCTION HANDLER
KERNEL TRAP HANDLER
EMERGIZE TRAP HANDLER
DEEMERGIZE TRAP HANDLER
CACHON TRAP HANDLER
CACHON TRAP HANDLER
COCODISABLE ALL CSR'S TRAP HANDLER
ECC DISABLE ALL CSR'S TRAP HANDLER
ECC DISABLE ALL CSR'S TRAP HANDLER
MK11 INITIALIZE ALL CSR'S TRAP HANDLER
MK11 INITIALIZE ALL CSR'S TRAP HANDLER
MK11 INITIALIZE ALL CSR'S TRAP HANDLER
ENABLE SBE PARITY TRAPS ON ALL CSR'S
HRITE CHECKBITS THRU I SELECTED CSR TRAP HANDLER
HAST THERE A SBE ON ANY CSR TRAP HANDLER
HAS THERE A SBE ON ANY CSR TRAP HANDLER
HAS THERE A DBE ON ANY CSR TRAP HANDLER
HAS THERE A DBE ON ANY CSR TRAP HANDLER
HAS THERE A DBE ON ANY CSR TRAP HANDLER
CLEAR ALL MK11 CSR'S TRAP HANDLER
ECC DISABLE, CHECH MODE, & WR.TE CHECKBITS IN ALL CSR'S TRAP HANDLER
ECC DISABLE, CHECH MODE, & WR.TE CHECKBITS IN 1 SELECTED CSR TRAP HANDLER
ECC DISABLE, CHECH MODE, & WR.TE CHECKBITS IN 1 SELECTED CSR TRAP HANDLER
ECC DISABLE, CHECH MODE, & WR.TE CHECKBITS IN 1 SELECTED CSR TRAP HANDLER
ECC DISABLE, CHECH MODE, & WR.TE CHECKBITS IN 1 SELECTED CSR TRAP HANDLER
ECC DISABLE, CHECH MODE, & WR.TE CHECKBITS IN 1 SELECTED CSR TRAP HANDLER
ECC DISABLE, CHECH MODE, & WR.TE CHECKBITS IN 1 SELECTED CSR TRAP HANDLER
ECC DISABLE, CHECH MODE, & WR.TE CHECKBITS IN 1 SELECTED CSR TRAP HANDLER
ECC DISABLE, CHECH MODE, & WR.TE CHECKBITS IN 1 SELECTED CSR TRAP HANDLER
ECC DISABLE, CHECH MODE, & WR.TE CHECKBITS IN 1 SELECTED CSR TRAP HANDLER
MARY KERNEL (ALMOST 1 TO 1) TRAP HANDLER
        4901
4907
                                                                    SUBR
                                                                    FLIP
        4935
                                                                     SUBR
                                                                    SUBP
SUBR
TRAP
        4947
        4997
5151
                                                                     TRAP
        5196
                                                                     TRAP
        5216
        5220
5223
5231
5239
                                                                     TRAP
                                                                    TRAP
                                                                    TRAP
                                                                    TRAP
        5243
5247
5252
5258
                                                                    TRAP
                                                                    TRAP
                                                                     TRAP
                                                                    TRAP
        5309
                                                                    TRAP
                                                                     TRAP
        5360
                                                                    TRAP
        5366
5372
5377
                                                                    TRAP
                                                                     TRAP
                                                                    TRAP
        5382
        5388
5394
                                                                     TRAP
                                                                     TRAP
        5401
                                                                     TRAP
        5410
5435
5443
                                                                    TRAP
                                                                     TRAP
                                                                    TRAP
        5468
                                                                    TRAP
        5484
                                                                    TRAP
        5489
                                                                     TRAP
        5494
                                                                     TRAP
                                                                    TRAP
        5501
        5509
5525
                                                                     SUBR
                                                                     SUBR
        5590
5622
                                                                                                      MAPPER
                                                                    SUBR
                                                                    TRAP MAP KERNEL (ALMOST 1 TO 1) TRAP HANDLER RELOCATE PROGRAM UNRELOCATE PROGRAM
        5639
5699
        5729
5741
5787
                                                                     SETUP LOWER 16K OF UNIBUS MAP
                                                                    MOVE BANKS
                                                                                                      MAP USER TO NEW BANK
SETUP KERNEL PAR'S FOR NEW BANK
EXAMINE BANK
                                                                    SUBR
SUBR
         5807
         5819
                                                                  SUBR EXAMINE BHINK
SUBR BANK OK?
SUBR INCREMENT PATTERN TESTING MK11'S
SUBR SET HIGHEST PATTERN TESTING TYPE
SUBR INCREMENT BANK & TEST
SUBR INCREMENT MARGINS & TEST
DECREMENT MARGINS & TEST
SUBR SET HIGHEST MARGIN
SUBR REWRITE CORE HISTORY
                                                                     SUBR
         5882
        5893
        5901
5905
5911
5939
         5951
         5969
                                                                    BOOTSTRAP ROUTINE HALT PROGRAM
        5984
         6015
```

```
SHUTDOWN DIAGNOSTIC
APT SHUTDOWN SEQUENCE
BLOCK MOVE SUBROUTINE
6045
6045
                                             FIELD SERVICE COMMAND MODE
                              SUBR
6080
                              O CIAMMOS
                                                               EXIT
6120
                                                                                READ CSR
LOAD CSR
                                              COMMAND
6126
                                              COMMAND
6140
                                                                                EXAMINE MEMORY
6168
                                                                                MODIFY MEMORY SELECT BANK, MARGIN, & PATTERN TYPE CONFIGURATION MAP
6206
6255
6373
6379
                                              COMMAND
                                               COMMAND 5
                                              COMMAND 6
                                                                                BATTERY BACKUP TEST
                                              COMMAND
                                                                               SOB-A-LONG TEST
SUPER TIGHT SCOPE LOOP
ERROR SUMMARY
                                              COMMAND B
P454
                                              COMMAND 9
                                              COMMAND 10
6544
                                                                                REFRESH TEST
6566
                                              COMMAND 11
                            FS COMMAND 12 SET FILL (
SUBR DETERMINE CORRECT CSR
MULTIPORT SLAVE STARTER
INITIALIZE THE IIST
MULTIPORT ACCESS PATHS TEST
MULTIPORT CONTENTION BALANCE TEST
MULTIPORT RUNNING CONTENTION TEST
                                                                                SET FILL COUNT
6650
6630
6655
6715
6735
6781
6816
                             STOP SLAVES
MOVE PROGRAM TO NEW BANK
WRITE ONLY PATTERN IN HI BYTE
READ ONLY PATTERN IN HI BYTE
6852
6907
6916
                             SLAVE PATTERNS
RUN RANDOM INDIRECT INSTRUCTIONS TEST
CONTENTION BALANCE TEST
STOP SLAVE PROGRAM
6959
6978
6996
                            STOP SLAVE PROGRAM
SETUP RANDOM INSTRUCTION TEST
SUBR ERROR DATA SETUP
DATA HAS A HORD
DATA HAS A BYTE
DATA HAS A 7 BIT BYTE
DATA HAS 3 HORDS
DETERMINE YOR OF COOR & RAD
7039
7318
7333
7348
7362
                            DETERMINE XOR OF GOOD & BAD
LOG ERROR ON BAD BANK
GET DATA FROM ABORTED AREA IF POSSIBLE
ROUTINE SCOPE HANDLER
SUBR DISPLAY
7383
7400
7458
7475
7524
7546
7619
                             ROUTINE ERROR HANDLER
ROUTINE ERROR MESSAGE TYPEOUT
SUBR WHO'S BOX IS THIS?
SUBR DETAILED ERROR REPORT
7850
7912
7985
8127
8151
                             ROUTINE POWER DOWN AND UP
POWER FAIL WHILE RELOCATED
POWER UP FROM BANK D TO RELCCATION
8184
8191
            055272
                             002506
                                                                                                  PRINT 60000-KERLIMIT : SUPERVISOR ADDRESSES LEFT
                             ROUTINE TYPE
ROUTINE BINARY TO OCTAL (ASCII) AND TYPE
ROUTINE CONVERT BINARY TO DECIMAL AND TYPE
B251
B329
386
                              ROUTINE TTY INPUT
9468
                              CONTROL
858£
                              POUTINE READ AN OCTAL NUMBER FROM THE TTE
```

```
IC SUBROUTINES MACYII 3DA(1052) 28-FEB-78 09:20
CEMKAA.MA2 24-FEB-78 08:17 TABLE OF CONTENTS

B635 ROUTINE READ A DECIMAL NUMBER FROM THE TTY
8694 ROUTINE SAVE AND RESTORE RO-RS
8730 ROUTINE RANDOM NUMBER GENERATOR
8759 ROUTINE DOUBLE LENGTH BINARY TO OCTAL ASCII CONVERT
8801 APT MAILBOX-ETABLE
8880 ROUTINE TRAP DECODER
8980 ROUTINE TRAP DECODER
9903 TRAP TABLE
9005 TABLE ERROR POINTER
9235 ERROR MESSAGES (EM)
9311 ERROR DATA HEADERS (DH
9311 ERROR DATA HEADERS (DH
9311 ERROR DATA FORMATS (DF)
9336 ERROR DATA FORMATS (DF)
9350 ...PRINT 100000-END ;ADDRESSES LEFT
```

5E% 0:06

CEMKAAD 1170 MAIN MEMORY DIAG MACY11 30A(1052) 28-FEB-78 09:20 PAGE 1 CEMKAA.MAI 24-FEB-78 11:01

5E% 0107

.TITLE CEMKAAD 1170 MAIN MEMORY DIAG

IDENTIFICATION

PRODUCT CODE:

AC-C644A-MC

PRODUCT NAME:

CEMKAAD 1170 MAIN MEMCR: DIAG

PRODUCT DATE:

24 FEBRUARY 1978

MAINTAINER:

PRODUCT ENHANCEMENT

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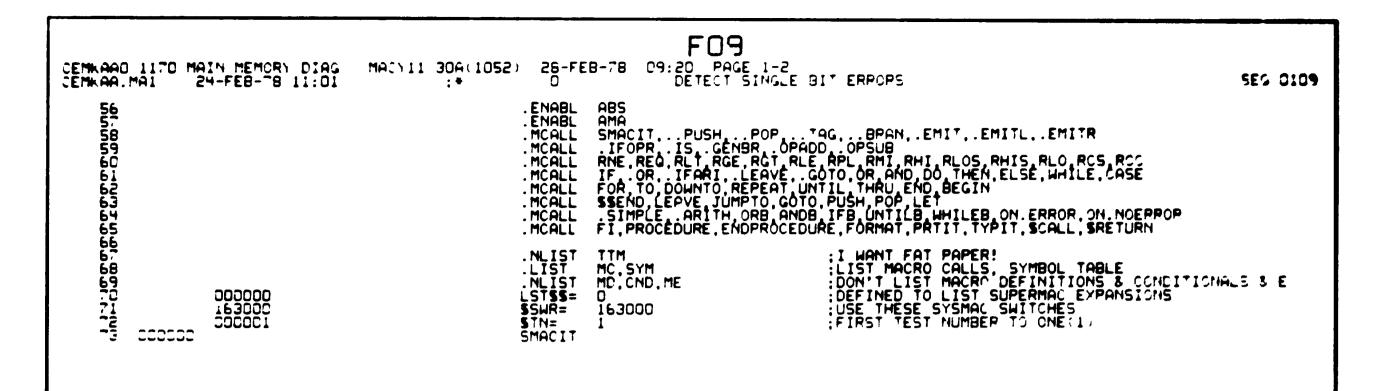
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CEMKAAD 1170 MAIN MEMORY DIAG CEMKAA.MAI 24-FEB-78 11:01	MACNII 30A(1052) 28-FEB-78 09:20 PAG OPERATIONAL SWITCH SETTINGS	AGF 1-1	g 0108
TOWN BELLETTTTT WORD TOWN TOWN TOWN TOWN TOWN TOWN TOWN TOWN	SBTTL SWITCH REGISTER SBTTL * SWITCH REGISTER SBTTL * SWITCH SWITCH	USE HALT ON ERROR LOOP ON TEST INHIBIT ERROR TYPEOUTS INHIBIT RELOCATION QUICK VERIFY / INHIBIT MARGIN TESTING BELL ON ERROR LOOP ON ERROR HALT PROGRAM (UNRELOCATED & PESTORE LOADERS, DETAILED ERROR REPORTS PRINT CONFIGURATION MAP LIMIT MAX ERRORS 'ER BANK FAT TERMINAL (132 COLUMNS OR BETTER. TEST MODE - SEE DOCUMENT TEST MODE - SEE DOCUMENT TEST MODE - SEE DOCUMENT DETECT SINGLE BIT ERRORS	



SEG 0110

CEMKAAO 1170 CEMKAA.MA1	MAIN MEMORY DIAG 24-FEB-78 11:01	MACY11 30A(105a DEFINE		09:20 PAGE 1-3
75 76		TRAP 1	ITRIES HERE MUS	E TRAPS T HAVE A CORRESPONDING ENTRY IN THE (NEAR END OF PROGRAM).
8970-14177111111 8900 907771111111111111111111111111111111	104401 104403 104405	TYPEIT: TYPOC= TYPOS=	: 104401 104402 104403 : 104404 : 104405	:TTY TYPEOUT ROUTINE :TYPE OCTAL NUMBER (WITH LEADING ZERDS) :TYPE OCTAL NUMBER (NO LEADING ZERDS) :TYPE OCTAL NUMBER (AS PER LAST CALL) :TYPE DECIMAL NUMBER (WITH SIGN)
98888 198888 198888	104407 104410		: 104406 104407 104410	::TYPE BINARY (ASCII) NUMBER ::GET SOFT-SWR SETTING ::TEST FOR CHANGE IN SOFT-SWP
997 990 990 999	104411 104412 104413 104414	RDCHR= RDLIN= RDOCT= RDDEC=	104411 104412 104413 104414	TITY TYPEIN CHARACTER ROUTINE TTY TYPEIN STRING ROUTINE READ AN OCTAL NUMBER FROM TTY READ A DECIMAL NUMBER FROM TTY
95 95 94	104415 104416		: 104415 : 104416	::SAVE RO-RS ROUTINE ;;RESTORE RO-RS ROUTINE
97	104417	KERNEL:	104417	ENTER KERNEL MODE
3 3 100 101	104420 104421		E=104420 IZE=104421	:TURN ON MEMORY MANAGEMENT & TRAPS :TURN OFF MEMORY MANAGEMENT & TRAPS
102	104422	KMAP=	104422	; MAP KERNEL 1 TO 1
102 103 104 105 106	104423 104424		: 104423 :=104424	:TURN ON CACHE :TURN OFF CACHE
107 108 109	104425 104426		=104425 =104426	:LOAD CORRECT CSR :READ CORRECT CSR
	104437 104431 104433 104433 104435 104435 104437 104441 104441 104444 104444 104444 104445 104445 104445 10445 10445 10445 10445 10445	PERROZ= PERRO3= PERRO4= PERRO7= PERR10= PERR11=	10440 10441 10442 10443 10444 104445 104446 104447 104450 104451	PROGRAM DETECTED ERROR

CEMKAAD 1170 CEMKAA.MAI	MAIN MEMORY CIAJ 24-FEB-78 11:01	MACY11 30A(1052) 28-FEB-78 DEFINE TRAPS	HO9 09:20 PAGE 1-4
12334256 1333356 1444 145356 1444 1453 1453 1454 1454 1454 1454 1454	104454 104455 104456 104457 104461 104463 104464 104466 104466	PERR30= 104454 PERR31= 104455 PERR32= 104456 PERR33= 104457 PERR34= 104461 PERR35= 104462 PERR37= 104464 PERR40= 104464 PERR41= 104465 PERR42= 104466 PERR43= 104467	PROGRAM DETECTED ERROR PROGRAM DETECTED ERPOR
7750 690-01750 670	1011 1011 1011 1011 1011 1011 1011 101	ECCDIS= 104470 ECCIDIS=104471 ECCINIT=104472 ECCINIT=104473 CBCSR= 104474 CBICSR= 104476 WASSBE=104476 WASSBE=104577 WASSBE=104500 WASSDBE=104501 CLRCSR=104503 CLRICSR=104503 CHKDIS=104505 ENASBE=104505 ENASBE=104506 ENAISBE=104510	DISABLE ECC ON ALL CSR'S DISABLE ECC ON 1 SELECTED CSR INITIALIZE ALL MK11 CSR'S INITIALIZE 1 SELECTED MK11 CSR WRITE GENERATED CHECKBITS IN 1 SELECTED CSF WAS THERE A SBE ON ANY CSR? WAS THERE A SBE ON 1 SELECTED CSR? WAS THERE A DBE ON 1 SELECTED CSR? WAS THERE A DBE ON 1 SELECTED CSR? CLEAR ALL CSR'S CLEAR 1 SELECTED CSR DISABLE ECC & WRITE CHECKBITS FROM ALL CSR'S DISABLE ECC & WRITE CHECKBITS FROM 1 SELECTED CSR ENABLE TRAPS ON SBE'S FROM ALL CSR'S ENABLE TRAPS ON SBE'S FROM 1 SELECTED CSR TEST LCCATION (RI) & READ CSP CAREFULL:

re, 5::.

: * "SWITCH REGISTER" SWITCH DEFINITIONS

SWIS=

100000 40000

130000 00000+0

SEC CITS

```
J09
CEMBARO 1170 MAIN_MEMORY DIAG
                                              MACY11 30A(1052) 28-FEB-78 09:20 PAGE 1-6
DEFINE BASIC PDP11 STUFF
                                                                                                                                                                                    SEG C113
CEMKAA. MAI
                    24-FEB-78 11:01
                       010000
    10000
                                                           5W12=
                       004000
                                                           SW11=
                                                                      2000
                                                          SW10=
SW9=
                       002000
                       001000
                                                          SW8=
SW7=
                       000400
                                                                      400
                       ÖÖSÖÖÖ
                                                                      200
                                                                      ĪÖÖ
                       000100
                                                           SW6=
                       000040
                                                           SW5=
                                                                      40
                                                          = FW2
                       000000
                                                                      ZŎ
                       000010
                                                                      10
                                                          SW2=
                       000004
                                                                      2
                       000002
                                                          SW1=
                       000001
                                                          SWD=
    232
    : *DATA BIT DEFINITIONS (BITOD TO BIT15)
                                                          BIT15=
                                                                     100000
                       040000
                                                          BITI4=
                                                                     40000
                       020000
                                                          BIT13=
                                                                      20000
                                                                      10000
                       010000
                                                          BITIZ=
                       004000
                                                          BITI1=
                       005000
                                                                     1000
5000
                                                          BITIO=
     240
                                                          BIT9=
                       000400
                                                                      200
     241
                                                          BIT8=
    242
                                                          BIT7=
                       BIT6=
                                                                      ĪÖÖ
    244
                       000040
                                                          BITS=
                                                                      40
                       000010
                                                          BITY=
                                                                      2Ō
    24E
                                                                      ĪŌ
                                                          BIT3=
    247
                       200004
                                                          BIT2=
    248
                       200000
                                                          BIT1=
     249
                                                          BITO=
                       000001
    25012525557
                                                          :*BASIC "CPU" TRAP VECTOR ADDRESSES
ERRVEC= 4_ ::TIME OUT
                                                                                             ::TIME OUT AND OTHER FRRORS
::RESERVED AND ILLEGAL INSTRUCTIONS
                       900004
                       000010
                                                          RESVEC= 10
                                                                                             ;:TRACE TRAP
;:BREAKPOINT TRAP (BPT)
::INPUT/OUTPUT TRAP (IOT) **SCOPE**
::POWER FAIL
                                                                                                "T" BIT
                                                           : TBITVEC=14
                                                           TRTVEC=
                                                          BPTVEC=
10TVEC= 20
PWRVEC= 24
EMTVEC= 30
                       000020
     258
                       000024
                                                                                             EMULATOR TRAP (EMT) **ERROR**
     259
    565
560
560
                       000000
                                                          TRAPVEC=34
TKVEC= 60
                                                                                             ::"TRAP" TRAP
::TTY KEYBOARD VECTOR
::TTY PRINTER VECTOR
::LINE CLOCK (KWII-L) VECTER
                                                           : TPVEC= 64
                                                          : TPVEC= 64
:LKVEC= 100
CACHVEC=114
PARVEC=CACHVEC
:PIRQVEC=240
MMVEC= 250
.SBTTL
     263
    000114
                                                                                              CACHE ERROR INTERRUPT VECTOR
                       000114
                                                                                             ;; PROGRAM INTERRUPT REQUEST VECTOR
                                                                                             MEMORY MANAGEMENT VECTOR
                       000250
                                                                                 DEFINE
    269 270 271
                                                                                             ::LOWER 16 BITS OF ADDRESS THAT CAUSED ERROR
::UPPER SIX BITS OF ADDRESS THAT CAUSED ERROR
::CACHE ERROR REGISTER
                                                          LOADRS = 177740
HIADRS = 177742
                       177742
177744
177746
                                                          MEMEPR = 177744
CONTRL = 177746
MAINT = 177750
    272
273
                                                                                             MEMORY CONTROL REGISTER
MEMORY MAINTENENCE REGISTER
```

			K09
CEMKAAO 1170 M	MAIN MEMORY DIAG MACYII 24-FEB-78 11:01	30A(1052) 28-FEB-78 09 DEFINE CACHE REGISTERS	9:20 PAGE 1-7
274		;HITMIS = 177752	;;HIT MISS REGISTER "I" IMPLIES HIT IN CACHE
276 277 278	177760	SIZELO = 177760	CPU REGISTERS : MEMORY SIZE REGISTER NUMBER TO PUT INTO A PAR : TO GET TO THE LAST 32 WORDS OF MEMORY
279 280		;SIZEHI = 177762	; TO GET TO THE LAST 32 WORDS OF MEMORY ; HIGH SIZE REGISTER, RESERVED FOR FUTURE USE ; CURRENTLY ALL ZERO
281 282 283	177764 177766	SYSTID = 177764 CPUERR = 177766	CPU ERROR REGISTER HOLDS CONDITION THAT CAUSED
284 285 286 287 288 289	177572 177574 177576 172516	.SBTTL DEFINE ;*MEMORY MANAGE MMRO= 177572 MMR1= 177574 MMR2= 177576 MMR3= 172516	MEMORY MANAGEMENT REGISTERS MENT STATUS REGISTER ADDRESSES
¥561.89012234561.8901235567890123556789012375678901237567890123756789012375678901237567890123756789	177600	#USER "I" PAGE UIPORO= 177600 :UIPDR1= 177602 :UIPDR2= 177604 :UIPDR3= 177606 :UIPDR4= 177610 :UIPDR5= 177612 :UIPDR6= 177614 :UIPDR7= 177616	DESCRIPTOR REGISTERS
300 301 302 303 304 305 306 307 308 309	177636	; #USER "D" PAGE ; UDPDRO= 177620 ; UDPDR1= 177622 ; UDPDR2= 177624 ; UDPDR3= 177626 ; UDPDR4= 177630 ; UDPDR5= 177634 UDPDR7= 177636	DESCRIPTOR REGISTORS
310 3112 3112 3112 3112 3112 312 312 312 31	177640 177640 177644 177646 177650 177654 177656	;*USER "I" PAGE FASTCITY=UIPARO UIPARO= 177640 ;UIPAR1= 177642 UIPAR2= 177644 UIPAR3= 177646 UIPAR4= 177650 ;UIPAR5= 177654 UIPAR6= 177654 UIPAR7= 177656	; PATTERN PROGRAM SPACE;
315 316 316 317 318 318 318 318 318 318 318 318 318 318		; *USER "D" PAGE :UDPARD= 177660 :UDPAR1= 177662 :UDPAR2= 177664 :UDPAR3= 177666 :UDPAR4= 177670 :UDPAR5= 177672 :UDPAR6= 177674	ADDRESS REGISTERS PATTERN PROGRAM SPACE

		
		L09
CEMKAAO 1170 CEMKAA.MAI	MAIN MEMORY DIAG 24-FEB-78 11:01	MACY11 30A(1052) 28-FEB-78 09:20 PAGE 1-8 DEFINE MEMORY MANAGEMENT REGISTERS
330	177676	UDPAR7= 177676 :PATTERN PROGRAM SPACE
	172200	#SUPERVISOR "I" PAGE DESCRIPTOR REGISTERS SIPDRO= 172200 :SIPDR2= 172204 :SIPDR3= 172206 :SIPDR4= 172210 :SIPDR5= 172212 :SIPDR6= 172214 :SIPDR7= 172216
→ 	:72236	:*SUPERVISOR "D" PAGE DESCRIPTOR REGISTERS :SDPDR0= 172220 :SDPDR1= 172222 :SDPDR2= 172224 :SDPDR3= 172226 :SDPDR4= 172230 :SDPDR5= 172232 :SDPDR6= 172234 :SDPDR7= 172236
351 352		*SUPERVISOR "I" PAGE ADDRESS REGISTERS
353 354	172240	SIPARO= 172240 :SIPAR1= 172242 :SIPAR2= 172244
351 352 353 354 355 356 357 359 360 361	172246	STPARZ
3337 3337 3444 3444 3444 3444 3444 3444	172260 172276	**SUPERVISOR "D" PAGE ADDRESS REGISTERS SDPAR1= 172262 :SDPAR2= 172264 :SDPAR3= 172266 :SDPAR4= 172270 :SDPAR5= 172272 :SDPAR6= 172274 SDPAR7= 172276
960-1234 5.67890-12345 677777777778988888888888888888888888888	172300	*KERNEL "I" PAGE DESCRIPTOR REGISTERS **IPDR0= 172300 :KIPDR1= 172302 :KIPDR2= 172304 :KIPDR3= 172306 :KIPDR3= 172310 :KIPDR5= 172312 :KIPDR6= 172314 :KIPDR7= 172316 **KERNEL "D" PAGE DESCRIPTOR REGISTERS :KDPDR0= 172320 :KDPDR1= 172322 :KDPCR2= 172324

SEG DIIS

CEMKAAO 1170 CEMKAA.MA1	MAIN MEMORY DIAG 24-FEB-78 11:01	MO9 MACY11 30A(1052) 28-FEB-78 09:20 PAGE 1-9 DEFINE MEMORY MANAGEMENT REGISTERS
386 387 388 389 390	172336	:KDPDR3= 172326 :KDPDR4= 172330 :KDPDR5= 172332 :KDPDR6= 172334 :KDPDR7= 172336
386 387 389 390 391 392 393 395 396 397 398 399 400 401 402	172340	*KERNEL "I' PAGE ADDRESS REGISTERS KIPARO= 172340 :KIPARI= 172342 :KIPAR2= 172344 :KIPAR3= 172346 :KIPAR4= 172350 :KIPAR5= 172352 :KIPAR6= 172354 :KIPAR7= 172356
402 403 405 405 405 406 409	172360	*KERNEL "D" PAGE ADDRESS REGISTERS KDPARI= 172362 KDPAR2= 172364 KDPAR3= 172366 KDPAR4= 172370 KDPAR5= 172372 KDPAR6= 172374
410 411	172376	KDPAR7= 172376

3EG 0116

```
PON
                                                                                                              MACY11 30A(1052) 28-FEB-78 09:20 PAGE 1-10
CEMKAAD 1170 MAIN MEMORY DIAG
                                                                                                                                                                                                                                                                                                                                                                                                                                              SEG 0117
                                                                                                                                           DEFINE UNIBUS MAP REGISTERS
CEMKAA. MAI
                                               24-FEB-78 11:01
                                                                                                                                                                       .SBTTL DEFINE UNIBUS MAP REGISTERS
:*THE LOWER 16 BITS OF THE MAP REGISTERS ARE LABELED 'MAPLXY'
:*THE UPPER 6 BITS OF THE MAP REGISTERS ARE LABELED 'MAPH/Y'
          413
                                                                                                                                          MAPLO = 170200

MAPHO = 170202

MAPHO = 170202

MAPLI = 170204

MAPLI = 170206

MAPLI = 170210

MAPLI = 170212

MAPLI = 170212

MAPLI = 170214

MAPLI = 170220

MAPLI = 170220

MAPLI = 170222

MAPLI = 170222

MAPLI = 170223

MAPLI = 170230

MAPLI = 170230

MAPLI = 170232
           415
          416
                                                        170202
          MAPL6 = 170230

MAPH6 = 170232

MAPL7 = 170234

MAPH7 = 170236

MAPL10 = 170240

MAPH10 = 170242

MAPH11 = 170244

MAPH11 = 170246

MAPH12 = 170250

MAPH12 = 170252

MAPH13 = 170256
           438
                                                                                                                                           MAPH13 = 170256
MAPL14 = 170260
MAPH14 = 170262
MAPL15 = 170264
MAPH15 = 170266
           439
           446
          441
           442
           443
                                                                                                                                            MAPLIS = 170270
MAPHIS = 170272
MAPLI7 = 170274
MAPHI7 = 170276
           444
           445
          446
447
                                                                                                                                           MAPH17 = 170276
MAPH20 = 170300
MAPH20 = 170302
MAPH21 = 170304
MAPH21 = 170304
MAPH22 = 170310
MAPH22 = 170312
MAPH23 = 170314
MAPH24 = 170320
MAPH25 = 170324
MAPH25 = 170324
MAPH26 = 170332
MAPH26 = 170332
MAPH27 = 170334
MAPH30 = 170342
MAPH31 = 170346
MAPH31 = 170346
MAPH31 = 170350
           448
           449
           450
          451
452
453
454
          455
456
457
          45B
459
           460
          461
462
463
           464
          466
           468
```

CEMKAAD 1170 CEMKAA.MA1	MAIN MEMORY DIAG 24-FEB-78 11:01	B10 MACY 11 3UA (1052) 28-FEB-78 09:20 PAGE 1-11 DEFINE UNIBUS MAP REGISTERS	5EG 0118
######################################	170370 170372 170376	:MAPH32 = 170352 :MAPH33 = 170356 :MAPL34 = 170360 :MAPH34 = 170362 :MAPL35 = 170364 :MAPH35 = 170370 MAPH36 = 170372 :MAPL37 = 170374 MAPH37 = 170376	
481 482 483	00C174 00C176	.SBTTL DEFINE SCFTWARE SWITCH & DISPLAY REGISTERS DISPREG=174 SWREG= 176	
465 466	172100	.SBTTL DEFINE Mk11 REGISTERS Mk11add=172100	
90-1297W&C.BPO-1 7-98888608080FC 7-7-7-7-7-7-7-7-7-7-7-7-7-7-7-7-7-7-7-	060000 157776 040000	SBITL DEFINE PARAMETERS FIRST=60000 :START OF THE 16K TEST PATTERN AREA LAST=157776 :END OF THE 16K TEST PATTERN AREA SIZE=40000 :SIZE CF THE 16K TEST PATTERN AREA (FOR S	op Inst

SEG GIIS

```
MAI-11 30A(1052) 28 FEB-78 09:20 PAGE 1-13
CEMBARD 1170 MAIN MEMORY DIAG
                                                           MACPO NEWTST
CEMKAA. MAI
                    24-FEB-78 11:01
                                                                       .SBTTL MACRO NEWTS?
    523
525
526
526
526
                                                           : ****************** NEWIS' ********
                                                           NEWTST IS USED AS THE FIRST INSTRUCTION OF A TEST.
                                                           :IT WILL:
:1) GENERATE A TEST NUMBER FOR THE LABEL OF THIS TEST
:2) PUT STARS BEFORE AND AFTER A MESSAGE
    528
529
531
531
                                                           ARGUMENTS
                                                                                  THIS IS THE MESSAGE THAT WILL APPEAR ON THE LISTING
                                                                                  IF NON-BLANK AND BIT 11 OF SSWR = 1 IT WILL BE THE NUMBER OF ITERATIONS TO MAKE ON THIS TEST IF NON-BLANK WILL BE THE ADDRESS TO WHICH THE NEXT SCOPE STATEMENT WILL LOOP BACK TO.
    2) ICOUNT --
                                                                  RETURN --
                                                                                  IF NON-BLANK WILL BE THE FIRST INSTRUCTION OF THE TEST IF BLANK SCOPE WILL BE THE FIRST INSTRUCTION
                                                           H, COMAND --
    .MACRO NEWIST ASCII.ICOUNT.RETURN.COMARD
                                                                       $5TN=1
                                                                       SNWTST=0
                                                                       .NLIST MC
.IF B < COMAND>
    545
    545
                                                                                               \$TN, 'ASCII > . SCOPE
                                                                       SSNEWTEST
    SSNEWTEST
                                                                                                STN. ASCII . COMAND
                                                                       . ENDC
                                                                       .ENDC
.NLIST
.LIST ME
.LIST .IF NE 4000&$SWR
.IF NB ICOUNT-1>
                                                                       MÔV
. IFF
                                                                                  #1,STIMĒS
                                                                                                          :: DO 1 ITERATION
                                                                                  #ICOUNT. STIMES :: DO ICOUNT ITERATIONS
                                                                       MOV
                                                                      .ENDC
.ENDC
.IF NB RETURN
MOV #RETUR
                                                                                   #RETURN. SLPADR :: SET SCOPE LOOP ADDRESS
                                                                       . ENDC
                                                                       .NLIST
.LIST
.LIST
                                                                                  MC
                                                                                  ME
NEWTST
                                                                       .NLIST
                                                                       . ENDM
```

5E9 0:23

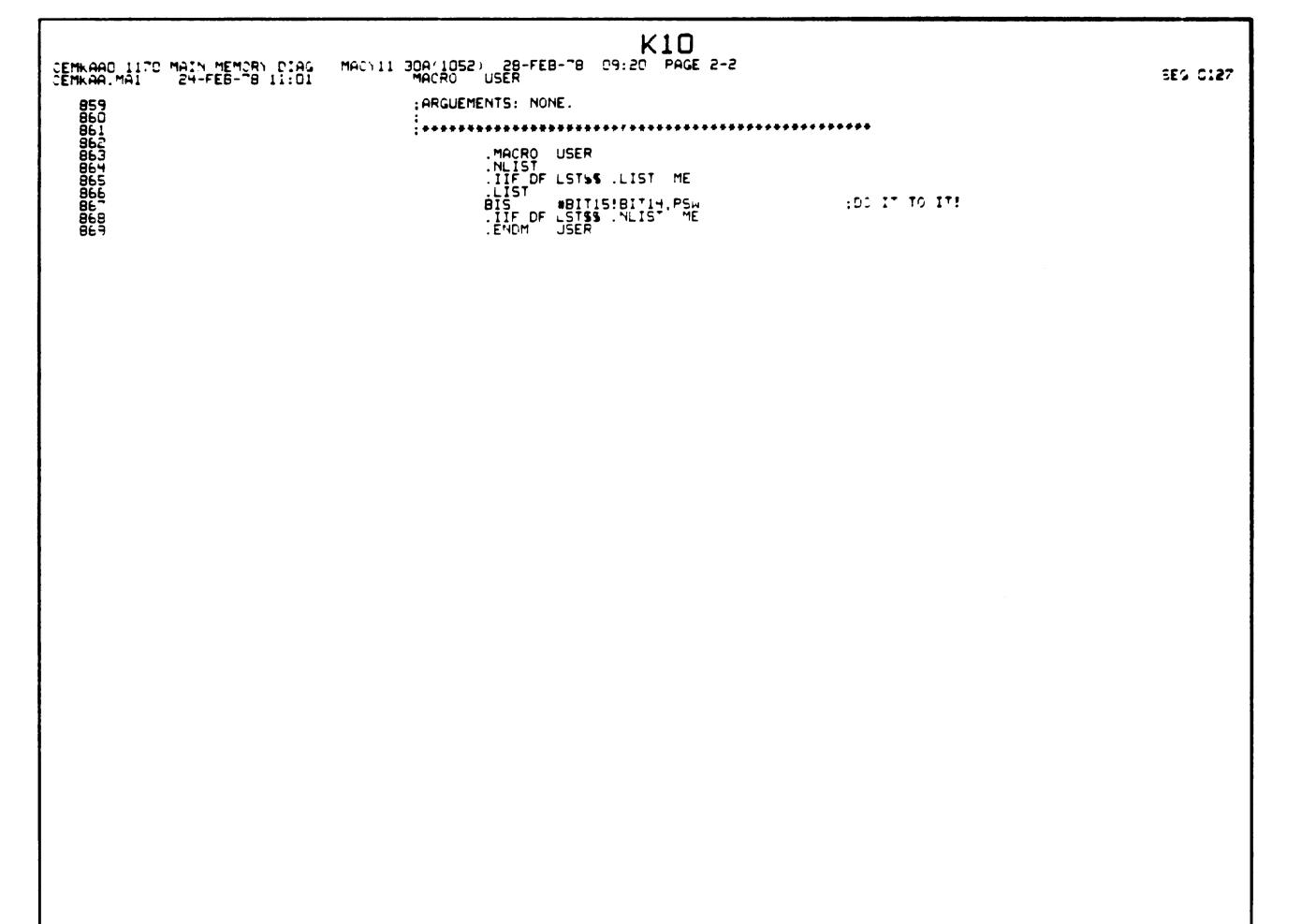
```
E10
CEMKAAD 1170 MAIN MEMORY DIAG
CEMKAA.MA1 24-FEB-78 11:01
                                    MACY11 30A(1052) 28-FEB-78 09:20 PAGE 1-14
MACRO $$NEWTEST
                                                                                                                                              SES GIZI
                                                       .SBTTL MACRO $$NEWTEST
.MACRO $$NEWTEST A.
.IRP ASCI (ASC)
.IF EQ $NWTST
$NWTST=1
.SBTTL T'A' ASCI
   A. ASC. COMND
                                                       NLIST
                                                       LIST
                                              **********
                                              *TEST A
                                                                ASCI
                                                       .IFF
ASCI
                                                       .ENDC
                                                                 ***********************************
                                               . . . . . . . . . . . . . . . .
                                              TST'A: COMND
                                                        NLIST ME
                                                       STN=STN+1
                                                       .ENDM SSNEWTEST
                                              THIS MACRO WILL FORMAT A SUBTEST HEADING WITH STARS A .SBTTL WILL BE FORCED & .NLISTED FOR THE TABLE OF CONTENTS.
                                              ARGUMENT:
                                                                THIS IS THE MESSAGE THAT WILL APPEAR IN THE TABLE OF CONTENTS & LISTING.
                                              (1) TXT --
                                              EXAMPLE:
                                                                SUBTST ( THIS IS A FUN SUBTST >>
                                              <del></del>
                                                       .MACRO SUBTST ASCII
.NLIST MC
$SUBTST (ASCII)
                                                       .LIST
                                                                SUBTST
                                                                MACRO SSUBTST
SSUBTST ASC
                                                        . SBTTL
                                                       MACRO
                                                       .IRP
.SBTTL
                                                                ASCI, (ASC)
ASCI
                                                       .NLIST
.LIST
.LIST
                                                                ME
                                              *SUBTEST
                                                                ASCI
                                                        ENDM
                                                       .NLIST
                                                                ME
                                                                SSUBTST
                                                       . ENDM
```

```
F10
                            MACY11 30A(1052) 28-FEB-78 09:20 PAGE 1-15
MACRO TYPOCT
CEMKAAD 1170 MAIN MEMORY DIAG CEMKAA. MAI 24-FEB-78 11:01
                                                                                                                     5E0 C122
                                      .SBTTL MACRO TYPOCT
  TYPOCT IS USED TO CHANGE A BINARY NUMBER TO A 6 DIGIT OCTAL NUMBER AND TYPE IT
                                      ARGUMENTS:
                                                  THE NUMBER TO BE TYPED
                                             NUM
                                      :1)
                                             REMARK ALLOWS A COMMENT TO BE MADE
                                      (3:
                                      ROUTINES REQUIRED
                                             CONVERT BINARY TO OCTAL AND TYPE (.STYPOCT)
                                      :1)
                                      (2)
                                          TYPE AN ASCIZ STRING (.STYPE)
  1111
                                      EXAMPLES:
                                             TYPOCT HILMT, TYPES THE CONTENTS OF HILMT>
                                      (2)
  .MACRO TYPOCT NUM.REMARK
                                             .NLIST
                                             .IIF_DF LSTSS .LIST ME
                                             LIST
MOV NUM, -(SP)
LIF NB <REMARK>,
                                                                 :: SAVE NUM FOR TYPFOUT
                                             ::REMARK
::GO TYPE--OCTAL ASCII(ALL DIGITS)
:ENDM TYPOCT
```

```
MACY11 30A(1052) 28-FEB-78 09:20 PAGE 1-16
MACRO TYPOCS
CEMKAAD 1170 MAIN MEMORY DIAG
CEMKAA.MAI 24-FEB-78 11:GI
                                                .SBTTL MACRO TYPOCS
   663
664
665
                                               TYPOCS IS USED TO CHANGE A BINARY NUMBER TO AN OCTAL NUMBER AND TYPE 1 TO 6 DIGITS WITH OR WITHOUT LEADING ZEROS.
   ARGUMENTS:
                                                         NUM
                                                                   NUMBER TO BE TYPED
                                                1)
                                                         REMARK ALLOWS A COMMENT TO BE MADE
                                                (2)
                                                                   NUMBER OF DIGITS (1 TO 6) TO BE TYPED
                                                31
                                                         N
                                                                   BLANK=SUPPRESS LEADING ZEROS TYPES SPACEL, NON-BLANK=TYPE LEADING ZEROS
                                                41
                                                         Z
                                                ROUTINES REQUIRED
                                                         CONVERT BINARY TO OCTAL AND TYPE (.STYPOCT)
                                                1)
                                                2)
                                                         TYPE AN ASCIZ STRING (.STYPE)
   £84
                                               EXAMPLES:
1) TYPOCS #12345 (TYPES "5") 1
2) TYPOCS #004 (TYPES "04") 2. X
3) TYPOCS #004 (TYPES " 4");2
   685
   ************************
                                                         .MACRO TYPOCS NUM, REMARK, N. Z
                                                         .NLIST
.IIF DF LST$$ .LIST ME
                                                         .LIST
                                                                                      :: SAVE NUM FOR TYPEOUT
                                                         MOV
                                                                  NUM. - (SP)
                                                                                                                   :: REMARK
                                                          IIF NB (REMARY),
                                                         TYPOS
                                                                                      :: GO TYPE--OCTAL ASCII
                                                         . IF NB N
                                                         .BYTE N
.BYTE 6
                                                                                      :: TYPE N DIGIT(S)
                                                                                      :: TYPE & DIGITS
                                                         ENDC
IF NB Z
BYTE
                                                                                     :: TYPE LEADING ZEROS
                                                          .IFF
                                                         BYTE .ENDC
                                                                                     :: SUPPRESS LEADING ZEROS
                                                                  O
                                                         TIF DF LSTSS .NLIST ME .ENDM TYPOCS
```

EE2 C:23

SED DIE-



```
L10
                          MACY11 30A(1052) 28-FEB-78 09:20 PAGE 2-3
MACRO SET
CEMKAAD 1170 MAIN MEMORY DIAG
                                                                                                     SES CIZE
CEMKAA.MAI 24-FEB-78 11:01
                                 .SBTTL MACRO SET
  THIS MACRO SIMULATES A SETO INSTRUCTION ON THE PDP10
                                 : (SET TO ONES).
                                                  :THE LOCATION TO BE SET
                                 ARGUEMENTS: LOC
                                 **************************
                                       . MACRO SET
  881
                                       .NLIST
  .IIF DF LSTSS .LIST ME
                                        LIST
                                       MÖV #-1 ARG
.IIF DF LST$$ .NLIST ME
.ENDM SET
                                 THESE MACROS SET & RESTORE VECTOR 4(TIMEOUT TRAP)
                                 IN IT'S RESTORED MODE TRAPS ARE REPORTED AS SUCH.
                                                    :THE LOCATION TO VECTOR TO CONLY USED IN "SETH" NOT "RESH"
                                 ARGUEMENTS:
                                              LOC
                                 *****************
                                        .MAÇRO SET4
                                                    ARG
                                       .NLIST
.IIF_DF_LST$$ .LIST_ME
                                       LIST
                                       MÖV ARG.4
.IIF DF LST$$ .NLIST ME
.ENDM SET4
                                                               :SET NEW VECTOR
                                       .MACRO RES4
                                       .NLIST
.IIF_DF_LST$$ .LIST_ME
                                        LĪST
                                              #TIMEOUT.4
                                                              :RESTORE OLD (DEFAULT) VECTOR
                                       MOV
                                       CLR
                                             CPUERR
                                       .IIF DF LSTSS .NLIST ME
                                       ENDM RES4
                                 .SBTTL MACRO DLEFT
                                 THIS MACRO DOES A DOUBLE WORD LEFT SHIFT
                                                    ; THE LOCATION TO BE SHIFTED LEFT (CARRY TO LOC+2)
                                 ARGUEMENTS:
                                              LOC
                                 .MACRO DLEFT
                                                    APG
```

```
M10
                                              MHCY11 30A(1052) 28-FEB-78 09:20 PAGE 2-4
JEMKAAD 1170 MAIN MEMORY DIAG
                                                                                                                                                                                   SEG 0129
                                                          MACRO
                                                                     DLEFT
CEMKAA. MAI
                    24-FEB-78 11:01
                                                                      .NLIST
.IIF DF LST$$ .LIST ME
    927
928
929
930
                                                                      LIST
                                                                      ROL
                                                                                ARG+2
LSTSS .NLIST ME
DLEFT
                                                                     ROL
. IIF DF
. ENDM
                                                                      . NLIST
                                                                                                         DON'T NEED TO SEE THEM ANY MORE
                                                                                 MD
                                                                       ASECT
                       000000
                                                                      TITLE
                                                                                 COMMON
                                                                      :TRAP CATCHER
                                                                      . =0
    000000
                       000000
                                  900000
                                                                      WORD
                                                                                 0.0
                                                          .SBTTL ACTII HOOKS
:*THE HOOKS REQUIRED BY ACTII ARE DEFINED AND SETUP BELOW:
                                                                     DEFINATIONS:
                                                                                                        "END-OF-PASS" HOOK
=ADDRESS OF END OF PASS ROUTINE
MODIFIED BY ACT11.
                                                          *
                                                                                             1)LOC.46
                                                                                                        PROGRAM NEEDS HOOK
BIT 15=1 PROGRAM SHOULD BE POWER
FAILED WHILE RUNNING
                                                                                             2/LOC.52
                                                                                                        =0 NO POWER FAIL

BIT 14=1 PROGRAM MEMORY SIZE DEPENDENT
=0 NOT MEMORY SIZE DEPENDENT

BIT 13=1 PROGRAM REQUIRES MANUAL INTERVENTION
=0 MANUAL INTERVENTION NOT REQUIRED

BITS 12-0 MUST BE ZERO'S
    000046
                                                                                                        ::1)SET LOC.46 TO ADDRESS OF SENDAD IN .SEOP
           000046
                       011650
                                                                     SENDAD
                       000052
                                                                      . =52
                                                                                                        ::2) SET LOC. 52 TO INDICATE MEMORY SIZE DEPENDANT
           000052
                       000020
                                                                      . WORD
                                                                                APTII HOOKS
;:SET POWER FAIL TO POINT TO START OF PROGRAM
;:FOR APT START UP
                                                                      .SBTTL
                                                                      200
                      000200
           P20000
                                                                      . =42
                                                                     STACK ; SO RT11 CAN START WITH RUN COMMAND : POINT TO APT INDIRECT ADDRESS PNTR.
SAPTHOR : POINT TO APT HEADER BLOCK
           240000
                       001400
                       000044
           000044
                       060564
                       000200
                                                                      . =200
           000200
                       000437
                                                                      BR
                                                                                 START1
                       000445
           202000
                                                                      BR
                                                                                 START2
                                                         START1: ÇLR
                      000300
005037
           000300
000304
000310
000310
                                                                                 RESTART
                                  002052
                       000137
                                  003614
                                                                                 START
                                                          START2:
                                                                                 RESTART
                                                                     SET
                       012737
000137
001400
                                                                                 #-1 RESTART
START
                                              002052
                                                                     MOV
                                  003614
                                                                      JMP
    980
980
                                                          .=STACK
.SBTTL VARIABLES INITIALIZED TO ZERO
;*THIS TABLE CONTAINS VARIOUS COMMON STORAGE LOCATIONS
    382
    983
                                                           *USED IN THE PROGRAM.
           001400
001400
                                                          SCMTAG:
    984
                                                                                                        ::START OF COMMON TAGE
    985
                       000000
                                                                      . WORD
```

				1.3	10	
COMMON MACY CEMKAA.MA1	11 30A(1052 24-FEB-78	28-FEB-78 11:01	09:20 PAGE 2-5 VARIABLES	INITIALIZED	TO ZERO	SEG 0130
986 987 0014 988 0014 989 0014 990	02 000 03 000 04 000		; NEXT T SPATMAR: BYTE SBANK: BYTE SERFLG: BYTE	WO BYTES ARE	DISPLAYED IN THE DISPLAY REGISTER :PATTERN NUMBER & MARGIN VALUE :BANK & SIGN = MARGIN INDICATOP ;; CONTAINS ERROR FLAG	
991 0014 992 0014 993 0014 994 0014 995	06 000000 10 000000 12 000000 14 000		SERTTL: WORD LASTERROR: WORD SBEFLAG: WORD SITEMB: BYTE	0000	::CONTAINS TOTAL ERRORS DETECTED ERRORS ON LAST PASS A SINGLE BIT ERROR HAS OCCURED THIS PASS ::CONTAINS ITEM CONTROL BYTE	
996 0014 997 0014 998 0014 1999 0014 1000 0014 1002 0014 1003 0014 1005 0014 1005 0014 1006 0014 1007 0014 1008 0014	16 000000 20 000000 22 000000 24 000000 32 000000 34 000000 34 000000 34 000000 40 000000 42 000000 44 000000 44 000000 45 000000 50 000000 50 000000 50 000000	000000	ERRORPC: WORD BADPC: WORD ADDRESS: WORD PADDRESS: WORD PHYADD: WORD GOOD: WORD GOOD3: WORD BAD: WORD BAD2: WORD BAD3: WORD BAD3: WORD BAD3: WORD BADXOR: WORD SAUTO: WORD SINTAG: BYTE EVEN	000000000000000000000000000000000000000	DISPLAYED IN THE DISPLAY REGISTER PATTERN NUMBER & MARGIN VALUE BANK & SIGN = MARGIN INDICATOP ; CONTAINS TOTAL ERRORS DETECTED ERRORS ON LAST PASS A SINGLE BIT ERROR HAS OCCURED THIS PASS ; CONTAINS ITEM CONTROL BYTE CONTAINS PC OF LAST ERROR INSTRUCTION CONTAINS PC OF WHERE THE ERROR OCCURED ; CONTAINS ADDRESS OF 'BAD' DATA ADDRESS OF PARITY ERROR 22 BIT PHYSICAL ADDRESS ; CONTAINS 'GOOD' DATA CONTAINS 'GOOD' DATA CONTAINS 'GOOD' DATA CONTAINS 'BAD' DATA CONTAINS 'BAD' DATA CONTAINS 'BAD' DATA CONTAINS 'BAD' DATA TONTAINS 'BAD' DATA	
1011 1012 1013 1014 1015 1014 1015 1016 1017 1018 1019 1019 1021 1021 1022 1022 1023 1023 1024 1025 1026 1027 1028 1028 1028 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029 1029	62 000000 64 000000 70 000000 72 000000 74 000000 76 000000 00 000000 04 000000 04 000000 10 000000 11 000000 12 000000 14 000000 15 000000 20 000000 20 000000 21 000000 22 000000 23 000010 24 000000 25 000010 26 000000 27 000010 28 000000 29 000000 20 000000 20 000000 21 000000 22 000000 23 000000 24 000000 25 000010 26 000000 27 000010 28 000000	000000	R.WORDD WORDD WOORDD WO	0.0000000000000000000000000000000000000	FATAL ERROR INDICATOR NON-EXISTANT MEMORY COUNTER (HOLES, PARITY ERROR COUNTER NO PARITY ERROR COUNTER NO PARITY ERROR FLAG NO NON-EXISTANT MEMORY (HOLES) FLAG MEMORY BANK UNDER TEST USED TO INDEX INTO CONFIG TABLE INDICATES MARGINS IN PROGRESS CONTAINS 1 BIT TO IDENTIFY CPU TO CONFIGURATION TO MEMORY UNDER TEST FLAG PATTERN UNDER TEST FLAG PATTERN UNDER TEST BANK IS PROTECTED REGION OF MKII BANK IS PROTECTED REGION OF MKII BANK IS IN PROGRAM SPACE BANK IS IN PROGRAM SPACE BANK IS IN PROT WHERE PROGRAM RELOCATION IS REGLIF PROGRAM IS RELOCATED FLAG TYPE OF MEMORY TO TEST FLAG; G = MKII ABORT INDICATOR DATA TO OR FROM CSR SAVE CSR+2'S AFTER GETSIZE CALL SAVE CSR+2'S AFTER GETSIZE CALL SAVE LASTB'S AFTER GETSIZE CALL CSR ADDRESS NUMBER (3 LSB'S) FIRST BANK LAST BANK INTERLEAVE FACTOR (0,1,2,3)	HBLE

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COMMON MACY11 30A:1052 29-FEB-78 09:20 PAGE 2-6
CEM:AA: AA-FEB-78 11:01 VARIABLES
                                                                                                                                                                                                                                                                 SES CIBI
                                                                                                                    INITIALIZED TO ZERO
                                                                                                     THESE LOCATIONS STORE GPR'S DURING SUPERVISOR TESTS
                                                                                   SJPDRO: 1
                                 000000
                001644
    1043
                                                                                   SUPDRI:
    1044
                001646
                                 000000
    1045
                001650
                                 000000
                                                                                   SUPDR3:
                                 000000
    1046
                201925
                                                                                   SUPDR4:
    1047
                001654
                                 000000
                                 000000
                                                                                   SUPDRS:
                001656
    1048
    1049
                001660
                                                                                                     DUMMY LOCATION FOR ADDRESS PASSING THESE LOCATIONS STORE GPR'S DURING DETAILED ERROR PRINTOL'S
    1050
                001665
                                 000000
                                                                                   DUMMY:
    1051
                                                                                   DETRO:
    1052
                001664
                                 000000
                                                                                   DETRI:
    1053
                001666
                                 000000
                001670
                                 000000
                                                                                   DETRE:
                                                                                   DETR3:
    1055
                001672
                                 000000
                                                                                   DETRY:
                001674
                                 000000
    1056
    1057
                001676
                                 000000
                                                                                                                                   DETAILED REPORT FLAG

MK11 CONTROL'S HAVE BEEN TESTED FLAG

1 BIT PER EXISTING CSR
CSR'S 0,1,2,3,4,5,6,7 REPRESENTED BY BITS
7,6,5,4,3,2,1,0 RESPECTIVELY
1 BIT PER EXISTING CSR WITH INTERNAL INTERLEAVE
INTERNAL INTERLEAVE REPRESENTED BY BITS
15,14,13,12,11,10,9,8 RESPECTIVELY
FIRST ADDRESS UNDER CONTROL OF THIS CSR
THO WORD DATA BUFFER
THO WORD TEST DATA
THO WORD SINGLE BIT ERROR MASK
ADDRESS OF SUBROUTINE TO EXECUTE IN SUPERVISOP MODE
LOCAL LOOP PASS CONTROL
LOCAL LOOP PASS CONTROL
LOCAL LOOP PASS CONTROL
LOCAL LOOP PASS CONTROL
LOCAL SEMIBANK (4K) THAT CAN BE TESTED
LOAD STRTDI WITH THE STARTING ADDRESS OF THE DIAGONAL
                001700
    1058
                                 000000
                                                                                   DETRE:
                001702
                                                                                   DETFLAG: 0
    1059
                                 000000
                                 000000
                                                                                   CONTFLAG: U
    1060
                                                                   MKCSRS: WORD
                001706
                                 000000
    1061
    1065
    1063
    1064
    1065
    1066
                001710
    1067
                                 000000
                                                                                   CSRFIRST: D
                                                                                   DATBUF: .WORD
TSTDAT: .WORD
SBEMSK: .WORD
                                                                                                                    0000
                                                  000000
    1068
                                 000000
    1069
                001716
                                 000000
                                                  000000
                001722
                                 000000
    1071
1072
1073
                                                                                                                    ō,ŏ
                                 000000
                                                                                                    . WORD
                001726
                                                  000000
                                                                                   DBEMSK:
                                                                                  SUPDOADD: 0
PASFLG: .BYTE
UPPFLG: .BYTE
LOWBNK: 0
                001732
001734
001735
                                 000000
                                       000
    1074
                                 مَمَمَمم
                001736
    1076
                001740
001742
001744
                                 000000
                                                                                   STRTDI: 0
                                                                                                                             REAL PATTERN UNDER TEST
BACKED UP VALUE OF CACHE CONTROL REGISTER
FARITY TRAPS GO TO ADDRESS STORED HERE
STACK SAVED HERE IF IN FIELD SERVICE MODE
BACKED UP VALUE OF LAST MARGIN SETTING
USED FOR RELOCATION TO A NEW BANK
SOURCE OF DATA WORDS FOR CHECKBIT GENERATION SUBROUTINE
CHECKBITS TO BE LOADED INTO CSR
VALUE TO BUMP THE PC BY AFTER A PARITY TRAP
FIRST BANK OWNED (AT LEAST IN PART) BY THIS CSR
AN INDEX VARIABLE FOR A CSR LOOP
AN INDEX VARIABLE FOR A CSR LOOP
LOOP CONTROL FOR CSR TESTING
INDEX VARIABLE FOR EACH SIDE (CONTROLLER) OF A CSR
FRAG SET BY SUCCESSFULL TASK OR SUBROUTINE
FOR AID IN MOVE INSTRUCTIONS
FOR AID IN MOVE INSTRUCTIONS
    1078
1079
                                                                                   GALWORD: D
REALPAT: D
                                 000000
                                 000000
                001746
                                                                                   OLDCACHE: D
PARTHERE: 0
    1080
                                 000000
                                 000000
    1081
    1083
                001752
                                 ÖÖÖÖÖQ
                                                                                   FSSTACK: D
                                                                                   OLDMARGIN: D
                                 000000
                                                                                  NEWBANK: 0
SOURCE: . WORD 0
CHECK: . WORD 0
PCBUMP: . WORD 0
                001756
                                 000000
    1084
    1085
                001760
                001762
     1086
                                 000000
    1087
                                 000000
                                                                                  CSRFBANK: 0
CSRLBANK: 0
CSRLBANK: 0
CSRINC: 0
CSRINDEX: .BYTE 0
CSRLOOP: 0
SIDE: 0
    1088
                001766
                                 000000
                001770
                                 000000
    1089
                001772
     1090
                                 000000
    1091
                                       000
                001775
     1092
                                       000
    1093
                001776
                                 000000
     1094
                0002000
                                 000000
                2002002
P002CC
    1095
                                 000000
                                                                                   SUCCESS: 0
                                 000000
     1096
                                                                                   ZERJ:
                905006
                                 000000
                                                                                   ZEROS: 0
```

COMMON MACYII 30A(1052) 28-FEB 78 CEMKAA,MAI 24-FEB-78 11:01	09:20 PAGE 2-7 VARIABLES	INITIALIZED TO	ZEPO	3E% 0:35
1098 002010 000000 1099 002012 000000 1100 002014 000000 1101 002016 000000 1102 002020 000000 1103 002022 000000 1104 002024 000000 1105 1106 002026 000 1107 002027 000 1108 002030 00000 1109 002032	SPECIAL: 0 TIME: 0 NULLFLAG: 0 QVFLAG: 0 ACTFLAG: 0 APTFLAG: 0 XXDPCHAIN: 0 NOTE: THESE \$NULL: BYTE \$TPFLG: BYTE	TWO BYTES MUST STO O O O	FLAG FOR SPECIAL CASE OF NO INTERNAL INTERLEAD SECONDS THAT BATTERIES SHOULD LAST SET WHEN RUNNING NULL PATTERNS FLAGS QUICK VERIFY PASS UNDER APT. ACT. OR X/C FLAGS ACT AUTOMATIC MODE PROGRAMMING RULES FLAGS APT AUTOMATIC MODE PROGRAMMING RULES FLAGS XXDP CHAIN MODE MODE PROGRAMMING RULES AY TOGETHER CONTAINS NULL CHARACTER FOR FILLS CONTAINS # OF FILL CHARACTERS: "TERMINAL NOT AVAILABLE" FLAG	P CHAIN *
1109 1110 002032 000000 1111 002034 000000 1112 002036 000000 1113 002040 000000 1114 002042 000000 1115 002044 000000 1116 002046 000000 1117 002050 000000 1118 002052 000000 1118 002054 000000 1119 002056 000000 1120 002056 000000 1121 002060 000000 1121 002060 000000 1122 002062 000000 1123 002064 000000 1124 002066 000000 1133 002076 000000 1131 002100 000000 1132 002102 000000 1133 002104 000000 1134 002106 000000 1135 002110 000000 1136 002112 000000 1137 002114 000000 1138 002116 000000 1139 002126 000000 1139 002126 000000 1139 002126 000000 1140 002122 000000 1141 002122 000000 1142 002126 000000 1143 002126 000000	SESCAPE: 0 EVEN: 0 EVE	0	FLAG FOR SPECIAL CASE OF NO INTERNAL INTERLEADING FOR SPECIAL CASE OF NO INTERNAL INTERLEADING SECONDS THAT BATTERIES SHOULD LAST SET WHEN RUNNING NULL PATTERNS FLAGS QUICK VERIFY PASS UNDER APT ACT OR ACT FLAGS ACT AUTOMATIC MODE PROGRAMMING RULES FLAGS ACT OF FILL CHARACTER FOR FILLS CONTAINS WOFFILL CHARACTERS: "TERMINAL NOT AVAILABLE" FLAG "ESCAPE ON ERROR ADDRESS USED FOR ALTERNATE DATA PATTERNS COUNTS DIAGONAL STRIPES BACKED UP COPY OF STRIPES INTERNAL INTERLEAVE OVERRIDE FLAG NO TABLE BEING PRINTED - NOW SIZE OF MILL MEMORY IN K HORDS SIZE OF MILL MEMORY IN K HORDS FLAGS WHEN TOO MANY ERROR'S HAVE BEEN PRINTED FLAG FLAGS WHEN TOO MANY ERROR'S HAVE BEEN PRINTED FLAG ON PATTERNS TO WRITE ONLY FLAG TO PATTERNS TO WRITE ONLY FLAG TO PATTERNS TO WRITE ONLY FLAG TO PATTERNS TO WRITE ONLY HIGHEST ACCESSABLE BANK ON MEMORY THRU UNIBUS FLAG TO PATTERNS TO READ ONLY HIGHEST ACCESSABLE BANK ON MEMORY THRU UNIBUS FLAG TO PATTERNS TO READ ONLY HIGHEST ACCESSABLE BANK ON MEMORY THRU UNIBUS FLAG TO PATTERNS TO READ ONLY HIGHEST ACCESSABLE BANK ON MEMORY THRU UNIBUS FLAG TO RECESSABLE FLAG TO RECESSABLE FLAG" USED FOR GENERAL PURPOSE INDEXING	CP A BANK

	_	4	-
r	•	•	•
	•		
	_	_	-

					D	11	
COMMON LEMKAA.	MACYII	DULEED TO	11.71	3:20 PAGE 2 8 VARIABLES	INITIALIZED	TG NON ZERO	SEG 0:33
111455 111455578901231155666666666666666666666666666666666	002132 002136 002136 002147 002147 002150 002157 002156 002160 002162 002163 002163 002163	000001 000012 000031 177777 176543 123456 177777 176543 123456 177777 000003 166000 166000 166000 000000		SBTTL CACHY: 1 ERRMAX: 10. SOBK: 25. HORST: 177777 SEEDHI: 176543 SEEDLO: 123456 HEADER: 177777 MSEEDH: 176543 MSEEDL: 123456 ONES: 177777 PDRONES: 77417 FLIPLOC:3 IISTACR: HORD IISTADR: HORD IISTADR: HORD SLPADR: HORD SLPADR: HORD	166000 166002 170	INITIALIZED TO NON ZERO CACHE CONSTANT (MOVED TO CONTROL TO TURN ON CACHE: MAX # OF ERRORS / BANK WITH SWI! SOB CONSTANT SET IF TESTING BANKS IN WORST FIPST MODE(IST PASS) WORKING SEED HI WORKING SEED LO USED TO PRINT HEADINGS ONLY ONCE MASTER SEED HI MASTER SEED HO ALL ONES LOCATION FOR FLIPING DATA ON WORST CASE MOISE TEST ADDRESS OF THE IIST ACR ADDRESS OF THE IIST ACR CONTAINS SCOPE LOOP ADDRESS CONTAINS SCOPE RETURN FOR ERRORS	
1165 1166 116	002174 002176	000377 177400		: ************* BAKPAT: .WORD SWAPAT: .WORD	******* NOT 377 177400	TE THESE TWO LOCATIONS MUST STAY TOGETHER ************************************	
1166 11669 1177 1177 1177 1177 1177 1177	002200 002202 002206 002210 002212 002213 002215 002222 002222 002222	177570 177570 177560 177562 177564 177566 012 207 017 012 012	177777 00C	SWR: .WORD DISPLAY: .WORD STKS: 177560 STKB: 177562 STPS: 177564 STPB: 177566 SFILLC: .BYTE SBELL: .ASCIZ SQUES: .ASCII SCRLF: .ASCII SLF: .ASCIZ .EVEN	DSWR DDISP 12 <207> <377 <3 <15, <12,	: ADDRESS OF SWITCH REGISTER : ADDRESS OF DISPLAY REGISTER : TTY KBD STATUS : TTY KBD BUFFER : TTY PRINTER STATUS REG. ADDRESS : TTY PRINTER BUFFER REG. ADDRESS : INSERT FILL CHARS. AFTER A "LINE FEED" 377> CODE FOR BELL : QUESTION MARK : CARRIAGE RETURN : LINE FEED	

5EG 0134

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COMMON MACY11 3DA(1052) 28-FEB-78 09:20 PAGE 2-9 CEMKAA.MA1 24-FEB-78 11:01 TABLE CONFIGURATION
                                                                                                          .SBTTL TABLE CONFIGURATION :: CONFIG: FIRST 16K CONFIGURATION WORDS (3 EACH
     16K CONFIGURATION WORDS (3 EACH
                                                                                                                                SND
                                                                                                                                167TH 16K CONFIGURATION WORDS (3 EACH
                                                                                                          CONFIGURATION WORDS:
                                                                                                                                                                          BIT 0-2 INTERLEAVE FACTOR
BIT 3 EXTERNAL INTERLEAVE
                                                                                                                                                                          BIT 4
                                                                                                                                                                                                     CPU CAN ACCESS
                                                                                                                                                                          BĪT 5-7
                                                                                                                                                                                                    SF ARE
                                                                                                                                                                         BIT 5-7 SFARE
BIT 8-10 BOX NUMBER (0-7)
BIT 11 ERRORS PRESENT
BIT 12 PROTECTED REGION OF A MK11 BCX
BIT 13-14 MEMORY TYPE: 0=MJ11: 1=Mk11
BIT 15 PROTECTED (PROGRAM SPAC_)
BIT 0-5 NOT USED
BIT 6-8 MK11 CSR ADDRESS
BIT 9-14 NOT USED
                                                                                                                                                     MED:
                                                                                                                                                                        BIT 9-14 NOT USED
BIT 15 LOADERS HOME BANK
BIT 0 INDICATES BANK IS ADDRESSED BY CSR 172100
BIT 1 INDICATES BANK IS ADDRESSED BY CSR 172104
BIT 2 INDICATES BANK IS ADDRESSED BY CSR 17211C
BIT 3 INDICATES BANK IS ADDRESSED BY CSR 172114
BIT 4 INDICATES BANK IS ADDRESSED BY CSR 172120
BIT 5 INDICATES BANK IS ADDRESSED BY CSR 172124
BIT 6 INDICATES BANK IS ADDRESSED BY CSR 172130
BIT 7 INDICATES BANK IS ADDRESSED BY CSR 172134
BIT 8-15 NUMBER OF ERRORS
                                                                                                                                                    HIGH:
                                                                                                         CONFIG: .BLKW
                    OC2230
CC355C
                                         000550
                                                                                                                                                    120. *3
```

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MAIN SKELETON MAC'11 30A(1052) 28-FEB-78 09:20 PAGE 3
CEMKAA.MAI 24-FEB-78 11:01 TABLE CONFIGURATION
                                                           .TITLE MAIN SKELETON
  1245
                                                 START: SUBTST ( INITIALIZE VARIABLES TO ZERO >>
         003614
  1246
                                                  . ***********************
                                                  *SUBTEST INITIALIZE VARIABLES TO ZERO
                                                  (2)
         003616
003616
  1247
                                                           RESET
                                                                     #STACK.SP
                                                                                          :: SETUP THE STACK POINTER
                   012706
                             201400
                                                           MOV
                                                           IF POPTOM EQ ONES THEN JUMPTO BEGIN
                                                                                                                                 CMP PDP7DM. ONES
   (4)
         003655
                   023737
                             002226 002154
                                                                                                                                 BNE LO
   (6)
(4)
         003630
                   200100
         003632
                   000137
                             004676
                                                                    (3)
         003636
  1258
1259
1260
1261
                   012700
005020
022700
001374
                                                           MOV
                             001400
         003702
         003706
003710
003714
                             002132
                                                           CMP
                                                           BNE
                                                           SUBTST
         003716
  1262
                                                  (3)
                                                  *SUBTEST
                                                                     CLEAR NON-PROGRAM SPACE
                                                  (2)
         3716
3722
JU3724
003730
003732
003736
003740
                   012700
005020
020027
103774
012700
005020
  1263
                                                           MOV
                                                                     #1000,R0
                             001000
                                                                     (RO)+
                                                           CLR
  1265
1266
1267
1268
                                                                     RO, #STACK
                             001400
                                                           CMP
                                                                     #END+2,RO
                             076352
                                                           MOV
                                                           CLR
                                                 85:
                                                                     (RD)+
                                                                     RO.#177776-3000.+2-8192.
  1269
                   020027
                             152110
                                                           CMP
  1270
         003744
                   103774
                                                           BLO
                                                                     83
                                                           SUBTST ((INITIALIZE VARIABLES TO NON ZERO))
         003746
                                                  . *************************
    (3)
(2)
                                                                     INITIALIZE VARIABLES TO NON ZERO
                                                  *SUBTEST
                                                  <del>******************************</del>
  1272
         003746
                                                                     WORST
                                                           SET
         003746
003754
003752
003762
003762
                                                                     #-1,WORST
#3,FLIPLOC
                   012737 177777
012737 000003
                                                           MOV
                                      002140
  1273
1274
(1)
                                       091200
                                                           MOV
                                                                     HEADER
                                                           SET
                                                                    HEADER
#-1, HEADER
#176543, MSEEDH
#123456, MSEEDL
MSEEDH, SEEDLI ; PRIME THE RANDOM NUMBER GENERATOR
MSEEDL, SEEDLO ; BOTH HIGH AND LOW WORDS
#377, BAKPAT
#177400, SWAPAT
#BEGIN, SLPADR ;; INITIALIZE THE LOOP ADDRESS FOR SCOPE
#BEGIN, SLPERR ;; SETUP THE ERROR LOOP ADDRESS
</ INITIALIZE VECTORS>>
                   012737
012737
012737
013737
013737
                                                           MOV
                             176543
123456
                                       005120
  1275
                                                           MOV
  1276
1277
         003776
                                                           MOV
                                       002142
002144
002174
                             002150
         004004
                                                           MOV
  1278
1279
         004012
                                                           MOV
                   012737
012737
012737
012737
          004020
                             000377
                                                           MOV
  1283
1283
1581
1580
         920400
                             177400
                                       002176
                                                           MOV
                                       002170
                                                           MOV
                             004676
         004042
                                       002172
                                                           MOV
         004050
                                                           SUBTST
   (3)
                                                  ********
                                                                     INITIALIZE VECTORS
                                                  *SUBTEST
                                                 *************************
                   012737
012737
012737
012737
012737
                                                                     #$SCOPE IOTVEC ; IOT VECTOR FOR SCOPE ROUTINE
#340 IOTVEC+2 ; LEVEL 7
#SERROR EMTVEC ; EMT VECTOR FOR ERROR ROUTINE
  1584
         004050
                                       000020
                             050444
                                                           MOV
                             000340
                                       000030
  1285
         004056
                                                           MÔV
          004064
  1586
                                                           MOV
                                                                     #340 EMIVEC+2 :: LEVEL 7
#STRAP TRAPVEC :: TRAP VECTOR FOR TRAP CALLS
#340, TRAPVEC+2; LEVEL 7
                                       000032
  1287
          004072
                             000340
                                                           MOV
         004100
                             060300
  1288
                                                           VCM
  1289
         004106
                   012737
                             000340
                                       00003£
                                                           MOV
```

C:35

	F	Manie	300 105	20.5	G11	
CEMBAA.	MAI 2	74-FEB-78	30A 1058 3 11:01	28-18	EB-78	BEG (
1291 1292 1293 1294 1295 1296 1298 1299 1300	004114 004130 004136 004140 004150 004160 004160 004160 004160	012737 012737 012737 012737 012737 012737 012737 012737 012737	053552 000340 045000 04500 04500 04500 04500 04500	000024 000026 000116 000010 000004 000006 000250 000252	MOV #340.RESVEC+2 MOV #TIMEOUT,ERRVEC;SETUP TIMEOUT ERRORS MOV #340.ERRVEC+2 ;SET PRIORITY OF ERRUP TRAPS MOV #MMTRAP,MMVEC ;VECTOR FOR MEMORY MANAGEMENT MOV #340.MMVEC+2 SUBTST < <initialize patterns,<="" th=""><th></th></initialize>	
30000056789012345678;;;;	00000000000000000000000000000000000000	012700 012703 0012703 0012001 0012703 012001 012703 012001 012703 012703 012703 012703 012703 012703	004276 004276 016056 004276		- 我我我我我我我我我我我我我我我我我我我我我我我我我我我我我我我我我的我的,我们我们的我们的我们的我们的我们的我们的,我们就会会会会会会会会会会会会会会会会会会会会会会会会会会会会会会会会会会会会	
1319 (4) 1319	004276 004276 004304	012737	000001	002130	FOR I := #1 TO #16. MD, #1.I BC::::::	
1321 1321 1323 1323 1323 1325	004304 004306 004306 004310 004314 004314		021532		ROR RI ON.NOERROR :IF CARRY CLEAR BCS LI MOV #MTD999. (P3 END ; OF ON.ERROR LI::::::	
1324 1325 (5) (5)	004314 004320 004320 004324 004332 004334	062703 005237 023727 003764	005130	000020	ADD #2,R3 END :OF FOR INC I CMP I,#16. BLE BD ED:::::::	
65550000000000000000000000000000000000	004334 004336	006207			RETURN SUBARA: SUBTST < <clear configuration="" table="" the="">> :###################################</clear>	

SEG 0137

204534

MAIN SK JEMKAA.	ELETON MAI &	MACY11 24-FEB-78	30A 1052	; 28-FE	8-78 09:20 SETUP ACT.	PAGE 3-3 APT, & XYDP	I11		SEG 0139
1362	004542	012737	177777	001450	Si MOV	ET SAUTO #-1,\$AU1	JTO _		
1363 131 1365 1365 1366 1367	004542 004550 004550 004556 004564 004566	012737 012737 000430	177777 037236	251500	Si Mov Mi Bi	ET QUICK M-1 QUIC OV MAPTDOWN	ICK IN, PWRVEC		
3) 1367 (4) (6) (6) (8) 1368	004566 004566 004574 004576 004602	023727 001424 005737 001421	240000 240000	001460	IF	42 NE #STACK	CAND 42 NE MC	L5::::: CMP 42.#STACK BEQ L6 TST 42 BEG L6	
1368 (1) 1369	004604	012737	177777	005016	MOV	ET QVFLAG #-1.QVFL ET S AUTO	TLAG		
1369	004950 004915 004915	012737	177777	001450	MOV II	#-1.SAUT	JTO CAD		
1371	004630 004630	023727 001004	240000	011650	_			CMP 42. #SEMDAD BME 17	
13/1 (1) 1372	004630	012737	177777	002020	MOV	SET ACTFLAG #-1,ACTF LSE			
(1) 1372 (3) (3) 1373	004640	000403					_	BR 410 47::::::	
i i)	004640 004640	012737	177777	00202-1	MOV FI	SET XXDPCHAI #-1.XXDF ND :OF IF 42	PCHAIN		_
1374 3) 1375	004646							4.10::::::::::::::::::::::::::::::::::::	

re::::::

æ

SEG 0139

```
MAIN SKELETON MACYII 30A(1052) 28-FEB-78 09:20 PAGE H
                                               SETUP ACT. APT. & XXDP
CEMKAA. MAI
                24-FEB-78 11:01
                                               SUBARC: SUBTST << BEFORE FIRST LOOP CODE >>
  1378
         004646
   (3
                                                                  BEFORE FIRST LOOP CODE
                                               *SUBTEST
                                               ; ********
                                                        SUBTST ( PROTECT PROGRAM & LOADERS >>
  1379
         34940C
                                               <u></u>
                                                                  PROTECT PROGRAM & LOADERS
                                               *SUBTEST
                                               ; *********
                                                                 #BIT15, CONFIG
#BIT15, CONFIG+6
#SENDAD, 42
                                                                                              PROTECT PROGRAM SPACE (BANK D)
         004646 052737
004654 052737
004662 022737
004670 001402
                                                        BIS
  1380
                           100000 002230
                            100000
                                     905536
005045
                                                        BIS
  1381
                                                                                              ACT-117
BRANCH IF YES
  1382
                            011650
                                                                 BEGIN
MSGOOO
                                                        BEQ
                                                                                              TYPE PROGRAM TITLE
                                                        TYPE
         004672
  1384
         004672
                                                                  , MSGÖÖD
                   104401
                                                        TYPEIT
   (1)
                            066114
  1385
1386
                                               BEGIN:
                   000240
                                                        NOP
         004700
                                                        SUBTST ( DETERMINE MK11 ACCESS METHOD >>
   >31
                                               *SUBTEST
                                                                  DETERMINE MK11 ACCESS METHOD
    (3
                                               ******
    (2)
  1387
         004700
                                                        SET4
                                                                 #5$
                  012737
012700
012702
005712
005037
                                                                                              SET NEW VECTOR
TEST FOR B CSR'S
R2 = CSR ADDRESS
                                                                 #55,4
#8. RO
#MK11ADD,R2
                            004726
         004700
   (1)
                                     000004
                                                        MOV
         004706
                            0000010
  1388
                                                        MOV
         004712
  1389
                            172100
                                                        MOV
                                                                                              ANSWER RO TRAP
ANSWER - CSR'S NOT RELOCATED
BRANCH - OUT
         004716
004720
004724
004726
  1390
                                                        TST
                                                                  (R2)
                                               45:
                                                                  CSRREL
  1391
                            001635
                  000410
062706
062702
077011
  1392
                                                        BR
                                                                  6$
                                                                 #4,5P
#4,R2
R0,4$
                                                                                              FIX STACK FROM TRAP
NEXT CSR = LAST CSR + 4
LOOP TILL DONE
                                                        ADD
         004732
  1394
                            000004
                                                        ADD
         004736
                                                        SOB
                                                        SET
                                                                 CSRREL
  1396
         004740
                                                                  #-1, CSRREL
         004740
   (1)
                  012737
                                     001935
                                                        RES4
MOV
  1397
         004746
                                              6S:
                  012737
                            99526
                                                                                              :RESTORE OLD (DEFAULT) VECTOR
   (1)
         004746
                                     000004
                                                                  #TIMEOUT, 4
         004754
                            177766
                                                        CLR
                                                                 CPUERR
  1398
         004760
                                                        SUBTST
                                                                 ((SETUP MAP & USER & SUPERVISOR STACK)
   (ā)
                                                                 SETUP MAP & USER & SUPERVISOR STACK
                                               *SUBTEST
                                               DEENERGIZE
:SET PREVIOUS MODE TO SUPERVISCR
BIC #BIT13!BIT12, PSW
BIS #BIT12, PSW
  1399
         004760
                  104421
  1400
         004762
004770
                  042737
                            030000
  1402
                                                                 *SUPSTK
  1403
         004776
                                                        PUSH
   (5)
         004776
                   012746
                                                                                                                          MOV #SUPSTK. - (SP)
                            000700
  1404
         005002
                   909900
                                                        MTPI
                                                                 SSP
  1405
                                                        ;SET PREVIOUS MODE TO USER
BIS #BIT13!BIT12.PSW
PUSH #USESTK
  140£
1407
         005004
005012
005012
                  052737
                            030000
                                     177776
  1408
                  012746
                                                                                                                          MOV BUSESTK. - (SP)
                            000600
  :409
         910200
                  006606
                                                        MTPI
                                                                 USP
  1411
         205020
                                                        SUBTST ( GET SOFTWARE SWITCH REGISTER IF NECESSARY >>
                                               **********
    ישני.
                                                                 GET SOFTWARE SWITCH REGISTER IF NECESSARY
                                               *SUBTEST
                                               · **********
```

K11

MAIN SKELETON MAC-11 30A(1052) 28-FEB-78 09:20 PAGE 4-1 CEMBAA.MAI 24-FEB-78 11:01 GET SOFTWARE SWITCH REGISTER IF NECESSAR?

SES CIMO

1412 005020 5' 005020 005737 001450 5 005024 001005 1413 005026 023727 002200 1414 005034 001001 1415 005036 104407 IF SAUTO NE NO THEN GOTO SUBAAD

002200 000176

CMP BNE GTSWP

TST SAUTO BNE SUBAAD ::SOFTWARE SWITCH REG SELECTED? :BRANCH IF NO ::GET SOFT-SWR SETTINGS

SWR. #SWREG SUBAAD

L11 MAIN SKELETON MACY11 30A (1052 28-FEB-78 09:20 PAGE 4-2 CEMKAA.MA1 24-FEB-78 11:01 GET SOFTWARE SWITCH REGISTER IF NECESSAR										
1417 1418	005040 005046	012737 005037	000020 177750	172516		IOV LR	#20,MMR3 MAINT	:SET 22 BIT MODE :CLEAR MARGINS		
1419 1420 (3)	005052				SUBAAP: S	UBTST	((SETLP UNIBUS MAP))			
(3)				*SUBTEST		SETUP UNIBUS MAP				
145 145 145 145 145 145 145 145 145 145	005052 005060 005066 005072 005076 005102	012737 012737 005037 005037 004737 052737	000077 160000 170202 170200 035524 000040	170372 170370	MCCC	OV LR LP ALL IS	#77,MAPH36 #1600GO,MAPL36 MAPHO MAPLO LOWMAP #8IT5.MMR3	SETUP LOWER UNIBUS MAP ENERGIZE UNIBUS MAP		

RES 0141

SEG 0142

```
MAIN SKELETON MACY11 30A(1052) 28-FEB-78 09:20 PAGE 5
              24-FEB-78 11:01 SETUP UNIBUS MAP
CEMKAA. MA1
  1429 005110
                                                           SUBTST ((GET MEMORY MANAGEMENT READY))
                                                *SUBTEST GET MEMCRY MANAGEMENT READY
   (3)
                                                  *****
  1430 005110
1431 005112
(3) 005112
(1) 005114
                                                            KMAP
                  104422
                                                           MAP
                  010346
012703
004737
                                                                                                                                 MOV R3.-(SP)
                                                                     #120..R3
                                                           MOV
                             000170
                                                           CALL
                                                                     MAPPER
   (1)
         005150
                             034510
                                                                                                                                MOV (SP)+.R3
         005124
                   015603
 1433
(20)
(20)
(20)
(20)
(30)
(30)
(30)
                                                           ENERGIZE
                   104420
         005130
                                                           NEWTST ( < ANALIZE CONFIGURATION > >
                                                 *TEST 1
                                                                     ANALIZE CONFIGURATION
                                                  ********
                                                 tšti:
         005130
                   000004
                                                           SCOPE
  1435
1436
(2)
1437
         005136
005136
                                                                                                   :1ST CSR IS D
:SAVE CACHE STATUS
                                                           CLR
PUSH
                                                                     CSRNO
CONTRL
                   005037 001634
                                                                                                                                 MOV CONTRL. - (SP)
                    013746 177746
         005142
005142
005150
                                                                     #CONFGT, 4
                                                                                                  ;SET NEW VECTOR
  1438
                   012737
010637
                             005472
005560
                                                            MOV
                                       000004
                                                                     SP CONFSP
MKCSRS
                                                            MÖV
                   006137
  1439
         005160
                                                           ROL
READCSR
                                                 CONFG1:
                             001706
                                                                                                   :TRAP IF IT DOES NOT EXIST :MARK CSR AS PRESENT
                                                           READCSR
BIS #1,MKCSRS ;MARK CSR AS PRESENT
CLR R1
MOV CSR+2,RO
ASH #-11.RO
BIC #1C7.RO
BIC #1C7.RO
IF #BITO SET.IN RO THEN LET MKCSRS := MKCSRS SET.BY #BITO,PO
         005162
005170
005172
005176
                   052737
005001
013700
072027
  1441
                             000001 001706
  1442
                             177765
177770
  1444
  1445
         005202
                   042700
         005206
  1446
                   032700
                             000001
   (4)
                                                                                                                                 BEQ LII
BIS #BITB, MKCSPS
   (a)
(a)
         005212
                   001403
052737
                             000400 001706
         005222
005222
005222
005224
   (\bar{\mathbf{3}})
                                                                                                                       L11:;:;;;
  1447
                                                        CASE RO
                                                                                                                                 MOV RO,-'SP)
ASL ASP
JSR PC,L12
   (2)
(2)
                   010046
                   006316
         005226
005232
005234
                    004737
                             005252
  1448
1449
                   005562
                                                              INTERO
                   005564
                                                              INTER!
  1450
1451
1452
1453
         005236
005240
005242
005244
                    005564
                                                              INTER2
                    005572
                                                              INTER3
                                                              INTERY
                   005572
                   005600
                                                              INTERS
  1454
1455
1456
(3)
         005246
                   005572
                                                              INTERS
         005250
005252
005252
                    005600
                                                              INTER?
                                                           END OF CASE RO
                                                                                                                      ADD (SP)+, aSP

MOV a(SP)+, -(SP)

JSR PC, a(SP)+
   (5)
         005252
                   062616
                   004736
010137
004737
         002526
  1457
                                                                     RI INTERL
GETSIZE
                                                                                                  :SET INTERLEAVE FACTOR
                                                           MOV
                                                           CALL GETSIZE
THE NEXT 6 LINES SAVE THE READ STATUS OF THE BOX CAPACITY
MOV CSRNO.RI
  1458
          005264
  1459
          905270 013701 001634
  1460
                                                                     CSRNO, RI
```

INTERO: RETURN

1506 1507

005562

000207

SEG 0143

						B12		
MAIN SKI JEMKAA.		MACY11 (M-FEB-78	30A 1052 11:01	28-FEB-78 09:	:20 PAGI ANALIZE	E 5-2 COMFIGURATION		
150 8 150 9 1510	005564 005564 005570	012701	100000	INTER1: INTER2:	MOV RETURN	81,RI	:2 WAY	INTERLEAVE
1511 1513 1514 1515	005572 005572 005572 005576	012701	200000	INTER3: INTER4: INTER6:	MOV RETURN	1 2.61	:4 WAY	INTERLEA/E
1516	005600 005600 005604	012701	000004	INTERS: INTER7:	MOV RETURN	84,R1	:8 WA'	INTERLEAVE

3E3 0144

			28-FE	8-78 09 11		Еб		SEG CIM
002610	104472			: ****** : *TES*	NEWTST	<pre><<test ##################="" access="" accesses<="" bank="" d="" pre="" test=""></test></pre>	*************************	
005610 005612 005616 005624 005630	000004 005037 012737 005037 012737	000001 001426 000001 001460	001466 00146	tsta:	SCOPE CLR MOV CLR MOV	PARLNT #1, NOPAR NEMCNT #1, NONEM	,,,,	0 00047
005636 005644 005646 005652 005654 005656	012737 005000 012701 104424 005720 077102 104423	032422	000004	i \$:	CLR MOV CACHOFF TST SOB CACHON	RO #SIZE,R1 (RO)+ R1,1\$;SET NEW VECTOR	
005662 005666	005737 001403	001460			SEE IF	PARCNT	:ANT PARITY ERRORS? :NO - SKIP	
005670	005237	001454			INC	FATALS	:SET FATAL INDICATOR	
005676 005702 005704	005737 001406 162737	000002	001422	2\$:	TST BEQ SUB	NEMCNT 35 #2,ADDRESS	:ANY NON-EXISTANT MEMORY (HOLES)? :SKIP IF EQUAL :UPDATE 1ST ADDRESS FAILURE FROM AUTO INCI	REMENT
005712	005237	001454			INC	FATALS	;SET FATAL INDICATOR	
005720	053737	001476	005530	3 \$:	BIS	CPUBIT, CONFIG	:SET CORRECT ACCESSED BIT ON BANK D	
005726	012737 005037	032466 177766	000004		MOV CLR	#TIMEOUT.4 CPUERR	:RESTORE OLD 'DEFAULT, VECTOR	
	MA1	MA1 24-FE8-78 005606 104472 005610 000004 005612 005037 005616 012737 005636 012737 005636 012737 005636 012737 005636 012737 005654 005720 005655 077102 005656 001403 005670 005237 005670 005237 005670 005737 005670 005237 005670 005737 005670 005237 005670 005737 005670 005237 005712 005237 005712 005237 005712 005237 005712 005237	MA1 24-FEB-78 11:01 005606 104472 005610 000004 005612 005037 001460 005616 012737 000001 005636 012737 000001 005636 012737 000001 005636 012737 032422 005644 005000 0C5646 012701 040000 0C5654 005720 005655 077102 005656 001403 0056670 005237 001454 005670 005237 001454 005670 005737 001454 0056712 005237 001454 005712 005237 001454 005712 005237 001454 005720 053737 001454 005720 053737 001454	MA1 24-FE8-78 11:01 005606 104472 005610 000004 005612 005037 001460 005616 012737 000001 001466 005636 012737 000001 001466 005636 012737 032422 000004 005644 005000 005644 005000 005654 005720 005655 077102 005660 104423 005662 005737 001460 005670 005237 001454 005670 005737 001456 005702 001406 005712 005237 001454 005712 005237 001454 005712 005237 001454 005712 005237 001454 005712 005237 001454 005712 005237 001454 005712 005237 001454 005720 053737 001454	MA1 24-FEB-78 11:01 71 005606 104472 5UBAAS: 005610 000004 75T2: 005612 005037 001460 00146- 005624 005037 001456 001466 005636 012737 000001 001466 005636 012737 032422 000064 005636 012701 040000 005654 005720 040000 005656 077102 005656 077102 005666 001403 005670 005670 005670 005670 005670 005670 005670 005670 005670 005670 005670 005720 001456 005702 001406 005702 001406 005702 001406 005702 001406 005702 001406 005702 001406 005702 001406 005702 001406 005702 001406 005702 001406 005702 001406 005702 001406 005702 001406 005702 005712 005237 001454 005712 005237 001454 005712 005237 001454 005720 053737 001454 005720 053737 001476 002230 35:	MAI 24-FEB-8 11:01	Mai	ELETCH MAC11 30A 1052 28-FEB-78 09:20 PAGE 6 ANALIZE CONFIGURATION

MHIN SH JEMKAA		MAC 11 14-FEB-78	30A.13 52	28-FE	D12 8-78 09:20 PAGE 6-1 72 TEST BANK D ACCESSES	
.545 3	005743				SUBTST < ENABLE MK11 FOR CORRECT TRAPS	••••••
Ž					*SUBTEST ENABLE MK11 FOR CORRECT TRAPS	
1546	005740				IF #SWO SET.IN JSWR OR ACTFLAG NE #0	
5	005740	032777 001003	000001	174232		BIT #SHO, 25HP BNE LI4
ē,	005750 005754	005737	00505C			TST ACTFLAG BEG LIS
) (100)	005754 005756	001405				BEG L15 L14:;;;;;
1547	005756	104506			ENASBE ELSE	
1248	005756 005760 005760	000401			ELSE	BR 116
1550 1550 1550 1550	005762				POOTALET	1.15::::::
1550	005762 005764	104475			ECCINIT END : OF IF #SWD	
3	005764 005764					L16:;;;;;

SE'S C146

```
MAIN SKELETON MAC(11 30A(1052) 28-FEB-78 09:20 PAGE 6-2
CEMKAA.MAI 24-FEB-78 11:01 ENABLE MK11 FOR CORR
                                            ENĂBLE MŘÍL FOR CORRECT TRAPS
                                                     NEWTST ((TEST BANKS 1-167 'OCTAL) FOR ZEROS & ONES)
  1552 005764
                                             . ************
   (3)
                                                              TEST BANKS 1-167 OCTAL) FOR ZEROS & ONES
                                             +TEST 3
   (3,
                                              ζŽ)
                                                    SCOPE
CLR
         205764
                 000004
                                             †573:
  (S
1553
                 005037
012737
012737
        005766
                          001470
                                                                                          SET NO PARITY ERROR FLAG
                                   001464
                          100000
                                                      MÖV
                                                               #1.1.0PAR
                                                                                          SET NON-EXISTANT MEMORY MODE TO EXIT TEST LOOP
                                                               #2 NONEM
                                                      MOV
  1555
        006000
                           200002
                                    001466
                                                      SÉT4
                                                               MNONEXIST
        006006
  1556
                                                                                         :SET NEW VECTOR
                                                               #NONEXIST, 4
                                                      MOV
                                   000004
        006006
                  012737
                          032422
   (1)
                                                              MTPOOD
  1557
        006014
                                                      BMOV
                                                         JSR RS, BLOCK1
        006014
                  004537
                          037306
   (1)
                 022102
012737
012737
        006050
   (1)
                                                              #005237 UIPAR6 : PUT "INC " INSTRUCTION IN SUBROUTINE #PATERR, UIPAR7 ; PUT IN ADDRESS OF OPERAND FOR ABOVE
                                    177654
                                                     MOV
                           005237
        006055
  1558
  1559
                          001470
        006030
                                   177656
                                                     MÔV
                                                               BANK
                                             TAG95:
                                                     INC
                  005237
  1560
        006036
                                    001470
                                                              #120.,BANK
                  022737
                                                      CMP
  1561
        006045
                          000170
                                                                                          YES - SKIP TO MEXT TEST
                  001450
                                                      BEQ
  1562
        006050
        006052
                 013701
                                                              BANK . RI
  1563
                          001470
                                                      MOV
                                                              #6,R1
R1 BANKINDEX
PATERR
                                                                                          :BANK + 3 + 2
  1564
        006056
                  070127
                          900000
                                                      MUL
  1565
        006065
                 010137
                          001472
                                                      MÖV
                 005037
005037
005037
                                                                                          :CLEAR PATTERN ERROR COUNTER
  1566
        990900
                          001462
                                                                                          CLEAR PARITY ERROR COUNTER CHOLES:
        006072
006076
                          001460
                                                      CLR
                                                               PARCNT
   567
                                                               NEMONT
  1568
                          001456
                                                                                          : MAP A BANK
  1569
                                                              BANK
        006105
                                                                                                                    MOV R3. - (SP)
        006105
                 010346
         006104
                 013703
                          001470
                                                              BANK R3
                 004737
                                                               MAPPER
                                                      CALL
        006110
                          034510
   (1)
                                                                                                                    MOV (SP)+.R3
   (3)
         006114
                  015603
                                                                                          : IS THIS BANK PROTECTED?
  1570
        006116
                 005761
                                                               CONFIG(RI)
                          005530
                                                                                          YES - GO TEST BANK SPECIAL PUT "RETURN" INSTRUCTION AFTER WRITE ROUTINE
  1571
        006155
                  100530
                                                      BMI
                                                               TSTBANK
                 012737
                                                              #207,UIPAR2
#FIRST,RO
        006124
  1572
                           000207
                                   177644 WARN1:
                                                     MOV
  1573
         006132
                          060000
                                                      MOV
                                                              RO RY
#SIZE R1
  1574
        006136
                 010004
                                                      MÔV
  1575
                 012701
                          040000
        006140
                                                      MOV
  1576
        006144
                 010103
                                                     MÓV
                                                               RI,R3
                                                                                         :DATA IS ZEROS
         006146
                  2005002
                                                               R2
                 104424
  1578
        006150
                                                      CACHOFF
  1579
                                                      SUPERVISOR
        006152
                                                              #BIT14.PSW
FASTCITY
         006152
                  052737
                          040000
                                                                                         :DO IT TO IT!
                                   177776
                                                     BIS
  1580
                 004737
        006160
                          177649
                                                      CALL
  1581
        006164
                 104417
                                                     KERNEL
                 104423
  1582
        006166
                                                      CACHON
        006170
  1583
                                                               TAG35
                                                                                         :SKIP NEXT INSTRUCTION
                  000412
                                                      BR
  1584
                  005037
                          001470
                                             TAG25:
                                                     CLR
                                                              BANK
  1585
        006176
                                                     RES4
        006176
                 012737
005037
                          032466
177766
                                                                                         :RESTORE OLD (DEFAULT) VECTOR
                                   P00000
                                                      MŌV
                                                               STIMEOUT. 4
   (1)
   (1)
                                                               CPUERR
                 005037
000535
005737
001401
  1586
        006510
                          001464
                                                      CLR
                                                              NOPAR
                                                                                          :INDICATE DEFAULT PARITY ACTION
  1587
        006214
                                                               SUBAAQ
  1588
        006216
                          001456
                                            TAG35:
                                                     TST
                                                              NEMCNT
                                                                                          : ANY TRAPS?
  1589
        006555
                                                                                          NO - SKIP
                                                      BĒQ
  1590
                                                              TÃG95
        006224
                  000704
                                                     BR
                                                                                          :NOW - TRY NEXT BANK
  1591
         006556
                  104424
                                                      CACHOFF
                                            15:
  1592
         006530
                                                      SUPERVISOR
         DDF53C
                  052737 040000 177776
                                                              #BIT14.PSW
                                                                                         :DG IT TO IT!
```

								F12				
MAIN SKE JEMKAA.	ELETON 2	MACYII : H-FEB-78	30A:1052 11:01	28-FE	2-78 D9 73	:20 PAGI TEST BAI	E 6-3 NKS 1-167	OCTAL! F	FOR ZERO	S & ONES		RE3 0148
1593 1594	008544 008545 008538	004737 104417	177646			CALL	UIPAP3	;F	INISH P	ATTERN		
1595 1596	006546	004737 104417 104423 005737	001465			CACHON	PATERR 25		:	ANY PATTERN EPRI YES - SKIP ANY PARITY ERROI YES - SKIP ANY NON EXISTAN	POPS	
1598	006546 006524 006525 006524	001031 005737	001460			BNE TST BNE	PARCNT 25			ANY PARITY ERRO	RS	
1600	UU6262	005737	964100			BNE TST BNE	NEMCNT 25			AÑY NOÑ ÊXISTAN YES - SKIP	IT MEMORY	
1605	006266	012700	060000			MOV	#FIRST.RO		•	1		
1604	006274	012701	040000			MOV MOV	RO RY #SIZE,R1					
1596 1596 1597 1599 1590 1600 1600 1600 1600 1600 1600 1600 16	006302 006310 006316	001026 005737 001023 012700 010004 012701 010103 013702 012737	002154	177644		MOV MOV CACHOFF SUPERVIS	RI_R3' ONES_R2 #000240,U	IPAR2	:	DATA IS ONES PUT "NOP" INSTR	NUCTION BACK IN SUBROUTIN	٠E
1610 1611	006326 006326 006326 006334 006336		040000 177640	177776		BIS CALL KERNEL CACHON	#BIT14,PS	4	:	DO IT TO IT!		
1613 1614 1615	006336 006346 006350 006354 006356	052737 004737 104417 104423 013700 005737 001006 005737	001472 001462		25:	MOV TST BNE	BANKINDEX PATERR 35	, RO	:	ANY PATTERN ERROY YES - SKIP ANY PARITY ERROY YES - SKIP ANY HOLES?	ORS1	
1616 1617	006324 006320	005737 001003 005737	001460			TST BNE	PARCNT 35		;	ANY PARITY ERROI YES - SKIP	F5 7	
1618 1619	006365 006326	005737 001403 052760	001456		_	TST BEQ BIS	NEMCHT 45		;	NONE - SKIP	AL THE BOAY	
1621 1621 1623	006364 006372 006400	052760 053760 000137	004000 001476 006036	005530	3 \$: 4 \$:	BIS BIS JMP	#BIT11, CONCEPUBIT, CONTAG95	NFIG(RD; NFIG(RD;	:	NONE - SKIP SET ERROR BIT II SET ACCESSED BI	T HIS BHMK	
1624 1625	006404				TSTBANK	:TEST A	PROTECTED R1	BANK				
101234294294 101151151151151515151515151515151515151	006400 006400 006430 006430	010146 012737 012700 012701 104424	000001 060000 040000	001466		MOV MOV CACHOFF	#1,NONEM #FIRST,RO #SIZE,R1		:	SET NON-EXISTAN'	MOV R1, -(SP)	
1630 1631 1633 1633 1633 1635 1637	006445 006436 006436 006440 006456	052737 005720 077102 194417	040000	177776	∀\$:	SUPERVIS BIS TST SOB KERNEL	50R #BIT14,PSI (RO)+ R1,4 \$	4	:	DO IT TO IT!		
1634 1635	006444	104423 012737	000002	001466		CACHON MOV	#2, NONEM		:	RESET NON-EXIST	ANT MEMORY TO EXIT TEST	LOOP
(2)	006452	012601				POP	R1				MOV (SP)+.R1	
	006424 006424 006460	005737	001460			IF PARCI	NT NE #0				TST PARCNT	
1638 1639 1639	006462 006470	001403 052761	0004000	002230		BIS	BITIL CON	MFIG(RI)	;	ERROR BANK	BEQ L17	
. 537 3 , 1640	006470					•	IF PARCNT			i.	L17::::::	
1070	306470	005737	924100			TE HEID!	TI EW BU				TST NEMCHT	

```
H12
MAIN SKELETCH MACKLI 30A 1052 29-FEB-78 09:20 PAGE 6-5
CEMKAA, MAI 24-FEB-78 11:01 T3 TEST BANKS 1-167 (OCTAL) FOR ZEROS & CNES
                                                                                                                                        SEG CISC
                                            SUBARQ: SUBTST CODETERMINE PROTECTED BANKS
  1645 006513
                                           *SUBTEST
                                                             DETERMINE PROTECTED BANKS
                                            SCOPE
  :64<u>6</u>
        306510 000004
                                                    CĂCHÔFF
CLR
MÔV
        006515
                 104424
005037
015701
                                                             KPFLAG
#FIRST.RI
  648
  £49
                                                             R4
  1650
        006524
                 005004
                                                    FOR BANK := #0 TO #16"
  1651
        922900
                                                                                                                 CLP BANK
        006538
                 005037
                          001470
                                                                                                       Bi:,:;;;
                                                     MOV BANK.R3
MUL #6.R3
MOV R3.BANKINDEX
IF CPUBIT SET.IN CONFIG(P3) :IF ACCESSABLE
                 013703
070327
010337
  1653
1654
1655
        006535
                          001470
        006536
                          0000006
        006546
                                                                                                                  BIT CPUBIT CONFIG:P3
                 533763
001507
        006546
    4,
                          001476 002230
                                                  IF #BIT13 SET.IN CONFIG(R3) AND #BIT14 OFF.IN CONFIG(R3) : IF MK11
BIT #BIT13.CONFIG R3
BEG L22
        006554
  1656
        006556
                 032763
001503
032763
001077
                          020000 002230
        006556
                                                                                                                   BIT #BIT14, CONFIG R3
        006566
006574
                          040000 002230
                                                                                                                   BNE L22
 1657
                                                         MAP BANK
        006576
                                                                                                                  MOV R3.-(SP)
        006576
006600
                 010346
013703
   (E)
                                             MOY BANK R3
CALL MAPPER
    Ī)
                          001470
        006604
                 004737
                          03451C
                                                                                                                  MOV SP .R3
        006610
                 015603
                                                           SUPERVISOR CSR
  :658
                          952100
        006615
                 005037
  1659
        C06616
                                                                              ;Du IT TO IT!
                                                    BIS
                                                            #BITI4, PSW
                 052737
                          040000 17777E
        006616
  1660
                 104504
        006654
                                                           CHKDIS
                                                                      R4.(R1:
R4.2(R1:
                                                                                                 :WRITE CHECKBITS (ALL ZEROS)
                 010411
  1991
        929900
                                                           MOV
        006630
                 010461
                          200002
                                                           CLRCSR
        006634
  1663
                 104502
                                                                                                 : READ CHECKBITS INTO REAL CSR
  1664
        006636
                 005711
                                                           TST
  :665
        006640
                 104500
                                                           WASDBE
                                                           THIS MAKES SURE THAT SBE'S DON'T LOOK LIKE PROTECTED AREAS ON NOERROR;
  1666
  1667
        006642
                 103441
                                                          CLR
CHKDIS
MOV
                                                                                                                  B05 L23
   8)
        243900
        006644
  668
                          001526
  1669
        006650
                 104504
  1670
1672
1673
1673
1673
1673
                 013711
                                                             MOV
                                                                      ONES. (RI
ONES, 2 (RI
                          002154
000002
        006652
        006656
                                                             MOV
                                                             CLRCSR
TST
        006664
                 104502
        006666
                                                                      (RI)
                 005711
                                                             WASDBE
        006672
                                                             ON. NOERROR :2
                                                                                                                  BCS _24
                 103425
                                                              mov #7400.05R
CHKDIS
MOV
  16767
1677
1678
11678
11681
11681
11681
11681
11681
11681
11681
        006674
                          007406 001526
        006702
006704
006706
006712
006714
006714
                 104504
                                                               MOV R4.(R1)
                 010411
                 010461
104502
005711
154500
                          200002
                                                               CLRCSR (R1)
```

WASDBE

```
112
MAIN SKELETON MACY11 30A 1052 28-FEB-78 09:20 PAGE 6-6
TEMBAR.MAI 24-FEB-78 11:01 DETERMINE PROTECTED BANKS
                                                                                                                                                                           SES CISI
  1683 006720
1684 006722
1685 006730
1686 006732
1687 006734
1688 006740
                                                                                ON. NOERROR : 3
                                                                                                                                                315 125
                     103412
012737
104504
                                074000 001526
                                                                                   MOV #74000.65P
                                                                                   CHEDIS
                                                                                   MOV R4 (R1 )
MOV R4 2 (R1
                      010411
                     010461
104502
005711
104500
                                 0000032
                                                                                   CLRCSR
TST (RI)
           006742
   1689
                                                                                   WASDBE
   1690
                                                                              END : OF ON . NGERROR : 3
           347300
   1691
                                                                                                                                     L25:::::
     3)
           006746
006746
                                                                          END : OF ON. NOERROR : 2
   :692
                                                                                                                                     L24:::::
    (3)
          006746
006746
006746
006746
006746 103405
                                                                         END : OF ON. NOERROR : 1
   1693
                                                                                                                                     L23::::::
  3)
                                                                          ON. NOERROR
                                                                     ;MARK PROTECTED BANK
MOV BANKINDEX,R3
BIS #BIT12,COMFIG'R3: ;IDENTIFY AS PROTECTED BY MK11
END :OF ON.NOERROR
                                                                                                                                                BCS L2E
    (8)
   1695
           006750 013703 001472
006754 052763 010000 002230
  1696
           006762
   1698
           006762
                                                                                                                                     L26:;;;;;
    (3)
  1699
1700
1701
1702
1703
          006762
                     194470
                                                                          ECCDIS
                                                                                                                         CLEAR OUT DOUBLE BIT ERROR! CLEAR OUT DOUBLE BIT EPROR!
                                                                                        R4.(R1)
R4.2 R1)
                                                                          MOV
                     010411
          006766 0104
006772 1044
006774 006774
                    ŎĨŌŦĠĪ
                                                                          MOV
                                2000002
                                                                KERNEL END : OF IF
  1704
                                                                                                                                     LSS::::::
           006774
                                                                     END : OF IF
   3,
1705
                                                                                                                                     L21::::::
                                                                  END : OF FOR
           006774
                                                                                                                                                INC BANK #157
BLE 81
          006774 005237
007000 023727
007006 003651
           006774
                                001470
001470 000167
     6,
     5,
           007010
                                                                                                                                     E1::::::
   1756
           007010
                                                                  MAP
          007010
007012
007016
007022
007024
                     010346
012703
004737
                                                                                                                                                MOV R3.-15P/
                                 000170
                                                                  MOV
                                                                              #120.,R3
                                                                             MAPPER
                                 034510
                                                                  CALL
                     012603
                                                                                                                                               MGV (SP)+.R3
   1708
1708
1709
1709)
                                 001470
                                                                  CLR
                                                                             BANK
          007030
007030
007036
007040
                                                                  IF WSWD SET. IN DSWR OR ACTFLAG NE WO
                                                                                                                                                BIT #SWO. DSWP
BNE L27
IST ACTFLAG
                     032777
001003
005737
001402
                                 000001 173142
    , BG.
                                 002020
           007044
                                                                                                                                                BEG L30
          007046
007046
                                                                                                                                     _27::::::
  10450£
                                                                     ENASBE
                                                                  ELSE
          007050
          007050
007052
007052
007054
                                                                                                                                                BR L31
                      104000
                                                                                                                                     L30::::::
                      104472
                                                                     ECCINIT
                                                                  END OF IF #5HD
           307054
                                                                                                                                     L31:::::
```

		_		_	
_				-	•
•	• •			•	•
			•		

MAIN SKI CEMKAA.I	ELETON MAI 2	MACYII 4-FEB-78	30A (10 5 2 11:01	28-FE	B-7B 09:20 PAGE 5-7 DETERMINE PROTECTED BANKS	
1715	007054	104423			CACHON	
1716 1713) (3)	007056				SUBTST (MOVE LOADERS IF NECESSARY)) : +++++++++++++++++++++++++++++++++++	***********
1718	007056 007056	023727	001476	000020	IF CPUBIT FL #BIT4	MP CPUBIT, #BITH
(6)	007064	001071			BIC #BIT15.CONFIG+6 ;UMPROTECT OLD LOADER SPA	INE L32
17:20 17:20 17:20 17:21 17:24 17:24 17:24	007066 007074	U7E/3/	100000	003536	BEĞIN FİRSTPROTECT	
(3) 1721	007074 007074				B2:::::: FOR BANK := #1 TO #167	
(4) (4)	007074 007102	012737	000001	001470	B3::; : ;;	OV #1.BAN
1725	007102 007106	004737	036052		CALL EXBANK IF ACFLAG NE #O AND BMFLAG EG #G	
, , , ,	007106 007112	005737 001412	001506		1	ST ACFLAG EQ L33
6	007114	005737	001250		7	ST BMFLAG NE 133
1-54	007120	001007			IF KPFLAG NE #O OR MKFLAG EG #O	ST KPFLAG
(5)	007122 007126	005737 001003	001504			NE L34
(6) (8)	007130 007134	005737 001001	001510			ST MKFLAG NE L35
4) 1725	007136 007136				L34::::: LEAVE FIRSTPROTECT	
(3) 1 <i>72</i> 6	007136 007140	000413			END : OF IF KPFLAG	R E2
(3)	007140				END :OF IF ACFLAG	:
(3)	007140				L33:::::	:
1 (() 7 () () () () () () () ()	007140 007140 007144 007152	005237 023727 003753	001470 901470	000167	C	NC BANK MP BANK, #167 LE B3
(5)	007154 007154		000001	001470	E3:::;;	:
1730 1731	007162 007166 007166	012737 004737	036052	001470	MOV #1,BANK CALL EXBANK END FIRSTPROTECT E2:;;;;;	
1732 1732	007166	013737	001470	002114	MOV BANK.LDADHOME	
1733 1734 1735	007174 007200 007206	013700 052760	001472 100000	005530	MOV BANKINDEX,RD BIS #BITIS,CONFIG(RD)	
(4)	007206	023727	002114	100000	IF LOADHOME NE #1	MP LOADHOME, #1
(6) 1736 1737 1738 1739 1740 1741 1742	007214 007216 007224 007230 007234 007240 007244 007250 007250	001415 012737 013700 012701 004737 005037 005037	000004 002114 000001 035570 001464 001460	001464	MOV #4 NOPAR :PARITY ACTION = COUNT \$ MOV LOADHOME.RD :DESTINATION BANK MOV #1.R1 :SCURCE BANK CALL BANKMOV CLR NOPAR CLR PARCHT END :OF IF LOADHOME	
ر ت	JU/ 250				i,36:;;;;	•

K12

MAIN SKELETON MACYII 30A.1052 28-FEB-78 09:20 PHGE 6-8 CEMKAA.MAI 24-FEB-78 11:01 MOVE LOADERS IF NECESSARY

SES 0:53

1743 007250 END : OF IF CPUBIT

L32::::::

main sk Cemkaa.		MACY11 4-FEB-78	30A (1052 11:01) 28-FEE	3-78 09 MOVE LO	3:20 PAGE DADERS IF	L12 NECESSARY			5E0 C1 5 →
1745 (1) 1746	007250	012737	177777	20:500		SET	STOPOK #-1,STOPOK			
1747	007256				: ***** : *TEST	******	<pre><<mk11 ####################################<="" protecti="" td=""><td>ON POINTER TEST</td><td>*******</td><td>*********</td></mk11></pre>	ON POINTER TEST	*******	*********
17. 84.2 84.2 84.2 84.2 84.2 84.2 84.2 84.	007256	P00000			*ST4:	SCOPE : INSURE REGIN PR	THAT BOTTOM OF	MK11 WAS PROTECTED WI	TH PROTECTION PO	INTER SLEAP
10000 TT 1000	007260 007260 007260 007260	005037	001470				C := #0 TO #167			BAI#
1752 1752	007264 007264 007270 007270	004737 005737	036052			CALL E IF MKF	EXBANK FLAG NE #0 AND A	CFLAG ME #C	P5::::::	MKFLAG
e P.	007274 00727 6 007302	001410 005737 001405	001506						BE Q	L37 ACFLAG
1753 (4) (6)	007304 007304 007310	005737 001001	001504				(PFLAG EQ #0	MULL PROTECTION SCI	BNE	KPFLAG L40
1759 1755 (3)	007312 007314 007314 007314	104040				END	RROR -440 ;OF IF KPFLAG /E PROTECTIONTES	:MK11 PROTECTION PGI!	140::::::	ID NOT PHO EL. BHTP
1757 1757	007314 007316 007316	000406				END ; C	OF IF MKFLAG		BR E	!
17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535 17535	007316 007316 007322 007330	005237	001470 001470	000167		END ; OF	FOR BANK		INC	BANK BANK B5
1759	007330 007332 007332 007332	003755				END PROT	ECTIONTEST		E5:::::::	55
_	JU JUL									

5E% C155

							1112		
MAIN SK	ELETON =	MACYII MEERET	30A (1952	28-FE	8-78 09	3:20 PAG	E 6-10 OTECTION POINTER TEST		
CEMKAA.									
1761 (3)	007332					SUBTST	< <pre><<check <="" pre="" size="" system="" =""></check></pre>	MEGISTEM>/ ########################	**************
(3)					*SUBTE	ST	CHECK SYSTEM SIZE RE	GISTER	
(2)	007332	104424			*****	CACHOFF	****	*************	
1763	007334	005037 012737	170372 100000			CLR	MAPH36 #100000,MAPL36	;SET MAP TO BAN	ik 1
(3) (2) 1762 1763 1764 1765	007334 007340 007346	012737	100000	170370		MOV SET4	#10600, MAPL36 #2 \$		
(1)	007346	012737	007414	000004		MOV	#25,4	; SET NEW VECTOR	- ACUNT . ICHORE
176°	007346 007354 007362 007366	012737 012737 012700 005710	000004 140000	001464		MÖV MOV	84, NOPAR #140000, RD	PARE SELECTED	= COUNT & TGHORE
1768	007366	005710	1 10000		15:	TST	(RO)	TRAP IF NON-EX	CISTANT
1769 1770	007370 007376 007402	062737 005537 022737	100000 170372	170370		ADD ADC	#2\$ #2\$,4 #4, NOPAR #140000,R0 (RO) #100000,MAPL36 MAPH36	: BOWL 1 BHUK	
1771	007402	022737	000073	170372		CMP	#/J.MHPMJ6	TIMIO TEOR SUMP	ON TETION
(1) 176° 1768 1769 1770 1771 1772 1773 1774 1775 1776	007410 007412	000405 001366				BR BR	1\$ 3\$ #4 SP #100000,MAPL36 MAPH36	; NU - LUUP	
1774	007414	062706	000004		25:	ADD SUB SBC	#4 SP	;FIX STACK FROM	I TRAP
1775 1776	007420 007426 007432	162737 005637	100000 170372	170370	3 % :	SBC	MAPH36		
1777	007432			0000011		REST	ATTMENUT L	. DESTORE OLD (F	FERMIT) JECTOR
(1)	007432 007440 007444	012737 005037 005037	032466 177766	000004		MOV CLR CLR	#TIMEOUT, 4 CPUERR NOPAR MAPL 36	RESTORE OLD TO	E PODE OF TAX
1778	007444 007450	005037 006137	001464			CLR	NOPAR MORI 36	:RESTORE DEFAUL	T PARITY ACTION
1780	007454 007460	006137 013737	170370 170372 170372			ROL ROL MOV	MAPL36 MAPH36		
1781	007460 007466	013737	170372 000077	002100 170372		MOV MOV	MAPH36 MAPH36, UNITOP #77, MAPH36 #160000, MAPL36	· PESTARE MUPSA	
1783	007474	012737 012737 104423	160000	170370		MOV	#160000, MAPL36	, NESTONE THE OU	
(1) 1778 1779 1780 1781 1782 1783 1784 1785 1786	007502 007504	104423 005037	001470			CACHON CLR	BANK		
1786	007510					SET	ACFLAG		
(1) 1787	007510 007516	012737	177777	001506		MOV WHILE A	#-1 ACFLAG CFLAG NE #D OR MKFLAG	NE #0	
1787 (3)	007516 007516					HILLE II			B6:;;;;; TST ACFLAG BNE L41
(6) (6)	007522	005737 001003	001206						BNE L41
(7)	007522 007524 007530	005737 001405	001510						TST MKFLAG BEQ L42
(9) (5)	007532								L41:;;;;;
1788	007532 007536	005237 004737	001470 036052			INC CALL	BANK EXBANK		
1789 1790	007542		036035			END OF	WHILE ACFLAG		
(3)	007542 007544	000765				•			BR B6
(3)	007544								E6:;:;;;
1791	007544 007550	013700 005300	001470			MOV DEC	BANK,RO RO		
(3) 1791 1792 1793 1794	007552	010037	002076			MOV	RO.HIBANK		
1/94	007556 007556	020037	005100			IF RO L	T UNITOP THEN LET RD	:= UNITUP	CMP RD, UNITOP
(6)	007562	200200							BGE L43
(5) (3)	007564 007570	013700	005100						MOV UNITOP.RO L43:;;;;;
1795 1796	007570	072027	000011			ASH	#9. RO	.DO - 1657 0300	
1/70	007574	052700	000777			BIS	#777,RO	;RO = LAST GJOD	ADDRESS LESS 6 LSB'S

							NI 1 TO	
MAIN SK	ELETON _	MACY11	30A(1052) 0 11:01	28-FE	B-78 09	:20_ PAG	N12 GGE 6-11 SIZE REGISTER SEG	0156
CEMKAA.					CHECK 5			, 0136
1797 1798	007600 007604 007606	020037 001503 012737	177760	2011122		CMP BEQ	SÜBART	
1799 1800 1801	007614	010037	001432	001440		MOV MOV MOV	#SIZELO, ADDRESS RO, GOOD SIZELO, BAD	
1805	007620 007626 007630	010037 013737 000300 004737	007670	טררוטט		SWAB CALL	RO SYSSIZE	
1804	007634	010137 013700	002060 177760			MOV MOV	ŘÍ GÔŠŇITCH SIŽELO, RO	
1806 1807	007644	000300 004737	007670			SWAB CALL	RO SYSSIZE	
1808 1809	007652 007656	010137 104023	005065			MOV ERROR	R1.BDSWITCH +23	,
1802 1803 1804 1805 1806 1807 1808 1809 1810 1811 1812 1813 1814 1815	007660 007666	013737 000452	901406	001410		MOV BR	SERTIL, LASTERROR : DON'T COUNT THIS ERROR HS "DETECTED BUT MO" I	, 5)
1813	007(70	005001			CVCCIZE	DETERM	RMINE SWITCH SETTINGS IN RI FROM ADDRESS IN RO	
1815	007670 007672	005001	000001		515512E	IF #BIT	ITO SET.IN RO THEN LET R1 := R1 SET.BY #BIT2 BIT #BITO,RO	
(4) (6)	007672 007676 007700	032700 001402 052701	000001				BEG L44 BIS #BIT2,R1	
(6) (3) 1816	007704 007704	036701	P00000			TE *DTT	L44::;;;;; ITI SET.IN RO THEN LET RI := RI SET.BY #BITO	
(4)	007704 007710	032700 001402	200000			17 4511	BIT *BIT1,RO BEQ L45	
(a) (b)	007712 007716	052701	000001				BĪS #BĪTO,R1 L45:;;;;	
(6) (6) (3) 1817 (4)	007716 007716	032700	000004			IF #BIT	T2 SET.IN RO THEN LET R1 := R1 SET.BY #BIT4 BIT #BIT2.RO	
(6) (6) (3)	007722 007724 007730	001402 052701	000020				BEQ L46 BIS #BIT4,PI	
1818	007730	000700	000010			IF #BIT	L46:;;;;; [T3 SET.IN RO THEN LET R1 := P1 SET.BY #BIT?	
(4) (6)	007730 007734	032700 001402	010000				BIT #BIT3.RO BEQ L47 BIS #BIT7.R1	
(6) (3) 1819	007736 007742 007742	052701	000200			TE #011	L47:;;;;; [T4 SET.IN RO THEN LET R1 := R1 SET.BY #BIT3	
(4) (6)	007742	032700 001402	000020			Ir WOI!	BIT #BIT4,RO BEQ L50	
(6) (3)	007750 007754	052701	000010				BIS *BIT3,R1 _L50:;;;;	
1820 (4)	007754 007754	032700	000040			IF #BIT	T5 SET.IN RD THEN LET R1 := R1 SET.BY #BIT1 BIT #BIT5.RO	
(6)	007762 007762	001402 052701	200000				BEQ L51 BIS #BIT1,R1	
1851 (3)	007766	022700	000100			IF #BIT	L51:;;;; T6 SET.IN PO THEN LET R1 := R1 SET.BY #BITS	
(b) (b)	007766 007772 007774	032700 001402	000100				BIT #BIT6,RO BEQ L52 BIS #BIT5,R1	
1822 (3) (6)	010000	052701	000040			TE MOTT	L52::;;;; [17 SET.1N RO THEN LET R1 := R1 SET.BY #BIT6	
(H) (6)	010000	032700 001402	000200			7L #011	BIT #BIT7.RO BEQ L53	
•		JU1 .UE						

B13

MAIN SKELETON MACYII 30A:1052 28-FEB-78 09:20 PAGE 6-12 CEMKAA.MAI 24-FEB-78 11:01 CHECK SYSTEM SIZE REGISTER

BES 0157

BIS #8176.P1

16 010006 052701 000100 31 010012 1823 010012 000207 RETURN

•

SES 0158

MAIN SK CEMKAA.		24-FEB-78	309 (1052 11:01	? 28-FE	B-78 O9:20 PAGE 6-13 PRINT MULTIPORT DIRECTORY		
1913 1913 1921 1955 1955	010506				SUBAR: SUBTST (<load &="" csr's="" e-table="" from="" scdw1="" scdw2)=""> ++++++++++++++++++++++++++++++++++++</load>	********	••••••
1915	010506 010506 010512	005737 001003	060244		IF SCDW1 NE #G OR SCDW2 NE #G	BNE	SCDH1
(8)	010514 010520 010522	005737 001430	060246		<u>.</u> 6	TST BE2 3::::::	SCDHS
1917 1918 1919 1920 1921 1921	010526 010534	013701 013737 013737	001706 060244 060246	0C1526 001530	MOV MKCSRS.RI MOV SCDWI.CSR MOV SCDW2.CSR+2		
(3)	010542 010546	005037	001634		81	CLP	CSRNG
1920	010546 010550 010550	106301			ASLB RI ON.ERROR LOADCSR	BCC	L65
1922 1923 (3)	010552 010554 010554	104465			FND :OF ON FRROR	5:;;;;;	
196555555 19867 19887 19887	010554 010554 010562 010570	062737 023727 003766	001634	000034	·	CMP BLE	#2.CSRNG CSRNO.#34 B14
1925 1926	010572	005237 000137	060172 011720		E1 INC SPASS JMP APTHANG ;GO LOOP FOREVER KEEPING A	4:;::::: PT ALIVE	
1927	010572 010576 010602 010602	300.0	2.1.20		END :OF IF SCCWI	+:::::	

03:162

BEG L72 JSR PC.PCONFIG

RES CIBO

272::::::

END : OF FOR R2

3)

011222

011222

005202 000004

003730

5, 011222 5, 011224 5, 011230 5, 011232 1934 011232

L74::::: INC R2 CMP R2, 84 BLE B16

Elb::::::

IF APTOGRE NE MUSIZE OR APTMOS NE MASIZE

Page 11:254 ### Page 12:254 ### Page 12:255 ### Page 12:25

SE'S 0:62

5E1 0163

```
MAIN SKELETON MACY11 304-1052 28-FEB-78 09:20 PAGE 7
ZEMKAA.MA1 24-FEB-78 11:01
                                                               CHECK APT SIZING
                                                               LOOP: NEWTST < DIAGNOSTIC MODE DISPATCH ROUTINE
   1999 011254
                                                               DIAGNOSTIC MODE DISPATCH ROUTINE
                                                               **EST 5
                                                                 STS: SCOPE CLR
          011254
011256
011252
                        000004
005037
017700
                                     001704
170712
177761
011302
                                                                                         CONTFLAG
                                                                                                                 GET SWITCHES
MASK TO ONLY MODE BITS
DISPATCH TO ROUTINE THROUGH MEY THELE
                                                                                        aSWA, RO
#1C16, RO
aDISPTBL(RO)
  2003
2003
2005
2005
2006
                        042700
004770
000137
                                                                     JMP MEMDONE GO TO NEXT TEST

TBL:BAFPAF MODE D:BANKS FORWARD, PATTERNS FORWARD
BAFPAR MODE I:BANKS FORWARD, PATTERNS REVERSE
BAWPAF MODE 2:BANKS WORST FIRST, PATTERNS FORWARD
BAWPAR MODE 3:BANKS WORST FIRST, PATTERNS REVERSE
PAFBAF MODE 4:PATTERNS FORWARD, BANKS FORWARD
PAFBAW MODE 5:PATTERNS FORWARD, BANKS WORST FIF J
PARBAF MODE 6:PATTERNS REVERSE, BANKS WORST FIF J
PARBAW MODE 7:PATTERNS REVERSE, BANKS WORST FIRST
***NOTE*** MARGINS FOLLOW PATTERNS FORWARD IS 0.2.3.4.5
                                                                            BIC
            011566
            011272
                                     011322
                                                               DISPTBL: BAFPAF
                        011754
            011302
            011304
  2007
                        012304
            011306
            011310
  011314 012636
011316 013016
011320 013154
```

I13	
DISPATCH POUTINE	
DANK TECT	

```
MAIN SKELETON MACY11 30A(1052) 28-FEB-78 09:20 PAGE 8 CEMBAA.MAI 24-FEB-78 11:01 T5 DIAGNOSTIC
                                                                                                                               SES CISA
                                                 DIAGNOSTIC MODE
                                        MEMDONE: NEWTST ( UNIQUE BANK TEST >>
      011322
                                         *TEST 6 UNIQUE BANK TEST
   (3
                                          011324
011354
000004
                                        TST6: SCOPE
 2018
                                                         HEADER
                                                 SET
       011324
011332
011332
                                                         #-1, HEADER
                012737 177777
                                302146
                                                 MOV
  2019
                                                 SET
                012737 177777
004737 020640
  (1)
                                001500
                                                 MOV
                                                         #-1.MUT
 50<u>$</u>1
50<u>$</u>0
       011340
011344
011344
                                                 CALL
                                                         MT0027
                                                         HEADER
                                                         #-1, HEADER
                                                 MOV
  (I)
                                062146
                005037 001500
  2022
       011352
                                                 CLR
  2023
  2024
       011356
                                                 NEWIST ((FORCE ADDRESS PARITY EPRORS))
                                        (5)
                                        **TEST 7
                                                        FORCE ADDRESS PARITY ERRORS
                                         000004
012700
012737
       011356
                                         TST7: SCOPE
 2025
2025
2025
2027
       011360
                        060000
                                                 MÖV
                                                         NOPAR
ADDPAR
       011364
                        000004 DC1464
                                                 MOV
                                                                           ; INDICATE PARITY ACTION
       011372
011372
011376
                                                 BMOV
                                                  JSR RS, BLOCK1
                004537
011462
  (1)
   (1)
  2028
       011400
                                                 FOR BANK := #0 TO #167
  (4)
       011400
                005037 001470
                                                                                                        CLR BANK
       011404
   (4)
 2039
2039
                004737 036052
                                                  CALL EXBANK
IF ACFLAG NE #C
       011404
       011410
                005737
  (4)
       011410
                        001506
                                                                                                           TST ACFLAG
               001411
005037
004737
   (6)
       011414
                                                                                                          BEG LIGS
 2033
2033
2031
                        001460
       011416
                                                    CLR PARCNT
       011459
                        021546
                                                    CALL SUPDOI
IF PARCHT NE #1
   (4)
       011426
                023727
                        001466 000001
                                                                                                          CMP PARCHT. #1
               001401
  (6)
       011434
                                                                                                          BEQ L104
 2034
2035
(3)
                                                   ERROR +35
END ; OF IF PARCHT
       011436
                104035
       011440
       811440
                                                                                                  L134:::::
 3)
       011440
                                                 END : OF IF ACFLAG
                                                                                                  L163:::::
 2037
      011440
                                                END : OF FOR BANK
               005237
023727
003754
  (5)
                                                                                                          INC BANK, #167
BLE B17
       011440
                        001470
       011444
                        001470 000167
  (5)
       011452
       011454
                                                                                 :INDICATE PARITY ACTION
 5038
       011454
                        001464
                                                 CLR
                                                         NOPAR
       011460
                000405
                                                         SUBAAU
 2040
                                                :THESE 3 INSTRUCTIONS ARE MOVED TO THE USER PAR'S IN ORDER TO ;CAUSE ABORTS FROM THE BANK UNDER TEST VICE THE PROGRAM SPACE MOV #BIT1, MAINT :V177640 :CREATE ADDRESS PARITY ERROR TST (RO) :V177646 :THIS SHOULD ABORT 3 INCREMENT F RETURN :V177650
  204I
  2042
                                        ADDPAR: MOV
       011462
  2043
              012737
005710
                        000002 177750
 2045
       011472
                000207
 2056
3)
       352110
                                        FLUSH: SUBTST / FLUSH OUT DBE'S
```

J13

MAIN SKELETON MACYII 30A.1052 28-FEB-78 09:20 PAGE 8-1 CEMKAA.MAI 24-FEB-78 11:01 FLUSH OUT DBE'S

FEG C165

SUBTEST FLUSH OUT DBE'S

CONTROL OF THE MICH STATE OF THE MICH STA

```
MACY11 30A(1052) 28-FEB-78 09:20 PAGE 9
24-FEB-78 11:01 END OF PASS ROUTINE
MGIN SKELETON
                                                       END OF PASS ROUTINE
CEMKAA. MAI
                                                                   .SBTTL END OF PASS ROUTINE
  2060
2061
2063
2064
2065
2066
2067
2069
2071
2072
                                                        *INCREMENT THE PASS NUMBER (SPASS)
*INDICATE END-OF-PROGRAM AFTER EACH PASSES THRU THE PROGRAM
*TYPE "END PASS **XXXXX" (WHERE XXXXX IS A DECIMAL NUMBER)
                                                       *IF THERES A MONITOR GO TO IT
*IF THERE ISN'T JUMP TO LOOP
SEOP: CLR SBEFLAG
                                                                             SBEFLAG
FSINFLAG
          011532
011536
                      005037
                                 201412
                      005037
                                 005156
                                                                   ČĒR
                                                                              SERTTL, LASTERROR
           011542
                      013737
                                 001406
                                            001410
                                                                   MOV
                                                                                                    :INCREMENT THE PASS NUMBER DON'T ALLOW A NEG. NUMBER TYPE "END PASS ""
                      005237
                                 060172
                                                                   INC
                                                                              $PASS
#100000,$PASS
           011550
           011554
                                 100000
                                            060172
                                                                             MSG077
, MSG077
                                                                   TYPE
           011562
                                                                   TYPEIT
                      104401
                                 071723
    (1)
           011562
  2073
(5)
(5)
                                                                   IF #$W11 SET. IN DSWR OR GVFLAG NE #O
           011566
                                                                                                                                                 BIT #SWII.DSWF
                      032777
           011566
                                 004000
                                            170404
                                                                                                                                                 BNE LITO
           011574
                      001003
           011576
                      005737
                                 005016
    (6)
                                                                                                                                                 BEG LIII
    (8)
           011605
                      001404
                                                                                                                                     L110:;;;;;
           011604
                                                                            MSGD35
MSGD35
OVFLAG
          011604
  2074
                                                                     TYPE
                                                                                                    :00
                      104401
                                                                   TYPEIT
  2075
2076
           011610
                                 00501F
                                                                     CLR
                                                                   END OF IF SWILL
           011614
    (3)
           011614
                                                                                                                                      L111::::::
                                                                  TYPDEC
  2077
          011614
                                                                             SPASS, -(SP)
                                                                  MOV SPASS, -(SP) ;; SAVE SPASS FOR TYPEOUT
TYPDS ;; GO TYPE--DECIMAL ASCII WITH SIGN
MOV 42, RO ;; GET MONITOR ADDRESS
BEG SDOAGAIN ;; BRANCH IF NO MONITOR
CMP #STACK, RO ; ARE WE UNDER RT11
BEG SDOAGAIN ; YES - BRANCH
; WE ARE UNDER (HEAVEN HELP US) XXDP!
PUSH RO
    (1)
(1)
                      013746
           011614
                                 060172
          011255
  2078
                      013700
                                 000042
   2079
                      001430
           011656
   2080
           011630
                                 001400
                                                       SZAP42:
   2081
                      001425
           011634
  2082
  2083
          011636
011636
                                                                  PUSH
                                                                                                                                                 MOV RO. - (SP)
                      940010
  2084
2085
           011640
                      004737
                                                                  CALL
                                                                              SHUTUP
RO
                                 037156
           011644
          011646
                                                                                                                                                 MOV (SP)+.RO
                      000002
                                                                                                    ::CLEAR THE WORLD
::GO TO MONITOR
  2086
2087
                                                                  CALL
           011650
                      004710
                                                       SENDAD:
                                                                                                    SAVE ROOM
   2088
                      000240
           011652
                                                                   NOP
   2089
           011654
                      000240
   2090
           011656
                      000240
                                                                   NOP
                                                                                                    ACTII
  2091
2092
2093
2094
2095
2096
2097
                                                       SDOAGN: : UNDO SHUTUP STUFF
           011660
                                                                             RESTORE STACK
ENERGIZE UNIBUS MAP & 22 BIT ADDRESSING
ENERGIZE MEMORY MANAGEMENT
                                                                              PUT LOADERS BACK HOME
                                                                  MOV
                                                                              #STACK, SP
#BIT5!BIT4, MMR3
           011664
                      012706
                                 001400
                                 000060
                                            172516
                                                                   BIS
   2098
           011672
                      104420
                                                                   ENERGIZE
                      013700
                                                                                                               ; DESTINATION BANK
   2099
           011674
                                 002114
                                                                              LOADHOME.RO
                                                                   MOV
           011700
                                 000001
                                                                             #1.R1
BANKMOV
                                                                                                               SOURCE BANK
   2100
                                                                   MOV
  īoīs
                      004737
                                                                   CALL
                                                                                                    : IF APT LIMITING # OF PASSES
   2102
           011710
                                                       SDOAGAIN: IF SUSHR EQ SPASS
           011710
                                 060510
                                                                                                                                                 CMF SUSWR. SPASS
                      023737
                                            060172
```

MAIN SKELETON MAC\11 30A\1052; 28-FEB-78 09:20 PAGE 9-1

IEMKAA.MA1 24-FEB-78 11:01 END OF PASS ROUTINE

(6) 011716 001014
2103 011720 012701 000050 APTHANG: Mov #50.R1
2104 011724 077001 000050 APTHANG: Mov #50.R1
2105 011726 062737 000001 060174 ADD #1.\$DEVCT
2106 011734 005537 060176 ADD #1.\$DEVCT
2107 011740 077107 SOB R1.25
2108 011742 005237 060172 BR APTHANG
2109 011740 007107 BR APTHANG
2110 011750 C00137 011254 JMP LOOP :RETURN

SEG DIGE

UNRELOCATE

CALL

RETURN

UNMOVE 3 UNMAP PROGRAM

004737 000207

035340

015065

315099

MIEST	o ne e	MOONII	200 1052)	30 FFR_78	N13
MTEST M CEMKAA.	MAI S	4-FEB-18	11:01	BANKS F	09:20 PAGE 10-1 FORWARD, PATTERNS FORWARD **PECURSIVE**
2149 (3) (3)	012070			BAFPAR: ;***** ;*SUBTE	R: SUBTST 《《BANKS FORWARD, PATTERNS REVERSE #\RECURSIVE++/》 ##################################
21 5 0	012070	005037			LLR DHIN ISE DHIN IOU
33255555555555555555555555555555555555	012074 012100 012104 012106	004737 005737 001417 005737	036052	1\$:	START OF BANK LOOP CALL EXBHNK TST ACFLAG BEQ 45 TST REFLAG TST REFLAG BNE 45 CALL SETPAT START OF PATTERN LOOP CALL SETMAR START OF MARGIN LOOP CALL MIEST TERMINATION OF MARGIN LOOP CALL DECMAR SPL 35 EXAMINE BANK CAN WE ACCESS THIS BANK? CAN WE ACCESS THIS BANK? TO BANK LOOP TERMINATION RELOCATION REQUIRED? TO BANK LOOP TERMINATION SET HIGH PATTERN FOR CORRECT MEMOR? TO THE MARGIN SET HIGH MARGINS (IF NOT INHIBITED) TO THE MARGIN LOOP CALL DECMAR TERMINATION OF MARGIN LOOP CALL DECMAR TERMINATION OF MARGIN LOOP TO BANK LOOP TERMINATION SET HIGH MARGUNED? TO BANK LOOP TERMINATION TO BANK LOOP TERMINATION TO BANK LOOP TERMINATION TERMINATION TO BANK LOOP TERMINAT
2156 2156 2157	012114	005737 001014 004737	036366	2\$:	HELUCHTION REQUIRED? BNE 45 :YES - GO TO BANK LOOP TERMINATION CALL SETPAT :SET HIGH PATTERN FOR CORRECT MEMOR? STORT OF PATTERN LOOP
2159	015150	004737	036616	2\$:	CALL SETMAR ;SET HIGH MARGINS (IF NOT INHIBITED)
5161	012124	004737	013334	3\$:	CALL MIEST :GO TEST CORRECT MEMORY
2163 2164 2164	012130 012134	004737 100373	036556	4\$:	CALL DECMAR : NEXT LOWER MARGIN BPL 35 : IF NOT DONE - LOOP ON THIS MARGIN TERMINATION OF PATTERN LOOP
2166 2167 2168	015136 015136	005337 100366	001502		TERMINATION OF PATTERN LOOP DEC PATTERN IS THIS THE LAST PATTERN? BPL 25 :NO - LOOP ON THIS PATTERN TERMINATION OF BANK LOOP
2169 2170 2171	012144	004737 001351	036376	45:	CALL INCBNK : NEXT HIGHER BANK BNE 15 : IF NOT DONE - LOOP ON THIS BANK -FND OF LOOPS
2172 2173 2174	012152 012156 012160	005737 001401 000207	001516		TERMINATION OF PATTERN LOOP DEC PATTERN IS THIS THE LAST PATTERN? BPL 25 INO - LOOP ON THIS PATTERN TERMINATION OF BANK LOOP CALL INCBNK INEXT HIGHER BANK BNE 15 IF NOT DONE - LOOP ON THIS BANK END OF LOOPS TST RIFLAG HAVE WE BEEN RELOCATED? BEQ 55 INO - SKIP RETURN YES - RETURN CALL RELOCATE HOVE & MAP PROGRAM
2175 2176	015166 015166 015165	004737	034720	5 \$:	CALL RELOCATE ; MOVE & MAP PROGRAM ON.ERROR THEN \$RETURN
(8) (5) (4)	012166 012170 012172	103001 000207		5 \$:	BCC L114 RTS PC L114:;;;;;
2177 2178 2179 2130	012172 012176 012202	004737 004737 000207	012070 035340		***NOTE** RECURSIVE CALL CALL BAFPAR :CALL SELF CALL UNRELOCATE :UNMOVE & UNMAP PROGRAM RETURN

SEG 0169

5E% 0:75

1					דום
MTEST M	CDES	MACYII	30A 1052	28-FEB-78 RANKS	09:20 PAGE 10-2 FORWARD, PATTERNS REVERSE ##RECURSIVE##
]		1 1 25 0	11.01		
5185	PCS510			· ***	F: SUBTST (BANKS WORST FIRST, PATTERNS FORWARD **RECUPSIVE**/
,3,				#SUB	ITEST BANKS WCRST FIRST.PATTERNS FORWARD ##RECUPSIVE##
5183 5)	P0251C	005037	001470	; ***	CLR BANK ;SET BANK TO D
2184			0010		START OF BANK LOOP
2185	015210 025210 015210	004737 005737	001206 036025	15:	CALL EXBANK : EXAMINE BANK TST ACFLAG : CAN HE ACCESS THIS BANK?
2187	015550	001422 005737	00:500		BEG 45 NO - GO TO BANK LOOP TERMINATION
2188	015555	005737 001417	001520	15:	CALL EXHANK TST ACFLAG CAN ME ACCESS THIS BANK? BEG 4\$ NO - GO TO BANK LOOP TERMINATION TST BMFLAG IS THIS BAD MEMORY (MORST FIRST)? BEG 4\$ NO - GO TO BANK LOOP TERMINATION TST RRFLAG RELOCATION REQUIRED? BNE 4\$ YES - GO TO BANK LOOP TERMINATION CONTROL OF TERMINATION CONTROL OF TERMINATION CONTROL OF TERMINATION
5130	015530	005737	001514		TST RRFLAG RELOCATION REQUIRED? BNE 45 YES - GO TO BANK LOOP TEPMINATION
2192	012234	001014 005037	001502		LLK PHITERN :SET PHITERN IV U
2184 2185 2186 2187 2188 2190 2191 2193 2194			0011101	36	:START OF PATTERN LOOP
2195	012242	005037	001474	23 :	START OF MARGIN LOOP
21967 2197 21990 21990 21900 2000 2000 2000 2000 2	942510	004737	013334	2\$: 3\$: 4\$: 5\$:	CALL MTEST :GO TEST CORRECT MEMORY :TERMINATION OF MARGIN LOOP
5198	015529	004737	036412		CALL INCMAR : NEXT HIGHER MARGIN BNE 35 ; IF NOT DONE - LOOP ON THIS MAPGIN
2199	015526	001373			CALL INCMAR :NEXT HIGHER MARGIN BNE 35 :IF NOT DONE - LOOP ON THIS MARGIN TERMINATION OF PATTERN LOOP COLL INCPAT :GO SEE IF THIS IS THE LAST PATTERN
5501	0155 e 0	004737	036352		
5505	012264	001366			BNE 25 NO - LOOP ON THIS PATTERN TERMINATION OF BANK LOOP
5504	015566	004737	036376	45:	TERMINATION OF BANK LOOP CALL INCBNK :NEXT HIGHER BANK BNE 1\$;IF NOT DONE - LOOP ON THIS BANK END OF LOOPS COM HORST ;IS THIS AN EVEN NUMBERED PASS? BNE 5\$:YES - SKIP
550P	012272	901346			END OF LOOPS
2207	012274 012300	005137	002140		COM WORST ; IS THIS AN EVEN NUMBERED PASS? BNE 5\$; YES - SKIP
5509		001003			:##NOTE## RECURSIVE CALL
5510	015306	004737 000207	015504		CALL BAWPAF ; CALL SELF
Şiği	012310	005737	001516	5 \$:	TST RLFLAG :HAVE WE BEEN RELOCATED?
2213	012314	001401 900207			BEQ 65 NO - SKIP RETURN YES - RETURN
2215	015350	004737	034720	6\$:	CALL RELOCATE MOVE & MAP PROGRAM ON ERROR THEN SRETURN
(8)	012324	103001			ON.ERROR THEN SKETURN BCC L115 RTS PC
(5) (4)	012326	000207			
2217					:**NOTE** RECURSIVE CALL
2218	012330 012334 012340	004737 004737	035304		CALL BAWPAF : CALL SELF CALL UNRELOCATE : UNMOVE & JNMAP PROGRAM
2555	012340	000207			RETURN

EES 0:71

MTEST M		MAC 11 4-FEB-78	30A:1052 11:01	28-FEB-78 (BANKS	09:20 PAGE 10-3 WORST FIRST, PATTERNS FORWARD **RECURSIVE**
(3) (3) (3)	C12342			****** ******	AR: SUBTST (BANKS WORST FIRST, PATTERNS REVERSE ##RECUPSIVE **** HERRER HERRER HERRER HERRER HERRER HERRER HERRER HERRECURSIVE *** HEST BANKS WORST FIRST, PATTERNS REVERSE ##RECURSIVE ** HERRER
2523	215345	005037	001470	•	CLR BANK ;SET BANK TO D ;START OF BANK LOOP
#####################################	012346 012352 012356 012364 012364 012372	004737 005737 001422	001206 036022	1\$:	CALL EXBMNK :EXAMINE BANK TST ACFLAG :CAN WE ACCESS THIS BANK? BEG WE :NO - GO TO BANK LOOP TERMINATION
5558	015360	005737 001417	001520		TST BMFLAG IS THIS BAD MEMORY (HORST FIRST) BEQ 45 NO - GO TO BANK LOOP TERMINATION
5530 5530	012366	005737 001014	001514		HIND MA TENT - LOUI OU BHINK LOUP (ENGLISH) LOU
2232	012374	004737	036366		CALL SETPAT ;SET HIGH PATTERN FOR CORRECT MEMORY -START OF PATTERN LOOP
2234 2235	012400	004737		2\$:	CALL SETMAR ;SET HIGH MARGINS (IF NO INHIBITED :START OF MARGIN LOOP
2236 2237	012404	004737	013334	3\$.	CALL MTEST :GO TEST CORRECT MEMORY :TERMINATION OF MARGIN LOOP
2238 2239 2240	015414	004737 100373	036556		CALL DECMAR ; NEXT LOWER MARGIN BPL 35 ; IF NOT DONE - LOOP ON THIS MARGIN • TERMINATION OF PATTERN LOOP
2241 2242 2243	015455 015416	005337 100366	001502	45 :	DEC PATTERN : IS THIS THE LAST PATTERN? BPL 25 :NO - LOOP ON THIS PATTERN :TERMINATION OF BANK LOOP
2244 2245 2246	012430	001346	036376	45:	CALL INCBNK :NEXT HIGHER BANK BNE 1\$:IF NOT DONE - LOOP ON THIS BANK FND OF LOOPS
2247 2248 2249	012436 012436	005137 001003	002140		COM WORST :IS THIS AN EVEN NUMBERED PASS? BNE SS :YES - SKIP :##NOTE## RECURSIVE CALL
2250 2251	01544A	004737 000207	012342		CALL BAWPAR ; CALL SELF RETURN
2252 2253 2254	012446 015426 015426 015426 015465	005737 001401 000207	001516	5 \$:	TST RLFLAG :HAVE WE BEEN RELOCATED? BEG 65 :NO - SKIP
2255	012426	004737	034720	6\$:	RETURN : YES - RETURN CALL RELOCATE : MOVE & MAP PROGRAM ON ERROR THEN SRETURN
(8) (5)	015464	103001 000207			BCC L116 RTS PC
(4) 2257	015466				L116:;;;;:
2257 2258 2259 2260	012466 012472 012476	004737 004737 000207	012342 035340		CALL BAWPAR :CALL SELF CALL UNRELOCATE :UNMOVE & UNMAP PROGRAM RETURN

350 0172

						D14										
MTEST M				28-FEB-78 09:20 PAGE 11												
CEMMAA.	Mai 2	4-FEB-78	11:01	BANKS H	ORST FIR	ST, PATTERNS REVE	RSE **RECURSIVE**									
	012500					COPATTERNS FORM	ARD, BANKS FORHARD ##RECUPSIVE ## /-									
3,				: ****** : *SUBTE	ST	PATTERNS FORWAR	D,BANKS FORWARD **RECURSIVE**									
, 3; , 3;	212500	005037	001503	*****	******	******	SET PATTERN TO D									
2265 2265 2265	J15200	005037			START	PATTERN OF PATTERN LOOP										
2266	012504	005037	001470	15:	CLR	BANK OF BANK LOOP	;SET BANK TO D									
5568	012510	004737 004737	036052 036334	25:	ČĀLL	EXBANK	EXAMINE BANK CORRECT MEMORY FOR THIS BANK?									
2269	012514	004737 001015	036334		CALL	BANKOK	;CORRECT MEMORY FOR THIS BANK" -NO - GO TO BANK LOOP TERMINATOR									
2271	015255	001015	001506		BNE TST	ACFLAG	NO - GO TO BANK LOOP TERMINATOR									
2273	012526	001412 005737	001514		BEQ TST	45 RRFLAG	NO - GO TO BANK LOOP TERMINATION RELOCATION REQUIRED?									
2274	012534	001007 005037			BNE	45 MARGIN	YES - GO TO BANK LOOP TERMINATION SET MARGIN TO D									
5524			001474		CLR :START (OF MARGIN LOOP										
7890-123754 7890-1237567890-123756 222777777777777888888889999999999999999	012542	004737	013334	3\$:	CALL	MTEST ATION OF MARGIN L	GO TEST CORRECT MEMORY									
2279	012546	004737	036415		CALL	INCMAR	; NEXT HIGHER MARGIN									
2280 2280	012552	001373			BNE	35 Ation of Rome Loc	;NEXT HIGHER MARGIN ;IF NOT DONE - LOOP ON THIS MAPGIN ;PEXT HIGHER BANK									
2282	012554	004737	036376	45:												
2284	012560	001353			BNE : TERMIN	25 ATION OF PATTERN	IF NOT DONE - LOOP ON THIS BANK LOOP									
2 785	012566	00473/ 001346	036352		CALL	INCRPT	:NEXT HIGHER PATTERN									
2287					BNE : END OF	1 \$ LOOPS TMFLAG	; OK - LOOP; ELSE CONTINUE									
2288 2289	012570	005137	001522		COM	TMFLAG	COMPLEMENT TYPE OF MEMORY IS THIS AN EVEN NUMBER PASS?									
2230	012574	001403			BEQ	5\$	YES - SKIP									
5535 5531	012576	004737	012500		CALL	** RECURSIVE CALL PAFBAF	:CALL SELF									
2293	012576 012604 012604	000207 005737			RETURN											
2295	015610	001401	001516	5\$:	TST BEQ	RLFLAG 6 5	HAVE WE BEEN RELOCATES?									
2296 2297	015615	000207 004737	034720	65:	RETURN	RELOCATE	YËS - RËTURN MOVE 3 MAP PROGRAM									
2297 2298	015650		034720	53 :	CALL ON. ERROF	R THEN SRETURN										
(8) (5)	015650	103001 000207					BOC L117 RTS PO									
(4)	015655	000001					L117:::::									
5300 5399	012624	004737	012500		CALL	** RECURSIVE CALL PAFBAF	CALL SELF									
2301 2302	015634 015630	004737	012500 0353+0		UHLL	UNRELOCATE	UNMOVE 3 UNMAP PROGRAM									
E33E	712037	000207			RETUPN											

CLR	CEMKAA.	MAI 2	4-FEB-78	11:01	PATTERN	IS FORWARD	,BANKS FORWARD	**RECURSIVE**
START OF BABNIC TO SET BANK THIS BANK TO SET BANK TO	(3)	C15e3e			*****	57 F	******	
15	2305	959310	005037	001502	, , , , , , ,	CLR F	PATTERN F PATTERN LOOP	SET PATTERN TO D
2344 012772 000207	2307	015645	005037	001470		CLR E	BANK LOOP	
2344 012772 000207	2311 2310 2311	012656	004737 004737 001020	036052 036334	2 \$:	CALL E	AZBANK BANKOK EXBANK	EXAMINE BANK CORRECT MEMORY FOR THIS BANK? NO - GO TO BANK LOOP TERMINATOR
2344 012772 000207	2312 2313	012660	005737 001415	001506		TST REQ	ACFLAG 4 5	;CAN WE ACCESS THIS BANK? :NO - GO TO BANK LOOP TERMINATION
2344 012772 000207	2314	012666	005737	001520		TST E	BMFLAG	IS THIS BAD MEMORY (WORST FIRST) NO - GO TO BANK LOOP TERMINATION
2344 012772 000207	2315	012674	005737	001514		TST F	RRFLAG	RELOCATION REQUIRED?
2344 012772 000207	2318	012702	005037	081474		CLR I	MARGIN	SET MARGIN TO D
2344 012772 000207	5350	012706	004737	013334		CALL	MIEST	GO TEST CORRECT MEMORY
2344 012772 000207	5353 5355 5351	012712 012716	004737 001373	036415		CALL DIE	incmar 3 5	IF NOT DONE - LOOP ON THIS MARGIN
2344 012772 000207	2325 2326 2327	012720 012724	004737 001350	036376	4\$:	CALL BNE TERMINA	INCBNK E S Tion of Pattern	NEXT HIGHER BANK IF NOT DONE - LOOP ON THIS BANK LOOP
2344 012772 000207	2328 2329 2330	012726 012732	004737 001343	036352		CALL BNE SEND OF I	INCRPT	:NEXT HIGHER PATTERN :OK - LOOP: ELSE CONTINUE
2344 012772 000207	5331	012734		001522		COM	TMFLAG	:COMPLEMENT TYPE OF MEMORY
2344 012772 000207	2333	012740	001403			BEU :	33	ITES - SKIP
2344 012772 000207	2335	012742	004737	015e3e		CALL F	PAFBAW	;CALL SELF
2344 012772 000207	2337 2338 2338	012750	005137	002140	5\$:	COM I	5 \$:YES - SKIP
2344 012772 000207	2340	012756	004737	015636		CALL	PAFBAW	;CALL SELF
(8) 013000 103001 5) 013002 000207 875 PC	2342	012770	001401			TST F	RLFLAG 7 \$:NO - SKIP
(8) 013000 103001 5: 013002 000207 	5345	012774	003207	034720	75:	CALL F	RELOCATE	MOVE & MAP PROGRAM
4) 013004 1120·····	(8)	013000	103001			UIT. ERRUR	INEN SKETURN	BOS FISD
:#*NOTE** RECURSIVE CALL 2348 013004 004737 012636 CALL PAFBAW :CALL SELF 2349 013010 004737 035340 CALL UNRELOCATE :UNMOVE & UNMAP PROGRAM	· 4)	013004	000267					L120:::::
235C 013C14 000207 RETURN	2347 2348 2349 2350	013004 013010 013014	004737 004737 000207			CALL F	PAFBAW	:CALL SELF

5ES 5174

JEMFAA.	MA: 2	4-FEB-78	11:51	PATTERN	S REVERSE, BANKS FORWAF	RD ##REJURSIVE##
2393	013154			*****	**************************************	EVERSE BANKS WORST FIRST ##RECURSIVE##/- ##################################
2394 2395	213154	004737	036366	• * * * * * * * * * * * * * * * * * * *	CALL HIPAT	SET HIGHTEST PATTERN
5396	013160	005037	001410	15:	CLR BANK	;SET BANK TO D
2396 2399 2399 2399 2440 2440 2440 2440 2440 2440 2440 24	013164 013170 013174 013176 013202 013204 013210 013216 013216 013220	004737 004737 001020	036052 036334	2 5 :	CALL BANKOK BNE 45	;SET HIGHTEST PATTERN OP :SET BANK TO U :EXAMINE BANK :CORRECT MEMORY FOR THIS BANK? :NO - GO TO BANK LOOP TERMINATOR :(AN ME ACCESS THIS BANK? :NO - GO TO BANK LOOP TERMINATION :IS THIS BAD MEMORY (MORST FIRST, :NO - GO TO BANK LOOP TERMINATION :RELOCATION REQUIRED? :YES - GO TO BANK LOOP TERMINATION :SET HIGH MARGINS (IF NOT INHIBITED) :GO TEST CORRECT MEMORY IN LOOP :NEXT LOMER MARGIN :IE NOT DONE - LOOP ON THIS MARGIN
2401 2401	013176	005737 001415	001506		TST ACFLAG BEQ 45	: CAN WE ACCESS THIS BANK? : NO - GO TO BANK LOOP TERMINATION
2403 2404	013210	005737 001412	001520		TST BMFLAG Beg 4 5	:IS THIS BAD MEMORY (WORST FIRST) :NO - GO TO BANK LOOP TERMINATION
2405 2406	013515	005737	001514		TST RRFLAG BNE 4 s	RELOCATION REQUIRED? YES - GO TO BANK LOOP TERMINATION
2407	013550	004737	336616		CALL SETMAR :START OF MARGIN LOOF	SET HIGH MARGINS (IF NOT INHIBITED
8045 8045 8145	PSSE10	004737	013334	35:	CALL MTEST :TERMINATION OF MARGE	:GO TEST CORRECT MEMORY IN LOOP
2411 2412 2413	013230 013234	004737 190373	001520 001514 036616 013334 036556 036376 001502		TERMINATION OF BONK	LOOP NOT BONE - LOOP SIX VILL
2414 2415 2416	013236	004737 001350	036376	45 :	CALL INCBNK BNE 25 -TERMINATION OF PATTE	:NEXT HIGHER BANK :IF NOT DONE - LOOP ON THIS BANK ERN LOOP :NEXT LOHER PATTERN :OK - LOOP; ELSE CONTINUE :COMPLEMENT TYPE OF MEMOR* :IS THIS AN EVEN NUMBER PASS* :YES - SKIP
2417 2418 2419	013244 013250	005337 100343	001502		DEC PATTERN BPL 18 FEND OF LOOPS	:NEXT LOWER PATTERN :OK - LOOP; ELSE CONTINUE
2420	013252	005137	001522		COM TMFLAG	COMPLEMENT TYPE OF MEMORY: IS THIS AN EVEN NUMBER PASS?
2422 2423	013256	001403			BEQ SS :##NOTE## RECURSIVE G	:YES - SKIP Call
2424 2425	013264	004737 000207	013154		CALL PARBAW RETURN	CALL SELF
24425 24425 24425 24427 24427 24428	013266	005137 001003	013154 002140 013154 001516	55:	COM WORST BNE 65 :##NOTE## RECURSIVE (:4TH PASS? :YES - SkIP
5430	013274 013300 013302	004737	013154		CALL PARBAW RETURN	CALL SELF
2431 2432 2433	013306	005737	001516	65 :	TST RLFLAG BEQ 7\$:HAVE WE BEEN RELIGHTEIT :NO - SKIP :YES - RETURN
2434 2435	013316 013315 013310	000207 004737	534720	75 .	RETURN CALL RELOCATE ON.ERROR THEN \$RETURN	: MOVE & MAP PROGRAM
85,	013316	103001 000267			OH. ERROR THEN SHETUR)
₩.	013322	JUGEU			:**NOTE** RECURSIVE O	_122:::::
2436 2437 2438 2438	013335 013335 013335	004737 004737 000207	013154 035340		CALL PARBAH CALL UNRELOCATE RETURN	CALL SELF :UNMC/E & UNMAP PROGRAM

SEG CL76

						114 1	
MTEST MO DEMKAA.M		4-EEBE	30A 10 52 11:31	28-FEI	8-78 09:20 PAG PATTERNS REVERS	E 12 E.BANKS HORST FIRST	**RECURSIVE**
2442 3 3	C13334				MTEST: SUBTST: +SUBTEST	COUR SETUP MEMOR	***************
2444 2444	013334 013340 013342 013346	013700 006300 010037	001474 177750		MOV ASL MOV SET	MARGIN,RO RO RO,MAINT HEADER	:SET MARGINS :INITIALIZE HEADER MESSAGE TYPEOUT
2447	013346 013354 013354 013362 013366 013372	012737 012737 005037 005737 001410	177777 177777 001734 001510	002146	MOV SET MOV CLR TST BEG	#-1, HEADER MUT #-1, MUT PASFLG MKFLAG 25	:INDICATE THERE IS A MEMOR UNCER TEST :MK117 :NO - SKIP
2453 2453 2455 2455 2455 2455 2455	013374 013400 013402 013406 013412 013414 013424 013424 013424 013432	005737 001002 004737 004737 000402 004737 005037	001704 013434 015774 016156 001500	OC2146	IF CON' TST BNE CALL CALL BR CALL BR CALL BR CALL BR CALL BR CALL FETUPN	TFLAG EQ #3 THEN CAL, CONTFLAG IS MKCONTROL MKTEST 3S MJTEST MUT HEADER #=1, HEADER	: 'ES - DO MV11 TESTS :DO MJ11 TESTS :NOW - NO MEMORY UNDER TEST :ALLOW HEADERS NORMAL

MTEST M CEMKAA.	odes Mai 2	MFUNI: 4-FEB-18	30A 1052	28-FE	B-78 SUBP	09:	20 SETL	PAGI JP M	EMORY	TEST	r									REG
2462	013434				MKCO	NTRO	DL:SL	JBTS	T ##### CI IDE	/ ***** 7	CSUBR	11 CON'	サチザギギ TROLL	FR I	OGIC	DISP	GIC DISP	****	, . 	••
54 6 3	213434	012706	001430		; ***	,,,,,	PUSH	1	BANK	(******	MOV	BANK 15F	
97 106 7 7 7 7 89 7 1 7 1 1 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	013434 013440 013446	013746 112737 112737	001470 000200 000001	001774			MOVE) }	#20L	SROUL	INDEX DEX	• •	: 3	SET E	BIT FO	R CO P CO	B21::::		-	
2466	013454	012737	000060	901776			FUR	CSRI	LUUP	:= •	U 10 W	•					820	MCV	*'0.05RLGC	=
2467	013465 013465		001374	001706			IF	B 0	SRIND	EX SE	ET.IN M	KOSPS					BEO.,.,	AITI	B CSRINCEY.	MI 1585
57)	013462	133737 001536 004737	001774	001706				2011		•	TEECON							BEG	LIS3	, , , , ,
5469	013472		014034	00000				FOR	SIDE	:= 1	D TO	# 1						MCV	•'C.SIDE	
(4)	013476 013504	012737	000060	002050				0	0 1.	•	INTURAS						821::::	:::	# J, J10L	
471-371-371-371-371-371-371-371-371-371-3	013504 013504 013510 013510	004737	014344					Š	EGIN	CSRST	TUFF						822::::			
2472	7:3510.	· 605037 ·	005005					Ç	LR OB BO	NNV -	SUCCESS	ONK DC	INTO	CCR	DONE		BEE	• • •		
. 4)	013514	013737	001770	001476				PI	UR BH	IIYK ;=	CSRLB	MITT. DU	MITIO	Canr	DHIW.		B23:;;;	von	CSPLBANW . B	A'Ir
(4) 2474 2475	013514 013514 013522 013522 013526	004737	036052						CALL	E E	NE #0	AND DE	DEL OC	. E0	- 0		BE3. ; , ,	• • •		
راجاي ا	013526	005737	001506						Ir H	ICP L MG	3 14E #U	HIJU KI	AF EMU	a Eu	40			TST	ACFLAG L124	
68	013532 013534 013540 013542	001466 005737 001063	001514															TST	RRFLAG L124	
2476	013542								MA	NP B	3ANK								R3 5P)	
	013542 013544 013550	010346 013703 004737	061470 034510				MOV		BANK	ES.								1101	,	
277	013554 013556 013560	012603	634316				CHLL	•										MOV	'SP +,P3	
2478	013560		002010						ĬF	SPEC	CIAL NE	#D THE	EN SC	CALL	SIDED	k .		TST	SPECIAL	
.DT	013560 013564 013566	905737 901402 904737																BEO	PC,SIDECK	
3 2479	013572	00 17 37	0130 (0						ON	I. NOER	ROR						L:25:;;	::::		
2480	013572 013574	103446										·= CSE	RFIRS	5* TO) #1.AS	T BY	CSRINC	BCS	L126	
) 33 × ×	013574	013737	001710	352070						, on ,	LJINDD	05.		, ,	, uzs		B24:;;:	MCV	CSRFIRST.T	ESTADD
5483	013605	004737	014130							CAL	L NOERROI	SBETES	5T				,,,			
2483	013606	103431 104424									ACHOFF							BCS	L127	
222 222 222 222	013616	005037	001464							C	LR OR I ::	NOPAR) #37	,	:IN	DICA	TE PARIT	Y AC1	NCIT	
1 7	013616	005037	995130							•	·		 -				825::::	CLR	I	
2486	213655										SET	HEADER	2					~ , •		

MIEST	ODES _	MACY11	30 <u>4</u> 1052	29-FE	8-78	09:20	PAGE 12-2	J14 TROLLER LOGIC DIST	57.7°U		·		3EG C178
CEMKAA.		4-FEB-78 012737	177777	002146	SUBR	MOV	B-1.H						16 9 9 1 1 9
2487	013630	005037	001734	C321				CLR PASFLG LET RO := I					
2489	013634	013700 004737	014666 002130					CALL CSRCASE END ; OF FOR I			MOV	I.PC	
T BOYD AND THE TOTAL AND THE TOTAL AND AND THE TOTAL AND	204404404406002222206000000000000000000	005237 023727 003761	005130	000037				END ; OF FOR I			INC CMP BLE E25:::::::	I I #37 B25	
2491	013660	104423						CACHON SET SUCCESS	•		223.,,,,,,		
(1)	013662	012737	177777	2002002		MOV	* -1,5l	UCCESS LEAVE CSRSTUFF	3				
(3)	013670	000415						END : OF ON . NOERRO	n e		BR	E22	
(3)	013672						£ +	ND :OF FOR TESTACE			L127::;;;;		
(5)	013672 013700 013706	063737 023727 003735	001772 002070	002070 157776			Ĺ	10 10 10 123 MD			BLE	CSRINC, TESTADD TESTADD, #LAST B24	
(5) 24 96	013710 013710						END	OF ON NOERROR			E24:::::::		
2497	013710 013710						END ;	OF IF			L126:;;;;;		
2498	013710	005333	0050				END : OF	FOR BANK			L124:::::DEC		
(5)	013714	005337 023737 002277	001470 001470	001766							CMP BGE E23:::::::	BANK . CSRFBANK B23	
2499	013724						END CSRS	STUFF			E22::::::		
2500	013724	005737	200200				IF SUCCE	ESS EQ #0			TST	SUCCESS L130	
2500 (4) 2502 2503 2503		001010 113737 113737	001776 002000	070204 070221			MOVB	CSRLOOP, MSGA34 SIDE, MSGB34		SETUP	CSR NUMBER SIDE (D OR 1		
ł ij	013746	104401	070150			TYPE	TYPE EITMSGD3	MSG034 34 					
25 <u>0</u> 4 25 <u>0</u> 5	013752						END : OF FO	IF SUCCESS			L130:;;;;:		
(5) (5)	013746 013752 013752 013752 013755 013756 013766 013766 013766 013766 013770 013770 013770 013770 013770	005237 023727 003647	002000	000061			END ; OF PC	OR SIDE			CMP	SIDE. #'1 BIDE. #'1	
(5) 2506	013766	0000 17				FN	ND :OF IFB	CSRINDEX			E21:;;;;;		
2507	0137 66 0137 66	000241					•				L123::::::		
(5) (5) (5) 2506 (3) 2507 2508 2509 2510	013770 013774 014000	106037 106337	001774 001775			AS	LC ORB CSRIND SLB CSROUD :OF FOR CS	DEX	: CHANGE : CHANGE	TO NEX	T CONTROLLER T CONTROLLER		
) , , , , , , , , , , , , , , , , , , ,	014000 014004 014012	005237 023727 903623	001776 001776	730000		2.10	, 5. , 511 01				CMP	CSRLCOP.#17 CSRLCOP.#17 B20	

K14

MTEST MODES MACY11 30A (1052 · 28-FEB-78 09:20 PAGE 12-3 CEMBAA.MA1 24-FEB-78 11:01 SUBR TEST MK11 CONTROLLER LOGIC DISPATCH

5EG 5:79

E20:;;;;;

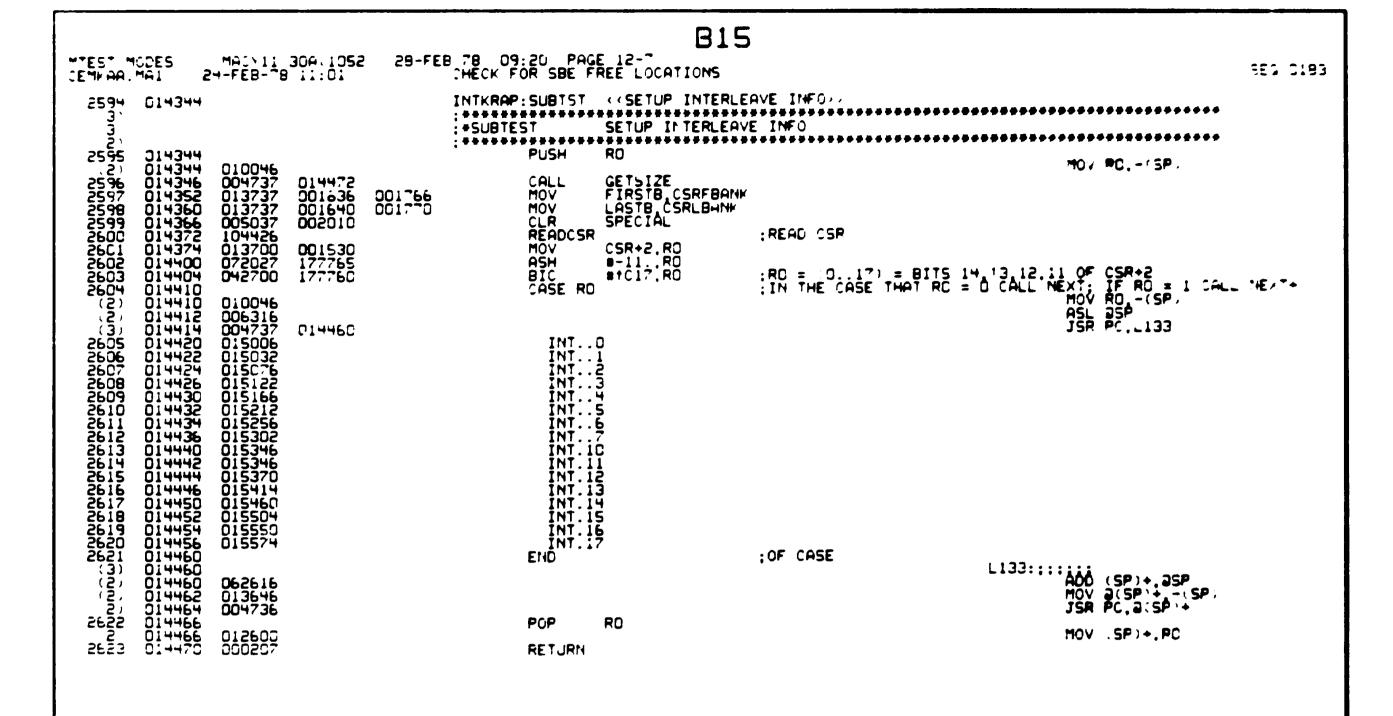
MOV (SP)+. BANK

(5) 014014 2511 014014 (1) 014014 012737 177777 001704 SET CONTFLAG 2512 014022 012637 001470 2513 014026 004737 036052 CALL EXBANK 2514 014032 000207 EXBANK

MTEST MODE	ES 24	MACY11 H-FEB-78	30A (1052 11:01	` 28-FE	B-78 09 SU BR	:20 PAGI TEST MK	L 1 L E 12-4 11 CONTROLLER L		SE3 C183
3` (3) 2)	14634	005000			ISECCON : ##### : #SUBTE : #####	ST ******* :SETUP (<pre><<is ***************="" ************************************<="" cn?="" ecc="" is="" on?="" td=""><td>********************************</td><td></td></is></pre>	********************************	
2520 01 2521 01 2522 01	14036 14042 14044 14046 14052	005000 113702 106002 103403 062700 000773	000004		15:	CLR MOVB RORB BCS ADD BR	RO CSRUUDEX.R2 R2 25 #4,RO 15	START A ZERO GET CSR INDEX #2 GET CSR BIT IN CARR(MA(BE) I GOT IT - SKIP BUMP CSR ADDRESS LSB'S B(+ LOOP TILL I FIND THE CSP JPDATE CSR NUMBER	
2524 01 2525 01 2526 01 2527 01 (4) 01	14054 14060 14062 14064 14064	010037 104503 104426	000005	00:326	25:	MOV CLRICSR READCSR	RD, CSRNO		
2528 01 (1) 01 2529 01 2530 01	14072 14074 14074 14100 14106 14106	001413 104401 113737 104401	071737 00177 6 067051	067051		TYPE TYPEIT MOVB TYPE TYPEIT	MSGD78 MSGD78 CSRLOOP, MSGD15 MSGD15 MSGD15 NOECCFLAG	BIT #BIT:.CSF BEG_LIZ! :WARNING! ECC IS DISABLED ON BOX	
2531 01	14112	012737	177777	002056		SET MOV ELSE	NOECCFLAG #-1,NOECCFLAG	BP _132 _131:;::::	
2532 01 (3) 01 2533 01 2534 01 2535 01	14120 14120 14122 14122 14122 14122	750200	002056			CLR END : OF RETURN	NOECCFLAG IF #BIT1	L132:::::	

```
MACY11 30A:1052; 28-FEB-78 09:20 PAGE 12-5
MTEST MODES
                                                                                                                                                             SEG CIBI
CEMKAA.MAI
                 24-FEB-78 11:01
                                                  IS ECC ON?
                                                  SBETEST: SUBTST (CHECK FOR SBE FREE LOCATIONS)
  2537
         014130
                                                                      CHECK FOR SBE FREE LOCATIONS
   (3)
                                                   +SUBTEST
                                                   *************************
  2538
2539
2540
(1)
                                                            .ENABL LSB
MOV TESTADD.R1
SUPERVISOR
BIS #BIT14,PSW
         014130
                  013701 002070
         014134
                    052737
                              940000 177776
                                                                                                     :DO IT TO IT!
  CACHOFF
          014142
                    104424
                                                            ECCIDIS
CLR
CLR
         014144
                    104471
         014146
014150
014154
                                                                       (R1)
                    005011
                                                                       2(R1)
                    005061
005711
                              200000
                                                             TST
                                                                       (R1)
                                                             BNE
                                                                       1$
2(R1)
         014156
                    001061
  2547
2548
2549
          014160
                    005761
                              200000
                                                                       ĪS
          014164
                    001056
                                                             BNE
  2550
         014166
                    104503
                                                            CLRICSR
         014170
014172
014176
                    005011
005061
005711
001050
  2551
2552
2553
2554
                                                            CLR
CLR
TST
                                                                       (RI)
                                                                       2(R1)
                              200000
                                                                       (RI)
                                                            BNE
         014200
                                                                       15
  2555
2555
2555
2555
2559
(5)
                    005761
                                                                       2(R1)
         014505
                                                             TST
                              200000
                                                            BNE
                                                                       īs
         014506
                                                                                            :TEST FOR ERRORS WITHOUT FETCHES
         014210
                    104510
                                                            TSTREAD
         014515
                                                             IF #BIT15!BIT4 SET. IN CSR THEN GOTO 15
                                                                                                                                    BIT #BIT15!BIT4.CSR
                    032737
001040
                              100020 001526
                                                                                                                                    BNE 15
  2560
                                                            ECCIDIS
  2561
         014222
  2562
2563
2564
2565
         014224
                    005111
                                                             COM
                                                                       (RI)
                   005161
023711
001031
023761
001025
         014226
                              000002
                                                             COM
                                                                       2(RI)
         014232
014236
014240
                                                             CMP
                                                                       ONES, (R1)
                              002154
  2566
                                                                       ONES, 2(R1)
                              002154
                                                             CMP
                                        000002
                                                             BNE
  2568
2569
2570
         014250
014252
                    104503
                                                             CLRICSR
                                                             CLR
                                                                       (R1)
  2571
2573
2573
2575
2576
2576
          014254
                    012761
                                                             MOV
                              100000
                                        000002
                                                                       #BIT15,2(R1)
          014565
                    005711
                                                             TST
                                                                       (RI)
                    001016
                                                            BNE
         014564
                                                                       15
         014266
                              100000
                                                                       #BIT15,2(R1)
                                        200000
                    001012
         014276
014300
                                                            TSTREAD : TEST FOR ERROR IF #BIT15!BIT4 SET.IN CSR THEN GOTO 15
                                                                                           :TEST FOR ERRORS WITHOUT FETCHES
                    104510
  2578
(5)
(5)
                    032737
001005
          014300
                                                                                                                                    BIT #BIT15!BIT4,CSR
                              100020 001526
          014306
                                                                                                                                    BNE 15
  2579
  2580
          014310
                    104417
                                                             KERNEL
  5283
5283
5283
                                                            ECCLINIT
CACHON
          014312
                    104473
          014314
                    104423
                                                            SRETURN NOERROR
          014316
          014316
                    145000
                                                                                                                                    CLC
```

	N14	
MTEST MODES MACY11 30A(1052) CEMKAA.MAI 24-FEB-78 11:01	28-FEB-78	SE3 0182
(2) 014320 000207		PTS PC
2584 2585 014322 104503 2586 014324 005011 2587 014326 005061 000002 2588 014332 104417 2589 014334 104473 2590 014336 104423 2591 014340 000261 (2) 014340 000267 2592	CLR (R1) CLR 2(R1) CLR 2(R1) KERNEL ECCIINIT CACHON SRETURN ERROR .DSABL LSB	SEC PTS PC



			200 1053	20 55	n 70 20 20 Boss	- 12 0	C15				
MTEST N CEMKAA.		7MC111 24-FEB-78	30A.1052 11:01		B-78 09:20 PAGE SETUP INTERLEAVE						
2625	014472				GETSIZE: SUBTST	< < SUBR	GET SIZE	FROM CS	R,,		
(3)					*SUBTEST	SUBR	GET SIZE	FROM CS	R		
2635 2635 2639 2639 2630	014472 014472	010046			PUSH	RO	AND LASTB		**********		MOV RO,-(SP)
2629 2630	014474 014502 014510	052737 042737	000006	001259 001259	BIS BIC SET	INTOVR	SR BIT1,0SR		GET SET TO: INTERLEAVE	READ CSR	READING
1 (1)	014510 014516 014520	012737 104425 005037	177777	545500	MOV LOADCSR CLR	#-1, INT					
2631 2632 2633 2634 2635 2636 2637 2639 2640 2641	014524 014526 014534 014540 014544	113700 042700	000010 001527 000206	001526	READCSR BIC MOVB BIC ASL	#BIT3,0 CSR+1,F #BIT7,F	SR RD RO		:RESTORE TH :GET SIZE :RO = # OF	IS FROM "SIZI BANKS	E" MODE
2638 2639 2640	014546	110037 013700	001640		MOVB	RO.LAST	TB RO BANK FOR E		INTERLEAVE		
(4) (6) (7)	014556 014562 014564 014570	032700 001402	010000								BIT #BIT12.RD BEQ L134 ASL LASTB
(3) 2642 (4) (6)	014570 014570	032700	020000		IF #BIT	3 SET.1	ישאד כק אן	LET LAS	STB := LASTB	L134::;: L.SHIFT 1	:::: BIT #BIT13,RG BEQ L135
(7)	014574 014576 014602	006337	001640							L135:;;	ASL LASTE
2644 2644	014602 014606	006300	177000		BIC ASL	#177000 RO	, RO				••••
2643 2644 2645 2646 2647 2649	014610 014628 014629 014610	063737	001636 001636 001636	001640	MÖV ADD DEC JE FIRST	RO FIRSTB, LASTB	LASTB	FT FIRST	B := #167		
1 6	014626	023727 101403	001636	000167	AT TANG	- 114 WA					CMP FIRSTB. #167 BLOS L136
(5)	014636 014644	012737	000167	001636	• • • • • • • • • • • • • • • • • • • •		9 Turki i	T LOCTO	. = M16 **	L136:;;	MOV #167.FIRSTE
2649	014644		001640	000167	IF LASTE	MI MIF	O IMEN LE	I LHSIB	:= #10		CMP LASTB. #167

POF

PETURN

RO

265C 014644 (6) 014654 (6) 014654 (73) 014654 (73) 014662 (73) 014662 (73) 014662 (73) 014662 (73) 014662 (74) 014662

023727 001640 000167 101403 012737 000167 001640

SES CLO

L137:;;;;

CMP LASTB. #167 BLOS L137 MOV #167, LASTB

MO/ SP)+.R3

CE'S 0185

```
MACY11 30A 1052 28-FEB-78 09:20 PAGE 13
MTEST MODES
                  24-FEB-78 11:01
                                                     SUBR
                                                                GET SIZE FROM CSR
CEMKAA. MAI
                                                     CSRCASE: SUBTST (CSR PATTERN CASE STATEMENT)
  5624 D14666
                                                      **SUBTEST CSR PATTERN CASE STATEMENT
    (3)
                                                      2655
(2)
(2)
         014666
014666
014670
                                                               CASE RO
                     006316
010046
                                                                                                                                           MCV RC. - (SP. ASL 35P
                                                                                                                                           JSR POLLINO
    (3) 014672 004737 014776
                                                                   :WARNING IF YOU CHANGE THIS TABLE ALSO :CHANGE "SDDWO" - "SDDWS" (THE PATTERN BIT MHP
  2658
2659
                                                                  ;PAT TIME
MT0006
MT0010
MT0025
MT0011
                                                                                               DISCRIPTION
INITIAL DATA TEST
BYTE ADDRESSING TEST
                     016760
017056
020442
017112
017170
017246
017320
017456
                                                                                     014676
014700
014702
014704
  5661
5660
                                                     MACSRT:
                                                                                                           INTERRUPT ENABLE TEST
  5663
5665
                                                                                                         CHEATE SINGLE BI ERROR TEST
WRITE BYTE CLEARS SBE TEST
CREATE DOUBLE BIT ERROR TEST
WRITE INHIBIT DUPING DATIP WITH CBE
WRITE INHIBIT OF BYTE WITH DRE
WRITE INHIBIT OF WORD WITH CBE
NULL TEST
NULL TEST
          014706
                                                                  MT0013
  2664
  5695
          014710
                                                                   MT0014
          014714
                                                                  W10018
  2668
  2669
          014720
                                                                  MT0999
                     021532
  2670
2671
2672
2673
                    021532
021532
021532
          014722
                                                                  MT0999
                                                                                                           NULL TES
          014724
                                                                  MT0999
MT0999
                                                                                                           NULL TEST
          014726
         014730
                     021532
                                                                  MT0999
                                                                                                           NULL TEST
  2674
2675
2676
2677
         014732
                     021532
                                                                  MT0999
                                                                                                           NULL TEST
                                                                                                           NULL TEST
                                                                  MT0999
                     021532
         014736
014740
                                                                  MTÖGGG
                                                                  MT0999
                                                                                                           NULL TEST
                     021532
021532
021532
                                                                                          SEC
SEC
SEC
  2678
2679
         014742
                                                                                                           NULL TEST
                                                                  MT0999
                                                                  MT0999
  2680
          014746
                                                                                                           NULL TEST
                                                                  MT0999
  5683
5685
5681
         014750
                     021532
                                                                                                           NULL TEST
                                                                  MT0999
                     021532
                                                                                          SEC
SEC
SEC
SEC
                                                                                                           NULL TEST
                                                                  MT0999
          014754
                                                                  MT0999
          014756
                                                                                                           NULL TEST
                                                                  MT0999
                     051235
051235
051235
          014760
                                                                                                           NULL TEST
  2685
                                                                  MT0999
  2686
2687
                                                                  MT0999
          014764
                                                                  MT0999
                                                                                          ŠĒČ
                                                                                                           NULL TEST
          014766
                     021532
                                                                                                          NULL TEST
NULL TEST
NULL TEST
NULL TEST
  5888
                                                                                          SEC
SEC
SEC
                                                                  MT0999
  2699
2699
                                                                  MT0999
                                                                                        Ŏ
          014772
                     021532
                                                                  MT0999
  2691
          014774
                     021532
                                                                  PPPOTM
                                                                                        Ŏ
                                                                                          SĒČ
          014776
014776
  2692
                                                               END : OF CASE RD
                                                                                                                               L140:::::::

#OD :SP:+.-SP

MOV D(SP:+.-SP

JSR PC.D:SF:+
     3,
                    062616
013646
004736
000207
          014776
          015000
   (8)
          015002
  2653
                                                               RETUR!
```

35	4	Ċ	•	24
	4	_	•	

modes 9.mai 24 5 Disco6	1-FEB-18	30A.1052 11:51	29-FE	TISK PÄT	:20 PAGE 13-1 TERN CASE STATEMENT SUBTST < <determine according="" addressing="" t<="" th=""><th>SEG TO INTERLEGIE /</th></determine>	SEG TO INTERLEGIE /
				: ****** : *SUBTE : *****	#####################################	INTERLEAVE LER OF THIS CSR
015006 015006	012737	3£0000	001710	INTO:	; NO INTERNAL INTERLEAVE. NO EXTERNAL INTER LET CSRFIRST := #FIRST SET SPECIAL	MOV #FIRST.OSPFIRST
015014 015022 015022 015022 015030	012737 012737 000207	177777	002010 001772		MOV #-1.SPECIAL LET CSRINC := #4 RETURN	MOV #4.CSRING
015032	013737	001636	001766	INT1:	:INTERNAL INTERLEAVE, NO EXTERNAL INTERLEA LET CSRFBANK := FIRSTB	VE MOV FIRSTB, CSPFBANK
015032 015040 015040 015046 015050	123727 001004	0005000	000060		IFB SIDE EQ **O LET CSRFIRST := *FIRST	CMPB SIDE, #*C BME L141
015050 015050 015056 015056 015060	012737 000403	060000	001710		ELSE	MOV #FIRST.CSRFIRST BR L142 L141::::::
015060 015060 015066	012737	060004	001710		LET CSRFIRST := #FIR5T+H END :OF IFB	MOV #FIRST+4.CSRFIRST
015066 015066	012737 000207	000010	061772		LET CSRINC := #10 RETURN	L142:::;;; MOV @10.C5RIN1
015074 015076 015076 015104	012737	060000	001710	INT2:	; NO INTERNAL INTERLEAVE. 2-1 EXTERNAL INTERLECT CORFIRST := #FIRST SET SPECIAL	RLEAVE (WITH EVEN DOUBLE WORDS SELECT MOV #FIRST.CSRFIRST
015104	012737 012737 000207	177777	002010 001772		MOV #-1.SPECIAL LET CSRINC := #10 RETURN	MOV #10.CSRINC
015122	013737	001636	001766	INT3:	; INTERNAL INTERLEMVE, 2-1 EXTERNAL INTERLEMENT CORFBANK := FIRSTB	AVE (WITH EVEN DOUBLE WORDS SELECTED?
015130	123727	002000	000060		IFB SIDE EQ #*0 LET CSRFIRST := #FIRST	CMPB SIDE. # 0 BNE L143
015140	012737	060000	001716		EEI COMPINOI :- #FIRO!	MCV #FIRST.OSRFIRST

MTES!	MODES A.MAI 8	MACY11 M-FEB-18	30A 1052	29-FE	B-78 D9 Determi	:20 PAGE 13-2 NE ADDRÉSSING ACCORDING TO INTERLEAVE	5E% C:87
27	015146 015146 0. 015150 0. 015150 0. 015150	000483				ELSE	B# L144 L143::::::
2	0 015150	012737	060010	001710		LET CSRFIPST := @FIRST+10	MOV #FIPST+10.05PFIFST
27	015156 015156 015156					ENC : OF IFB LET CSRINC := #20	L144:::::
27	3 015156 3 015156	012737	000020	301772		RETURN	MOV BZB.CSRINC
ממחק ב	34 35 6 015166				THT W.	; NO INTERNAL INTERLEAVE. 4-1 EXTERNAL INTERLEAVE LET CORFIRST := #FIRST	E #11H A03=0,A02=0;
2	6 015166 015166 7 015174	012737	060000	001710	141	SET SPECIAL	MOV #FIRST.CSRFIRST
2	015174	012737	177777	002013		MOV #-1.SPECIAL LET CSRINC := #20	
ע אייטריינייני	015202	012737 000207	000050	001772		RETURN	MOV #20,CSRINC
מנה ה הירו	10 11				•••	:INTERNAL INTERLEAVE 4-1 EXTERNAL INTERLEAVE (LET CSRFBANK := FIRSTB	HITH A03=0,A02=0)
		013737	001636	001766	IN15:		MOV FIRSTB, CSPFBANK
27	015226	123727 001004	002000	000060		IFB SIDE EQ *'O	CMPB SIDE. 8'0 BME L145
279	015230	012737	060000	001710		LET CSRFIRST := #FIRST	MOV_eFIRST.CSRFIRST
27 27 27 27 27 27	015236 015236 015240 015240 015246 015246 015246 015246	000403				ELSE	BR L146 L145:;;;;;
27	6 015240 015240	012737	060020	001710		LET CSRFIRST := #FIRST+20	MOV #FIRST+20.CSRFIRST
271	17 015246					END ; OF IFB	L146:;;;;;
27 27 27 27	18 015246 19 015254	012737 000207	000040	001772		LET CSRINC := #40 RETURN	MOV BHO.CSRING
275 275	0.5357					:NO INTERNAL INTERLEAVE 4-1 EXTERNAL INTERLEAV LET CSRFIRST := #FIRST+10	E 'WITH A03=1,A02=0)
27. 27.	015256	012737	060010	001710	IN15:		MOV #FIRST+10.CSRFIRST
275	3) 015256 3 015264 1) 015264 54 015272	012737	177777	005010		SET SPECIAL MOV #-1,SPECIAL LET CSRINC := #20	
27 27 27 27 27 27 27	015272 015272 5 015300	012737 000207	000020	901772		RETURN	MOV #20.CSRINC
279	57 58 015302				TNT 7.	:INTERNAL INTERLEAVE 4-1 EXTERNAL INTERLEAVE C LET CSRFBANK := FIRSTB	WITH AD3=1,AG2=D)
27	31 012306	013737	001636	001766	INT7:	IFB SIDE EQ #'D	MCV FIRSTB, CSRFBANE
2	015310 7. C15316	123727	002000	000060		110 JIDE EG T O	CMPB SIDE.#'0 BNE L147
279	50 015320 3. 015320	012737	060010	001710		LET CSPFIRST := #FIRST+10	MOV #FIRST+10.CSRF1R5T

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G	Τ	5

						G15	
MTEST M CEMKAA.	odes Mai a	MAC: 11 4-FEB-78	30A (10 52 11:01	28-FE	B-78 09 DETERMI	1:20 PAGE 13-3 THE ADDRESSING ACCORDING TO INTERLEAVE	3E3 C:88
2761	015336 015326 015326	EC+000				ELSE	80 L150 L147:::::
2,63 2,63 3,55	015330 015330 015336	012737	060030	001710		LET CSRFIRST := MFIRST+30 END :DF TER	MOV #FIRST+30,05PFIRST
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	015336 015336 015336 015344	75.210	323043	001772		LET CSRINC := #40 RETURN	MGV #MD, CSRINC
2222120 2222121 2432121 24321	D15346				INT.10:	:IMPOSSIBLE CONDITION :NO INTERNAL INTERLEAVE, NO EXTERNAL INTERLEAVE :FALL THRU TO INT. 11	WITH ODD DOUBLE WORDS SELECTED
שרום - יועוים די מינים מיני	C15346 C15346 C15352 C15354	005737 001005	002126		IMT.II:	:IMPOSSIBLE CONDITION :INTERNAL INTERLEAVE . NO EXTERNAL INTERLEAVE . WI IF FSINFLAG IS FALSE SET FSINFLAG	TH SDD DOUBLE HOPDS SELECTED? TST FSINFLAG BNE LISI
275 276 276 277 277	015354 015362 015366 015366 015366 015366	012737 104401 000621	77777 72437	302126		MOV #-1.FSINFLAG TYPE MSG097 TYPEIT MSG097 END;OF IF FSINFLAG GOTO INT1	L151:::::: BR INT1
277832 - 2 - 3756 277838 - 2 - 3756 222 - 2 - 2 - 2222	015370 015370 015376 015376 015404 015404 015412	012737 012737 012737 000207	060004 177777 900010	001710 002010 001772		:NO INTERNAL INTERLEAVE, 2-1 EXTERNAL INTERLEAVE LET CSRFIRST := #FIRST++ SET SPECIAL MOV #-1.SPECIAL LET CSRINC := #10 RETURN	MOV #10,CSPINC
2783 2783 2783 2783 2783 2783 2783 2783	######################################	013737 123727 001004 012737 000463	060004 005000 001636	001766 000060 001710	INT.13:	:INTERNAL INTERLEAVE, 2-1 EYTEPHAL INTERLEAVE WELT CSRFBANK := FIRSTB IFB SIDE EQ #*C LET CSRFIRST := #FIRST++ ELSE	ITH ODD DOUBLE WORDS SELECTED? MOV FIRSTB.CSRFBANA CMPB SIDE.**** BNE LISZ MOV #FIRST+4.CSRFIRST BR LISS
2791 (3) 2792 (3)	015450 015450 015450 015450	012737	060014	001710		LET CSRFIRST := #FIRST+1+ END :OF IFB LET CSRINC := #20	L152::;;;: MOV #FIRST+14.CSRFIRST L153:::::: MOV #20.JSRIMO
2793	015456	996267				RETURN	

MTEST M		MACYII 24-FEB-78	30A 1052 11:01	28-FE	B-78 09 DETERMI	1:20 PAGE 13-4 NE ADDRESSING ACCORDING TO INTERLEAVE	5E0 0:89
2795 2795 2795 2796 2799 27990 2890 2890 2890	015460 015460 015466 015466 015474 015502	012737 012737 012737 000207	060004 177777 000020	001710 002010 001772	INT.14:	:NO INTERNAL INTERLEAVE, 4-1 E-TERNAL INTERLEAVE HI LET CSRFIRST := #FIRST+4 SET SPECIAL MOV #-1.SPECIAL LET CSRINC := #20 RETURN	TH AC3=C.AC2=1: MOV mFIRST+4.CSRFIRST MOV m20.CSRINC
		013737 123727 001004 012737 000403 012737	001636 000000 060004 060024	001710	INT.15:	LET CSRFIRST := #FIRST+24 END :OF IFB LET CSRINC := #40	AD3=0.AD2=1: MOV FIRSTB.CSRFBAHW CMPB SIDE.B°C BNE L154 MOV BFIRST+4.CSRFIRST BR L155 :::::: MOV BFIRST+24.CSRFIRST :::::: MOV BHD.CSRINC
90:12 3: 7 - 1:67 8 8888 8 8 8 8688 8 8 8688	015546 015550 015550 015556 015564 015564 015572	000237 012737 012737 012737 000207	060014 177777 000020	001710 002010 001772		RETURN ;NO INTERNAL INTERLEAVE, H-1 EXTERNAL INTERLEAVE HI LET CSRFIRST := #FIRST+!H SET SPECIAL MOV #-1.SPECIAL LET CSRINC := #20 RETURN .INTERNAL INTERLEAVE H-1 EXTERNAL INTERLEAVE HITH	MOV B20,CSRING
	77722020222222222222222222222222222222	013737 123727 001004 012737 000463	060034 060034	001766 000060 001710	INT.17:	LET CSRFIRST := #FIRST+3+ FND :OF IFB	CMPB SIDE. #10 BNE L156 MOV #FIRST+14, CSRFIRST BR L157 ::::::: MOV #FIRST+34, CSRFIRST
2825	015630 015630 015630 015636	012737 005257	000040	001772		LET CSRINC := #40 RETURN	MOV #48.CSRINC

I15

MTEST MODES MACKLI 30AK1352 28-FEB-78 09:20 PAGE 13-5
JEMHAR.MAI 24-FEB-78 11:31 DETERMINE ADDRESSING ACCORDING TO INTERLEAVE

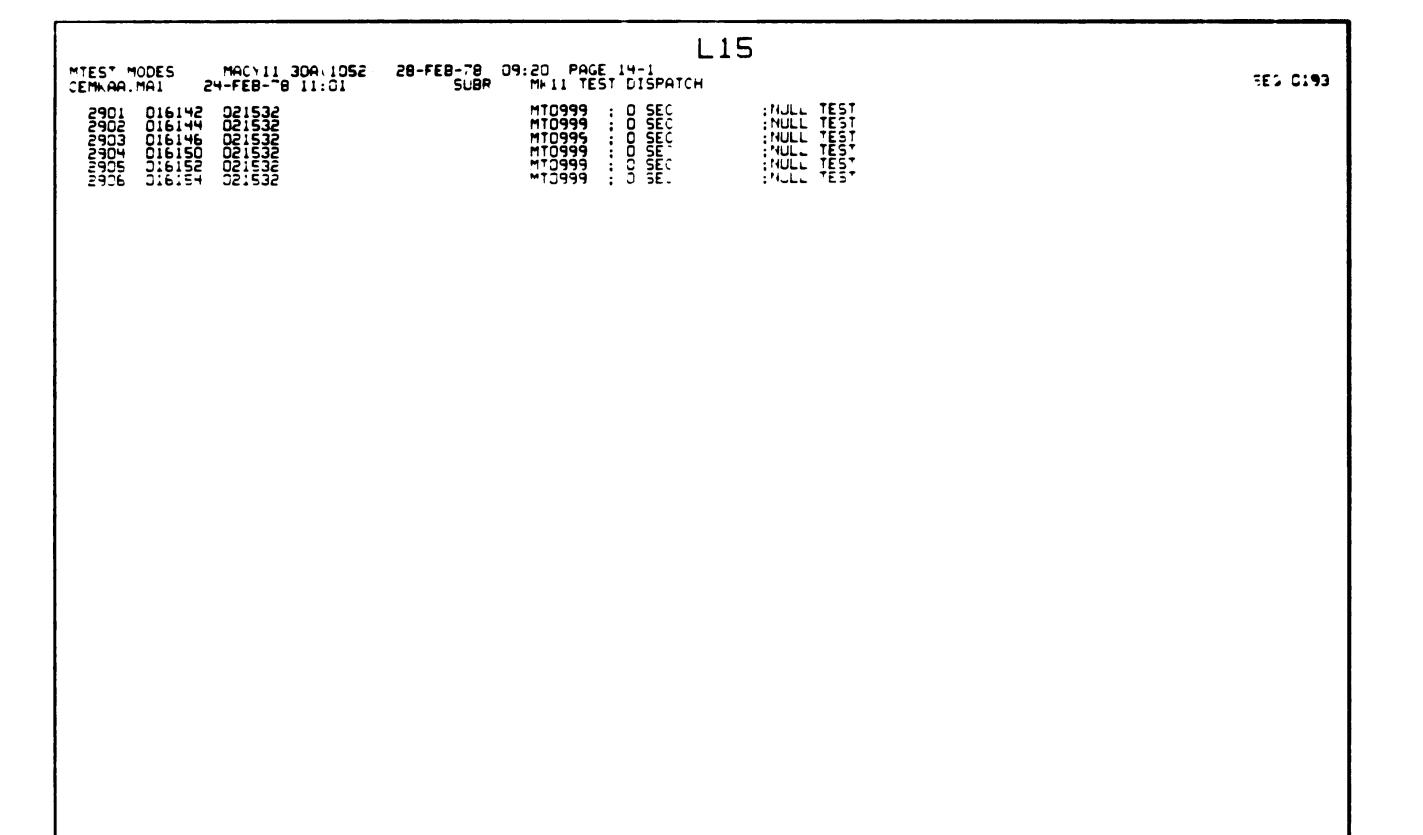
FE'S 0190

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SES Cia:

					J15
MTEST M CEMKAA.	odes Mai 2	MACYII 14-FEB-78	30A 1052 3 11:01	28-FE	B-78
2828 (3) (2) 2829 2830	015640				SIDEOK: SUBTST (DETERMINE IF BANK BELONGS TO CORRECT SIDE) : **********************************
2831 2833 2833 2834	015640 015644 015650 015652	005037 013702 104475	001762		CLR CHELK MOV CSRFIPST.R2 CBICSR SUPERVISOR
(1)	015652	052737 104424	040000	177776	BIS #BIT14,PSW ;DC IT TO IT! CACHOFF
2836 2837 2838 2839	015662 015666 015672 015674	012722 012712 104503 005712	000000		MOV #0,(R2)+ MOV #0,(R2) CLRICSR TST (R2)
2841 2841	015676 015700	104426 013701	001530		RĒADCSR MOV CSR+2,R1
(13567890 18337890 1833790 183370 183370 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 18337 1837 18	015704 015706 015712 015716 015720 015722	104471 013712 013742 104503 104417	9002006 002006		ELIMINATE DBE ECCIDIS MOV ZEROS, (R2) MOV ZEROS, -(R2) CLRICSR KERNEL CACHON
357668665 387668665	015724 015724 015730 015732 015740 015742 015744 015746	032701 001006 023727 001002 000241 000207	001000	300060	IF #BIT9 OFF.IN P1 AND SIDE EQ #*0 THEN \$RETURN NOERROR BIT #BIT9.R1 BNE L160 CMP SIDE, #*0 BNE L160 CLC RTS PC
2, , , , , , , , , , , , , , , , , , ,	015746 015746 015752 015754 015762 015764	032701 001406 023727 001002 000241	002000	000051	IF #BIT9 SET.IN RI AND SIDE EQ #'1 THEN \$RETURN NOERROR BIT #BIT9.RI BEG L161 CMP SIDE.#'I BNE L161 CLC
2853 2853	015766 015770 015770 015770 015770	000207			RTS PC L161::::: SRETURN ERROR SEC RTS PC

SEG G192



MT0999

2952

016310

NULL TEST

```
N15
              MACY11 30A(1052) 28-FEB-78 09:20 PAGE 15
PATTERNS
                                                                                                                    SEG 0195
                                     SUBR
                                             MJ11 TEST DISPATCH
             24-FEB-78 11:01
CEMKAA. MAI
                                             .TITLE PATTERNS
 2955
2956
                                     SBTTL MEMORY TE
                                                    MEMORY TEST SETUP ROUTINES
                                                                   SETUP DATA PATTERM TEST>>
 2957
       016315
                                     ***************
                                                    MTDDDD SETUP DATA PATTERN TEST
  (5)
                                     *SUBTEST
                                     SETUP PATTERN NUMBER FOR TYPEOUT & DISPLAY
              005037
012700
012701
 2958
2959
                                             CLR
                                                    REALPAT
                      001744
       016315
                                                    #FIRST RO
#SIZE R1
REGCOPY
       016355
                      065000
                                             MÖV
                                             MOV
                      00000
 2960
                                             CALL
       016356
              004737
                      C30764
 2961
                                                    MTPOOD
       016335
                                             BMOV
 2962
                                                JSR RS, BLOCK
  (1)
              004537
                      037305
              022102
                                                 MTPOOD
  (1)
       016336
                                                                           :DO IT IN SUPERVISOR MODE
       016340
                                             CALL
                                                    SUPD01
 2963
                      021546
                                             RETURN
 2964
       016344
              900207
                                                                   SETUP ADDRESS TEST>>
 2965
                                     MTDOD1: SUBTST
                                                    <<mT0001
       016346
                                      (3)
 (3)
(2)
2966
2967
                                      *SUBTEST
                                                    MT0001 SETUP ADDRESS TEST
                                                  <del>፟</del>
                                      ********
              012737
012700
012701
005002
                                                                           :SETUP PATTERN NUMBER FOR TYPEOUT & DISPLAY
                                                    #1 REALPAT
#FIRST RO
#SIZE,R1
       016346
                      000001 001744
                                             MOV
       016354
                                             MOV
                      060000
 5968
                      040000
                                             MOV
 2969
2970
2971
       016364
                                             CLR
       016366
                                                    REGCOPY
              004737
                      030764
                                             CALL
                                                    MTP001
                                             BMOV
  (1)
              004537
                                                JSR R5, BLOCK1
       016372
                      037306
              022126
004737
  (1)
       016376
                                                 MTPOOI
 2972
2973
                                                    SUPDOL
                                                                           :DO IT IN SUPERVISOR MODE
                      021546
                                             CALL
       016400
       016404
              000207
                                             RETURN
                                                                  SETUP COMPLEMENT ADDRESS TEST>>
                                     MT0002: SUBTST <<MT0002
 2974
       016406
                                      (3)
                                                    MTODO2 SETUP COMPLEMENT ADDRESS TEST
  (3)
                                      *SUBTEST
                                      (2)
2975
                                                    #2,REALPAT
#LAST+2,RO
#SIZE,R1
#100001,R2
              012737
012700
                                                                           :SETUP PATTERN NUMBER FOR TYPEOUT & DISPLAY
       016406
                      200000
                              001744
                                             VOM
 2976
       016414
                      160000
                                             MOV
              012701
012702
004737
 2977
       016450
                      040000
                                             MOV
 2978
       016424
                      100001
                                             VCM
 2979
       016430
                      030764
                                             CALL
                                                    REGCOPY
                                                    MTP002
 2980
       016434
                                             BMOV
              004537
022160
004737
  (1)
(1)
                                                JSR RS, BLOCKI
MTP002
       016434
                      037306
       016440
 2981
                                                    SUPD01
       D16445
                      021546
                                             CALL
```

RETURN

016446

003207

2982

```
B16
PATTERNS MA - 11 30A 1052 28-FEB-78 09:20 PAGE 15 1
DEMNAA MA: 24-FEB-78 11:01 MT0002 SETUP COMPLEMENT ADDRESS TEST
PATTERNS
                                                                                                                                                                                                                                                    F , ....
                                                                                                                                      SETUP 3 YOP 9 WORST CASE NOISE TEST
                                                                              MTDDD3: SUBTST << MTDDD3
    2984 516453
                                                                               MTDDD3 SETUP 3 XOR 9 HORST CASE NOISE TEST
                                                                               *SUBTEST
                                                                              000003 0C1744
030774
                            012737
005037
004737
                                                                                                            #3 REALPAT
                                                                                MOV
    2985
             216450
                                                                                              CLR
    2986
2987
               016456
                                                                                                             FLIFHARN
                                                                              15:
                                                                                              CALL
               016465
                                                                                                 TR ROUNT ROU
                                                                                                              #FIRST.R1
                               012701
                                               200000
                                                                                              MOV
    2988
               016466
               016472
                                                                                              CLR
                               005000
    2989
                                                                                               SÜB
               016474
    2990
                                160001
                               012703
072327
012702
012705
               016476
                                              02000C
    2991
                                                                                               MÖV
                                                                                                                                                             R3 (-- R3 / 256.
SMALL LOOP SIZE
    2992
                                                                                              ASH
                                               P00000
                                                                                              MÖV
    2993
               016506
                                                                                                                                                             MEDIUM LOOP SIZE
                                                                                              MOV
    2994
               016512
                                               000160
    2995
                                                                                              BMOV
               016516
                               004537
     (1)
               016516
                               000051
               016525
       1 .
                                                                                                     UDPDR7
                               177636
                016524
                               022212
               016230
                                                                                                     MTPA03
   2996
2997
2998
                                                                                              SAVREG
                                                                                              MOV
                                              177636
                                                                                                              #FASTCITY-2, SUPDCACD
                               012737
               016532
                                                              001732
                               004737
                                                                                                              SUPD03
               016540
                                                                                              CALL
               016544
    2999
                                                                                              BMOV
                                                                                                             MTPB03
                                                                                                  JSR RS, BLOCKI
                               004537
                                               037306
               016544
       1)
                                                                                                     MTPBO3
V MTPCO3,KDPARC,8.
                               022254
               016550
    3000
               01655S
                                                                                              BMOV
                                                                                                      JSR RS, BLOCK3
                                              037342
               016552
                               004537
        1
                                                                                                     8.
KDPARO
                               0000010
               016556
                               172360
     (1)
               016560
                                                                                             MTPCO3
BMOV MTPDO3, SDPARD, 8.
JSR R5, BLOCK3
               016565
    3001
               016564
               016564
                               004537
                                              037342
       1)
     (Ĩ)
                               000010
               016570
                               172260
                                                                                                      SCPARO
               016572
      (1)
               016574
                                                                                                     MTPD03
                                                                                              RESREG
    3002
               016576
                               104416
                               004737
                                              051265
                                                                                                             SUPD02
    3003
               016600
                                                                                              CALL
                                                                                                                                                         :DONE WITH + PATTERNS
: [(0.177777 : (177777,0): (+01,177777 : 177777,+0
:NO - LOOP
                                                                                                             #3.FLIPLOC
    3004
               016604
                                               000003 005160
    3005
    3006
3007
                                                                                              BNE
RETURN
                               001323
                016615
               016614
    3009
                                                                              MT0004: SUBTST << MT0004
                                                                                                                                          SETUP ROTATING ZEROS TEST
               C16616
                                                                              (3)
                                                                               *SUBTEST
                                                                                                             MT0004 SETUP ROTATING ZEROS TEST
                                                                                                             #4.REALPAT ;SETUP PATTERN NUMBER FOR TYPEOUT & DISPLA ONES, R2

BACKGND ;WRITE BACKGROUND OF ONES
                                                                               ******************
              016616 012737
016624 012737
016632 013702
                                              000004
                                                              001744
                                                                                              MOV
                                              0000004
                                                              001764
                                                                                              MOV
    3012
3013
3014
                                                                                              MOV
                               004737
                                                                                              CALL
               016636
                                               031124
                                                                                                             #FIRST RO
#SIZE, RI
               016642
                                               060000
                                                                                              MOV
    3015
               016646
                               012701
                                               040000
                                                                                              MOV
    301E
               016652
                                                                                                             MTPA04
                                                                                               JSR RS.BLOCKI
               016625
                                              037306
                               004537
      316656
                                022354
                                                                                                     MTPAGH
                                                                                              BMCV MTPBO4. KDPARO.8.
```

			
		D16	
	·i. 30A 1052 29-F 3-78 ii:01	FEB-78 09:20 PAGE 16 TEST TEST	F5 0198
3049 C17056	T B IIIUI	MT0010: SUBTST < <mt0010 addressing="" byte="" setup="" td="" test<=""><td></td></mt0010>	
3		; *************************************	İ
3		+SUBTEST MT0010 SETUP BYTE ADDRESSING TEST	
3050 017056 0127 3051 017064 0127	737 000010 001744 737 000004 001764	MOV BID REALPAT :SETUP PATTERN NUMBER FOR TYPESUT & DISPLAY H MOV BY POBUMP :TRAPS ADD Y TO PS	I
3052 017072 0137 3053 017076 0127 3054 017104 0047	704 002070	MOV TESTADD,RY 2 MOV #MTPO10.SUPDOADD	
3055 017110 0002	/ 3 7	RETURN	
3056 017112		MTDD11: SUBTST (<mtdd11 bit="" create="" error="" setup="" single="" td="" test)<=""><td> </td></mtdd11>	
(3)		-SUBTEST MT0011 SETUP CREATE SINGLE BIT ERPOR TEST	
3057 017112 4\ 017112 0057	7 3 7 002055	IF NOECCFLAG NE #0 THEN SRETURN TST NOECCFLAG	
\6 017116 0014	101 107	TST NOECCFLAG BEQ LIES RTS PC	•
3) 017122 3058 017122	u,	IF ACTFLAG NE #D OR APTFLAG NE #3	1
5, C17122 0057	737 002020	TST ACTFLAG	
3) 017122 3058 017122 5) 017122 0057 5) 017126 0010 6) 017130 0057 8) 017134 0014	137 002022	BNÉ LIGG TST APTFLAG BEO LIGZ	
(8) 017134 0014 (4) 017136 3059 017136	04	BEG L167 L166:;;;;;	
3059 017136 4 017136 0057 (6, 017142 0014	737 060172	IF SERS NE WO THEN SPETURN	
(6) 017142 0014 (4) 017144 0502	107 207	BEG LITO	
(3) 017146 3060 017146		END :OF IF ACTFLAG	
(4) 017144 0502 (3) 017146 3060 017146 3) 017146 3061 017146 0127 3062 017154 0127 3063 017162 0047 3064 017166 0002 3065 017170	737 000011 001744	MOV #11.REALPAT :SETUP PATTERN NUMBER FOR TYPECUT & DISPLATED NOV #MTPO11,SUPDOADD	ļ
3062 017154 0127 3063 017162 0047	737 021724	CALL SUPDO3 :DO IT IN SUPERVISOR MODE	
3064 017166 0002 3065 017170	07	RETURN MTDD12: SUBTST < <mtdd12 byte="" clears="" sbe="" setup="" td="" test<="" write=""><td>;</td></mtdd12>	;
3,		**SUBTEST MT0012 SETUP WRITE BYTE CLEARS SBE TEST	
3066 017170		: FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF	
(† 017170 0057 6) 017174 0014	101	TST NOECCFLAG BEG L171	
4) 017176 0002 3) 017200 3067 017200	07	RTS PC	
1 5, 917200 DD57	737 002020	IF ACTFLAG NE #0 OR APTFLAG NE #0 TST ACTFLAG	
5) 017204 0010 6, 017206 0057 8) 017212 0014	'37	BNE 172 Totalian de la companya de la companya de la companya de la companya de la companya de la companya de la compa	
6, 017206 0057 8) 017212 0014 4) 017214	04	BEG L173	
3068 017214 3068 017214 307214 0057		IF SPASS NE WO THEN SRETURN TST SPASS	
	01 :07	BEQ L17→ The state of the stat	ļ
3) 517224		—i [™] i::::ii	ļ

						Eli	Ь				
PATTERN CEMKAA.	s Mai <i>E</i>	MACY11 24-FEB-78	30A.1052 3 11:01	28-FE	B-78 09:20 PAC MYDD12 SETUP	GE 16-1 HRITE BYTE CLEAR	RS SBE TEST				5E3 C199
3069 	017224 017224 017224 017232 017240 017244 017246	012737 012737 004737 000267	000012 023472 021724	00:744 00:732	END : OF MOV CALL RETURN MIDDI3: SUBIST SUBTEST	F IF ACTFLAG #12.REALPAT #MTP012.SUPDOF SUPDO3 <th>GDC SETUP CRE</th> <th>SETUP PATTERN DO IT IN SUPER ATE DOUBLE BIT</th> <th>VISOR MODE</th> <th>rPEOUT & LISPLA</th> <th>•</th>	GDC SETUP CRE	SETUP PATTERN DO IT IN SUPER ATE DOUBLE BIT	VISOR MODE	rPEOUT & LISPLA	•
30 30 30 30 30 30 30	017246 017246 017252 .7254 017260 017262 017262	005737 001003 005737 001404	002022		:#####################################	FLAG NE #0 OR AF	TFLAG NE #0	*********	TST BNE TST	ACTFLAG L175 APTFLAG L176	
(4) (4) (3) 3027	017262 017266 017270 017272 017272	005737 001401 000207	060172			F IF ACTFLAG			BEG RTS L177:;;;;;	SPASS L177 PC (PEOUT & DISPLA	
3089 3089 3089 3089 3089 3089 3089	017272 017300 017306 017316 017320 017322	012737 012737 012737 004737 000207	000013 024050 000003 021724	001744 001732 001464	MOV MOV MOV CALL RETURN MTD014: SUBTST :###################################	#13.REALPAT #MTPD13.SUPDOA #3.NOPAR SUPDO3 <td>NDD SETUP WRI</td> <td>SETUP PATTERN INDICATE PARIT DO IT IN SUPER TE INHIBIT DUR ####################################</td> <td>Y ACRION VISOR MODE</td> <td></td> <td>ſ</td>	NDD SETUP WRI	SETUP PATTERN INDICATE PARIT DO IT IN SUPER TE INHIBIT DUR ####################################	Y ACRION VISOR MODE		ſ
30 (3) 5	017322 017322 017326 017330 017332 017332	005737 001401 000207	002056		IF NOES		N SRETURN	*****	**************************************	NGECCFLAG L200 PC	
3 5 5 5 6 6 7 8 6 8 7 8 8 7 8 8 7 8 8 7 8 8 7 8 8 8 8	017332 017336 017340 017344	005737 001003 005737 001404	250500			PASS NE BO THEN			BNE	ACTFLAG L201 APTFLAG L202	
(6) (4) (3) 3087	017346 017346 017352 017354 017356 017356	005737 001401 000207	060172			F IF ACTFLAG			BE3 RTS L203:;;;;		
30 89 30 99 3090 3091	017356 017364 017372 017376	012737 012737 004737 003237	000014 024422 021724	001744 001732	MOV MGV CALL RETURN	#14.REALPAT #MTPD14.SUPDOA SUPDO3	IDD I	SETUP PATTERN DO IT IN SUPER		PEOUT & DISPLA	•

DOTTERN	-	MACKEL	200 1052	20_55	EB-78 09:20 PAGE 16-2	
PATTERNI CEMKAA.!		4-FEB-18	30A.1052 11:31	25-76	MTODIA SETUP MAITE INHIBIT DURING DATIP WITH DBE	E2 0800
3093 (3)	017400				MTDG15: SUBTST (<mtdd15 :-subtest="" byte="" dbe="" dbe<="" hith="" inhibit="" mtdd15="" of="" setup="" td="" write=""><td></td></mtdd15>	
3094 4, .61 3)	317400 317403 017404 017406 017410	005737 001401 000207	002056		IF NOECCFLAG NE #0 THEN SRETURN TST NGECCFLAG BEG LZCH RTS PC LZGH::::::	
3095; 55, 56)	017410 017410 017414 017416 017422	005737 001003 005737 001404	005055		IF ACTFLAG NE #0 OR APTFLAG NE #0 TST ACTFLAG BNE L205 TST APTFLAG BEG L206	
3096 (4) (6)	017424 017424 017424 017430	505737 001401 000207	060172		L235:;;;; IF \$PASS NE #D THEN \$RETURN TST \$PASS BEG L207 RTS PC	
3) 3097 3098 30000 31100 31100 31100	017432 017434 017434 017434 017434 017434	012737 012737	000015	001744 001732	END ; OF IF ACTFLAG MOV #15 REALPAT ;SETUP PATTERN NUMBER FOR TYPESUT & SISPLAMOV #MTPDIS, SUPDOADD	
	017450 017454 017456	004737 00G207	021724		CALL SUPDO3 ;DO IT IN SUPERVISOR MODE RETURN MT0016: SUBTST < <mt0016 :************************************<="" dbe="" inhibit="" of="" setup="" td="" with="" word="" write=""><td></td></mt0016>	
′±; ′€ (4)	017456 017456 017462 017464 017466	005737 001401 000207	002056		IF NOECCFLAG NE #0 THEN SRETURN TST NOECCFLAG BEG L210 RTS PC L210:::::	
31,5568	017466 017466 017472 017474 017500	005737 001003 005737 001404	005055		IF ACTFLAG NE #0 OP APTFLAG NE #3 TST ACTFLAG BNE L311 TST APTFLAG BEG L212	
3105	017502 017502 017502 017506 017510	005737 001401 000207	060172		L211::;:;: IF \$PASS NE #0 THEN \$PETURN TST \$PASS BEQ L213 RTS PC L213:;;;;:	
31.009	017510 017512 017512 017512 017512 017520 017526	G12737 G12737 GC4737	000016 025404 021724	001744 001732	END ; OF IF ACTFLAG MOV #16 REALPAT ;SETUP PATTERN NUMBER FOR T PEDUT & DISPLACE MOV #MTPD16, SUPDGADD ;DC IT IN SUPERVISOR MODE CALL SUPDG3 ;DC IT IN SUPERVISOR MODE	
	017520 017526 017532 017534	000207			RETURN MTOD17: SUBTST (<mtod17 &="" 0's="" 1's="" holding="" setup=""> ***********************************</mtod17>	

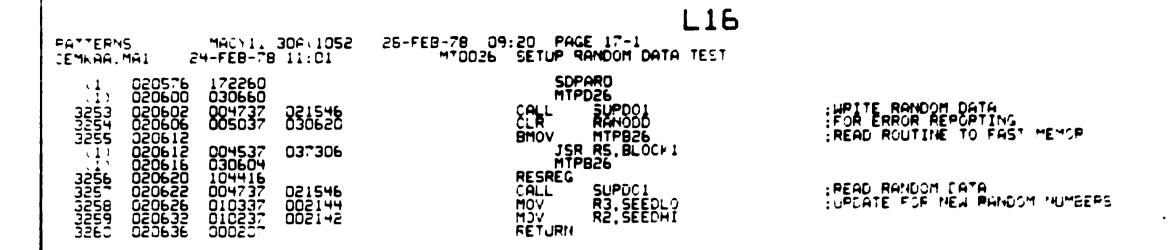
: VARIABLE FOR PAT 20

H16										
PATTERN JEMKAA.	s Mai 2	MACN11 4-FEB-78	30A 10 5 2	23-FE	8-7 8 09	:20 PAGE 16-4 SETUP MARCHING D'S 8 1'S IN CHECKBITS TEST	SES DESE			
3142		013700	001710		MTOZOZ:	MOV RG.R1				
3144 3145	017734	013702 005003	001772			MOV CSRINC,F2 CLR R3				
TTTTTTTTT	0177 36	012704 012705 104503	1 POCOO 100000			MOV BBITIS RY MOV BLAST+2.RS CLRICSR				
3,44	017746 017750 017750 017754 017754	026064	037306			BHOV MTP20A JSR R5.BLOCK1 MTP20A	į			
3150	017756	004737	021546			CALL SUPCOI TE ACULT CET IN DOME OR CUE AC IC TRUE				
3150	017762 017762 017770	032777 001003	904000	162310		BIT SELLING BEAR ON STREET IS THE BEAR LESS IN STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS TO STREET IS				
9:	017770 017772 017776	005737	005016							
3152 3153 3153	020000 020000					GOTO MTCZOY				
2) 31 53	050005 050000	000434				GOTO MTC207 END : OF IF #SH11				
3154	050005	60.1537	007201			BMOV MTP20B				
1)	020002 020006 020010	026105	037306			JSR RS, BLOCK 1 MTP20B				
3156	020014	004737	000001	163151		CALL SUPDO2 IF #SHO SET.IN JSHR OP ACTFLAG IS TRUE				
មារ ស្រុ	020014 020022 020024 020030	001003 005737 001402	005050	162156		BIT BSWO. JSWP BNE L223 TST ACTFLAG BEG L224				
3157 3158	020032 020032 020034	104477				L223:;;;;;;				
7)	C20034	103463				ON.ERROR THEN GOTO MTOZC/ BCS MTOZO/				
3159 (3) 3160	05003 e 05003 e					END : OF IF #SHD				
1 .	020036 020036 020042	004537 026134	037306			BMOV MTP2OC JSR RS.BLOCKI MTF2OC				
31 62	020042 020044 020050	004737	051265			CALL SUPDOZ TE MSWO SET IN DSWR OR ACTERAS IS TRUE				
u)579	050020 050020	032777 001003 005737 001462	000001	152123		BIT SUD, DSWR BINE LZZS TST ACTFLAG BEG LZZ6				
-	930056	104477				L225:::::				
3164	020066 020066 020070 020070 020072 020072 020072 020076 020076	103445				WASISBE ON.ERROR THEN GOTO MIDZOX BCS MIDZOX				
3,65	020072 020072	200				END ; OF IF #5W0 L226::::::				
3,65 3,65 3,65 3,67	020072 020076	013701	901710		MT0201:	MOV CSRFIRST.P1				
,	02007E 020102	026166 026166	037306			BMOV MTP2OO JANUARIA SANA SANA SANA SANA SANA SANA SANA SA				
3:68	CSC104	554737	C5:265			CALL SUPDO2				

		· · · · ·					
PATTER	·s_	MACN1:	30 <u>4 1</u> 052	28-FE9-78	09:20 PAGE 16-5		*FC #303
JEMHAA.	MA: C	4-FEB-78	11:01	MTQQ			EE0 0503
3 6 6 7 C	020110 020110 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 0201020 020100 020100 020100 020100 020100 020100 020100 020100 020100 020100 020100 020100 020100 020100 020100 020100 020100 020100 020100 020	032777 001003 005737 001402	00505C 0000C1	162062	IF #SHO SET.IN BSHR OF ACTFLAG IS TRUE WAS1SBE	BI: #SHQ. as## ENE L227 TST ACTFLAG BEG L230 L227:::::	
3:70	020130	103425			ONLERROR THEN GOTO MTD20X	BCS M*020/	
3172 3173 3173	020132 020132 020132		037306		END ; OF IF WSWG BMOV MTP2DE JSR R5, BLOCKI	F53C:::::	
3174 3175	020136	004537 026220 004737			MT°20E		
55r a	020154 020152 020152 020162 020162 020162	032777 001003 005737 001402	002020	162026	CALL SUPDO2 IF ≉SHD SET.IN ƏSHR OR ACTFLAG IS *PJE	BIT #5MD, JSHR ENE L231 TST ACTE_AG BEG _232	
3176 3177	050165	104477			HAS158E	L231::::::	
3178 3178 3179	020164 020166 020166 020166	103467			ON.ERROR THEN GOTO MTD207 END ;OF IF #SWD BMOV MTP20F	acs mtozox Lega::::::	
31190 3180 3180 3180 3180 3180 3180 3180 318	020166 020172 020174 020200 020202	004537 026252 004737 104503 000207	037306 021562		JSR RE BLOCK1 MTP2OF CALL SUPDO2 CLRICSR RETURN		
3184	350510 050504	004737 702000	02:740	מבכדיי	DX: CALL SUPDO4 RETURN		

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PATTERN JEMKAA.		MACYII EH-FEB-TE	30A.1952 8 11:01	? 28-FE	EB-78 09:20 PAGE 16-6 MT0020 SETUP MARCHING 0'S & 1'S IN CHECKBITS TEST	5EG 0204
3187	020212				MTOD21: SUBTST (<mtod21 &="" +subtest="" 1's="" c's="" marching="" mtod21="" o's="" setup="" td="" test="" test)="" test<=""><td></td></mtod21>	
3199 3190 3191 3192 3193 3194 3195 3196 3197 (1)	20212 202020 202020 202020 202020 202020 202020 202020 202020 202020 202020 202020	012737 012737 013702 004737 010203 000303 012701 010105 012704 004537 026724 004737	177777 000021 002174 031124 160000 060000 037306 021546	002124	SET NOSCOPE Mov ==1.noscope	
3198 3199 3200 (1) (1) 3201	020266 020266 020272 020274	004537 026754 004737	037306 021562		BMOV MTPB21 JSR R5,BLOCK: MTPB21 CALL SUPDO2	
3202 3203 3204 (1) (1) (2) 3205 3206	050310 050309 050305 050305 050300	010401 004537 027010 004737	037306 021562		MOV R4.R1 BMOV MTPC21 JSR R5.BLOCK1 MTPC21 CALL SUPDO2	
3207 (1) (1) 3208 3209 3210 3211 3212	020314 02030 02030 020302 020302 020332	004537 027044 004737 005037 000207	037306 021562 002124		BMOV MTPD21 JSR R5,BLOC+1 MTPD21 CALL SUPDO2 CLR NOSCOPE RETURN	
3212	020334				MT0022: SUBTST < <mt0022 refresh="" setup="" test="">> :*SUBTEST MT0022 SETUP REFRESH TEST</mt0022>	
3213 3214 3215 3216 3217	020334 020342 020350 020354 020356	012737 012737 004737 000207	000022 027074 021724	001744 001732	CALL SUPDO3 ;DO IT IN SUPERVISOR MODE RETURN	
30000000000000000000000000000000000000	020356 020356 020364 020370 020376 020376	012737 012704 012737 004737 004737	000023 060000 027542 021724	001744 001732	MT0023: SUBTST (<mt0023 #23.realpat="" #first.r4="" #mtp023,supd0add="" &="" :*subtest="" ;do="" ;setup="" call="" diagonal="" display="" for="" in="" it="" mcde="" mcv="" mov="" mt0023="" number="" pattern="" return<="" setup="" shifting="" supd03="" supervisor="" td="" test="" test))="" typeout=""><td></td></mt0023>	

	K16										
PATTERN! JEMKAA.!	s Mai 2	MACYII H-FEB 78	30A (1052 11:01	29 - FE		ATTERN TEST SES	C205				
3233	P0+0S0				######################################	TUP FAST GALLOPING PATTEPN TEST					
3200 3200 3200 3200 3200 3200 3200 3200	P0P0S0 02P0S0 02P0S0 P2P0S0	012737 012737 012702 010203	000034 000004 060000	001764 001764	MOV #24, REALPAT MOV #4, PCBUMP MOV #FIRST, R2 MOV R2, R3	:SETUP PATTERN NUMBER FOR TYPEOUT & DISPLAY :TRAPS ADD 4 TO PC					
3229 3230 3231	020426 020434 020440	012737 004737 000207	027750 021724	001732	MOV MMTPOZY,SUPDOADD CALL SUPDO3 RETURN	:DO IT IN SUPERVISOP MODE					
3232	SPPCSO				TOO25: SÜBTST < <mtoo25 **********************************<="" td=""><td>TUP INTERPUPT ENABLE TEST: ***********************************</td><td></td></mtoo25>	TUP INTERPUPT ENABLE TEST: ***********************************					
3 <i>2</i> 3 3	256445	205222	000000		IF ACTFLAG NE NO OR APTFLA	AG NE #D					
ນູ້ນູ້ ລັດ ທູ້ນູ້ ລັດ	02044 <u>2</u> 02044 <u>2</u> 02045 <u>0</u>	005737 001003 005737	002020			BNE L233 TST APTFLAG BEQ L234					
8)	020454 020456 020456	001404				L233:;;;;;					
3234 6)	050465 050465	005737 001401 000207	060172		IF SPASS NE #0 THEN SRET	TURN TST SPASS BEQ L235 RTS PC					
(3)	050466				END : OF IF ACTFLAG	L235:;:;;					
3235 3235 3236 3237 3238 3239 3239	020466 020466 020466 020466 020474	012737 012737 004737	000025	001744 001732	MOV #25 REALPAT	:SETUP PATTERN NUMBER FOR TYPEOUT & DISPLAY					
3238 3239	020506 020506	004737	030144	501732	CALL SUPDO3 RETURN	;DO IT IN SUPERVISOR MODE					
(3) (3) (2)	020510				TOD26: SUBTST < <mtod26 ***********************************<="" td=""><td>TUP RANDOM DATA TEST ></td><td></td></mtod26>	TUP RANDOM DATA TEST >					
3241	050216 050210	012737	92000	001744	MOV #26,REALPAT	***************************************					
7277 7277 7277 7275	020522	012737 005037 013703 013702 010305	000026 001764 002144 002142		MOV #26,REALPAT CLR PCBUMP MCV SEEDLO,R3 MOV SEEDHI,R2 MOV R3,R5	TRAPS DO NOT ADD TO THE PC INITIALIZE RANDOM NUMBERS					
3246 3247 3248 3249 3250	020532 020534 020536 020546 020546 020550 020550 020554	010204 012701 012700	050000 060000		MOV R2'R4 MOV #FİRST_R1 MOV #SİZE/2,RO						
3250 (1) (1)	020550 020550	104415 004537 030570	037306		SAVREG BMOV MTPA26 JSR R5, BLOCk1	:WRITE ROUTINE TO FAST MEMORY					
3251 (1)	020556 020556 020562	004537 000010	037342		MTPAZ6' BMOV MTPCZ6,KDPARO,B. JSR R5,BLOCK3 B.	;RANDOM SUBPROGRAM TO FAST MEMOR:					
3252	020564 020566 020570	172360			KDPARO MTPC26	:RANDOM SUBSUBPROGRAM TO FAST MEMORY					
1,	020570	004537 000010	037342		BMOV MTPD26,SDPARD,8. JSR R5.BLOCK3 3.	* PRINCEL SOBSCENOURALL TO LEST TESTER!					



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DATTERN JEMKAA	is MA: 2	MAC:11 4-FEB-18	30A.1052	28-FEB-78 MTO(09:20 PAGE 17-3 D27 UNIQUE BANK TEST	
5	240120 240120					E27:;;;:::
3289	021042 021042 021050	012737	000001	002:30	FOR I := #1 TG #2	MG/ #1,I 831::::::
3290	021050 021050 021056	012737	000167	001470	FOR BANK := #167 TO #0	MOV #167,BANK B32:;;;;;
3292	021056	004737	036052		CALL EXBANK IF ACFLAG NE #D AND RRFLAG EQ #3	
3676 41	051005	005737	001506		IF MCFEMG HE SO HIND KKI ENG EG SO	TST ACFLAG BEG L241
, g,	021042 021050 021050 021056 021056 021062 021062 021066 021076 021076 021076 021104 0211120 0211120 0211120 0211120 0211120 0211120	001430 005737 001025	001514	•		TST RRFLAG BNE L241
3534	02107 6 02107 6	013702	001470		LET R2 := BANY	MO/ BANK.P2
3294 3295 3296 3297 3298 3299 3299	021102	013702 005102 012700	060000		COM R2 MOV #FIRST.RD MOV RD.R4	
3297 3298	051116	010004 012701 010103	000000		MOV #SIZE.R1 MOV RI.R3	
3299	051150	757650	002130	000001	IF I EQ #1	CMP I.#i BNE L242
3300	021136	901992 904737	021546		CALL SJPDOI	BINE LETE
3301	721134				END ; OF IF	L242:;;;;
3302	021134	022727	002120	00000	IF I EQ #2	·
6)	021145	023727	005130	000002		CMP I #2 BNE L243
3303 3304	021144	004737	021724		CALL SUPDO3 END : OF IF	
3305	021150				END :OF IF	L243::;;;
1 3,	021150				•	2241:;;;;;
3306	021150	005237 023727 003735	001470 001470	000000	END : OF FOR BANK	INC BANK CMP BANK, #0 BLE 832
5,	051165	003735				E35::::::
		005237	002130	000002	END ; JF FOR I	INC I
ا ق	021176	003724	006130			CMP 1.#2 BLE 831
330g	25:504	305037 000207	002110		CLR NOFSMODE RETURN	E31:;;;;;

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PATTERN JEMKAA.	S Mai 2	MACY11 4-FEB-18	30A(1052	28-FE	B-78 09 MT0027	:20 PA	GE 17-4 BANK TES'				SEG	0209
	051506				MT0030:	SUBTST	<< MT0030	SETUP !	FLUSH OUT DBE'S TI	EST ,		
					*SUBTE	****** ST ******	MT0030	SETUP FLUSH OU	FLUSH OUT DBE'S TI ####################################	*********	*********	
3312 3313	051515	005037 012737	000030	001744	MTAD30:	CLR	PASFLG #30.REAL	_PAT	SETUP PATTERN !	NUMBER FOR T	YPEOUT & DISPLAY	
3314 3315	051554	005037 012737 005037 005037	001474 177750			CLR CLR	MARGIN MAINT		CLEAR MARGINS			
3316	05153P	012737	000001	001464		MÓV BMOV	MTP030	•	; INDICATE COUNT	PHRIII EPPS	73	
(1)	20000000000000000000000000000000000000	004537 030676 104470	037306			JS MT ECCDIS SET	R R5,BLOCK P030	CI.				
3318 3319 (1) 3320 (4) 3321 3322 (6) 3323	051546	012737	177777	005110		MOV	#-1.NOFS	SMODE				
(4)	051554	305037	001470			FUR BH	NK := #0 1	10 #19/			BANK	
3321	051560 051560	004737	036052			CALL	EXBANK KFLAG NE 1			B33::;;;;		
3322	051564	005737	001510			IF M	KFLAG NE I	U		IST	MKFLAG	
3323	021270 021272	001414				IF	ACFLAG NE	#D AND RRFLAG	EQ #0		L244	
(4)	021272 021276	005737 001411 005737	001506							BEQ.	ACFLAG L245	
(6)	021300 021304	005737 001006	001514							151	RRFLAG L245	
6) 68) 3324 3325 3326 3327 3328 3329	051306	001006 012701 012700	040000 000000			!	10V 10V	#SIZE,R1 #FIRST,RD				
3326 3327	021325 021325 021325 021325	004737	021546			1	CALL D : OF IF F	SUPD01				
(3) 3326	021322						OF IF MKF			L245:::::		
3329	051355					END : 01	•			L244:;;;;;		
(£)	021326	005237 023727	001470 001470	000167		E110 .01	7 011			INC	BANK, #167 833	
	021334	003751	001 17 0	000107						BLE E33:;;;;;	833	
33 3 0	021336	005727	001734			IF PASI	FLG EQ #0				PASFLG	
	021342	005737 00102£	001734				2005: 0			BNE	L246	
(1)	021344	012737	177777	001734		MOV	PASFLG #-1,PASF	LG				
3333	021354	012737 104502 004737	034720			CLRCS	RELOCATE	Ī				
3334	051360	103004				ON.ĒI				BCC	L247	
3331 3332 3332 3333 3335 3336 3336 3338 3338 3337 3338 3331 3331	051364	005037	002110			CLI	CINIT R NOFSMODE					
3337 3338	021370 021372	000207				END :	TURN ; OF ON.ERF	ROR				
3339	021372 021372	013727	001756	001470		MOV				L247:::::		
3340	021336 021344 021344 021354 021354 021360 021360 021364 021370 021372 021372 021372 021372	004737 004737	031515			CALL	EXBANK MTA030					

PATTERNS MACNII 30A(1052: 28-FEB-78 09:20 PAGE 17-5
CEMKAA.MAI 24-FEB-78 11:01 MT0030 SETUP FLUSH OUT DBE'S TEST SEG 02:0

3349 02:1412 004727 035340 CALL UMRELOCATE RETURN
3344 02:1416 000207 END; OF IF PASFLG
3346 02:1420 005037 G02:10 CLR NOFSMODE
3346 02:1426 000207 G02:10 RETURN
3346 02:1426 000207

PATTERN CEMKAA.	S MA1 2	MAC:11 4-FEB-78	30A:1052 3 11:01	28-FE	ED1 EB-78 09:20 PAGE 17-6 MT0030 SETUP FLUSH OUT DBE'S TEST	0211
3350 (3) (3) (2)	021430				MT0031: SUBTST (<mt0031 :+++++++++++++++++++++++++++++++++++<="" setup="" sob-a-long="" td="" test))=""><td></td></mt0031>	
3350 (3) (2) 3351 3352 3353 (3)	021430 021442 021442 021442	012737 005037	001464	061744	MÓV #31.REALPAT :SETUP PATTERN NUMBER FOR TYPEOUT & DISPLAY CLR NOPAR :SETUP PARITY ACTION MAP BANK :MAP FIRST 50 BLOCK MOVE WORKS MOV R3(SP)	
(1) (1) (3) 3354	021444 021450 021454	010346 013703 004737 012603	001470 034510		MOV BANK.R3 CALL MAPPER MOV (SP:+.R3	
3354 (1) 3355 (1)	021456 021454 021464 021464	052737 004537		177776	RMOV MTPORI FIRST SCRIFNGTH/2	
(1)	021464 021470 021472 021474 021476	000027 060000			JSR RS.BLOCK3 SOBLENGTH/2 FIRST MTP031 KERNEL	
3357 3358 3359	021500 021504	030706 104417 013702 010200 012701	100776		MOV SORK RA	
3361 3362 3363	021506 021512 021516 021524 021530	012705 012737 004737 000207	060056 060002 021740	001732	CALL SUPDO4 RETURN	
(1) 3356 3357 3358 3359 3361 3362 3363 3364 (3)	021532				MT0999: SURTST ((MT0999 SETUP NULL TEST)) **********************************	
3365 3366 3367	021236 021236 021236	005037 012737 053207	001744 177777	002014	CLR REALPAT SET NULLFLAG MOV #-1.NULLFLAG RETURN	

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PATTERN CEMARA.	s Mal 2	MAC 11 4-FEB-18	30A 1552 11:01	28-FE	B-78 J9 M70999	: 20 PAG SETUP N	E 18 ULL TEST	1 01						
3370 (3)	021546					SUBTST	****	*******	PATTERN	*****	******	******	*******	**********
· 3 (+SUBTE		SUBR	EXECUTE	PATTERN	IN SU	PERVISU	K 346455		********
33(1	D21546				; ******	MAP	BANK							
, 3)	021546 021550	516346					DON BO						407	R3,-(SP)
()	C21554	013703 004737	001470			MOV Call	BANK, R3 MAPPÉR							
(3)	021560 021562	012603				-							MOA	(SP)+,R3
33.5	051266 051265	004737	050650		50PD02:	CALL PUSH	GETDIS SLPERR,	E. PATIP						
33,3	021566	013746	002172			PUSH	strenn,	SCHOOL					MOV	SLPERR (SP) SLPADR (SP)
31 31 33 33 33 33 33 33 33 33 33 33 33 3	021566 021572	013746 013746	002170			M 317	00 0:100	80					MOV	SLPADR, - (SP.
33/4	021576 021602	010037 012700	00:64 6 00:644			MOV MOV	RD, SUPDI	.RG						
3376	D21606	012700	0010 .c			MÓV	#SUPDRI	•						
3377	051619	010220				MCV MOV	R2,(RD)	+						
33~9	051P1A 051P15 051P10	010450				MČV	R2 (R0) R3 (R0) R4 (R0)	÷						
3380	051250	010220 010320 010420 010520 010620 013700 012737 013737				MOV	R5.(R0)	+						
3381 3381	051655	013730	001644			MŮV Mův	SUPDRO 1	RO.						
3383	US1656 051655	012737	051645	505115		MOV	SUPDRO, F	SLPADR						
3384	051645 051634	013737	002170 001662	002172	TAG45:	MOV	SLPADR,	SLPERR						
3366	951646	017000	001695		HUTS:	MOV	-(RC),5F	P						
3387	Ö ST P P P	014005				MGV	-(RD) R	5						
2389 3385 3386 3387 3388 3389 3390 3391 3392 3393	021646 021650 021652 021654 021656 021660 021662	014004				MOV	\$LPAOR, \$LPAOR, =SUPOR6 -(RO), SP -(RO), RO -(RO), RO -(RO), RO	3						
3330	051626	014002				MOV	-(RC) R	Ž						
3391	051665	014001 014000				MOV	-(RO),R)	<u> </u>						
3343	021664					SUPERVI:	30 R					_		
(1) 2284	021673	052737 012706	000000	177778		BIS	#BIT14, F	PSW		;DO I	T TO IT	:		
3375	021676	104424	000700			MOV CACHOFF	BOUPS IN	, 33r						
3396	021700	054737	177640			CALL	FASTCIT	Y						
33 9 5	021704	104423 114401				CACHON K ERNE L								
3399	021710	200004				SCUPE								
3394 3395 3396 3398 3399 3400 3400	021676 021700 021704 021706 021710 021712 021712 021713 021713	012637	202170			POP	SLPACP,	SLPERR					M∩∪	(SP.+, SLPADR
_ 3 ,	02:716	012637 012637 000207	302172										MCV	SF + SLPERR
3401	D21722	303207				PETURN								

							GO1			
PATTERNS	5	MAC:11	30A 10 5 2	28-FE	3-7 <u>8</u> 09	:20 PAG EXECUTE				556 63 13
CEMKAA.M		4-FEB-78	11:51		SUBR	EXECUTE	PATTERN IN SUFEPHISUR			SEC CS13
3404	457150	010386			SUPDO3:	MAP	BANY		MOV R3,-(SP	
(3) (1)	021724 021724 021726 021736 021736	010346 013703 004737	001473 034510			MOV CALL	Bank R3 Mappèr		MOV (SP)+.R3	
3+05	021736	004737 012603 004737	050650		SUPDOM:	CALL	GETDIS SLPERR.SLPACE		1107 (3F)77,113	
סטדנ יב	051544	013746	271500			PUSH			MGV SLPERP, -(SP) MCV SLPADR, -(SP)	
340? 3408 3409	021750 021754 021760 021764	013746 010037 012700 010120	001544 001644 001646			MOV MOV	RO,SUPDRO #SUPDR1.RO R1 (RO)+			
3410 3411	021764 021766 021770 021772 021774	010220 010320 010520 010520				MGV MOV	R2.(R0)+ R3.(R0)+			
3413 3414	D21776	010250				MÖV MÖV MÇV	RS (RO)+ SP (RC)+			
3416 3417	055015 055004 055000	010620 013700 012737 013737	005120 055050 001644	002170		MGV MOV MOV	SUPDRO,RO MTBG45,SLPADR SLPADR.SLPERR			
3418 3419	022034 022030 022030 022030 022033	012700 014006 014005	001662		TBG45:	MOV MOV MOV	#\$UPDR1.RO R1.(R0)+ R2.(R0)+ R3.(R0)+ R4.(R0)+ R5.(R0)+ SUPDR0.RO #TBGY\$.\$LPADR \$LPADR,\$LPERR #\$UPDR6+2.RO -(RC).\$P -(RC).\$P -(RC).R5 -(RO).R3 -(RO).R2 -(RO).R1			
3455	055030	014004				MOV MOV	-(RO) R4 -(RO) R3			
3424 3425	055040 055036	014002 014001 014000				MÖV MOV MOV	-(RO).RO			
3426 3427	022036 022040 022042 022042 022050 022054 022056		04000G 00G70C	:77776		SUPERVI BIS MOV	50R - #B IT14.PSW	:DO IT TO IT!		
3458 3458	022054	052737 012706 104424 004777 104423	157650			MOV CACHOFF CALL CACHON	DSUPDOADD			
343 <u>2</u>		104417				KERNEL SCOPE				
3433 3438 3438	022020	012637 012637	002170			POP	S_PADP.SLPERP		MOV (SP)+, SLPADP MOV SP + SLPERP	
443 4	022074	335255				BETUR!				

```
H<sub>0</sub>1
                MACY11 30A(1052) 28-FEB-78 09:20 PAGE 20
PATTERNS
              24-FEB-78 11:01
                                         MEMORY TEST PATTERN ROUTINES
CEMKAA. MAI
                                                  SRITL MEMORY TEST PATTERN ROUTINES
  3437
3438
                                           PATTERN REGISTER CONVENTIONS

RD FIRST ADDRESS OF PATTERN (FIRST, LAST+2.ETC)

RI NUMBER OF ADDRESSES IN PATTERN (SIZE)

R2 DATA FOR PATTERN (ONES, 52525, LTC)

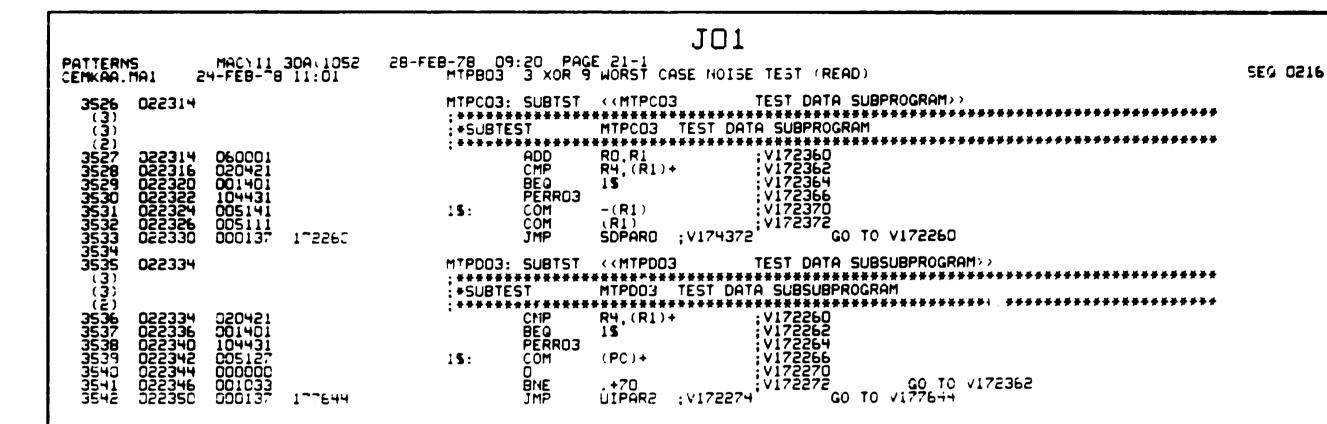
R3 COP' OF R1 LIF NECESSARY)

R4 COPY OF R0 (IF NECESSARY)

R5 COPY OF R2 (IF NECESSARY)
  3439
  3440
  3441
  3442
3443
  3444
  3445
                                                                 3445
                                         MTPOOD: SUBTST ((MTPOOD BASIC DATA TEST)
        022:03
                                         MTPOOD BASIC DATA TEST
                                          *SUBTEST
                                                      ************
                                          ****
        025109
055109
055105
                                                          R2,(R0)+
R1,MTP000
                                                                           V177640
V177642
V177544
                010220
077102
000240
                                                  MOV
  344B
                                          is:
  3449
                                                  SOB
  345Ó
                                                  NOP
                                                                           V177646
V177650
        022112
  3451
3452
3453
                                                          (R4)+,R1
                012401
                                         25:
                                                  MOV
                020103
                                                  CMP
                                                          R1, R2
                                                                           : v 177652
  3454
                104430
                                                  PERRO2
                                                                           ¥177654
        022116
                                                                           V177656
V177660
        055155
                000240
077306
000207
                                                  NOP
  3455
  3456
                                                  SÖB
RETURN
                                         3$:
                                                          R3,25
                                                                            V177662
                                                                           ADDRESS TEST>
  3458
        022126
                                         MTPOO1: SUBTST ((MTPOO1
                                         : *SUBTEST
                                                          MTPOO1 ADDRESS TEST
                                          05513P
05513P
05513P
05515P
                                                       R2,(R0)+
#2,R2
R1,3$
                                          ጎኔ :
                                              MOV
  3459
                010220
                                                                     ; V177640
                062702
  3460
                         200002
                                                                           V177642
                                                                           : V177646
  3461
                                                  SOB
  3462
                000240
                                                  NCP
                                                                           V177650
        055145
                012400
                                                          (R4)+,R0
                                                                           V177652
V177654
  3463
                                       15:
                                                  MOV
                                                          RO, RS 25
  3464
                                                  CMP
                                                                           V177656
V177660
  3465
        022144
                001401
                                                  BEQ
  3466
        055146
                104427
                                                  PERRO1
        022150
                                                          #2,R5
R3,1$
  3467
                062705
077307
                                                  ADD
SOB
                         2000002
                                         25:
                                                                            . V177662
                                                                           V177666
V177672
COMPLEMENT ADDRESS TEST (WRITE DOWN, READ UP)
  3468
3469
                000207
                                                  RETURN
                                         MTP002: SUBTST COMTP002
  3470
        055160
                                         (3)
                                          #SUBTEST MTPOO2 COMPLEMENT ADDRESS TEST (WRITE DOWN, READ LP)
                                         *SUBTEST
   (<u>§</u>)
  010244
062702
077104
                                                        R2,-(R4)
#2,R2
R1,3$
                                                                          V177640
V177642
V177646
                                                 MOV
                         200002
                                                  ADD
                                                  SOB
  3474
        022170
                000240
                                                  NOP
                                                                           V177650
       022178
022176
022200
                162702
012401
020102
  3475
                                                  MOV
                                                          #2,R2
(R4)+,R1
                                                                           V177652
V177656
                         000002
                                 15:
  3476
3477
                                                  CMP
                                                          R1,R2
                                                                           :V177660
        022220
402220
902220
022200
                001401
104430
077307
000207
  3478
                                                  BEO
                                                                           : V177662
                                                          2$ '
  3479
                                                                           V177664
V177666
                                                  PERRO2
  3465
                                                  SOB
                                       2⊈∶
                                                  RETURN
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SEC 0214

						IOI		
PATTERN CEMKAA.	s Mai 2	MACYII 4-FEB-18	30A (1052)	28-FEB-78 09 MTP002	:20 PAG COMPLEN	GE 21 MENT ADDRESS TEST	(WRITE DOWN, READ UP)	SEG 0215
3484 (3) (3)	055515				******* ST	CONTPADS MTPADS 3 XOR S	3 XOR 9 WORST CASE NOISE TEST (WRITE),, WORST CASE NOISE TEST (WRITE)	• •
7 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?				, , , , , , ,	RO = 1 R1 = 6 R2 = 9	NTERLEAVE FACTOR ADDRESS MALL LOOP CONSTR MUM OF ADD TO TES GOOD DATA MEDIUM LOOP CONST LSB	ANT ST (LAPGE LOOP) TANT	
3491 3492 3493 3494 3495 3496 3497	022221 022216 022220 022222 022222	060001 010421 010421 077204 005104 052704		15:	ADD MOV MOV SOB COM BIS	RO,R1 RY,(R1)+ RY,(R1)+ R2,1\$ RY (PC)+,RY	V177636 ADD INTERLEAVE FACTOR V177640 V177642 V177644 V177646 V177650	
3497 3498 3499 3500 3502 3503 3505 3505 3506 3508 3509	022226 022236 022236 022236 022240 022240	090401 012702 077512 005104 052704 000401	P00000	WARNZ: WARNJ:	401 MOV 50B COM BIS	#4,P2 R5,1\$ R4 (PC)+,R4	VI77652 WARNING LOCATION IS MCDIFIED BEFORE LO VI77654 VI77660 VI77662 VI77664 VI77664 VI77666 WARNING LOCATION IS MODIFIED BEFORE LO	
3504 3505 3506 3507 3508	022244 022250 022252	012705 077320 000207	000100		MOV SOB RETURN . DSABL	R3, 1 5 LSB	:V177670 :V177674 ;V177676	
(3)	022254			; ***** *SUBTE	******* 5T *******		3 XOR 9 WORST CASE NCISE TEST (READ)>> DESCRIPTION OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROP	•
3511 3511 3511 3511 3511	022254 022250 022250 022254 022256	000137 077203 005104 052704	172360	15:	.ENABL JMP SOB COM BIS	LSB KDPARO R2,1 \$ R4 (PC)+,R4	V177640 GO TO V172363 V177644 V177646 V177650	
3515 3516 3517 3518 3519	022270 022274 022276 022300	000401 012702 077511 005104 052704	000004	WARNY:	HOI MOV SOB COM BIS	#4.R2 R5.1 \$ R4 (PC)+.R4	:V177654 :V177660 :V177662 :V177664	
3517 3518 3518 35120 35223 35223 35223 35223	022302 022304 022310 022312	000401 012705 077317 000207	000100	HAPN5:	MOV SOB RETURN . DSABL	#64. R5 R3.1\$ LSB	VIZZEE WARNING LOCATION IS MODIFIED BEFORE LO VIZZEZO VIZZEZO VIZZEZE	ading



: V177672

SEG 0217

022462

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							LOI		
PATTERN CEMKAA.	S MAI 8	MACYII 24-FEB-76	30A:1052 3 11:01	?) 28-FE	B-78 09 MTP005	:20 PAG ROTATIO	E 22 N ONES TEST		SEG 0218
3580 (3)	022464				MTP006:	SUBTST	< <mr></mr> ************************************	INITIAL DATA TEST>>	
(3)					#SUBTE	ST ******	**************************************	DATA TEST	
(3) 3582 3583 3583 3585 3586 3586 3589 3599 3599 3599 3599	022464 022472 022476 022502 022510 022516 022520	012737 005037 013711 013761 011102 023702 001401 104433	000001 001714 001712 001714 001712	001712	15:	MOV CLR MOV MOV CMP BEG PERRO7	THIS TES SHIFTING SHIFTING SHIFTING PATBUF+2 DATBUF+2 (R1) (R1),R2 DATBUF,R2 25	T CHECKS THE DI/DO LINES BY A 1 THROUGH THE WORD. SET THE FIRST TEST BIT CLEAR 2ND WORD WRITE TEST WORD 1 AND TEST WORD 2 NOW READ THEM BR IF FIRST 16 OK ERROR TRAP	
3592 3593 3594 3595	022522 022526 022532 022534	016102 023702 001401 104434	000002 001714		2\$:	MOV CMP BEQ PERRIO	2(R1),R2 DATBUF+2,R2 3\$:NOW READ SECOND WORD :BR IF OK :ERROR TRAP	
(1)	022536 022542 022544 022544 022550 022554	005737 100405 006137 006137 000750	001714 001712 001714		3\$:	TST BMI DLEFT ROL ROL BR	DATBUE	; HAS LAST BIT BEEN TESTED ? ; MINUS MEANS BIT 31 ; NO, SHIFT TEST BIT LEFT ; GO WRITE NEW TEST DATA	•
(1) 3600 3601 3602 3603 3605 3605 3606 3607 3608 3610 3611 3612	022556 022564 022572 022576 022504 022606 022612 022614	012737 012737 013711 013761 011102 023702 001401 104433	177776 177777 001712 001714	001712 001714 000002	45 : 5 5 :	MOV MOV MOV MOV CMP BEQ PERRO7	#177776, DATBUF #-1, DATBUF+2 DATBUF, (R1) DATBUF+2,2(R1) (R1),R2 DATBUF,R2 6\$	GO WRITE NEW TEST DATA NOW GOING TO SHIFT A D IN DATA DIRECTION PUT A D IN BIT D AND 1'S IN ALL OTHERS WRITE THE DATA 2 WORDS WORTH NOW READ FIRST WORD BR IF OK	
3611 3612 3613 3614 3615	055630 055656 055655 055616	016102 023702 00140: 104434	000002 001714		6 \$:	MOV CMP BEQ PERR10	2(R1),R2 DATBUF+2,R2 7 \$; NOW, READ SECOND WORD ; BR IF OF	
3616 3617 3618 (1)	022632 022636 022640 022640	005737 100005 006137	001714		7 \$:	TST BPL DLEFT ROL	DATBUF+2 8 \$ DATBUF DATBUF	:TESTED BIT 31 YET? :BR IF YES, WE'RE DONE	
3650 3619	022644 022650 022652	006137 000750 000207	001714		8 \$:	ROL BR RETURN	DATBUF+2 5\$;KEEP GOING	

							MO1
PATTERN CEMKAA.		MACYII 14-FEB-78		28-FEB-78 MTPO		SE 23 . DATA TES	T
3623	022654				7: SUBTST		ADDRESS BIT TEST>>
(<u>3</u>)				* \$U	TEST		ADDRESS BIT TEST
3625 3625 3625 3625 3626 3627 3633 3633 3633 3633 3633 3638	022654			; ###\		:	THIS TEST CHECKS TO SEE THAT EACH ADDRESS BIT IN EACH 16K BANK CAN BE ASSERTED UNIQUELY. IT CHECKS FOR ADDRESS BITS THAT MAY BE STUCK HIGH, STUCK LOW OR STUCK TOGETHER.
3631 3630 3631	022654 022656 022660 022662	111100 105700 001401 104435			MOVB TSTB BEQ PERRII	/R1),R0 R0 1 5	;READ AND COMPARE FOR ZEROS ;BR IF OK
3633 3635	999220	105111 111100		15:	COMB MOVB	(R1) (R1),R0	; COMPLEMENT THE BYTE
3635 3635 5536 3637 3638	022670 022672 022674	105700 001001 104436			TSTB BNE PERR12	RO 25	READ FOR NON ZEROS BR IF OK
3639 3640 3641 3642	022676 022700 022702 022704	040201 006302 050201 011100		2\$:	BIC ASL BIS MOV	R2, P1 R2 R2, R1 (R1), RO	MASK OFF THE ASSERTED BIT SHIFT R2 FOR NEXT BIT SET THE NEW BIT INTO R1
3639 3640 3642 3643 3644 3645 3647 3654 3655 3655 3655 3655 3655 3658	022706 022710 022712	005700 001401 104437			TŠT BEQ PERR13	RD 3 \$	READ THE NEW ADDRESS READ FOR ZEROS
3647 3648	022714 022716 022720	005111 011100		3 \$:	COM	(R1) (R1).RO	COMPL THE WORD
3649 3650 3651 3652	022720 022722 022724	005700 001001 104440			TST BNE PERR14	RO 4 \$;READ IT AGAIN
3653 3654	022726 022732 022734 022740	022702	100000	45:	CMP BEQ CMP	#100000,1 5 \$ #10000,R	
3656 3657	022740	022702 001356 006302	310000		BNE ASL	2\$ R2	CHECK FOR MSB IN 4K BANK NOT LAST BIT, BRANCH
3658 3659 3660	022744 022750 022752	012701 000752 000207	160000	5 \$:	MÖV BR RETURN	#160000.1	R1

PATTERN	5	MACYII	300.1052) 28-FE	8-78 09):20 PAG	171 E 23-1		
CEMKAA.	MA1 2	4-FEB-78	30A(1052		MTP007	ÄDDRESS	E 23-1 BIT TEST		SE0 0550
3665	022754				MTPOIO:	SUBTST	< <mtp010< td=""><td>BYTE ADDRESSING TEST>></td><td></td></mtp010<>	BYTE ADDRESSING TEST>>	
(3)					*SUBTE	******* ST	MTPO10 BYTE	ADDRESSING TEST	
))))34567890+234567890+234567890+234567890+234567890+234567890+234567890+234567890+234567890+234567890+234567890+234567890+234567890+234567890+234567890+234567890+234567890+234567890+234567890+23456666777777777777777777777777777777777	022754 022756 022760 022764 022770 022776 023000 023002 023004 023010 023012 023012 023020 023022	010402 010403 062702 012713 012763 105013 010401 020201 001420 020301 001007 111100	000004 177777 177777	000002	:****** 1 \$: 2 \$:	MOV MOV MOV MOV CLOV CLOV CMP BEG CMP BHOVB CMP BHOVB CMP BEG CMP BOVB CMP BEG CMP BEG CMP	######################################	ADDRESSING TEST TEST CHECKS FOR PROPER ADDRESSING WITH ECC DISABLED RY HAS LOWEST ADDRESS PUT IT IN R3 ALSO POINT R2 TO LAST BYTE +1 WRITE ALL ONES IN THE Y TEST BYTES CLEAR A BYTE INITIALIZE R1 FOR EACH PASS IF EQUAL, JUST READ LAST BYTE BR IF EQUAL IS THIS THE BYTE OF ZERC BR IF NOT MIZE CHANGE THE PCBUMP FOR THIS ERROR INCASE OF TRAPS ; IT IS, COMPARE FOR ZEROS	
3680 3681 3682 3683 3684 3685 3686 3687	023022 023024 023026 023030 023032 023036 023040	104435 005201 000765 111100 122700 001401 104436	177777		3 5 : 4 5 :	PERRII INC BR MOVB CMPB BEG PERRI2	R1 2 \$ (R1),R0 # 1,R0 5\$:NEXT BYTE :RETURN :ITS NOT THE BYTE OF D'S, READ 1'S	
3688 3689 3690 3691 3693 3693 3695	023042 023044 023046 023052 023054 023056 023060	005201 000756 112713 005203 020302 001347 000207	177777		5 \$: 6 \$:	INC BR MOVB INC CMP BNE RETURN	R1 2\$ #-1,(R3) R3 R3,R2 1\$; MOVE TO NEXT BYTE ; RESTORE 1'S TO BYTE JUST TESTED ; INC TO NEXT BYTE ; WAS THAT JUST THE LAST ONE? ; BR IF NO	

PATTER CEMKAA	.MA1 2	14-FEB-76	11:01		MTPOIO		DDRESSING TEST
3698 (32) (23) 3699 3700	053065				MTPG11: ****** *SUBTE	SUBTST ****** ST ******* (1)	CREATE A SINGLE BIT ERROR REAL BACK SBE UNCORRECTED (WITH ECC DISABLE) ENABLE ECC & READ CORRECTED DATA
3791						(2)	REAL BACK SBE UNCORRECTED (WITH ECC DISABLE)
3702 3703 3704						(3)	ENABLE ECC & READ CORRECTED DATA
3705 3705 3706						(4)	CHECK THAT THE SBE FLAG WAS SET FORM THE LAST READ
3707 3708 3709 3710						(5)	DO (1-4) FOR DATA CONSISTING OF 1 BIT SET IN EACH OF 32 POSITIONS OF A DOUBLE WORD THEN DO IT AGAIN FOR 1 BIT CLEARED IN EACH OF 32 POSITIONS OF A DOUBLE WORD IE (64 TIMES)
3711 3712 3713 3714						(6)	DO (1-5) FOR A SBE IN EACH OF 32 BIT POSITIONS IE (RUN TEST 64 * 32 = 2048 TIMES)
3715 3716	023062	104503				CLRICSR :BIG LO	R OOP
3717 3718 3719	023064 023072	012737 005037	000001 001714	001712	15:	MOV CLR	#1.DATBUF ;INITIAL DATA DATBUF+2 ;32 BITS WORTH
3719 3720 3721	023076 023104	012737 005037	000001 001724	001722	2\$:	; MEDIUM MOV CLR	#1.SBEMSK ;INITIAL ERROR MASK SBEMSK+2 ;32 BITS WORTH
3723 3724 3725 3725	023130 023116 023130	013737 013737 105737 001404	001712 001714 001734	001716 001720	3\$:	LITTLE MOV MOV TSTB BEQ	E LOOP DATBUF, TSTDAT DATBUF+2, TSTDAT+2: TO SAVE ORIG DATA PASFLG; COMP DATA ON SECOND PASSONLY US: US: US: US: US: US: US: US: US: US:
3720 3721 3723 3724 3725 3725 3726 3729 3730	053146 053145 053135	005137 005137 013702 013703	001716 001720 001716 001720		4\$:	MÖV	TSTDAT+2.R3
3731 3732 3733 3734	0531 2 0 053125	012737 004737	001716 034350	001760		MOV CALL ; #####	#TSTDAT,SOURCE :SET UP ADDRESS FOR CHKGEN CHKGEN :GEN CHECKBITS ON TSTDAT ***********************************
3735 3736 3737 3738 3739	023170 023174 023200 023204	013701 074137 013701 074137 013701			5 \$:	###### MOV XOR MOV XOR MOV	* ************************************
3741 3742 3743	053515 053510	104471	001716			ECCIDIS MOV	TSTDAT.(R1)+ :WRITE FIRST 16 BITS
3744 3745 3746	023220	104475 013711	001720			CB1CSR MOV	TSTDAT+2,(R1) :WRITE SECOND 16 BITS AND CHECK BITS. WE NOW HAVE CHECKBITS GENERATED ON DATBUF AND DATA WITH ONE BIT IN ERROR (AS PER SBEMSY).
3747 3748 3749 3750	023224 023226 023230	104471 014100 020037	001716			ECCIDIS MOV CMP	

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PATTERN CEMKAA.		MACY11 4-FEB-78	30A 1052 3 11:01	' 28-FE	B-78 09 MPT011		E 24-1 BIT ERROR TEST		
3751 3752 3753	05353 6 053534	001401 104455				BEQ PERR31	6\$;BR IF OF	
3754	023240	062701	000002		6\$:	ADD MOV	#2 R1 (R1) R0	POINT RI TO SECOND 16 BI	TS .
3756 3756 3757 3758	023244 023246 023252 023254	011100 020037 001401 104455	001720			CMP BEU PERR31	RO.TSTDAT+2	:READ THE HIGH WORD (UNCO :BR IF OV	RPECTES
3753 3755 3755 3755 3756 3758 3766 3766 3766 3766 3766	023256 023260 023263 023264 023266	104503 014100 020002 001401 104456			7 \$:	CLRICSR MOV CMP BEQ PERR32	-(R1),R0 R0,R2 8\$	SEE IF ITS BEEN CORRECTE	D
3765 3766 3767	023270 023272 023274	104510 103411			83:	TSTREAD BCS SET	95 HEADER	BR IF IT IS SET ENABLE PRINTING OF ERROR	HEADER INFO
(1) 3769 3770 3771	023274 023302 023306	012737 010137 104016	177777 001422	002146		MOV MOV ERROR	#-1.HEADER R1.ADDRESS +16	·	
(1)	053310 053310	012737	177777	002146		SET MOV	HEATER #-1,HEADER	;ENABLE PRINTING OF ERROR	HEHDER INFO
3772 3773 3774 3775 3776 3777 3778 3779 3780 3781 3782 (1)	053335 053330 053330 053330 0533316	104503 062701 011100 020003 001401 104456	000002	_	9\$:	CLRICSR ADD MOV CMP BEQ PERR32	#2 R1 (R1) RO RO R3 10\$; POINT TO HIGH WORD : SEE IF ITS BEEN CORRECTED ; BR IF OK	o O
3780 3781 3782	023334 023336 023340	104510 103411			105:	TSTREAD BCS SET	11 \$ HEADER	BR IF YES ENABLE PRINTING OF ERROR	HEADER INFO
(1) 3783 3784 3785	023340 023346 023352 023354	012737 010137 104016	177777 001422	002146		MOV MOV ERROR	#-1, HEADER R1, ADDRESS +16		
(1) 3 786 3787	023354 023362 023366	012737 005737 100405	177777 001724	002146	115:	SET MOV TST BMI	HËADER #-1, HEADER SBEMSK+2 12 5	;ENABLE PRINTING OF ERFOR :TEST FOR LAST MASK BIT :MINUS MEANS BIT 31	HEHDER INFO
3788 (1) (1) 3789	023370 023370 023374	006137 006137 000643	001722 001724			DLÉFT ROL ROL BR	SBEMSK SBEMSK SBEMSK+2 3 \$		
3789 3790 (5) (5) 3791 (5)	023402 023402 014620	032777	099440	156570	12\$:	IF #SW1	1 SET. IN DSWR		BIT #SW11,2SWR BNE 13\$
(5)	053415	005737	005016			IF QVFL	AG NE #D THEN	GU10 135	TET GYFLAG
(5) 3792 3793 3794	023402 023402 023412 023412 023412 023412 023412 023426	001010 005737 100405	C01714			TST BMI	DATBUF+2	:LAST DATA BIT ? :WHICH IS BIT 31	9NE 13\$
(1)	023426	006137 006137	001712 001714			DLEFT ROL ROL	DATBUF DATBUF+2		

D02 MACY11 30A(1052) 28-FEB-78 09:20 PAGE 24-2 PATTERNS MPT011 SINGLE BIT ERROR TEST CEMKAA.MAI 24-FEB-78 11:01 3795 023436 3796 023440 3797 023444 3798 023446 3799 023452 3800 023454 3801 023456 3802 023464 3803 023464 000617 105737 001003 105237 000604 PASFLG :FIRST OR SECOND PASS ?
145 :NON ZERO MERNS WE'RE DUNE
PASFLG :NOT DONE, GO DO SECOND PASS
15 BR TSTB 001734 135: BNE INCB BR ECCIDIS MOV CLR CLR 001734 :CLEAR OUT ANY DBE'S OF SBE'S 104471 145: TES ADD, RI 013701 005021 005011 002070 (RI) 3805 023466 074650 2086 104503 CLRICSR RETURN

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PATTERN CEMKAA.	rs Mai 2	MACY11 4-FEB-18	30A(1052		8 78 09 MPT011		E 25 BIT ERROR TEST	
3808 (3) (3) (2) 3809 3810	023472				MTP012: :***** :*SUBTE			WRITE BYTE CLEARS SBE TEST > ***********************************
3811 3812 3813 3814 3815 3816 3817 3818 3819 3820	023472 023474 023502 023506 023520 023524 023524 023554 023554 023554 023554	104503 012737 005037 012737 005037 013737 013737 012737 004737 013701	000001 001714 000001 001724 001712 001714 001716 034350 001722	001722 001716 001720 001760	1 \$: 2 \$:	1197	#1.DATBUF DATBUF+2 #1.SBEMSK SBEMSK+2 DATBUF,TSTDAT DATBUF+2.TSTDAT #TSTDAT,SOURCE	INITIAL DATA 32 BITS WORTH INITIAL ERROR MASK 32 BITS WORTH SAVE ORIGINAL DATA +2:BOTH WORDS NEED ADDRESS FOR CHKGEN GENERATE CHECK BITS
3823 3823 3824 3825 3826	023572	074137 013701 074137 013704 010401 104471	001716 001724 001720 002070		3 \$:	XOR MOV XOR MOV MOV ECCIDIS		:FIRST TEST ADDRESS ;PLT IT IN R1 ALSO
332990112345678901234567890123456789012345678901234567890123456789012345678901234567890123456789333333333333333333333333333333333333	023576 023602 023604 023610 023612 023616 023622 023623 023634	013721 104475 013711 104503 012702 162701 112711 132712 001420 104510	001716 001720 001722 000002 177777 177777		43 :	MOV CEICSR MOV CLRICSR MOV SUB MOVB BITB BEQ TSTREAD	TSTDAT, (R1)+ TSTDAT+2, (R1) #SBEMSK, R2 #2, R1 #-1, (R1) #-1, (R2) 65	;WRITE 16 BITS :WRITE HIGH WORD+CHECKBITS :IT'S DANGEROUS IF WE DON'T :ADDRESS OF ERROR MASK :ADJUST ADDRESS :WRITE A BYTE OF 1'S :DID THIS BYTE HAVE THE PAD BIT IN IT' :NO - BRANCH :CLEAR CSR :READ :SINGLE ERROR INDICATE SET '
(1) 3841 3842 3843 (1)	023636 023640 023640 023646 023652 023654 023654	103011 012737 010137 104017 012737	177777 001422 177777	00514e		BCC SET MOV MOV ERROP SET MOV	5\$ HEADER #-1, HEADER R1, ADDRESS +17 HEADER #-1, HEADER	SINGLE ERROR INDICATE SET ? NO - SLIP ENABLE PRINTING OF ERROR HEADER INFO ENABLE PRINTING OF ERPOR HEADER INFO
3844 3845 3846 3847 3848	023662 023664 023670 023672	111100 122700 001414 104457	177777		5\$:	MOVB CMPB BEQ PERR33	(R1) R0 #-1,R0 7 5	CHECK DATA BR IF OK
3850 3850	023674	104510			6 \$:	TSTREAD		CLEAR CSR TO ENABLE ECC
3847 3849 3851 3853 3853 3853 3855 3855 3855	023676 023700 023700 023706 023712 023714	103771 012737 010137 104016	177777 001422	002146		BCS SET MOV MOV ERROR SET	5\$ HEADER #-1 HEADER P1, ADDRESS +16 HEADER	SBE ERROR BIT SET ? SHOULD BE SET, BR IF OK ENABLE PRINTING OF FROR HEADER INFO :ENABLE PRINTING OF ERROR HEADER INFO
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PATTERN CEMKAA.	is Mai 2	MACYli 4-FEB-78	30A 10 5 2 11:01	?) 28-FE	B-78 09 MTP012	HRITE S	GE 25-1 BYTE CLEARS SB	E TEST			SEG 0225
2058	023714	012737	177777	992146		MOV	#-1,HEADER				
3859 3860 3861	023722 023726 023730	132712 001012 20200	177777		7 5 :	BITB BNE INC	#-1,(P2 8 \$ R2	: CHECK FOR LAST BYTE			
3858 3859 3860 3861 3862 3863 3864 3865 3865 3866 3869 3869	023722 023726 023730 023732 023734 023740 023744 023745 023754 023754 023760 023762	132712 001012 005202 005201 013704 032701 001726 062704 000723	002070			INC MOV BIT	R1 TES ADD,R4 #2,R1 45	:MOVE TO NEXT BYTE :FIRST TEST ADDRESS :TEST FOR LOWER WORD :BR IF IT'S LOW 16 BITS :ADJUST POINTER FOR ERROR RE			
3866 3866	023746	062704	000005			BEQ ADD BR	#2,R4 45	ADJUST POINTER FOR ERROR RE	PT.		
3969 3869 3870	023754 023760 023762	005737 100405	001724		85 :	TST BMI DLEFT	SBEMSK+2	:LAST ERROR BIT ? :MINUS MEANS BIT 31			
(1) (1) 3871 3872	023762 023766 023772	006137 006137 000652	001722 001724			ROL ROL BR	ŠBEMSK SBEMSK SBEMSK+2 2 S				
3872 (5) (5)	023766 023772 023774 023774 024002 024004	032777 001013	000400	156176	95:	IF #SW		THEN GOTO 10\$	B:	IT #5W11,85WP NE 10 5	
3873		005737 001010	005018			IF GVFL	AG NE #0 THEN	GOTO 105	70	ST GVFLAG NE 10 5	
(5) 3873 (5) (5) 3674 3875 3876	024010 024016 024016 024020 024020 024024 024032 024032	005737 100405	001714			TST BMI DLEFT	DATBUF+2 10 \$ DATBUE	:LAST DATA BIT? :MINUS = BIT 31	8,	NE 103	
(1) (1) 3877	02402G 024024 024030	006137 006137 000626	001712 001714			ROL ROL BR	DATBUF DATBUF DATBUF+2 1 \$				
3878 3877 3878 3879 3880 3880 3881 3882 3883	024032 024034 024040 024044 024044 040450	104471 013701 005021 005011 104503 000207	002070		1 0\$:	ECCIDIS MOV CLR CLR CLPICSF RETURN	TESTADD,RI (RI)+ (RI)	;CLEAR OUT ANY DBE'S OR SEE'	S		

SEG CE26

PATTERNS CEMKAA.MAI	HO2 111 30A(1052 28-FEB-78 09:20 PAGE 26-18-78 11:01	
3935 024332 5) 024332 05) 024340 3936 024342 5) 024342	032777 004000 155640 301013	BIT #SHII, #SWP BME 11\$ TST QVFLAG
(5) 024346 3937 024350 3938 024354 3939 024356	001010 005737 001724 TST SBENSK+2 :CHECK SINGLE ERROR MASK TOO 100405 BMI 11\$:BR IF DONE DLEFT SBEMSK	ane iis
(1) 027356	000644 BR 3\$ 	
3942 024374 3943 024376 3944 024402 3945 024404	105237 001734 INCB PASFLG ;FIRST PASS, NOT DONE 000625 BR 1\$;KEEP GOING 104471 12\$: ECCIDIS ;CLEAR OUT ANY DBE'S OR SBE'S	
(1) 024362 3940 024366 3941 024370 3942 024374 3943 024376 3944 024402 3945 024404 3946 024416 3948 024414 3949 024416 3950 024416	005011	

SE'S 0227

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PATTERN CEMKAA.	MA1 2	MACYII 4-FEB-78	30A:1052 11:01	28-FE	B-78 09 MTP013	3:20 PAG CREATE	E 27 Double bit error	TEST
3953 3953 3955 3955 3955 3955 3955					MTP014: :***** :*SUBTE :****		<pre> <(MTPD14 ####################################</pre>	WRITE INHIBIT DURING DATIP WITH DBE TEST// ***********************************
396456789012345678966777777777777777777777777777777777	024520	005037 005037 012737 005037 012737 005037 013737 013737 001404 005137 005137 005137 005137 005137 001466 012737 001466 012737 013701 074137 013701 074137	001712 001714 000001 001724 000001 001730 001712 001714 001734 001720 001726 001726 001730 001716 034350 001722	001722 001726 001716 001720	3\$: 4\$: 5\$:	CCMCMCMCS S CCMCMCMCSTEMM 1 CCMCMCMCSTEMM 1 CCMCMCMCSTEMM 1 CCMCMCMCSTEMM 1 CCMCMCMCMCMCMCMCMCMCMCMCMCMCMCMCMCMCM	TSTDAT TSTDAT+2 DBEMSK.SBEMSK 65 DBEMSK+2,SBEMSK 115 #TSTDAT,SOURCE	CUMPL DATA ON SECURL PASS
3995 3996 3997	024600 024604 024610 024612 024616 024620	074137 013701 074137 013701 074137 013701 104471 105037 013703 104503 104503 104503 104503 104503	001720 001726 001716 001730 001720 002070 001716 001720 001735 002070		7 \$:	XOR MOV XOR MOV IDIS MOV CB1CSR MOV CLR1CSR MOV CLR1CSR MOV CLR1CSR MOV CLR1CSR MOV CBFB MOV CBFB	SBEMSK, RI RI, TSTDAT SBEMSK+2, RI RI, TSTDAT+2 DBEMSK+2, RI RI, TSTDAT DBEMSK+2, RI RI, TSTDAT+2 TESTADD, PI TSTDAT, (RI)+ TSTDAT+2, (RI) UPPFLG TESTADD, R3 (R3)+ -(R1), R0 TSTDAT, R0 95	;TEST ADDRESS ;WRITE FIRST 16 BITS ;SECOND 16 BITS+CHECKBITS ;INDICATE LOWER WORD ;TEST ADDRESS ;CLEAR IT ;SPECIAL DATIP INSTRUCTION ;CHECK FOR UNCHANGED DATA ;SHOULD BE UNCHANGED
3990 3900 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 39000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30000 30	024652 024656 024660 024664 024666	062701 011100 023700 001401 104455	000002 001720		9\$:	ADD MOV CMP BEQ PERR31	#2.R1 (RI) RO TSTDAT+2,RO 10\$:POINT TO UPPER WORD :PEAD IT :BR IF UNCHANGED
4009	024670	122737	000003	001735	165:	CMPB	#3,UPPFLG	:LOWER WORD

PATTERN CEMKAA.	s Mai a	MACY11 14-FEB-78	30A . 2052 3 11:01	? 28-FE	B-78 09	JC D PAGE 27-1 RITE INHIBIT DURING			SE0 0229
	024700 0247006 0247706 0247706 0247714 0247714 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726 0247726	001403 105237 000753 000753 0005737 100405 006137 000654 032777 001013 005737 100405 006137 000630 105737 000630 105737 000630 105737 000630 105737 000611 104471 005021 005021 104503 000207	001735 001736 001736 001730 004000 002016 001724 001724 001724 001734 001734	155244	13\$: 13\$: 14\$:	EQ 115 NCB UPPFLG R BS ST DBEMSK+2 MI 125 LEFT DBEMSK OL DBEMSK+2 R #SW11 SET. IN DSWR F QVFLAG NE #0 THEN ST SBEMSK+2 MI 135 LEFT SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMSK OL SBEMS	BNE TST BNE	2 85W11, DSWP 13\$ 2 QVFLAG 13\$	

						LO2	
PATTERN CEMKAA.		MACY11 24-FEB-78	30A:1052 3 11:01) 28-FE	B-78 09 MTP015	9:20 PAGE 28-1 WRITE INHIBIT OF BYTE WITH DBE	SE@ 0231
4088 4089	025274	005737 100405	001730		115:	TST DBEMSK+2 :CHECKING FOR LAST ERPOR BIT BMI 12 S :BR IF DONE HEPE DLEFT DBEMSK	
(1) (1) 4091	025274 025300 025300 025300 025314 025314 025314 025324	006137 006137 000657	001726 001730			ROL DBEMSK ROL DBEMSK+2 BR 4\$	
4092 (5) (5)	025314 025314 025322	032777 001013	004000	154656	12\$:	IF #SW11 SE".IN DSWR THEN GOTO 13\$. BIT #SW11.DSWP BNE 13\$	
4093 (5)	025324 025324 025334	005737	910200			IF QVFLAG NE #0 THEN GOTO 13\$ TST QVFLAG BNE 13\$	
4094 4095 4096	025330 025336 025336 025340 025344 025350	001010 005737 100405	001724			TST SBEMSK+2 :LAST SBE MASK PMT 135 :	
(1) (1)	025340	006137 006137 000633	001722 001724			DLEFT SBEMSK ROL SBEMSK ROL SBEMSK+2 BR 3\$	
4098 4099	りとうろうに	1115/4/	001734		13 \$:	TSTB PASFLG ; TEST PASS FLAG BNE 145 ; NON ZERO MEANS WE'RE DONE	
4100	025364 025364 025366	105237	001734			INCB PASFLG ; NOT DONR BR 1 S	
990\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	025366 025370 025374 025376 025400	013701 005021 005011 104503	002070		145:	ECCIDIS MOV TESTADD, PI : TEST LOCATION CLR (R1)+ CLR (R1) CLR1CSR : TO ERASE ANY DBE'S FROM TESTING CLR1CSR : RESTORE CSR RETURN	

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MACY11 30A(1052) 28-FEB-78 09:20 PAGE 29
PATTERNS
                                                   MTPO15 WRITE INHIBIT OF BYTE WITH DBE
                  24-FEB-78 11:01
CEMKAA. MAI
                                                                                             WRITE INHIBIT OF WORD WITH DBE>>
                                                   MTP016: SUBTST << MTP016
  4110
          025404
                                                                        MTPOIS WRITE INHIBIT OF WORD WITH DBE
   (3)
                                                    *SUBTEST
                                                    *****************
                                                              DOUBLE BIT ERROR WRITE CANCEL WITH
  4111
                                                              WORD WRITE CHECKS WRITE INHIBIT WITH WORD WRITES TO
  4112
                                                               WORD WITH DOUBLE ERROR.
  4114
                                                                                             BACKGROUND FOR DOUBLE ERROPS FOR HORDS HORTH SINGLE ERROP MASK
          025404
025410
025414
                                                                        DATBUF
DATBUF+2
#1,5BEMSK
SBEMSK+2
                    005037
005037
012737
                                                              CLR
  4115
4116
4117
                               001712
                                                   T12A:
                                         001722
                               C00001
                                                              MOV
                    005037
012737
005037
          025422
                                                              CLR
  4118
                               001724
                                                                        DBEMSK+2
  4119
          025426
                               0000001
                                                                                              DOUBLE ERROR MASK
                                                   T128:
                                                              MOV
                                         001726
                                                              CLR
                                                                        DATBUF, TSTDAT ; DATA FOR TEST
DATBUF+2, TSTDAT+2: BOTH WORDS
PASFLG ; COMP DATA ON SECOND PASS ONL?
25 ; BR IF FIRST PASS
          025440
  4121
                               001712
                                         001716
                    013737
                                                              MOV
  4122
          025446
                               001714
                                                              MOV
                    013737
                                         001720
          025460
  4124
                    001404
                                                              BEQ
                                                                                              COMP FIRST WORD
          025462
                                                                        TSTDAT
TSTDAT+2
  4156
                                                              COM
                    005137
005137
                               001716
                                                                                              CHECK FOR IDENTICAL MASKS
         025472
025500
025502
  4127
                    023737
                               001722
                                         001726
                                                              CMP
                                                                        SBEMSK, DBEMSK
                                                  2$:
                    001004
  4128
                                                              BNE
                                                                        SEEMSK+2, DBEMSK+2; UPPER HORD TOO
                    023737
                               001724
                                                              CMP
  4129
                                         001730
                                                                                             BR TO MAKE THEM NOT EQUAL NEED ADDR OF DATA FOR CHIGEN
  4130
          025510
                    001470
                                                              BEQ
                                                                        #TSTDAT, SOURCE
          052250
                    012737
                               001716
  4131
                                         001760 35:
                                                              MOV
                    004737
                                                                        CHKGEN
  4132
                               034350
                                                                                              GO GENERATE CHECK BITS
                                                              CALL
          025524
025530
025534
                    013701
074137
013701
                                                                        SBEMSK.RI
  4133
                               001722
                                                              MOV
  4134
                                                                        RI TSTOAT
SBEMSK+2,R1
                               001716
                                                              XOR
                               001724
                                                              MOV
         025540
025544
025550
025554
                                                                        RI TSTDAT+2
DBEMSK RI
RI TSTDAT
DBEMSK+2 RI
                    074137
013701
  4136
4137
                               001720
                                                              XOR
                               001726
                                                              MOY
                              001716
001730
  4138
                    074137
                                                              XOR
  4139
                    013701
                                                              MOV
                                                                        RI, TSTDAT+2
  4140
          025560
                    074137
                               001720
                                                              XOR
         025564
025570
025572
                                                                                             FIRST TEST ADRRESS
  4141
                                                                        TESTADD, RI
                    013701
                               002070
                                                   45:
                                                              MOV
  4142
                     104471
                                                              ECCIDIS
  4143
                    013721
                                                                        TSTDAT, (R1)+
                               001716
                                                                                             WRITE FIRST 16 BITS
                                                              MOV
          025576
                                                              CBICSR
  4144
                    104475
         025600
025604
025610
025614
                                                                                             :WRITE SECOND 16 BITS + CHECKBITS
:SET FOR 2 LOOPS
:POINT TO LOW WORD
                    013711
                                                                        TSTDAT+2,(R1)
UPPFLG
  4145
                              001720
001735
                                                              MOV
  4146
                                                              CLRB
                                                              ŠŪB
  4147
                    162701
                               200000
                                                                        #2,RI
                                                                                             CLEAR CSR
TRY WRITING LOCATION
  4148
                    104503
                                                              CLRICSR
                                                   5$:
          025625
                    012711
  4149
                               177400
                                                                        #177400,(RI)
                                                              MOV
  4150
                    013701
                               002070
                                                                        TĒSTADD, RI
                                                              MOV
          929520
                                                                        (R1) RO
TSTDAT, RO
                                                              MOV
  4151
                    011100
                                                                                             CHECK FOR ORIGINAL DATA SHOULD BE UNCHANGED
  4152
          025630
                    023700
                               001716
                                                              BEQ
PERR31
  4153
          025634
                    001401
  4154
          025636
                    104455
  4155
                                                                        #2.R1
(R1).RO
TSTDAT+2,RO
  4156
4157
          025640
                    062701
                               200000
                                                              ADD
                                                   65:
          025644
                    011100
                                                              MOV
  4158
          025646
                    023700
                                                              CMP
                               001720
                                                                                             :THIS SHOULD BE UNCHANGED ALSO
  4159
                    001401
          025652
                                                              BEQ
  4160
          025654
                                                              PEPR31
                     104455
  4161
          025656
  4162
                    105737
                                                                        UPPFLG
                              001735
                                                   7$:
                                                              TSTB
                                                                                             :WHICH LOOP ?
```

						NO2	
PATTERN CEMKAA.	s Mal 2	MACY11 4-FEB-78	30A:1052 11:01) 28-FE	B-78 09 MTP016	:20 PAGE 29-1 WRITE INHIBIT OF WORD WITH DBE	
4163 4164 4165 4166 4167 4168	0256 62 0256 64 0256 70	001003 105237 000751	001735		0.7	BNE BS :SECOND, BR OLT INCB UPPFLG :FIRST, KEEP GOING BR 55	
4166 4167 4168	025676 025700	205737 100405	001736		8 \$:	TST DBEMSK+2 ;LAST BIT ? BMI 9\$;MINUS = BIT 31 DLEFT DBEMSK	
(1) 4169 4170 (5) (5) 4171	02.5672 025676 025700 025700 025704 025712 025712 025712 025722 025722 025722	006137 006137 000653	001726 001730			ROL DBENSK ROL DBEMSK+2 BR 1 \$	
4170 (5) (5)	025712 025712 025720	032777 001014	004000	154260	9 \$:	IF #SW11 SET. IN DSWR THEN GOTO 10\$ IF GVFLAG NE #D THEN GOTO 10\$	BIT #SW11, DSWP BNE 10\$
(5) (5)	025722	005737 001011	005016				TST QVFLAG BNE 10 5
(5) (5) 4172 4173 4174	025734	005737 100406	001724			TST SBEMSK+2 :LAST BIT IN THIS MASK ? BMI 10\$;BR IF LAST BIT DLEFT SBEMSK	
(1) (1) 4175	025736 025736 025742 025746 025752	006137 006137 000137 105737	001722 001724 025426			ROL SBEMSK ROL SBEMSK+2 JMP T12B	
4176 4177	025752 025756	001004	001734		105:	TSTB PASFLG ;FIRST PASS ? BNE 11 \$:BR IF SECOND	
4178 4179	025756 025760 025764	105237 00 0137	001734 025404			JMP 112A	
4181 4182	025770 025772 025776	104471 013701 005021	002070		115:	ECCIDIS MOV TESTADD,R1 ; RESTORE TEST ADDRESS CLR (R1)+ ; CLEAR ANY DBE'S FROM TEST	
(1) (175 4176 4177 4179 4181 4183 4183 4185	056004 056000	005011 104503 000207				CLR (RI) CLRICSR ;CLEAR CSR RETURN	

SE@ 0233

PATTERN CEMKAA.	is Mai 2	MACYII 4-FEB-78	30A 1052	28-FEB-78 09 MTP016	:20 PAG WRITE I	E 30 NHIBIT OF WORD W	ITH DBE	SE2 0234
4188 (3)	026006			MTP017: :***** :*SUBTE :*****	******* ST	MTPD17 HOLDING		
4189 4190 4191 4192 4193 4195 4195	900920 900920	012701 010104	060000	,	#(1) # #(2) #(3) NOTE: MOV		S THE MEMORY FOR THE CAPABILITY AND D'S BY WRITING A BACKGROUND EADING IT EN USING A BYTE AT A TIME REPEATED WITH A SWAPPED BACKGROUND PATTERN S BYTES & READS WORDS	
מיים של הרוב בל בל מושה מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מת מושה מושה מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מושה מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת מתחשת	026014 026020 026024 026030 026032 026032 026034 026036	012705 012700 010003 000303 110021 110321 020105 103774	160000 000377	15:	MOV MOV SWAB MOVB MOVB CMP BLO	#LAST+2,R5 #377,R0 R0,R3 R3,R3 R0,(R1)+ R3,(R1)+ R1,R5 1\$: UTT THE PATTERN INTO RO :WRITE A BYTE :WRITE THE MEMORY WITH THE BYTE STORED IN BAKPAT+1 :COMPARE TEST LOC TO TOP + 2 :BRANCH IF LOWER	
4206 4207 4208	056045 056040	050005 014105		2\$:	MOV CMP	-(R1),R2 RO,R2	TEST THE MEMORY TO SEE IF IT CONTAINS THE WORD STORED IN BAKPAT	
4210 4210 4211	026046 026044	104446 001401			BEQ PERR22	3\$		
14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214 14214	026050 026052 026054 026056 026060	020104 101372 000303 000300 001763		3\$:	CMP BHI SWAB SWAB BEQ	R1.R4 2 \$ R3 R0 1 \$:KEEP ON TESTING THE MEMORY UNTIL :R1 EGUALS THE LOWEST ADDRESS :CHANGE THE DATA PATTERN :IF THE DATA PATTERN DOES NOT HAVE LOW : BYTE =0 THEN FALL THRU	
4516	056065	0002207			RETURN		, BITE TO MENTALE MINO	

						CD	3	
PATTERN CEMKAA.		MACY11 14-FEB-78	30A(1052) 11:01	28-FEB-78 09 MTP017		E 31 6 1'5 & 0'5 TEST		
4221 (30) (20) 4223 4223	026064			MTP020: ; ***** ; *SUBTE ; ****	******* ST ******	MTPO20 MARCHI	***	8 O'S IN CHECK BITS TEST// ###################################
**************************************	026064 026066 026072 026074 026076 026100	010311 010461 060201 020105 103772 000207	000002	MTP20A:	;WRITE MOV MOV POD CMP BLO RETURN	UP ;100 ~ R3,(P1) R4,2(R1) R2,R1 R1,P5 MTP20A	-> CHECKBITS :V177640 :V177642 :V177646 :V177650 :V177652 :V177654	:TOF + 2 ? :BR IF NOT
1233 1231 1235 1236 1237 1238	026102 026110 026112 026112 026114	160201 020461 001002 005711 001401	200002	MTP208:	:100 SUB CMP BNE TST BEG	> 077 DOWN R2,R1 R4,2 R1) 21\$ (R1) 3\$	V177640 V177642 V177646 V177650 V177652 V177654	:2ND WORD OK? :NO - SKIP :1ST WORD OK? :YES - SKIP
4245 4245 4245 4245 4245 4245 4245 4245	026116 026130 026130 026124 026130	104452 010361 010311 01000 001054 000007	000502	21 5 : 3 5 :	PERR26 MOV MOV CMP BNE RE*URN	R3,2(R1) R3,(R1) R1,R0 MTP20B	V177654 V177656 V177662 V177664 V177666 V177670	:GÖÖD=0ÖÜÖD0,,100000,,100

PATTERN CEMKAA.		MACY11 24-FEB-78	30A:1052 3 11:01	28-FEB-78 09 MTP020		IG 1.2 % 0.8	DOB	
# B90 - NM TH 6	026134 026149 026149 026149 026150 026150 026150	005711 001003 005761 001401 104453 010311 010461 060201 020105 103764 000207	200005	MTP200: 415: 55:	D77 +5T BNE TST BEG PERR27 MOV ADDO CMP BLO RETURN	R3. (R1) R3. (R1) R3. (R1) R4. R1 R4. R1 R1. R5 MTP20C	.V177640 .V177642 .V177650 .V177652 .V177654 .V177656 .V177662 .V177664 .V177666 .V177670	:1ST WORD OK? :NO - SKIP :2ND WORD OK? :YES - SKIP :GOOD=DODDOD GDJDGGD?? :WRITE IST WORD :WRITE 2ND WORD :TOP + 2 YET? :NO - LOOP
0000-1007-1007-1007-1007-1007-1007-1007	026166 026170 026172 026176 026200 026200 026210 026210 0262114 026216	005711 001003 020461 001401 104452 010311 060201 020105 103764 00020	000002	MTP20D: 615: ~\$:	HOD TST BNE CMP BERR26 MODD MODD CMP RE RE	R3. (R., R3. (R.) R3. (R.) R3. (R.) R3. (R.) R3. (R.) R3. (R.) R3. (R.) R3. (R.) R3. (R.) R3. (R.) R3. (R.) R5. MTP20D	V177640 V177642 V177644 V177650 V177652 V177654 V177662 V177664 V177664 V177666	:15T WORD OK? :NO - SK! :2ND WORD OK? :YES - SKIP :TOP + 2 YET? :NO - LOOP

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PATTERNS CEMKAA.MAI	MACYII 30A 24-FEB-78 II	(1052) 28-FEB- :01 M	78 09:2 17020 M	O PAGE IARCHING	1.2 % 0.2 1	N CHECK	BITS TEST	
4272 4273 026220 4274 026222 4275 026226	005761 00: 001002	5002	TP20E: \$ T B	SUB ST INE	100 DOWN R2,R1 2(R1) 81\$: V17 : V17 : V17	7642	: YES - SKIP : 15T WORD OK? : 2ND WORD OK?
4274 026222 4275 026226 4276 026230 4277 026232 4278 026234 4280 026236 4281 026244 4282 026246 4283 026250 4284 4285 4285 4286 4287 026254	001401 104453 010461 00! 010311 020100 001364	9 9 9	815: P 5: M C	EG ERR27 IOV I IOV I	(Ř1) 9 \$ R4,2(R1) R3,(R1) R1,RG MTP2OE	V17 V17 V17 V17 V17 V17	7654 7656 7662 7664 7666	WRITE 2ND WORD WRITE 1ST WORD BOTTOM YET? NO - LOOP
4288 026256 4289 026262 4280 026264	005711 001003 020461 00 001401 104452 060201	0002	TP20F: T B C B 01 \$: P	NE MP EQ ERR26	(RI) 101 \$ R4,2(RI) I1 \$ R2,RI	V17 V17 V17 V17 V17	7642 7642 7646 7650 7652	IST WORD OK? NO - SKI 2ND WORD OK? YES - SKIP
4291 026266 4292 026270 4293 026272 4293 026272	020105 103767 500237	•	C	MP 1	RI RS MTP20F	V17 V17 V17	7654 7656	TOP + 2 (ET)

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PATTERN CEMKAA.	S Mai a	MACY11 PH-FEB-TE	302.1052 3 11:01	28-FE	B-78 09 MTP020	:20 PAG MARCHIN	g 1.2 % 0.2 IN 0	HECK BITS TEST	2E2 0538
4297 (33) (33) (23) 4298 4299 4300	026276				MTPA20: : ***** : *SUBTE : ****	SUBTST	<pre> <<mtp><<mtp><<mtp><<mtp><<mtp><<mtp> MTPA2D SLOW MA **********************************</mtp></mtp></mtp></mtp></mtp></mtp></pre>	SLOW MARCHING 1'S & D'S IN CHECK BECHING 1'S & D'S IN CHECK BITS TEST CONLY WITH THE INTEGRITY STORE THE CHECKBITS. ;FIRST TEST LOC ;WRITE CHECKBITS BY WRITING LOC ;POINT TO NEXT WORD ;TOP + 2 ;BR IF NOT ADJUST R1 ;READ	ITS TEST>> ***********************************
4300 4301 4302 4303 4304 4305	026276 026276 026304 026310 026314 026316	012737 013701 013702 010103 005004	177777 001710 001772	001412		SET MOV MOV MOV CLR	SBEFLAG #-1,SBEFLAG CSRFIRST,R1 CSRINC.R2 R1,R3 R4	;FIRST TEST LOC	
4306 4307 4308	026320 026324 026330	005037 104505	001256			CLR CHk1DIS	CSR	;WRITE CHECKBITS IN CSR	
43011 43011 43011 43011	026332 026334 026336 026340	010411 060201 020105 103774			25:	MOV ADD CMP BLO ;#####	**************** R2,R1 R1,R5 2 5	WRITE CHECKBITS BY WRITING LOC POINT TO NEXT WORD TOP + 2 BR IF NOT	# WRITE OF # D'S OHW BI # #
1306789012315678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235556789012355567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012356789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123556789012355678901235567890123567890123567890123567890123567890123567890123567890123556789012356789012356789012356789012356789012356789012356789001235567890012356789000000000000000000000000000000000000	026342 026344 026346 026350 026356 026364 026366 026372	150201 005711 104426 032737 001406 013700 000300 042700 104435	077400 001526 000200	001526	3 \$:	SUB TST READCSR BIT BEG MOV SHAB BIC PERR!1	R2.R1 (R1) #77400.D#CSR 4\$ CSR,RC P0 #200,R0	ADJUST RI READ SHOULD BE ALL ZEPOS BR IF OK	****** * * * * * * *
1325 1327 1328 1329 1330 1331 1332	C26374 025402 026404 026406 026410 026412	012737 104505 005104 016411 920103 001353	077400	001256	∀\$:	MOV CHK1DIS COM MOV CMP BNE	R4 R4,(R1) R1,R3	MAKE CHECKBITS ALL 1'5 COMP THE DATA WRITE THE CHECKBITS BOTTOM YET? BR IF NO	DOWN
4333 4335 4335 4336	026414	005037 104505	301526			CLR CHKIDIS	csr	******************	FF X X FF

PATTERN CENKAA.	S Mai a	MACYII MACYII	30A (1058 3 11:01	2) 28-FE	8-78 09 MTFA20	3:20 PAG SLOW MA	GD3 E 32-1 RCHING 1'5 & 0'5	IN CHECK BITS TEST	SEG 0239
+338 +339 +334 +334 +334 +334 +334 +334 +334	026452 026426 026436 026436 026442 026442 026444 026446 026452	005711 104426 013700 042700 022700 001404 000300 042700 104445	001526 100377 077400		5\$:	TST READCSR MOV BIC CMP BEQ SHAB BIC PERR21	(R1) amcsr, R0 mi00377, R0 m77400, R0 65 R0 m200, R0	READ THE LOC AGAIN GET CSR CONTENTS INTO RO ONLY WANT BITS 11-5 READ FOR ALL 1'S BR IF OK	* * * * * * * * * * * * *
90-103+567890-109+567890-109+567890-109+5 334+44+44+4+55555555556666666666767777 3444444+4+4+5555555566666666667677777 3444444444444444444444	026454 026460 026462 026464 026466 026470 026472	005037 104505 005104 010411 060201 020105 103753	001526		6\$:	CLR CHKIDIS COM MOV ADD CMP BLO : *****	Ďи	ACCESS THE LOC POINT TO NEXT ADDRESS TOP+2 YET? BR IF NOT	• • • • • • • • • • • • • • • • • • •
7356-2 7356-2 7356-2 7356-3 7356-5 7356-7 7356-7	026476 026500 026502 026510 026512 026516 026520 026524	005711 104426 032737 001406 013700 000300 042700 104435	077400 001526 000200	001526	7 \$:	+ * * * * * * * * * * * * * * * * * * *	(R1) #77400.3#CSR 8\$ CSR,RO RO #200,RO	READ CHECKBITS SHOULD BE ZERO BR IF OK	* * * * * * * * * * * * * * * * * * *
43571 4372 4372 43373 43375 43375 43377 13378	026526 026534 026536 026540 026542 026544 026544	012737 104505 005104 010411 060201 020105 103753	077400	001526	8\$:	MOV CHKIDIS COM MOV ADD CMP BLO	24	COMP CHECKBITS WRITE THE LOC POINT TO NEXT ACCRESS TOP+2 YET? BR IF NOT	▼ UF # } \$ } }
+378 +379 +380	C26550 026554	005037 104505	001526			CLR CHKIDIS	CSR		

PATTERN CEMKAA.	S MAI 2	MACY11	30A:1052 3 11:01	28-FE	B-78 09 MTPA20	:20 PAG SLOW MA	E 35-5 SE 35-5 PRCHING 1'5 & 0'5	IN CHECK BITS TEST	5E0 0246
	026556 026567 026567 026570 026574 026600 026604 026604 026610	160201 005711 109426 013700 042700 022700 001404 000300 042700 104445	001526 100377 077400		9\$:	SUB IST READCSE MOV BIC CMP BEQ SWAD BIC PERR21	R2.R1 (R1) (R1) 3#CSR.RO #100377.RO #77400.RG 10S RO #200.RO	ADJUST RI READ GET CSR CONTENTS ONLY WANT CHECKBITS ALL 1'S? BR IF OK	# 1'5 / D'S
&\\&\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	026612 026620 026620 026624 026624	005037 104505 005104 010411 020103 001353	001526		135:	CLR CHK1DIS COM MOV CMP BNE ;#####	CSR R4 R4,(R1) R1,R3 95	COMP THE DATA WRITE THE CHECKBITS BOTTOM YET? BR IF NO	* * * * * * * * * * * * * * * * * * *
10000000000000000000000000000000000000	026630 026632 026634 026642 026650 026652 026652	005711 104426 032737 001406 013700 000300 042700 104435	077400 001526 000200	J01526	115:	TST READCSR BIT BEQ MOV SWAB BIC PERR11	(R1) #77400,0#CSR 12\$ CSR,RO RO #200,RO	READ SHOULD BE ALL O'S BR IF OK	-0 'S
12007556.00 177777777777777777777777777777777777	0266£0 026662 026666 026670 026672	060201 005037 104505 020105 103755	CG1526		12 5 :	ADD CLR CHKIDIS CMP BLO ; *****	R2,R1 CSR R1,RS 11\$	POINT TO NEXT WORD TOP + 2 YET? BR IF NOT	*******
OFO HAMPINA HIN HINNANN FIT ITTTT	026674 026674 026700 026702 026706 026712 026714 026720 026720	004537 030676 012700 012701 104471 004737 104503 006207	037306 060000 040000 177640			BMOV JSR	FASTCITY	:'5	•

PATTERN	5	MACYII	30A (10 52 29-FI	B-78 09	:20 PAG	E 33	103						
CEMKAA.		4-FEB-18		MTPA20	SLOW MA	RCHING 1	'5 & 0'5					_	
4429 (230) (430) 4430 4433 4433 4435	026724 026726 026730 026732	0014100 002020 004100 104100		*SUBTE	******* ST ******	**********	1 ######## MARCHING ######## MODIFY RE J:V177640 :V177644 :V177644 ;V177646	1'5 & C 4###### AD,DOWN	S PAT	O'S PATI	******* [T ######### #########	
7736 7736 7737 7738 7739 7741	026734 026736 026740 026742 026744	000311 011100 020300 001401 104444		2 \$:	SWAB MOV CMP BEQ PERR20	(R1) (R1),RO R3,RO 3\$	V177650 V177652 V177654 V177656 V177660						
4442 4443 4444 4445	026746 026750 026752	020401 001365 000207		3 3 :	CMP BNE RETURN	R4,R1 1 \$	V177662 V177664 V177666	•	DONE? NO - L YES -	.00P RETURN			
1115 1117 1118 1119 1150 1151	026754 026754 026756 026760 026762	011100 020300 004001 104444		MTPB21: 1 \$:	; READ, B MOV CMP BEQ PERR20	YTESWAP-I (R1),RO R3,RO 2 \$	10DIFY,RE :V177640 :V177642 :V177644 :V177646						
4453 4453 4455 4455 4456 4457	026764 026766 026770 026772 026774	000311 001110 002020 001110 118000		2 \$:	SWAB MOV CMP BEQ PERR17	(R1) (R1),RO R2,RO 3\$	V177650 V177652 V177654 V177656 V177660	1					
4452 4459 4459 4459 4459 4459	026776 027002 027004 027006	062701 020501 001363 000207	000002	3\$:	ADD CMP BNE RETURN	#2,R1 R5,R1 1\$	V177662 V177666 V177670 V177672) 	; DONE? : NO - L : YES -	.00P RETURN			
1163 1165 1166 1167 1168	027010 027010 027012 027014 027016	011100 020200 104100 104443		MTPC21: 1 S :	;READ,B' MOV CMP BEQ PERR17	(R1),R0 R2 R0	10DIFY,RE :V177640 :V177642 :V177644 :V177646						
4469 4470 4471 4472 4473 4474	027020 027022 027024 027026 027030	000311 011100 020300 00401 104444		2 \$:	SWAB MOV CMP BEQ PERR20	(R1) (R1),R0 R3,R0 3\$	V177650 V177652 V177654 V177656 V177660	ı					
4475 4476 4477 4478 4479	027032 027036 027040 027042	062701 020501 001363 000207	200000	3\$:	ADD CMP BNE RETURN	#2,R1 R5,R1 1\$	V177662 V177666 V177670 V177672	ı	:DONE? :NO - L ;YES -	OOP RETURN			
7480 7481	027044 027044	014155		MTPD21: 1\$:	;READ,B'	YTESWAP-N -(R1),R0	10DIFY,RE 0:V177640	AD, DOWN					

PATTERN CEMKAA.	S MA1 a	MACY11 30A:1052, 24-FEB-78 11:01	28-FEB-78 09 MTPA21	:20 PAG MARCHIN	E 33-1 G 1'5 & (JO3	TEST	SEG 0242
4482 4483 4484 4485 4486	027046 027050 027052 027054	020300 104101 104444 000311	2\$:	CMP GEQ PERR2G SWAB	R3.R0 2 \$:V177642 :V177644 :V177646 :V177650		
11185 11185 11185 11186 11189 11199 11199	027056 027060 027062 027064	011100 020200 001401 104443		SWAB MOV CMP BEQ PERR17	(R1),R0 R2,60 3\$; V177650 ; V177652 ; V177654 ; V177656 ; V177660		
4492 4493 4494 4495	027056 07070 07072 07072	020401 001365 000207	3 \$:	CMP BNE RETURN	R4,R1 1 \$; V177662 ; V177664 ; V177666	: COME? : NO - LOOP : YES - RETURN	

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					KUJ			
PATTERN CEMKAA.	IS MAI 2	MACYII 14-FEB-18	30A(1052	, 28-FE	B-79 09:20 PAGE 34 MTPA21 MARCHING 1'S & O'S PATTERN TEST			SEG 0243
4498	027074				MTPO22: SUBTST ((MTPO22 REFRESH TEST))			
1333 1333 14500 14500 14501	-				######################################	*********	**********	
(5)						********	**********	
4499		000400			REFDEL=256. TIME FOR > 2 MS LOOP KDIAG=8. HOW OFTEN A DIAGNAL STRIPE OCCU	URS (MUST BE	A POWER OF 2:	•
4501	027074				FOR EVEN := #1 TO #2			
(4)	027074	012737	000001	002034		B34:;;;;;	#1,EVEN	
(4) 4502	027102				IF EVEN EQ #1		5.15hi w.1	
4502 (4)	027102 027102 027102 027102 027110	023727	002034	000001		CMP BNE	EVEN, #1 L250	
(6) 4503	027112	001005			LET R2 := ZERCS			
(3)	027112	013702	9005006		LET R3 := ONES	MOV	ZEROS,R2	
4503 4503 4504 (3) 4505 (3) 4506 (507	027116 027116	013703	002154		LET RS : 2 ONES	MOV	ONES,R3	
4505	027122 027122 027124 027124 027124				ELSE	RR :	L251	
(3)	027124	000404				_250:;;;;;		
4506	027124	012702	202154		LET R2 := ONES	MOV	ONES,R2	
4507	027130	013702	002154		LET R3 := ZEROS			
4507 (3) 4508 (3) 4509	027130	013703	900500			MOV	ZEROS, P3	
4508	027134				END ; OF IF EVEN	L251:::::		
4509	027134 027134	22522	202021		FOR STRIPES := #D TO #KDIAG-1		STRIPES	
(4)	027134 027140	005037	005036			B35:;;;;;	3 RIFES	
4510	OL, I io							
(4) 4510 45112 4513 4513 4513 4513 (5) (7)	027140	104423			;WRITE LOOP CACHON			
4513	027140 027142				LET COUNT := STRIPES	MOU	CTRIPES COUNT	
(3) 4514	027142	013737	005036	002040	LET R1 := #FIRST	MUV	STRIPES, COUNT	
(3)	027150 027154	012701	060000			MOV	#FIRST,R1	
4515	027154				WHILE R1 LOS #LAST	B36::::::		
(5)	027154	020152	157776			B36::;;;;	RI,#LAST	
(7) 4516	027160 027162	101032			IF COUNT LT #D THEN LET COUNT := #kDIAG-1	BHI	L2 5 2	
(4)	027162	005737	002040		If COOK! E! WO THEN EE! COOK! ! - OF DING I	IST	COUNT L253	
(6) (5)	027166 027170	002003 012737	000007	002040		BGE MOV	#KDIAG-1,COUNT	
(3)	027176	UIE/3/	000007	002070		L253::::::	#KD1/14 1,000///	
4517 (4)	027176 027176 027176	022701	000274		IF #374 OFF. IN R1 THEN LET COUNT := COUNT	- #1	#374,R1	
(6)	027202	032701 001002	000374			BNE	L254	
l (7)	027204	005337	002040			DEC	COUNT	
(3) 4518	027210				IF COUNT NE #D	L254:;;;;;	_	
(4)	027204 027204 027210 027210 027210 027214	005737	002040				COUNT L255	
(6) 4519	027216	001404			LET (R1) := R2			
4519 (3)	027216 027216 027220	010511				VOM	R2,(P1)	
4 520 73)	027220	010561	200000		LET 2(R1) := R2	MOV	R2,2(R1)	

-	-				LO3			
PATTERN CEMKAA.I		MACYII 4-FEB-78	30A:1052) 28-FEB-78 09:20 MTP022 REF	PAGE 34-1 RESH TEST			SEG 0244
10000000000000000000000000000000000000	027224 027224 027226 027226 027226 027230 027234 027234 027234 027234 027234 027240 027240 027246 027246	000403 010311 010361 005337 062701 000743	000002 002040 000004	•	LET (R1) := R3 LET 2(R1) := R3 END ; OF IF COUNT LET COUNT := COUNT - #1 LET R1 := R1 + #4 END ; OF WHILE	MOV MOV L256:::::: DEC	R3,(R1) R3,2(P1) COUNT #4,R1	
4528 4529 4530 4531	027246	004737	027442		; END OF WRITE LOOP CALL REFRESH			
4532 4533 (3) 4534 (3) 4535 4536	027252 027252 027260 027260 027264 027266	013737 012701 104424	060030 005036	002040	READ LOOP LET COUNT := STRIPES LET R1 := #FIRST CACHOFF WHILE R1 LOS #LAST	MOV	STRIPES, COUNT	•
(5) (7) 4537 (6) (5) (3) 4538	027266 027266 027272 027274 027274 027300 027302 027310	020127 101046 005737 002003 012737	157776 002040 000007	002040	IF COUNT LT #0 THEN LET COUNT := #KDIAG-1	TST BGE MOV L260::::::	R1, #LAST L257 COUNT L260 #KDIAG-1, COUNT	
(4) (6) (7) (3) 4539	027310 027314 027314 027316 027322 027322 027322 027326 027330	032701 001002 005337	000374		IF #374 OFF.IN R1 THEN LET COUNT := COUNT IF COUNT ME #0	- #1 BNE DEC L261:;;;;	#374,R1 L261 COUNT	
150 153 154 154 154 154 154 154 154 154 154 154	027322 027326 027330 027332 027332 027334 027336 027340	005737 001412 011100 020200 001401	002040		LET RO := (R1) IF R2 NE RO	BEQ MOV	COUNT L262 (R1),R0 R2,R0 L263	
7001100200 701100200 70110200 70110200 7110200 7110200 7110200	027340 027340 027340 027340 027344 027344	016100	000002		PERR17 END :OF IF R2 LET RO := 2(R1) IF R2 NE RO		2(R1),RG R2,RO	

			• =	MO3	4-1
PATTERN CEMKAA.I	MAI 2	MACY11 4-FEB-78	30A:1058 3 11:01	29-FEB-78 09:20 PAGE 34-2 MTP022 REFRESH TEST	3EG 0245
6767 757 757 757 757 757 757 757 757 757	027346 027350 027352 027352 027352 027354 027354 027354 027356 027360 027362	001401 001100 020300 001401		PERRI7 END ; OF IF R2 ELSE LET RO := (R1) IF R3 NE RO	BEG L264 L264:;;;;; BR L265 L262:;;;;; MOV (R1),R0 CMP R3,R0 BEG L266
100 100 100 100 100 100 100 100 100 100	027364 027364 027364 027364 027370 027370 027372 027376 027376 027376 027376	104444 050300 016100	000002	PERR20 END; OF IF R3 LET RO := 2(R1) IF R3 NE RO PERR20 END; OF IF R3 END; OF IF COUNT	L266:;;;;; MOV 2(P1).RO CMP R3.RO BEG L267 L267:;;;;
138 135 135 135 135 135 135 135 135 135 135	027376 027376 027376 027402 027406 027406 027410 027410	005337 062701 000727	000004	LET COUNT := COUNT - #1 LET R1 := R1 + #4 END ; OF WHILE ; END OF READ LOOP	DEC COUNT ADD #4,R1 BR 837 L257:::::: E37::::::
(55) (55) 75(5) 75(5)	027410 027414 027424 027424 027424 027424 027424 027430 027436 027440	005237 023727 003646 005237 023727 003621	002036 002036 002034 002034	END ; OF FOR STRIPES 000007 END ; OF FOR EVEN 000002	INC STRIPES CMP STRIPES. **KDIAG-1 BLE B35 E35:;;;;;; INC EVEN CMP EVEN, *2 BLE B34
15566 15666 15663 15663 1563 1563 1563 1	027440 027442 027442 027442 027446 027446 027452	000207 012700 004737	060000 027512	RETURN REFRESH: SUBTST (SUBR REFRESH DELAY)) ;***********************************	E34:;;;;:: ******************************

PATTERN CEMKAA.	S Mai 2	MACY11 4-FEB-78	30A(1052)	28-FEB 78 SUBR	09	:20 PAG REFRESH	E 34-3 DELAY	NO3
(6) (5) (5)	027452 027456 027462	062700 020027 003771	000004 060374					
(5) 4571 (3) 4572	027464 027464 027464 027470 027470	012700	150000	LET RO := #FIRST+BIT14 WHILE RO LOS #LAST+BIT14+3				
(3) (5) (7)	027470	020027	020372					
4573	027474	101005 004737	027512			CALL	REFSUB	A MLI
4574 (<u>5)</u>	027502 027502	062700	000004		LET RO := RO + #4			
4575 (3) (3) (3)	027506 027506 027510	000770				END ; OF	MHILE	
4576	027510 027510	000207				RETURN		
4577 4578 4578 4588 45883 4588 4588	027512 027516 027522 027524 027526 027530 027532	012704 062700 005140 005120 005110 005110	000400	REFS 1 \$:	SUB:	MOD COOM COOM SOB	#REFDEL #2.RO -(RO) (RO)+ (RO) (RO) R4.15	, R4
4565 4586	027534 027540	162700 000207	000002			SUB RETURN	#2,R0	

ADD #4,R0 CMP RO #FIRST+374 BLE 840 E40:;;;;;;;

MOV #FIRST+BIT14,RC

B41:;;;;; CMP RO_#LAST+BIT14+374 BHI L270

ADD #4,R0

BR 841 L_70:;;;;; E41:;;;;;

PATTERN CEMKAA.	s Mai a	MACYII 14-FEB-18	30A:1052 3 11:01	29-FE	8-78 09 SUBR	:20 PAG REFRESH	E 35 DELAY		SEG 0247
4589 (3) (3)	027542				: ***** : *SUBTE	******* ST	<pre><<mtp023 ####################################<="" td=""><td>SHIFTING DIAGONAL PATTERN TEST>> ###################################</td><td></td></mtp023></pre>	SHIFTING DIAGONAL PATTERN TEST>> ###################################	
7	027542	105037	001734		: * * * * * * * * * * * * * * * * * * *	******** **(2) :*(3) :*(5) :*(5) :*(B)	THIS TEST WRITE IT WRITES A DIA REAUS THE MEMOR SHIFTS THE DIAG DIAGONAL HAS BE WRITES A BACKGR BAKPAT AND REPE	S THE MEMORY WITH A BACKGROUND OF BAKPAT GONAL OF SHAPPED BAKPAT THROUGH EACH MEMORY SEMIBANK Y FOR CORRECT DATA ONAL AND REPEATS STEP 3 UNTIL THE EN SHIFTED 64 TIMES OUND OF SHAPPED BAKPAT, A DIAGONAL OF ATS FROM STEP 3	rupr;
4598 4599	027546	010437	001736			MOV	RY,LÖMBNK	LOWBNK CONTAINS ADDRESS OF THE LOWEST LOCATION IN THE SEMIBANK (4K) THAT CAN BE TESTED	
4609 4609 4609 4609 4609 4609 4609 4609	027552 027554 027560 027564	010402 052702 062702 022702 103002	000002 000000 160000			MOV BIS ADD CMP	R4,R2 #17776,R2 #2,R2 #LAST+2,R2	:R2 CONTAINS THE ADDRESS OF THE TOP OF THE SEMIBANK ADD 2 TO R2	
4605	027570 027572	012702	160000			BHIS MOV	2 \$ #LAST+2,R2	:IF R2 IS GREATER THAN LAST+2 THEN GO TO 25 :NOW R2 CONTAINS THE ADDRESS OF THE HIGHEST LOCATION THAT CAN BE TESTED :LOAD STRTDI WITH THE STARTING ADDRESS OF THE	∰•
4607 4608	027576	010437	001740		25:	MOV	R4,STRTDI	LOAD STRIDE WITH THE STARTING ADDRESS OF THE	
4610	027602	013701	001736			i10V	LOWBNK, R1		· *
4613 4613	027606 027612 027614 027616 027622 027626	013703 020104 001010 062704 032704 001402 062704	002174 000002 000176		3\$:	MOV CMP BNE ADD BIT BEG	BAKPAT,R3 R1,R4 5\$ #2,R4 #176,R4	BANK STORE THE CONTENTS OF BAKPAT IN R3 IS RI POINTING TO A LOCATION IN THE DIAGONAL? IF NOT THEN GO TO 5\$ THE FOLLOWING CODE IS USED TO PLACE THE ADDRESS OF THE NEXT LOCATION IN THE DIAGONAL IN R4	
4615 4616 4617 4618 4619 4621	027630 027634 027636	062704 000303 132737	000001	001734	4 \$: 5 \$:	BEG ADD SWAB BITB	4\$ #200,R4 R3 #1,PASFLG	DIAGONAL WILL CONTAIN SWAPPED BACKGROUND PATTERN CONTENTS OF LOCATION PASFLG WILL BE EVEN IF THE MEMORY IS BEING WRITTEN AND IT WILL BE ODD IF IT IS ONLY BEING READ ONLY THEN GO TO 6% OTHERWISE WRITE THE MEMORY WITH THE CONTENTS OF R3	
4622 4623 4624 4625	027644 027646	001001 010311				BNE MOV	6 \$ R3.(R1)	IF IT IS BEING READ ONLY THEN GO TO 65 OTHERWISE WRITE THE MEMORY WITH THE CONTENTS OF R3	
4625 4626 4627	027650 027652	0 5 0003			6 \$:	Cwb WOA	(R1) R0 R0,R3	:CHECK THE LOCATION POINTED BY RI TO CONTAIN	
4658	027654 027656	001401				BEQ PERR20	7 \$	PROPER DATA IF IT IS OK THEN GO TO 75	
4632 4632 1631	027560 027664 027666	062701 020102 103747	200000		7 \$:	ADD CMP BLO	#2,R1 R1,R2 3\$	CAUSE R1 TO POINT TO THE NEXT MEMORY LOCATION IS IT THE END OF THE SEMIBANK (4K) ? IF NOT THEN GO TO 35	
4629 4630 4633 4633 4633 4637 4633 4639	027670 027674 027700 027706	105237 013704 132737 001333	001734 001740 000001	001734	85:	INCB MOV BITB BNE	PASFLG STRTDI.R4 #1.PASFLG	LOAD RY WITH THE STARTING ADDRESS OF THE DIAGONAL HAS THE READ OF THE MEMORY BEEN DONE ?	
4638 4639	027710 027714	020402	000002			ADD CMP	2\$ #2.R4 R4,R2	ADD 2 TO THE STARTING ADDRESS OF THE DIAGONAL AND UNLESS THE END OF THE SEMIBANK (4K) IS REACHED	
4641 4640	027716 027720	103003 105737	001734			BHIS	95' PASFLG ; OR THE	DIAGONAL HAS BEZN ROTATED 64 TIMES	

SE9 0248

PATTERN CEMKAA.		MAC111 24-FEB-78	30A(1352) 11:01	28-FEB-78 09 MTP023		E 35-1 IG DIAGONAL	PATTERN TEST
4642	027724 027726	100324	001736	95:	BPL MOV	25 LCWBNK,R4	REPEAT FROM 25 MAKE RY POINT TO THE LOWEST LOCATION IN THE IN THE SEMIBANK (YK) UNDER TEST
4644 4645 4646 4647	027732 027736		002174		SWAB BEQ	BAKPAT 2 \$	AND IF THE TEST HAS NOT BEEN PERFORMED WITH THE SWAPPED BACK GROUND PATTERN THEN GO TO 25
4648	027740	010204			MOV	R2, K4	MAKE THE PRESENT HIGH BOUNDRY AS THE NEXT
4650	027742	020205			CMP	R2,R5	LOW BOUNDRY UNLESS THE PRESENT HIGH BOUNDRY IS ALSO THE HIGH BOUNDRY FOR THE MEMORY UNDER TEST
4649 4650 4651 4652 4653	027744	103676			BLO RETURN	15	HIGH BOUNDAY FOR THE HENORY CHOCK EST

PATTERN CEMKAA.		MACY11 4-FEB-78	30A(1052)	28-FE8-78 0 MTP023		E 36 G DIAGONAL PAT	TERN TEST	SEG 0249
4656 (3) (3)	027750			MTPO24 : **** : *SUBT : ****	******* EST	***********	FAST GALLOPING PATTERN TEST>/ ************************************	
(3) 4657 4658 4659 4660				•	#(1) # #(2)	THIS TEST WRI STORED AT LOC TEST BEGINS A (LETS NAME IT	TES THE MEMORY WITH A BACK GROUND PATTERN ATION BAKPAT T LOWEST LOCATION BEING TESTED	
4665					*(3) *(4) *(5)	LETS NAME THE SWAPS BYTES FO	IST LOCATION IN THE ROW/COLUMN LADER TEST AS '9'. OR LOCATION 'A'. ADS 'B' (MAKES 'B'=64TH CELL I.E. 2007H OCTAL	
4663 4665 4665 4666 4667					#(6) # #(7)	REPEATS STEPS END OF THE SE	THE PRESENT LOCATION OF 'B') 5 AND 6 UNTIL 'B' IS GREATER THAN THE MIBANK (4K) OF THE MEMORY IN WHICH 'A' IS RESIDING	
4668 4669 4670 4671					*(8) *(9) *(10)	A = A+2 REPEATS STEP GOES TO THE NI 3-9 UNTIL THE	S 3-8 UNTILL 'A' REACHES THE END OF THE SEMIBANK (HV. EXT SEMIBANK (4K) OF MEMORY AND REPEATS STEPS END OF THE BANK	
4667 4668 4667 4677 4677 4677 4677 4677					*(11) * *(12)	AFTER EXECUTION BAKPO	NG THE TEST BYTES ARE SWAPPED AT AT AND STEPS 1-10 ARE REPEATED RI IS POINTING TO LOCATION 'A'. RS TO	
4676 4677 4678	027750	062702	020000	15:	ADD ADD	TEST IS TAKING COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/ROW COLUMN/	RZ TO THE END OF THE SEMIBANK (4K) IN WHICH THE G PLACE AND R4 TO THE LOWEST LOCATION IN THE NTAINING 'A' AND 'B'	
4679 4680 4681 4682 4683 4683 4685 4685	027754 027760 027762 027764	005037 010201 010204 162704	020000	2 \$:	CLR MOV MOV SUB	R2,R1 R2,R4 #20000,R4	;R4 = BOTTOM ADDRESS OF 4K SEMIBANK	
4683 4684 4685	027770	013741	002174	3 \$:	MOV CMP	BAKPAT,-(R1) R1,R4	WRITE THE MEMORY UNDER TEST WITH A BACKGROUND OF BAKPAT	
4688	027776 030000	101374 010405		45 :	BHI MOV	3 5 R4,R5	RY AND RS ARE POINTING TO THE LOWEST LOCATION THE	IT
4690 4691	030004	011100 023705	002174		MOV CMP	(R1; RO BAKPAT,RO	BEFORE STARTING THE GALLOPING TEST FOR LOCATION (RI) CHECK IT	
4692 4693	030012 030012	001401 104447			BEQ PERR23	5 \$	CONTINUE IF OK	
4694 4695 4696 4697 4699 4700 4700 4700 4705 4706 4707	030014 030016 030020 030022 030024 030030	000311 020105 001405 011500 020037 001401 104450	002174	5 \$: 6 \$:	SWAB CMP BEQ MOV CMP BEQ PERR24	(R1) R1,R5 7 \$ (R5),R0 RO,BAKPAT 7 \$;CHECK THAT (R5) HAS BAKPAT IN IT	
4702 4703 4704 4705 4706	030034 030036 030042 030044	011100 020037 001401 104447	002176	7 \$:	MOV CMP BEQ PERR23	(R1),R0 R0,SWAPAT 8 \$;CHECK THAT (R1) HAS SWAPPED BAKPAT IN IT	
4708	320046	062705	000176	8 5 :	ADD	#176,R5		

							E04		
PATTERN CEMKAA.		MACYII 14-FEB-78	30A (1952 11:01) 28-FE	B-78 09 MTP024		E 36-1 LLOPING PATTERN	TEST	SEG 0250
4709 4710 4711	030052 030054 030056	020502 103760 000321				CMP B! 0 SWAB	R5.R2 6 5 (R1)+	AND IF RS HAS NOT REACHED THE END OF THE BOUNDRY THEN REPEAT FROM 6\$ RESTORE THE LOCATION FOR WHICH THE GALLOPING TEST WAS BEING PERFORMED OTHERWISE INCREMENT RY BY 2	
7-15 7-15 7-15 1-15	030060 030064 030072 030076	062704 062737 105737 100004	000002 000602 001742	001742		ADD ADD TSTB BPL	#2.R4 #2.GALWORD GALWORD 9\$	OTHERWISE INCREMENT RY BY 2 ; FOR EVERY ROW/COLUMN TESTED ADD 2 ; UNTIL GALHORD IS 200	
4717 4718 4719	030100 030104 030110 030112	163704 005037 020102 103732	001742 001742		95:	SUB CLR CMP	GALWORD, RY GALWORD R1, R2 YS	;SUBTRACT 200 FROM R4 ;IF R1 HAS NOT REACHED THE END OF THE BOUNDRY ;THEN REPEAT FROM 45	
11234867890+234867890+ 677 7777777777777777777777777777777777	030114 030120 030124 030130	163704 000337 000337 001711	001742 002176 002174			BLO SUB SWAB SWAB BEQ	GALWORD, R4 SWAPAT BAKPAT 25	THE LOWER BYTE OF BOL AT IS DITHEN REPEAT FROM	23
4725 4726	030138	710204				MCV	R2,R4	OTHERWISE MAKE THE PRESENT HIGH BOUNDRY AS THE NEXT LOW BOUNDRY	
7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	030134 030140	020227	160000			BNE	R2,#LAST+2 1 \$:IF PREVIOUS HIGH BOUNDARY WAS THE END OF THE TEST BOUNDARY THEN EXIT OTHERWISE REPEAT TEST	
4-31	000142	202227				RETURN		, OTHERWISE NEIGHT TES	

SEG C251

							GU'	7
PATTERM CEMKAA.I		MACYII 4-FEB-78	30A (1052 11:01	28-FE	B-78 09 M~P025	:20 PAG INTERRU		
4785	030434	004737	030476			CALL ECCIINI	MTPB25	CHECK FOR NO TRAPS
4786 4787	030445	104473 004737	030530			CALL ENGISBE	MTPC25	ENABLE DBE TRAPS CHECK FOR EXPECTED TRAP
47.88 47.89 47.89 47.90	030446 030450 030454	104507 004737 000207	030530			CALL	MTP025	ENABLE SBE TRAPS CHECK FOR EXPECTED TRAP
4.45	020456	100021			MTPA25:	WRITE	TSTDAT & TSTDAT	+2 & CHECKBITS
47.93 47.93 47.93 47.95	030460	104471 01371 <u>1</u>	001716		n raco:	MOV	TSTDAT.(R1)	+2 & CHECKBITS :DISABLE ECC :WRITE FIRST 16 BITS :CHECKBITS> CSR
4796 4796 4797 4798	030464 030466 030474	104475 013761 000207	001720	200002		MOV RETURN	TSTDAT+2,2(R1)	WRITE END 16 BITS & CHECKBITS
47,90	030476	012737	030514	001750	MTPB25:	CHECK	FOR NO TRAP OCC #15, PARTHERE	URING CONDITION SETUP TRAP DESTINATION
7,800 4801 4803 4803	030504	005711 005761	000005	001730	17 . 023.	TST TST	(RI) 2'RI,	SETUP TRAP DESTINATION ACCESS LOCATIONS
4803	030506 030512	000207	טטטטטב			RETURN	E NI)	:NO TRAP - GOOD - RETURN
+804 +805 +806 +807	030514 030516 030520	104426			15:	READCSR ERROR SET	+24 HEADER	
4808 4809	030526	012737 000207	177777	002146		MÖV RETURN	#-1,HEADER	
uain.	030530	012737	030542	001750	MTPC25:	MOV	HOULD OCCURE TE	ST SETUP TRAP DESTINATION
4813	030536 030540 030542	005711	020517	601350		TST BR	(ŘÍ) 25	SETUP TRAP DESTINATION ACCESS IST LOCATION NO TRAP - BAD NEWS - SKIP SETUP TRAP DESTINATION ACCESS 2ND LOCATION
4815	030550	012737	000002 000002	001750	15:	MOV TST	#35 PARTHERE 2(R1)	ACCESS 2ND LOCATION NO TRAP - BAD NEWS
0112315678 981215678 1444981178	030554	104426 104025			2 \$:	READCSR	+25	; NO THE - DHU NEWS
4618	030260 030260	012737	177777	341300	25	SET MOV	HĒĀDER #-1,HEĀDER	
700	C3C566	200207			3\$:	RETURN		

						HO	4		
PATTERN CEMKAA.	s Mai 2	MACYII 14-FEB-78	30A(1052) 3 11:01	28-FEB-78 09 MTP025	20 PAG INTERRU		·		SEG 0253
4823 (3) (3)	030570			MTPA26: : ****** : *SUBTE!	******* 5T	MTPA26 RANDON	*************	***********	
#825 #825 #826 #827 #828	030570 030574 030576 030600 030602	000137 010221 010321 077005 000207	172360	is:	JMP MOV MOV SOB RETURN	KDPARD R2.(R1)+ R3.(R1)+ R0.1\$	V177640 V177644 V177646 V177650 V177652	GOTO V172360	
483C	030604			MTPB26:	SUBTST	< <mtp826< th=""><th>RANDOM DATA</th><th>(READ)>></th><th></th></mtp826<>	RANDOM DATA	(READ)>>	
(3)				#SÚBTÉ!	5T	######################################	DATA (READ)	+++++++++++++++++++++++++++++++++++++++	
4831 4832				·	. DSABL . ENABL	AMA LSB			
4833 4834 4835 4836	030604 030612 030614	000137 020221 001401 104451	172360	i5 :	JMP CMP BEQ PERS25	3#KDPARD R2,(R1)+ 2\$: V177640 : V177644 : V177646 : V177650	GOTO /172360	
4837 4838 4839 4840	030PSA 030PSS 030PSQ 030PJP	005127 000000 020321 001401		2 \$: RANODD:	CCM O CMP BEQ	(PC)+ R3,(R1)+ 3\$	V177640 V177644 V177646 V177650 V177652 V177654 V177660 V177662 V177664	FOR EPPOR REPORTING	
~~~fbbl\@oco.~~~~umfbbl\@oco.#umfub\@oco.#umfbbl\@oco.#umfub\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umfubl\@oco.#umf	030626 030630 030634 030636	104451 005167 077015 000207	177764	3\$:	PERR25 COM SOB RETURN .DSABL .ENABL	RANODD RD, 1 <b>\$</b> LSB AMA	V177664 V177670 V177672		
4848	030640			MTPC26:	SUBTST	< <random numbe<="" th=""><th>R SUBPROGRAM&gt;&gt;</th><th>(*************************************</th><th></th></random>	R SUBPROGRAM>>	(*************************************	
7850 7850				#SUBTE	5 <b>T</b>	RANDOM NUMBER	SUBPROGRAM	********	
4951				·	CALLFR	MUST SETUP MOV SEEDLO MOV SEEDHI MOV R3,R5 MOV R2,R4	. R3 . R2		
1003154789C-	030640 030646 030646	073427 060305 0605504 060204	200027		ASHC ADD ADC ADC	#7,R4 P3,R5 R4 R2.R4	V172360 V172364 V172366 V172370 V172372 V172376		
4858 4859	C3065£	062705 000730	001057		ADD BR	#1057,R5 116	V172372 V172376	GOTO V172260	
	030660			MTPD26:	******* **	CANDOM NUMBER	R SUBSUBPROGRAM		
4863	030665	005504 062704	047461	; *******	ADC ADD	R4 #47401.R4	; V172260 : V172262	*******************	
4865 4865 4866	03066E 030670 030672	010503 010402 010503	177644		MOV MOV JMP	#47401,R4 R5,R3 R4,R2 UIPAR2	; V172260 : V172262 : V172266 : V172270 ; V172272	G0T0 V177644	

-(R3).-(R4)

35

.ENABL AMA

: DONE?

NO - SKIP

4888 4889

4890 4891

4892

4893

4894

1895 1895

030756 030760 030762

160000

35:

BNE

BR

SOBLENGTH=.-MTPD31

000207

001376 000752 000756

(1)

4941

031142

031144

000207 177644 WARNE:

MOV

#207.UIPAR2

:WARNING PUTTING "RETURN" INSTRUCTION AFTER WRIT

KO4

MISC SUBROUTINES MACY11 3DA(1052) 28-FEB-78 09:20 PAGE 39-1 CEMKAA.14A1 24-FEB-78 11:01 SUBR WRITE BACKGROUND

4942 031152 004737 021546 4943 031156 104416 4944 031160 000207

CALL SUPDO1 RESREG RETURN

3E\$ 0256

MSG014

4982

031364

:SPACE

?

MISC SU	JBROUTINE MA1 2	:S :4-FEB-78		30A (1052	28-FEI		9:20 PAGE CONFIGURAT						SEO C258
4983	831358	104401	067047			TYPEIT	MSG014						
(1)	031370	104401	299990			TYPEIT	.MSG011						
4984 (1) 4935	031374 031374 031400	104401	066436			TYPEIT TYPEIT TYPEIT	W2C015 W2C015 W2C004						
1 (1)	031400	104401 004737	066750 031444			TYPEIT	MSG012 TCONFIG						
4986 4987 4988 4989	031410 031414	013706 042777	031442		PCONF2:	MOV BIC	PCONFS, SE	>		:RESTORE STACK			
4989	031414	042777 117700	000100 150560	150568		BIC MOVB	#BITE, JS	/KS		:READ CHAR TO KI	LL FLAG	,	
4990 4991 (2)	031426	015600	1,0000			POP	RO, TKVEC	+2,Tk	VEC	<b>,</b> ,,, <b>,</b> ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		MOV (SP)+,RO	
(3)		815637	230000									M8V (SB): TKVEE+2	•
(3) (4) 4992 4993	031430 031434 031440	012637	000060			RETURN	l					HOT CAPIT, INTEC	
4993	031442	000000			PCONF5:	0				STACK SAVED HER	RE!		

								NO	<b>'</b>	
MISC SU CEMKAA.	BROUTINE MAI 2	S 4-FEB-76	MACY11 3 11:01	30A 1052	28-FE SUBR	18-78 09 PRINT C	:20 PAG :ONFIGURA			
4997 (3)	031444							TYPE	CONFIGURA	ATION>>
(3)					SUBTE	******* 'ST	SUBR	TYPE	CONFIGURA	ATION
4998					****		****	*****	**************************************	は は は は は は は は は は は は は は
5000					CALL:	MOV MOV	#N,RO RO,K4 #K.R1		BACKU	THER OF CHARACTERS
5002					•	MOV MOV	RI R3 TCONFIG		BACKU	CONSTANT
5003					<b>;</b>	CALL RETURN	TCONF IG		; ACTUA ; ONLY	BER OF CHARACTERS  CONSTANT  CALL  RETURN
5005 5006					; *****	******	*****	******	******	***************
(3) (3) (3) 4998 4999 5001 5003 5005 5006 5008 5009						###### ## ERR	PRESE			
2010 2010	031444				TCONFIG	: TYPE	**** MSG005			
5010 (1) 5011 5012 5013	031444	104401	066544 004000	002230	15:	BIT	,MSG005	CONFIG	(R1)	:ERROR ON THIS BANK?
5013	031456 031460	001403				BEQ TYPE TYPEIT	2 <b>\$</b> MSG013			:ERROR ON THIS BANK? :NO - SKIP :PRINT "X"
(1) 5014 5015 (1) 5016 5017 5018 5019 5020 5021 5023 5027 5028	031460	104401	067045			BR	,M5G013			
(1)	031466	104401	067047		2 <b>\$</b> :	TYPE TYPEIT	, M20014			;PRINT SPACE
5016	031472 031476	062701 077014	000006		35:	ADD SOB	%6,R1 R0,1\$ R4,R0			:BUMP POINTER :LOOP TILL DONE
5019	031500 031502	010400 010301				MCV MOV	R4,R0 R3,R1			
2021 2021						; *****	****			
5023 5027						** CP	****			
(1)	031504 031504	104401	066654			TYPE TYPEIT	MSG008			
2030	031504 031510 031514 031520	104401 016105 072527	002230 177774		<b>45:</b>	MOV ASH	CONFIG	R1),R5		GET CPU BITS CLEAR NON INTERESTING BITS
5029 5030 5031 5032 5033	031520 031524 031530	042705	177760 000012			BIC CMP	#-4,R5 #†C17,R5 #10.,R5	5		CLEAR NON INTERESTING BITS
5034 5034	031532	100003 062705	000067			BPL ADD	#67.R5			; MAKE NUMBERS OVER 9 HEX
5034 5035 5036 5037 5038	031536	000402 062705 110537	000060		8 <b>5</b> :	BR ADD_	95 #60.R5			:MAKE ASCII
2038 2034	031540 031544 031550		067051		95:	MOVB TYPE TYPEIT	R5.MSG01 MSG015	15		PLUG INTO MEMORY
5039 5040 5041 5042	031550 031554 031560	104401 062701	067051 000006			ADD	,MSG015			;BUMP POINTER
5040 5041	N312P5	010400				50B MOV	#6,R1 RO, 4\$ R4,R0			LOOP TILL DONE
שמשב	031564	010301				MOV	R3,R1			

BIC

IF RS EQ #1

5090

5091

031762

020527

000001

CLEAR NON INTERESTING BITS

CMP RS. #1

SEC CSEC

							COS	5	
MISC SU CEMKAA.	BROUTINE MAI 2	S 4-FEB-79	MACY11 11:01	30A (1052	28-FEB SUBR	-78 09 TYPE 00	3:20 PAGE 41-2 INFIGURATION		SEC 0261
(6) 50 <b>92</b>	031766	001004 112737	000113	067051		MOVB	#'K.MSGD15		BHE L273
5093 3)	031776 031776	000413	000110	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	{	ELSÉ	.,		BR L274
(3) 50 <b>94</b> (4)	031766 031770 031776 031776 032000 032000 032000	032761	000360	002230		IF #E	3177:8176:8175:8	ITH SET. IN CONFIG(PI)	L273:;;;:: BIT #BIT7!BIT6!BIT5!BIT→
5095 5096	035016 035010 035006	001404 112737		067051		MOV	/B #'J.MS	G015	BEG L275
50 <b>96</b> (3) (3)	035050 035016 035016	000403				ELSÉ			BR L276 L275:;;;;;
5097 50 <b>98</b>	03505P 035050	115.3.	000060	067051		MOV END ;	B #'O.MS OF IF #BIT7!BIT	GD15 6:8IT5:BIT4	
(3) 5099	035056 035056 035059				E	END : OF	IF RS		L276:;;;;; L274:;;;;;
5100 _(1)	03505F	104401	067051		•	TYPE TYPEIT	MSGD15 ,MSGD15		
5101 5102 5103	032032 032036 032040	062701 077035 010400	000006		9	9DD 50B 10V	#6,R1 R0.85 R4,R0	BUMP POINTER LOOP TILL DON	4E
5104 5105	035045	010301				10V DSABL	R3 RI LSB		
5101) 510034 510034 51005 51005 51005 51005 51005 51005 51005					į	***** ** BOX	*** ! **		
5109 5110	032044	1861	01 3050			****** YPE	*** MSG016		
(1) 5111 5112	032044 032050 032054	104401 016105 032705	067053 002230 000010		95: 1	TYPĒIT 10V BIT	MŠĞÖİĞ CONFIG(R1),R5 #BIT3,R5	;EXTERNAL_INTE	ERLEAVE?
511123 511123 51115 51115	032060 032062 032070	001404 112737	000115	06705i	5	BEQ 10VB	10 <b>5</b> #'M.MSG015	NO - SKIP INDICATE MULT	
5115 5117 5118	032072	000417 032705 001004	920014		10 <b>5</b> : 8	BR BIT BNE	12 <b>5</b> #BIT13!14,R5 11 <b>5</b>	:MJ11° :NO - SKIP	
L 5119	032106	112737 000410 072527	000077	067051	<u> </u>	1078 3R	#'?,MSGC15	I DON'T KNOW	HOW MJ11'S INTERLEGIE
5120 5122 5122 5123 5123 5123 5123 5123 5123	035150	042705 062705 110537	177770 177774 000060		Ę	ASH BIC ADD	#-8.,R5 #103,R5 #60,R5 R5,MSG015 MSG015 ,MSG015	GET BOX NUMBE CLEAR NON INT MAKE ASCII PLUG INTO MEM	TERESTING BITS
5123 5124	032124 032130 032130	110537 104401	067051 067051		12 <b>\$</b> : 1	10VB TYPE TYPEIT	R5,MSG015 MSG015 MSG015	;PLUG INTO MEM	10RY
5125 5126	032100 032106 032110 032111 032120 032120 032130 032130 032134 032134	062701 077035	300006		Ç	ADD SOB	#6,R1 R0,9\$ R4,R0	:BUMP POINTER :LOOP TILL DON	4E
5128 5128 5129	032142 032144	010301				10V 10V	R4,R0 R3,R1		
51227 51227 89 51227 89 5123 5123 5123 5123 5123 5123 5123 5123						** PRO	TECTED **		
1,	032146 032146	104401	066650			YPE YPEIT	******** MSGD1D .MSGD1D		
5134	035125	005761	005530		13\$:	ST	CONFIGURIA	:BANK PROTECTE	:c ^

MISC SU CEMKAA.	IBROUTINE MAI 2	S 4-FEB-78	MACTII	30A (1052	28-FE	8-78 TYPE	DOS 09:20 PAGE 41-3 CONFIGURATION	
51333 5133 5133 5144 5144 5144 5144 5144	032156 032160 032166	100004 112737	000150	067051		SFL MO√B BR	14 <b>\$</b> #'P.MSG015 15 <b>\$</b>	:MC - SKIP
5138 5138	032170	000407 032761 001406	010000	205530	145:	BIT	#BIT12,CONFIG RIV	:PROTECTED PEGION OF MW11 BCX?
5140 5141	032200	112737	000113	067051	15 <b>\$</b> :	BIT BEQ MOVE TYPE TYPEI	# K. MSGD15 MSGG15	
(1) 5142 5143	035515 035506 035506	104401	067051			BR	175	
5143 (1)	032214 032214	104401	067047		165:	TYPE	MSG014 T .MSG014	:PRINT SPACE
555555555555555555555555555555555555555	032232 032226 032226 032226 032226 032220	062701 077026 010400 010301 000207	0000006		1 <b>75</b> :	ADD SOB MOV MOV RETUR	\$6,R1 R0,13\$ R4,R0 R3.F:	BUMP POINTER LOOP TILL SOME

3E% CSPS

SE2 0263

		_		20. 1252	20.55	D 70 00	F05		
MISC SL CEMKAA.	IBROUTINE MAI Z	5 4 <b>-</b> FEB-78	MAC:11	30A、1052	TRAP	NON-EXI	1:20 PAGE 42-1 STANT MEMORY (HOLES) HA	NDLER	REG CE
5199012334567890112345678 511990000000000000000000000000000000000					VECTOR	.SBTTL ******** TO HERE CODE IN IGNORE TO EXIT	TRAP NON-EXISTANT MIXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	NDLER  EMORY (HOLES) HANDLEP  ***********************************	
5203 5204	032455	022737	000001	001466	NONEXIS	T:CMP	#1,NONEM	:COUNTING NON-EXISTANT MEMORY ERRORS	
5205 5206 5207 5208	032436 032444 032444	022737 001011 005237 022737 001002	000001	001456		INC CMP BNE	NEMCHT #1, NEMCHT 15	COUNTING NON-EXISTANT MEMORY ERRORS' NO - SKIP BUMP NON-EXISTANT MEMORY COUNTER FIRST ERROR' NO - SKIP ASSUME RD CONTAINS THE ADDRESS ACCESSED	
5209 5210	032446 032452 032454	010037 000002 005237	001455		15:	MOV RTI			
5211 5212 5213 5214	032460	005237 012701 000002	000001	001456	25:	INC MOV RTI	NEMCNT #1,R1	BUMP NON-EXISTAL MEMORY COUNTER; DUMMY UP RI FOR A FORCED SOB EXIT	
5215 5216 5217	חשטענג	011627	001420		; ******	******* .SBTTL	TRAP TIMEOUT (TRAP	**************************************	
5218 (1) (1)	032472 032472 032476	005237 104006	001454		1112001	FATAL INC ERROR	FATALS +6	;SET FATAL INDICATOR	
5219 5220 5221 5222	032500	011637	001450		MMTRAP:	.SBTTL MOV	TRAP MEMORY MANAGEMI (SP).BADPC	######################################	
5222 (1) (1)	032504 032504 032510	005237 104007	001454		•	FATAL INC ERROR	7 FATALS +7	;SET FATAL INDICATOR	
5223 5224 5225 5226 5227	032512 032516 032524	011637 162737 013737	001455 200000 254100	001422	PDP1105	.SBTTL :MOV SUB MOV	TRAP RESERVED INSTRU (SP), ADDRESS #2, ADDRESS ADDRESS, BADPC	;SET FATAL INDICATOR  ENT (TRAP TO 250) HANDLER  ;SET FATAL INDICATOR  UCTION HANDLER  ;FIND OLD PC ;CORRECT FOR BAD INSTRUCTION ;NOTE # ALL ILLEGAL INSTRUCTIONS ARE CONSISTENCY ;SINGLE WORD INSTRUCTIONS BY PDP 11°S ;GET BAD INSTRUCTION	CERED
5229 5229	032532 032540	017737	146664	001440		MOV	AADDRESS.BAD	GET BAD INSTRUCTION	
1	032540	005237 104005	001454			INC ERROR	FATALS +5	:SET FATAL INDICATOR	

MISC SU CEMKAA.	BROUTINE MAI 2	:S :4-FEB-78	MACY11	30A:1052	GOS 28-FEB-78 09:20 PAGE 42-2 TRAP KERNEL TRAP HANDLER	SE0 0265
1437567890 43754789 3333335555555555555555555555555555555					.SBTTL TRAP KERNEL TRAP HANDLEP ; ####################################	
5235 5237	032546 032554	042766	140000	000002	SKERNEL: BIC #140000,2(SP) RTI	
5238 5239 5240 5241	032556	052737 000002	001001	177572	SBTTL TRAP ENERGIZE TRAP HANDLER SENERGIZE:BIS #BIT9:BITO, MMRO RTI	
5243 5244 5245	032566 032574	042737 000002	001001	177572	SBTTL TRAP DEENERGIZE TRAP HANDLER SDEENERGIZE:BIC #BIT9!BIT0,MMR0 RTI	
5245 5247 5249 5250	032576 032576	013737 052737 000002	000001	177746 177746	.SBTTL TRAP CACHON TRAP HANDLER  SCACHN: MOV CACHK, CONTRL ; SETUP CACHE AS PER CONSTANT (USUALLY 1 = FULL ( 0.4).  BIS #BITO, CONTRL ; DISABLE TRAPS (BUT NOT ABORTS)  RTI	
5250 5251 5252 5253 5253 5255 5255	C32614	052737 000002	001415	177746	.SBTTL TRAP CACHOFF TRAP HANDLER :DISABLE TRAPS (NOT ABORTS), FORCE MISSES, FLUSH, BYPASS SCACHF: BIS #BITD!BIT2!BIT3!BITB!BIT9,CONTRL RTI	

```
H05
MISC SUBROUTINES MACY11 30A(1052) 28-FEB-78 09:20 PAGE 43 CEMKAA, MAI 24-FEB-78 11:01 TRAP LOAD CSR TRAP HANDLER
                                                                    .SBTTL TRAP LOAD CSP TRAP HANDLER ;LOAD CORRECT CSR WITH DATA IN CSR & CSP+2
  5258
5259
                                                        SLOADC: PUSH
          035PSA
035PSA
035PSA
                                                                                RD
  5260
                     010046
012700
063700
005737
001036
                                                                                                                                                    MOV PS. - SP
  5263
5263
5264
5264
                                 172100
                                                                                                                  : CREATE CSR ADDRESS
                                                                                eMK11ADD.RO
                                                                    MOV
                                                                   TST CSRNEL :CSR'S RELOCATED?

BNE SLOADI :YES - SKIP

MOV CSR.(RD)+ :LOAD IT

:THE FOLLOWING LINES INSURE THAT THE "INTERNAL INTERLEAVE" DON'T CHANGE

IF INTOVR EQ #D
           035635
           032636
                                  001632
  5265
5266
5267
                                  001526
           035644
                      013720
           032650
                      005737
001025
                                                                                                                                                    TST INTOVR
    (<del>4</del>)
(6)
           032650
                                  002042
                                                                                                                                                    BNE L277
           032654
           035656
                                                                       PUSH R1.R2
   5268
                                                                                                                                                    MO / RI. - (SP)
    (3)
           032656
                      010146
                                                                                                                                                    MCV R2. - (SP)
           032660
                      0.0246
                      013701
072127
005201
  CSRNO,R1
           035665
                                  001834
           332666
332666
                                                                               #-2.RI
                                                                       ASH
          032672
032674
032700
032702
032704
                                                                                                      :R1 = (1-8)
                                                                       INC
                                                                                RI
                      013702
                                                                       MOV
                                                                               MKCSRS, R2
                                  001706
                      006102
                                                                       ROL
SOB
                                                                               R2
                                                                               RI,15
   5275
                                                                       ON ERROR
          032704
032706
032714
032714
032716
032716
  8)
5276
5277
                      103004
                                                                                                                                                    004000 001530
                                                                       BIS #BIT11,CSR+2
    _3,
                      000403
                                                                                                                                                    BR L331
                                                                                                                                        L300::::::
  5278
5279
(3)
5280
                      042737
                                 304000 001530
                                                                         BIC #BIT11.CSR+2
           032724
032724
032724
                                                                       END OF ON ERROR
                                                                                                                                        L301::::::
                                                                      POP R2.R1
           032724
032726
032730
032730
032730
032734
032734
032736
  MOV (SP)+, RZ
MOV (SP)+, RI
                      015605
                                                                    END : OF IF INTOVR
                                                                                                                                        L277:::::
                      013710
                                                                               CSR+2,(RO)
                                001530
                                                                    POP
                      015600
                                                                                                                                                    MOV SP:+.RG
                      000002
042700
013737
   5284
                                                        SLOAD1: BIC
  5285
5286
                                 020009
177746
                                                                               #20000,R0
CONTRL,OLDCACHE :SAVE CACHE STATUS
           032744
                                            001746
                                                                    MOV
  5287
5288
5289
                                                                    CACHOFF

MOV CSR (RD)+
:THE FOLLOWING LINES INSURE THAT THE "INTERNAL INTERLEAVE" DON'T CHANGE INTOVR EQ #0
                      104424
           032754
                      013720
                                  001526
  2530
           0327£0
032760
                      005737
                                  002042
                                                                                                                                                    TST INTOVR
    16,
           032764
                      001025
                                                                                                                                                    BNE 1305
  5291
           032766
                                                                       PUSH R1.R2
                      010146
                                                                                                                                                    MOV R1, -(SP)
           032770
                      010246
                                                                                                                                                    MOV R2.- SP
                      013701
072127
005201
013702
006102
           032772
   5292
                                 001634
177776
                                                                               CSRNO RI
  5293
                                                                       ASH
           033002
                                                                       INC
                                                                               ŔĹ
                                                                                                     :R1 = 1-8i
   5295
           033004
                                  001706
                                                                               MKCSRS, R2
                                                                       MOV
           033010
                                                        35:
                                                                       ROL
```

3E 2 C266

MISC SU	BROUTINE	S 4-FFB-78	MACY11	30A (1052	28-FE	8-78 09 LCAD C5	IOS :20 PAGE 43-1 R TRAP HANDLER			SEQ 0267
5297	033012	201770	11.01				R1.3\$ ROR		BCC L303	
(8) 52 <b>99</b> 5300	033014 033016 033024 033024 033026	103004 052737 000403		001530			#BIT11,CSR+2		ar 1304	
5299 5299 5300 (3) 5301 5302 (3)	033026 033026 033034 033034	042737	0004000	001530		BIC END :	#BIT11,CSR+2 OF ON.ERROR	L303:;;		
5303 5303 2) (3)	033034 033034 033036 033040	012602				POP	R2,R1	L303:;; L304:;; L302:;; ;RESTORE CACHE	MOV (SP)+.P2 MOV (SP)+.F1	
5304 (3) 5305	033040 033040 033040	013710	001530	, 22211		END : OF	IF INTOVR  CSR+2 (RD)	L302:;;	::::	
5305 5307 (2) 5308	033040 033044 033052 033052 033054	012600	001746	1// 75		POP RTI	RO		MOV 'SP'+,RO	
5309 5310 5311	033056	010046		177746	SREADC:	SBTTL READ T PUSH	TRAP READ CSR TR HE CORRECT CSR INTO RO	PAP HANDLER LOCATIONS CSR & CSR+2	MOV RD(SP)	
3)	033064	063700 005737	172100 001634 001632			MOV ADD TST BNE	#Mk11ADD,RO CSRNO,RD CSRREL	;CREATE CSR ADDRESS ;CSR'S RELOCATED? ;YES - SKIP ;READ IT ;READ IT	•	
5316 5317 5318	033070 033074 033076 033102 033106	001005 012037 011037 000415	001526			MOV MOV BR	(RO)+ CSR (RO), CSR+2 25	READ IT		
5319 5320 5321 5322	033102 033106 033110 033114 033122 033124 033130	010415 042700 013737 104424 012037 011037 013737	020000 177746 001526	001746	15:	BIC MOV CACHOFF	#20000,R0 CONTRL,OLDCACHE (RD)+.CSR	:SAVE CACHE STATUS		
	U3317E		00152£ 001530 001746	177746	2\$:	MOV MOV MOV POP	(RD)+,CSR (RD),CSR+2 OLDCACHE,CONTRL RO	READ IT READ IT RESTORE CACHE	MOV 5P1+.R0	
(2) 5326 5327 5328	033142	000005 015600				RTI _SBTTL		READ CSR CAREFULLY	1104 37 - 1113	
5330 (1)	033146 033146 033150 033150	010046 004537	037306		\$TSTRD:	BMOV	RD TSTRD1 R5,BLOCK1		MOV RO SP)	
5789)0,)123456789 55555 5 (55555555555555555555555555555	033150 033150 033154 033156 033166 033166 033172 033200 033200 033200 033214	004537 033262 012700 063700 005737	172100 001634 001632			MOV ADD TST	RD1 #MK11ADD,RO CSRNO,RO CSRREL	; CREATE CSR ADDRESS		
5334 5335 5336	033172 033174 033200	001003 004737 000413	177640		_	BNE CALL BR	IS FASTCITY 25	:CSR'S RELOCATED? :YES - SKIP		
5337 5338 5339	033514 033506 033505	042700 013737 104424	020000 177746	001746	15:	BIC MOV SACHOFF	#20000,R0 CONTRL,OLDCACHE	:SAVE CACHE STATUS		

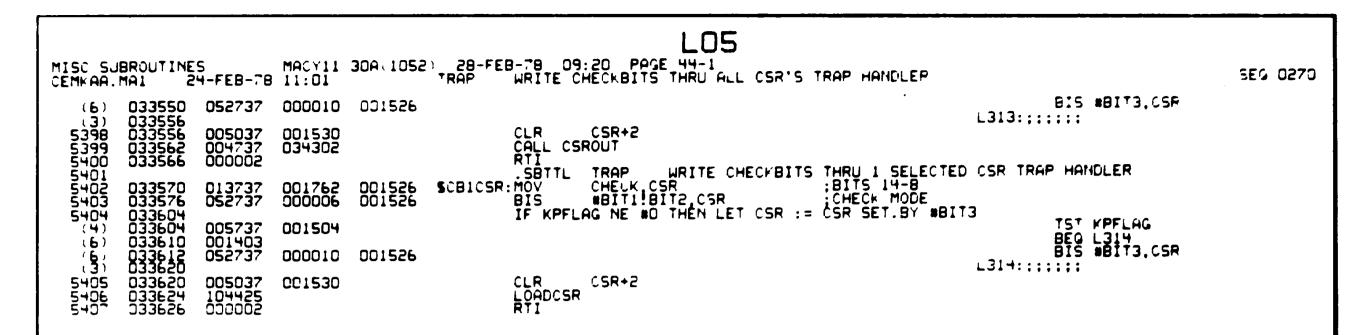
MISC SU CEMKAA.	BROUTINE MAI 2	S 4-FEB-78	MACY11	30A (1052	28-FE	B-78 09 TEST (R	JO5 9:20 PAGE 43-2 (1) & READ CSR CAPEFULLY			SEG (
5340 5341 5342	033555 033516	004737 013737	177640 001746	177746		CALL MOV	FASTCITY OLDCACHE CONTRL IGLE BIT ERROR SET CARRY	RESTORE CACHE		
5343 5344 5344	033230 033230 033230	015600			25:	POP	RO CHRON SET CHRON		MOV (SP)+,RG	
(4)	033232	032737	000050	001526		11 #511	1 SEILIN OSK		BIT #BIT4.CSR BEQ L305	
(4) (6) 5345 5346	033242	001404 052766	000001	000005		BIS	#BITO.2(SP)			
(3)	033250	000403				ELSE			BR _306	
5347 5347	033252	042766	000001	200005		BIC	#BITO,2(SP)		L305:;;;;;	
5317 5347 5348 (3) 5349 5350 5351 5352	033560 033560 033560	200000				RTI	ĬĒ #BĪŢŸ		L306:;;;;:	
5351 5351	033264	005010			TSTRD1:	CLR SUPERVI	(RD)	:V177640		
5352 5353 5354 5355 5355 5356 5357	033264 033274 033274 033302 033306 033318	052737 105711 042737 012037 011037 000207	040000 140000 001526 001530	177776 177776		BIS TSTB BIC MOV MOV RETURN	#BIT14,PSW (R1) #BIT15!BIT14,PSW (R0)+,CSR (R0),CSR+2	V177642 DO IT TO IT! V177646 V177650 V177656 V177662 V177666		

4

. .

C5P9

```
K<sub>0</sub>5
                           MACY11 30A(1052) 28-FEB-78 09:20 PAGE 44
11:01 TRAP ECC DISABLE ALL CSR'S TRAP HANDLER
MISC SUBROUTINES
CEMKAA.MAI 24-FE8-78 11:01
                                                        SBTTL TRAP
                                                                          ECC DISABLE ALL CSP'S TRAP HANDLER
                                     DD1526 SECCDIS: MOV
                                                                #BIT1,CSR
         033314
                           200000
                  012737
  5361
                                                       IF KPFLAG NE NO THEN LET CSR := CSR SET.BY #BIT3
         033355
  5362
                                                                                                                        TST PPFLAG
                  005737
                           001504
    (4)
                                                                                                                        BEQ L307
         033326
                  001403
   (6)
                                                                                                                        BIS *BIT3.CSR
                           000010
                                     001526
         033330
                  052737
   (6)
                                                                                                               L307:;;;;;
         033336
   (3)
                  005037
004737
                                                                CSR+2
                            201530
  5363
         033336
         033342
                                                       CALL
                                                                 CSROUT
  5364
                           034302
                  200000
         033346
  5365
                                                        SBTTL
                                                                TRAP
  5366
5367
                                                                         ECC DISABLE OF 1 SELECTED CSR TRAP HANDLER
         033350
                                     001526 SECCIDIS: MOV
                                                                #BIT1.CSR
                           200000
                  012737
                                                       IF KPFLAG NE NO THEN LET CSR := CSR SET.BY #BIT3
  5368
         033356
                  005737
                                                                                                                        TST KPFLAG
         033356
                           001504
   (4)
                                                                                                                        BEG L310
         033365
   (b)
                                                                                                                        BIS *BIT3.CSR
                           000010
                                     001526
   (6)
         033364
                  052737
                                                                                                               L310:;;;;;
   (3)
         033372
  5369
5370
5371
                  005037
                                                       CLR
         033372
                                                                CSR+2
                           001530
                                                       LOADCSR
         033376
                  104425
         033400
                  000002
                                                       RTI
                                                                         MK11 INITIALIZE ALL CSR'S TRAP HANDLER
  5372
                                                        SBTTL TRAP
                  012737
005037
004737
  5373
5374
         033402
033410
                                     DD1526 SECCINIT: MOV
                                                                *BITO,CSR
                           000001
                           001530
                                                       CLR
                                                                 CSR+2
 5375
5376
5376
5377
5378
         033414
                                                       CALL
                                                                CSROUT
                  200000
         033420
                                                       RTI
                                                                         MK11 INITIALIZE 1 SELECTED CSR TRAP HANDLER
                                                        SĒTTL TRAP
                                                                #BITO.CSR
         033422
                           000001
                                     DD1526 SECCIINIT: MOV
                  005037
         033430
                           001530
                                                       CLR
                                                                CSR+2
 €5380
         033434
                                                       LOADCSR
  5381
5382
         033436
                  200000
                                                       RTI
                                                                TRAP
                                                                         ENABLE SBE PARITY TRAPS ON ALL CSR'S
                                                        SBTTL
  5383
         033440
                  012737
                                                                #BITO!BIT1.CSR
                           000003
                                     001526 SENASBE: MOV
  5384
                                                       IF KPFLAG NE WO THEN LET CSP := CSR SET.BY #BIT3
         033446
                  005737
001403
                                                                                                                        TST KPFLAG
   (4)
         033446
                           001504
         033452
   (6)
                                                                                                                        BEQ L311
   (b)
                                                                                                                        BIS #BIT3.CSR
         033454
                  052737
                           010000
                                    001526
         033462
                                                                                                               L311:;;;;;
  5385
5386
5387
                  005037
                                                       CLR
CALL
RTI
                                                                CSR+2
CSROUT
         033462
                  004737
         033466
                           034302
  5388
                                                        SBTTL TRAP
                                                                         ENABLE SBE PARITY TRAPS ON 1 SELECTED CSR
  5389
         033474
                  012737
                           000003
                                                                #BITO!BIT1.CSR
                                     DD1526 SENA1SBE: MOV
         033502
  5390
                                                       IF KPFLAG NE #0 THEN LET CSR := CSR SET.BY #BIT3
   (H)
                  005737
                                                                                                                        TST KPFLAG
                           001504
                  001403
052737
                                                                                                                        BEO L312
BIS #BIT3,CSR
         033506
   (<u>6</u>)
         033510
                           000010
                                     001526
   (3)
         033516
                                                                                                              L312:;;;;;
  5391
5392
                  005037
         033516
                           001530
                                                       CLR
                                                                CSR+2
                                                       LOADCSR
         033522
                  104425
  5393
5394
         033524
                  000002
                                                       RTI
                                                        SBTTL
                                                                TRAP
                                                                          WRITE CHECKBITS THRU ALL COR'S TRAP HANDLER
                                                       MOV CHECK CSR :BITS 14-8
BIS #BIT1:BIT2 CSR :CHECK MODE
IF KPFLAG NE #0 THEN LET CSR := CSR SET.BY #BIT3
  5395
5396
                  013737
052737
         D3325F
                           001762
                                              SCBCSR: MOV
        033534
033542
033542
                           900000
                                     001526
  5397
                                                                                                                        TST KPFLAG
                  005737
   (4)
                           001504
         033546
                  001403
                                                                                                                        BEG L313
```



								MI	<b>05</b>						
MISC SU CÉMKAA.	BROUTINE MAI 2	S 4-FEB-78	MACY11 11:01	30A (1052	28-FEB	1-78 09 WAS THE	:20 PA	GE 45 E ON F	NY CSR	TRAP	HANDLE	P			
5410 5411 (2)	033630 033630	010146			\$WASSBE:	SBTTL PUSH	TRAP R1,R4	WAS	THERE I	A SBE	ON ANY	CSR TRA	AP HANDLER		R1(SP) R4(SP)
(2) 5412 5413 5413 5414 (3) 5415	033645 033640 033640	010446 013701 005004	001706			MOV CLR BEGIN L	MKCSRS R4 .WSBE	,RI	; GI	ET CSR	'S BYT	Ξ	<b>D</b> U3		NT,-(ar)
(3) 5415 (3) (3)	033645 033645 033645 033645	005037	001634			FOR C	SRNO :=		) #34 B	Y #4			B42:;;;	CLP	CSRNO
(3) (3) 5416 5417 (8) 5418 5419	033646 033650	103010					ERROR	R1							L315
( <del>4</del> ) (6)	033652 033654 033654 033654	104426 032737 001403	000020	001526		Ĩ	READCSR F #BIT4		N CSR					BIT	#BIT4,CSR L316
5420 5421 5423 5423 5423 5423	033664 033664 033670 033670	012704 000411	177777			MOV	SET #-1,R4 LEAVE I							BR I	E42
5422 (3) 5423 (3)	033672 033672 033672 033672					END	ND ; OF ON	. ERROR	!				L316:;; L315:;;		
(3) 5424 (6) (6) 5425	033672 033672 033674 033676	105701 001407					OF FOR		N LEAVE	E LWSBI	E				B R1 E42
(6) (6) 5425 (5) (5) (5) (5) 5423 5428	033676 033704 033712	062737 023727 003755	001834 000004	000034		END ;	or rok (						Eug	ADD CMP BLE	#4.CSRNO CSRNO.#34 B43
5426 (3) 5427	033714 033714 033714 033714	006004				END LWS	R4		; 51	ET C B	IT FOR	ERROR	E43:;;;		
5428 (2) (3) 5429	033716 033716 033720	015601 015604				POP ON. ERRO	R4,R1		·						(SP)+.R4 (SP)+.R1
(8) 5430 5431	033722 033722 033724 033732	103004 052766	000001	000002		BIS ELSE	*BITO,	2(SP)							L317
(3) (3) 5432 5433	033732 033732 033734 033734 033742 033742	000403 042766	000001	000002		BIC END :OF	#BITO.2	2(SP) OR					L317:;;	;;;	_320
(3) 5433 5433) 5435 5435 5437 5438 5439	033742	000002							THERE (	SBE :	IN 1 SE WAS A	ELECTED SBE	L320:;; CSR TRAP		LER
5437 5438 5439 5440	033744 033746 033754 033762	104426 042766 032737 001403	000050	000002	2MH212RF	READES BIC BIT BEQ	#BITO,2 #BITY,0 1\$	2(SP)			IT ON S				

MISC SU CEMKAA.	BROUTINE MAI 2	S <b>4-FEB-</b> -8	MACY11	30A (105a	2) 28-FE TRAP	8-78 09 WAS THE	9:20 PAGE ERE A SBÉ I	N05		TRAP HANDLEF	)		SEO
5445 5443 5444 5444	033764 033772 033774 033774	052766 000002 010146	000001	000002	15: SWASDBE	BIS RTI .SBTTL :PUSH	·		SET C BIT; RE A DBE ON	ON STACK		MOV R1(SP) MOV R4(SP)	
577 (3) 5445 5446 5447 (3) 5448	033776 034000 034004 034006 034006	010446 013701 005004	001706			MOV CLR BEGIN L			;GET CSR'S	BITE	844:;;;;		
5448 (3) (3) 5449	034006 034006	005037 106301	001634			FOR C	:SRNO := #0 .B R		4 BY #4			CLR CSRNO	
5450 (8) 5451 5452	034012 034014 034014 034016 034020	103010 103010				ON. R I	ERROR READCSR F #BIT15 S		CSR			BCC F351	
(4) (6) 5453 (1) 5454	034020 034026 034030 034030 034034	032737 001403 012704	177777	001526		MOV	SET R #-1.R4 LEAVE LWD				<b>E</b>	BIT #BIT15,CSR BEQ L322	
(3) 5455 (3) 5456	034034 034036 034036 034036 034036	000411				Ε	ND ; OF IF	#BIT4			L322:;;;		
3))90)12))3)450 3)450 551546515353535665655536 55555555555555555555	034036 034036 034040 034042	105701 001407				IFB	R1 EQ #0	THEN LE	EAVE LWDBE		L321:;;;; 1 E	;;; TSTB R1 BEQ E44	
(5) (5) (5) (5)	034042 034050 034056	062737 023727 003755	000004 001634	001634 000034		ENU ;	OF FOR CSRI	NU			£ E45:;;;;	ADD #4.CSRNO CMP CSPNO,#34 BLE 845	
5461	034060 034060 034060 034060 034062	006004				ROR POP	BE R4 R4,R1		;SET C BIT	FOR ERROR	E44::;;;		
(S) (S) (B) (B)	034062 034064 034066 034066 034070 034076	012604 012601 103004 052766	000001	000003		ON. ERRO	R	<b>0</b>			۲	10V (SP)+.R1 10V (SP)+.R1 3CC L323	
5464 (3) (3) 5465	034076 034076 034100 034100	000403 042766	100000	000002		BIS ELSE BIC	#BITO,2(SF				E L323:;;;	3R L324	
(3) 5468) 5464) 5464 (3) 5466) 5468 5469 5470	034106 034106 034106	000005	20001			END ; OF	ON.ERROR		RE A DBE ON	1 SELECTED	L324:;;; CSR TRAP HA		
5469 5470 5471	034110 034112	104426 005737	001526		\$WASIDBE	TST	URN IF CARE READCSR CSR	₹Ÿ IS S	;DBE?	1 SELECTED S A DBE			

```
B06
                             MACY11 30A 1052 28 FEB-78 09:20 PAGE 45-2
MISC SUBROUTINES
                                                           WAS THERE A DBE ON I SELECTED CSR TRAP HANDLEP
                                                                                                                                                        5E3 C273
CEMKAA.MAI
                 24-FEB-78 11:01
         034116
034120
034120
034120
034136
034136
034136
                   100405
005737
100012
104021
                                                                                         ·YES - SKIP
                                                                     15
CSR+2
  5473
5473
                                                           TST
                                                                                         DBE IN OTHER CSR WORD?
                             001530
                                                                     Š.
                                                                                         NO - SKIP
                                                           BPL
                                                           ERROR
                                                                                         YES - ONLY ONE FLAG POPPED UP!
  E475
                                                                     +21
  5476
5477
                                                           BR
                                                                     2$
C5R+2
                   000404
                                                                                         :DBE IN OTHER WORD?
                   005737
                             001530
                                                                                         YES - SKIP
NO - ONLY ONE FLAG POPPED UP!
SET C BIT ON STACK
  5478
                   100401
                                                           BMI
                                                           ERROR
  5479
         034140
                    104021
         034145
                                                           BIS
                                                                     #BITO.2(SP)
  5480
                   052766
                             100000
                                       000002
                                                 25:
         034150
                   000002
  5481
                   042766
         034152
                                                                     #BITO,2(SP)
                                                                                         :CLR C BIT ON STACK
  5482
                             100000
                                       000002
         034160
                                                           ŘŤĬ
  5483
  5484
                                                            SBITL
                                                                     TRAP
                                                                               CLEAR ALL MKII CER'S TRAP HANDLER
  5485
         034162
                   005037
                             001530
                                                 SCLRCSR: CLR
                                                                     CSR
         034166
034172
034176
  5486
5487
                   005037
004737
                                                           CLR
                                                                     CSR+2
                                                                     CŠROŪT
                                                           CALL
                             034302
  5489
                   200000
                                                           RTI
                                                            SBITL
                                                                    TRAP
                                                                              CLEAR I SELECTED MKII CSR TRAP HANGLER
  5490
         034500
                                                 SULRICSR: CLR
                                                                     CSR
CSR+2
                   005037
005037
                             001526
                             001530
         034510
  5492
                   104425
                                                           LOADCSR
  5493
                   000002
                                                           SBTTL TRAP ECC DISABLE, CHECH MODE, & WRITE CHECKBITS IN ALL CSR'S TRAP HAN CHECKBITS ALREADY IN LOC "CSR" ECC DISABLE & DIAG CHECK MODE
  5494
  5495
                                                           BIS *BITI!BITZ CSR : ECC DISABLE & DIAG CHECK MODE IF KPFLAG NE #0 THEN LET CSR := CSR SET.BY #BIT3
                                               SCHKDIS: BIS
  5496
         034214
                   052737
                             900006
                                       001526
  5497
         034222
                                                                                                                                TST KPFLAG
BEG L325
BIS #BIT3.05R
         034222
    4)
                             001504
         034226
                   001403
   (6)
         034230
   (6)
                   052737
                             000010
                                       001526
   (3)
         034236
                                                                                                                      L325:;;;;
                                                           CLR
CALL
RTI
  5498
         034236
                                                                     CSR+2
                   004737
  5499
         034242
                                                                     ČŠROŪT
                             034302
  5500
5501
5502
5503
         034246
                                                                              ECC DISABLE, CHECH MODE, & WRITE CHECKBITS IN 1 SELECTED CSR TRA
                                                                    TRAP
                                                           . SBTTL
                                       DOISE SCHKIDIS BIS BITT BITZ CSR
         034250
034256
034256
                             900006
                                                                                                    ECC DISABLE & DIAG CHECK MODE
                   052737
                                                           IF KPFLAG NE #0 THEN LET CSR := CSR SET BY #BIT3
  5504
                   005737
001403
                                                                                                                                 TST KPFLAG
   ( <del>| |</del> )
                             001504
                                                                                                                                BEG L326
    6)
   (6)
                             000010 001526
         034264
                   052737
                                                                                                                                BIS #BIT3.CSR
         034272
                                                                                                                      L326:;;;;;
  5505
5506
5507
         034272
                                                                    CSR+2
                   005037
         034275
                   104425
                                                           LCADCSR
          334300
```

MISC SU CEMKAA.	BROUTINE MAI 2	S 14-FEB-78	MACY11 11:01	30A (1052	) 28-FEB-78 TRAP ECC	CDB 78 09:20 PAGE 45-3 CC DISABLE, CHECH MODE, & WRITE CHECKBITS IN 1 SELECTED CSR TRAP HANGLER	5EG 0274
5509 (3) (3)	034302				CSROUT: SUB' ;********** :*SUBTEST :********	SUBR WRITE IN ALL CSR'S	
5512 5513 5513 5513	034302 034302 034304 034310 034310	010146 013701	001706		PUSI MOV	MOV R1,-(SP)	
5513 (3) (3)	034310 034310 034314	005037	001634		F	FOR CSRNO := #D TO #34 BY #4 CLR CSRNC B47:::::	
(3) (3) 5514 5515 (8) 5516 5517	034314 034316 034316 034320	103001 106301				ASLB R1 ON.ERROR BCC L327 LOADCSR END + OF CN.ERROR	
(3) 5518 (6) (6)	034322 034322 034322 034324 034324 034326	105701 001407			Ef	IFB R1 EQ #D THEN LEAVE LCSROUT  TSTB R1 BEQ E46  END :OF FOR CSRNO	
5522 5522 5522	034326 034334 034342 034344 034344	062737 023727 003764	000004	000034	END	ADD #4.CSRNO CMP CSRNO.#34 DLE B47 E47::;;;;;	
(3) 5521 (2) 5522	D34344 D34344 D34344 C34346	012601			POP	E46:;;;;	

E	0	6
-	u	$\mathbf{-}$

MISC SU CEMKAA.	BROUTINES MAI 24-1	EB-78	MACY11 11:01	30A (1052	, 28-FEE SUBR	3-78 D GENERA	9:20 PAGE	46-1 ITS		
5566 5567 5568 5559	034464 034465 034466 034467	214 315 316 217				BYTE BYTE BYTE BYTE	†C163 †C062 †C061 †C160		:BIT :BIT :BIT :BIT	19 18 17 16
5567 5568 5559 5571 5572 5573 5575 5576 5579 5580	034470 034472 034472 034473 034474 034475 034475	#####################################				BYTE BYTE BYTE BYTE BYTE BYTE BYTE	10057 10156 10155 10054 10153 10052 10051 10150		BIT BIT BIT BIT BIT BIT	15113211098
5579 5580 5581 5582 5583 5584 5585 5586	034500 034501 034502 034503 034504 034505 034506 034506	011031567 11111567 1111567				BYTE BYTE BYTE BYTE BYTE BYTE BYTE BYTE	#0 †C037 †C136 †C135 †C034 †C133 †C032 †C031 †C130		BIT BIT BIT BIT BIT BIT	てもいすのとしい

MISC SU CEMKAA.	BROUTINE MAI 2	S 4-FEB-78	MACY11 30A:1052	28-FE SUBR	8-78 09 GENERAT	:20 PAGE 47 E CHECK BITS		
553329 55559 55559 55559 55559 5559 5559	034510			***** *SUETE ***** THIS S	SUBTST / ********* ST ############# UBROUTIN TO THE T	*****************	**************************************	5777).
5593 5594 5595 5596				CALL	MOV CALL RETURN	BANKNO, R3 MAPPER	SET UP BANK ARGUEMENT ACTUAL CALL ONLY RETURN	
(3) (4) (5)	034510 034510 034512 034514 034516 034520	945010 945010 945010 010046		MAPPER:	PUSH	PERVISOR UP FOR 1 TO 1 RO,R1,R2,R4,R5		MOV RO,-(SP, MOV R1(SP, MOV R2(SP, MOV R4(SP) MOV R5(SP)
\$6012334567890 \$60012334567890 \$6600007855566111234567890 \$5600000000000000000000000000000000000	034528 034526 034532 034536 034542 034546 034550 034552	012700 012701 012702 012704 012705 012021 010224 077503 012741	172340 172240 077406 172200 000010	15:	MOV MOV MOV MOV MOV MOV SOB	#KIPARO,RO #SIPARO,R1 #77406,R2 #SIPDRO,R4 #8.,R5 (RO)+,(R1)+ R2,(R4)+ R5,15 #177600,-(R1)	FIRST AREA TO MAP TO FIRST ADDRESS REGISTER CONSTANT FOR 4K PAGE. FIRST DISCRIPTOR REGISTER OUNTER PUT IN SUPERVISOR ADDRESS TO THE CORRECT LAST FIELD FOR	UP. R/W STER RESS RIPTOR R PERIPHERALS PAGE
5610 5611 5613	034560 034564 034566	022703 001412 072327	000170 000011				2552	
5615 5616 5617 5618 5619	034610 034604 034605	012701 012702 010321 062703 077204	172246 000004 000200	25:	MOV MOV ADD SOB	#51PAR3,R1 #4,R2 R3,(R1)+ #200,R3 R2,2\$ R5,R4,R2,R1,R0	MAP NOTHING (1 TO 1)? YES - SKIP BANK 1 STARTS AT 100.0 FOR MEMORY MANAGEMENT SETUP FOR AUTO INCREME COUNTER PLUG IN PAR INFO BUMP ADDRESS 4k LOOP TILL DONE	NT ING
(3 T S)	034612 034612 034614 034616 034620 034622	012605 012604 012602 012601 012600 000207		33:	POP	K5, K4, KC, K1, KU		MOV (SP)+,R5 MOV (SP)+,R4 MOV (SP)+,R2 MOV (SP)+,R1 MOV (SP)+,R0
56223	034626 034626 034630 034632 034634 034636	010046 010146 010246 010346 0101446		SKMAP:	SBTTL	TRAP MAP KERNEL (A RO.R1.R2.R3.R4	ALMOST 1 TO 1) TRAP HANDLER	MOV RO(SP) MOV RI(SP) MOV R2,-(SP) MOV R3,-(SP) MOV R4,-(SP)
5624 5625 5626 5627	034640 034646 034646 034640	005000 012701 012702 012703	172340 077406 172300		CLR MOV MOV	RO #KIPARO,R1 #77406,R2 #KIPDRO,R3	:1ST AREA TO MAP TO :FIRST ADDRESS :CONSTANT FOR 4K PAGE U:1ST PAGE DISCRIPTOR RE	P.R'W Gister

MISC SUBROUTINES CEMKAA.MA1 24-FEB-78			TRAP HANDLEP	9EG 0279
5628 034656 012704 5629 034662 010021 5630 034664 010223 5631 034666 062700 5632 034672 077405 5633 034674 012741 5634 034700 012741 5635 034704 012604 21 034706 012603 42 034712 012600 5636 034714 012600 5636 034716 000002	000010 15: 000200 177600 177400	MOV 88.R4 MOV RO.(R1)+ MOV R2.(R3)4 ADD 8200.R0 SOB R4.15 MOV 8177600(R1) MOV 8177400(R1) POP R4.R3.R2.R1,R0	COUNTER PUT IN KERNEL ADDRESS PUT IN KERNEL DISCRIPTOR ADD ADDRESS CONSTANT FOR 4V CHANGE LOOP TILL DONE THE PERIPHERALS PAGE TO KIPAR7 AND NEXT LOWER PAGE TO KIPAR6  MOV (SP)+ R3 MOV (SP)+ R2 MOV (SP)+ R7	

BEG L334

```
106
                                 MAC:11 30A:1052 28-FEB-78 09:20 PAGE 48-1
11:01 PELCIATE PROGRAM
MISC SUBROUTINES
                                                                                                                                                                             SEG C28C
CEMKAA. MAI 24-FEB-78 11:01
                                                                                IF #BIT13:BIT14 OFF.IN CONFIG(R1) THEN LEAVE FINDBANK : IF MJ11

BIT #BIT13:BIT14, CONFIG

BEG E52

IF #BIT13 SET.IN CONFIG(R1 AND #BIT14 OFF.IN CONFIG(R1) : IF MK11

BIT #BIT13, CONFIG(R1)
          035100
035100
035106
  5661
(5)
5)
                      032761
001436
                                 060000
                                            002230
          035110
035110
035116
  5662
                      032761
                                 020000
                                            002230
                                                                                                                                                  BEG L335
BIT #BIT14, CONFIG(PI)
                      001415
     6)
                                 040000
                                            002230
     6)
                                                                                                                                                  BNE L335
     B)
                      001011
           035156
                                                                                IF #BIT12 SET.IN CONFIG-6 RL; AND #BIT12 OFF.IN CONFIG(RL)
           035130
  5663
                                                                                                                                                  BIT #BITIZ.CONFIG-E PI
           035130
                      032761
                                 010000
                                            003355
    (4)
                                                                                                                                                  BEG 1336
BIT #BIT12, CONFIG P:
                     001405
032761
001001
    (6)
           035136
          035140
     6)
                                 010000
                                            002230
                                                                                                                                                  BNE L336
    ۱B ر
                                                                                       : IF 1ST UNPROTECTED MK11 BANK
  5664
                                                                                      LEAVE FINDBANK
  5665
           035150
                                                                                                                                                  BR E52
          035150
                      000415
                                                                                   END : OF IF #BIT12
  5666
          035152
                                                                                                                                      L336::::::
                                                                                 END : OF IF #BIT13
  5667
          035152
035152
035152
035152
035152
035152
035152
035152
                                                                                                                                      L335:;;;;:
    (3)
                                                                              END : OF IF CPUBIT
  5663
                                                                                                                                      L334:::::
  5669
(3)
5670
                                                                           END : OF IF #BIT15
                                                                                                                                      L333:;;;;:
                                                                       END : OF IF #BIT11
    (3)
                                                                                                                                      L332:;;;;;
  5671
                                                                      END : OF FOR
                                                                                                                                                  ADD #6,R1
CMP R1,#167*3*2
BLE 853
  (5)
(5)
(5)
5672
                     062701
020127
003732
                                 900006
                                 001312
                                                                                                                                      E53:::::::
           035164
          035164
035164
035172
                                                                      IF #SW13 OFF.IN DSWR
                                                                                                                                                  BIT #SW13, DSWR
BNE L337
                      032777
                                 020000 145006
    (6)
                                                                  TYPE MSG
TYPEIT MSGD75
END ; OF IF #SW13
          035174
                                                                                                              : RELOCATION NOT POSSIBLE
  5673
                                                                                         MSG075
  5674
(3)
5675
(2)
                                 071651
                      104401
          035200
                                                                                                                                      L337::::::
          035200
035200
035202
035204
035204
035204
                                                                      SRETURN ERROR
                      000261
                                                                                                                                                  SEC
RIS PC
  5676
                                                                   END FINDBANK
  (3)
5677
                                                                                                                                      E52::::::
                      005000
071027
  5678
           035206
                                 900000
                                                                              #6.RO
                                                                   DĪV
  5679
                                                        RELOCI: LET NEWBANK := RO
           035212
          032516
                      010037
004737
                                                                                                                                                  MOV RO. NEWBANK
                                 001756
                                                                                                                :MAP NEWBANK TO USER PAR'
:ENTER USER MODE
:DO IT TO IT!
:MCVE PROGRAM
                                                                   CALL
USER
BIS
                                                                       #BIT15!BIT14,PSW
0,100000,SIZE
JSR RS,BLOCK3
SIZE
  5680
                                 035736
                                                                              USERMAP
  5681
           035222
          035222
035230
035230
035234
035236
035240
  (1)
5£82
                      052737
                                 140000 177776
                                                                   BMOV
   (1)
                      004537
                                 037342
                      040000
    11,
                      100000
                                                                         100000
                      000000
  2F83
           C35242
                                                                                                              :ENTER KERNEL MODE
                      104417
                                                                   KERNEL
```

MISC SU	BROUTINE	S 8_FFB_76	MACY11	30A (1052	28-FEB-78 09: PELOCATE PROGRAM	JO6 20 PAGE 48-2		SEC 0581
5684 5685 5686		042737 013700 006200		172516	BIC MOV ASR	#BIT5,MMR3 NEWBANK,RO RO	:TURN OFF UNIBUS MAP	
5687 (8) 5688 5689	035260 035260 035262 035270	103003	100000		ON.ERROR	#BIT15,MAPLO ON.ERROR	BCC L340	
5687 5688 5689 5699 5699 5699 5699 5695 5617	035244 035252 035256 035260 035262 035270 035270 035270 035306 035314 035326 035326 035334	010037 004737 052737 042737 004737 052737	170202 035524 000040 001001 036020 001001	172516 177572 177572 001516			:SETUP LOWER 16K IN UNIBUS MAP ENEPGIZE UNIBUS MAP DEENERGIZE MEMORY MANAGEMENT - BUT DON'T TRAP ENERGIZE MEMORY MANAGEMENT - BUT DON'T TRAP	
(2) (2) 5698	035334	000241 000207					ŘŤŠ PC	
5617 5697 5697 5699 5699 57001 57001 5702	035340 035340 035340 035342	010046 013201	002116		ruan	RU	CATE PROGRAM>> RAM RAM MOV RO,-(SP)	
5701 (22) 5703 5705 (5705) 5706 5707 5708 5710 (2)	035340 035346 035346 035356 035356 035356 035362 035370 035374 035400	010046 013701 013700 004737 013746 013737 004737 013701 042761	002116 002114 035570 001470 002116 036052 001472 100000	001470	PUSH MOV CALL	BANKMOV BANK LOADBANK, BANK EXBANK	MOV BANK,-(SP) RI) ; CLEAR LOADER FLAG	
5711 5712 (3) 5713 5714 (1) 5715 (1) (1)	035 122 035 112 035 112 035 112 035 112 035 112 035 112 035 112 035 112 035 112 035 112 035 112 035 112 035 112 035 112 035 112 035 112 035 112 035 112 035 112 035 112 035 112 035 112 035 112 035 112 035 112 035 112 035 112 035 112 035 112 035 112 035 112 035 035 035 035 035 035 035 035			177776	LET NEWB CALL USER	BANK := #0 USERMAP #BIT15!BIT14,PSW 0,100000,SIZE R5,BLOCK3	:ENTER USER MODE	
(1) 5716 5717 5718 5719 5720 5721 5722	035440 035442 035444 035452 035456 035464 035470 035476	004537 040000 100000 000000 104417 042737 004737 052737 005037 042737	001001 036020 001001 001516 000040 170200	177572 177572 172516	C KERNEL BIC CALL BIS CLR BIC	#BIT9:BITO.MMRO	; ENTER KERNEL MODE ; DEENERGIZE MEMORY MANAGEMENT - BUT DON'T TRAP ; ENERGIZE MEMORY MANAGEMENT - BUT DON'T TRAP ; TURN OFF UNIBUS MAP	

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MISC SU CEMKAA.	BROUTINE MA1 2	S 4-FEB-78	MACY11	304 \ 1052	28-FE JNRELOC	B-78 D9 ATE PROG	KD6 :20 PAGE 48-3		
5723 5725 5725 5726 5726 5726	035502 035506 035512 035520 035520 035522	005037 004737 052737 012600 000207	170202 035524 000040	172516		CLR CALL BIS POP RETURN	MAPHO LOWMAP #BIT5,MMR3 RO	:SETUP LOWER 16K OF UN ENERGIZE UNIBUS MAP	IIBUS MAP MOV (SP)+,RG
5728 5729 (3)	035524				: ****** : *SUBTE	SUBTST	<pre>&lt;<setup (="" ***************="" ************************************<="" 16k="" lower="" of="" setup="" th=""><th><b>********************</b></th><th>*************</th></setup></pre>	<b>********************</b>	*************
3756)1.89);;0);;10375678);;7777;0;11;0;21;0;375678);9 7777;0711;0;21;0;7777777;0;21; 55555555555555555555555555555555555	035524 035526 035530 035532 035536 035546 035546 035554	010046 010146 010246 012700 012701 012702 012011 062721 012021	170200 170204 000003 020000		15:	MOV MOV MOV MOV ADD MOV SOB	#MAPLO,RO #MAPLI,RI #3,R2 (RO)+,(RI) #BITI3,(RI)+ (RO)+,(RI)+ R2,1\$ R2,RI,RO		MOV RO,-(SP) MOV R1,-(SP) MOV R2,-(SP)
5738 (2) (3) (4) 5739	035556 035560 035560 035562 035564 035564	012602 012601 012600 000207				POP RETURN	R2,R1,R0		MOV (SP)+,R2 MOV (SP)+,R1 MOV (SP)+,R0

SEC 0585

```
L06
                              MACY11 30A(1052) 28-FEB-78 09:20 PAGE 48-4
MISC SUBROUTINES
                                                                                                                                                                SE0 0283
CENKAA.MA1 24-FEB-78 11:01
                                                    SETUP LOWER 16K OF UNIBUS MAP
                                                    BANKMOV: SUBTST ( MOVE BANKS >>
          035570
  5741
                                                    (3)
(3)
(3)
5742
                                                    *SUBTEST
                                                                       MOVE BANKS
                                                     ******
                                                              MOVE 3/4 OF A BANK
CALLING SEQUENCE
RD = DESTINATION BANK
RI = SOURCE BANK
  5744
5745
                                                              SAVREG
          035570 104415
  5746
         035572
035576
  5747
                    004737
                                                              CALL
                                                                         USERMAP
                               035736
        035576 104416
035576 104415
035600 104415
035602 072027
035606 072127
035612 012702
035616 012703
  RESREG
                                                              SAVREG
ASH
                                                                         #9.,R0
#9.R1
#UIPAR4,R2
                               000011
                               000011
177650
                                                              ASH
                                                              MOV
                                                                         #200.R3
                                                              MOV
                               000200
                                                                        R1,(R2)+
R3,R1
R1,(R2)+
R3,R1
          035622
                                                                                                        :MAP 1ST HALF BANK
  5755
                                                              MOV
                    010122
  5756
5757
5758
5759
                                                                                                        BUMP BY 4K
         035624
                                                              ADD
                    060301
          035626
                    010155
                                                              MOV
          035630
                    060301
                                                              ADD
                                                                        RO,(R2)+
R3,R0
RO,(R2)+
R3,R0
          035632
                                                              MOV
  5760
  5761
5762
          035634 060300
                                                              ADD
                                                              MOV
  5763
5764
          035640
                    060300
                                                              ADD
                                                                  *BIT15!BIT14,PSW
V 100000,140000,SIZE/2
JSR R5,BLOCK3
SIZE/2
140000
  5765
                                                              USER
BIS
          035642
                    052737
                                                                                                                   :DO IT TO IT!
                               140000 177776
                                                                                                        :MOV IST HALF BANK
  5766
         035650
                                                              BMOV
                    004537
020000
140000
         035650
035656
035656
                               037342
    (1)
   (1)
         035660
                    100000
                                                                    100000
  5767
5768
5769
5770
5771
5772
5773
5774
5775
5776
5777
                    104417
                                                              KERNEL
          035662
          035664 012702 177650
                                                                         #UIPAR4.R2
                                                              MOV
                                                                        R1,(R2)+
R3,R1
R1,(R2)+
R3,R1
                                                                                                        :MAP 2ND HALF BANK
          035670
                   010122
                                                              MOV
         035672
035674
035676
                                                              ADD
MOV
                                                                                                        BUMP BY 4K
                    060301
                    010155
                                                              ADD
         035700
035702
035704
                                                                        RO,(R2)+
R3,R0
RO,(R2)+
R3,R0
                    010055
00300
                                                              ADD
  5778
5779
                                                              MOV
          035706
                    060300
                                                              ADD
  5780
  5781
         035710
                                                              USER
                                                                  #BIT15!BIT14.PSW
V 100000,140000,SIZE/4
JSR_RS,BLOCK3
                                                                                                     :MOV 3ND FOURTH OF BANK
    (1)
          035710
                    052737 140000 177776
                                                              BIS
  5782
          035716
                                                              BMOV
          035716
    (1)
                     004537
                               037342
          035722
    (1)
                     010000
                                                                   SIZE/4
   (1)
                                                                   140000
                     140000
```

100000

KERNEL

(1)

5783

035726

035730

100000

104417

SE0 0284

ĺ						MUB	
		:S :4-FEB-78	MASY11 30A	1052) (28-F MOVE B	EB-78 0	9:20 PAGE 48-5	
CEMKAA.	UHI S	7-768-78	11:01	HOVE B	באווה		
5784 5785 5786	035732 035734	104416			RESREG		
5786 5787	035734	000207		USERMA	RĒTURN P:SUBTST	< <subr map="" td="" user<=""><td>TO NEW BANK &gt;&gt;</td></subr>	TO NEW BANK >>
(3)				##### #SUBT	######## EST	############### SUBR MAP USER	LO NEM BUNK
(5)	005336	04.3304		****	****	*****	######################################
(2) 5788 5789 5790	035736 035742	012701 012702	177640 172340		MOV MOV	WUIPARO,R1 #KIPARO,R2	COPT REGISEE PAR 5 & PDR 5 (0 5)
5790	035746	012703	177600		MOV MOV	#UIPDRO,R3 #KIPDRO,R4 #4,R5	
5791 5792	035752 035756	012704	172300 000004		MOV	#4,R5	
5793	035762 035764	012221		15:	MOV MOV	(R2)+.(R1)+	
5793 5794 5795 5796 5797 5798 5800 5801 5802 5803 5804 5805	035766	077503			SÖB	(R4),(R3)+ R5,1 <b>\$</b>	
5796 5797	035770	013700	001756		MOV	NEWBANK, RO	
5798	035774	072027	000011		ASH	<b>#9.,</b> R0	BANK 1 STARTS AT 100,000 LESS & LSB'S FOR MEMORY MANAGEMENT = 1000
5800	036000	012705	P00000		MOV	#4,R5	·
5801 5802	03600 <del>4</del>	010021 062700	00200	2\$:	MOV ADD	RO (R1)+ #200,RO (R4) (R3)+ R5,2\$	SETUP UIPAR(4-7) BUMP ADDRESS 4K SETUP UIPDR(4-7)
5803	036014	011423	000200		MOV	(R4) (R3)+	SETUP UIPDR(4-7)
5805	036016	000207		•	SÖB RETURN	K3, C3	
5806	036020			NEUMED	NEL CHET	et (CUPP	SETUP KERNEL PAR'S FOR NEW BANK>>
5807 (3)	038020			: #####	****	************	***********
(3)				*SUBT	EST #########	SUBR SETUP KE	RNEL PAR'S FOR NEW BANK
t EDNO	036050	012700	172340	•	MOV		
5810	036030	013701 072127	001756 000011		MOV ASH	#KIPHRU,RU NEWBANK,RI #9.,RI	BANK 1 STARTS AT 100,000 LESS 6 LSB'S FOR MEMORY MANAGEMENT = 1000
5809 5810 5811 5812 5813 5814 5815	036034	012705	90000e		VCM	#6.R5	; FOR MEMORY MANAGEMENT = 1000
5813	036040	010120		15:	MOV	R1(R0)+	;SETUP KIPAR(0-5)
5815	036042	062701 077504	000200		ADD SOB	#200.R1 R5.I <b>\$</b>	
5816	036050	000207			RETURN		

MISC SU CEMKAA.	BROUTINE	ES 24-FEB-78	MACY11 11:01	30A ( 10 <b>5</b> 2	) 28-FE SUBR	B-78 J9 EXAMINE	BO7	
5872 5873 (1)	036304 036304 036305	001403 012737	177777	001520		BEQ SET MOV	BS BMFLAG 8-1,BMFLAG	:NO - SKIP
5874 5875 5875 5876 5877 5878	036320 036316 036312	005737 001002 005137	001520		85:	TST BNE COM	WORST OS BMFLAG	:IS THIS A WORST FIRST PASS? :YES - SKIP :NO - COMPLIMENT BAD MEMORY FLAG
5978 237 5979	036324 036324 036326 036330 036332	00030, 015600 015601 015605			<b>95</b> :	POP	R2.R1.RC	MOV (SP)+,R2 MOV (SP)+,R1 MOV (SP)+,R0

SES 0286

SKIPS THE SPECIAL CASE (MARGIN CANNOT = 1) RETURNS THE RESULT OF MARGIN OVERFLOW IN THE CONDITION CODES ENABL LSB IF #SW11 OFF. IN DSWR AND QVFLAG EQ #D

BIT #SW11. DSWR BNE L342 TST QVFLAG BNE L342 GOTO 15 BR 15

END : OF IF #SW11

5915

(4)

**(6)** (B)

5916

5917

036412

036450

036426

036430

036430

036432

032777 001004 005737 001001

000410

004000 143560

005016

SES 0297

```
MACY11 30A(1052) 28-FEB-78 09:20 PAGE 50-1
MISC SUBROUTINES
                                                                                                                                           SE2 C288
                                      SUBR INCREMENT MARGINS & TEST
SEMKAA.MA1 24-FEB-78 11:01
                                                                                                            L342::::::
        036435
                                                               MARGIN. OLDMARGIN
                 013737
                          001474
                                                      MOV
  5918
                                    001754
                 005037
004737
000435
013737
                                                               MARGIN
                                                                                          :YES - SET MARGIN TO ZEPO
        036440
                                                      CLR
  5919
  5920
                                                               COREHISTORY
        036444
                           036704
                                                      CALL
                                                      BR
                                                               35
         036450
                                                               MARGIN, OLDMARGIN
MARGIN
MI, MARGIN
                          001474
001474
000001
  5922
5923
5924
        036452
                                    001754 15:
                                                      MOV
                                                      INC
                 005237
022737
001002
        036460
                                                                                          :SPECIAL CASE?
                                    001474
                                                                                          NO - SKIP
YES - SET MARGIN TO "2"
  5925
        036472
                                                      BNE
        036474
036500
                                                               MARGIN
  5926
5927
                           001474
                  005237
                                                      INC
                                                      IF MKFLAG EQ #0 AND MARGIN NE #6
                                             25:
                                                                                                                      TST MKFLAG
        036500
036504
036506
036514
                 005737
001005
023727
001401
   (4)
                           001510
                                                                                                                     BNE L343
CMP MARGIN, #6
   (6)
                           001474 000006
                                                                                                                      BEG L343
   (8)
  5928
        036516
                                                        GOTO 35
                                                                                                                      BP 35
                  214000
   (2)
         C36516
        036520
                                                      END : OF IF MKFLAG
  5929
                                                                                                            L343:;;;;;
   (3)
        036520
  5930
                                                      IF MKFLAG NE #D AND MARGIN NE #4
                                                                                                                      TST MKFLAG
                 005737
   (4)
                           001510
                                                                                                                     BEG L344
CMP MARGIN.#4
        036524
                 001405
023727
   (b)
                           001474 000004
                                                                                                                     BEG L344
   (8)
        036534
                  001401
        036536
036536
036540
  5931
                                                        GOTO 35
                                                                                                                      BR 35
   (2)
                  000402
  5932
                                                      END : OF IF MKFLAG
                                                                                          :YES - SET MARGIN TO ZERO
   (3)
        036540
                 005037
004737
005737
        036540
036544
036550
  5933
                           001474
                                                      CLR
                                                               MARGIN
                                                               COREHISTORY
  5934
                           036704
                                             35:
                                                      CALL
                           001474
  5935
                                                      TST
                                                                                          :SET CONDITION CODE - DONE IF Z BIT SET
                                                               MARGIN
                  000207
                                                      RETURN
  5936
        036554
  5937
5938
                                                      . DSABL
                                                              LSB
  5933
                                             DECMAR: SUBTST ( DECREMENT MARGINS & TEST >>
        036556
                                             (3)
                                             *SUBTEST
                                                               DECREMENT MARGINS & TEST
                                              *******
                                                              SKIPS THE SPECIAL CASE (MARGIN CANNOT = 1)
RETURNS THE RESULT OF MARGIN UNDERFLOW IN THE CONDITION CODES
  5940
  5941
                 013737
005337
022737
001002
005337
004737
                          001474
001474
                                                      MOV
        036564
                                                               MARGIN, OLDMARGIN
MARGIN
  5942
                                   001754
  5943
                                                                                          ; SPECIAL_CASE?
                                                               #1, MARGIN
  5944
        036570
                           100000
                                    001474
                                                      CMP
                                                                                          NO - SKIP
YES - SET MARGIN TO "O"
  5945
        036576
                                                      BNE
                                                      DEC
  5946
         036600
                           001474
                                                               MARGIN
  5947
        036604
                           036704
                                                               COREHISTORY
  5948
                 005737
                                                                                          :SETUP CONDITION CODES - NEGATIVE IS UNDERFLOW
         036610
                           001474
                                                      TST
                                                               MARGIN
  5949
                 000207
         036614
                                                      RETURN
  5950
  5951
        036616
                                             SETMAR: SUBTST ((SUBR SET HIGHEST MARGIN))
   (3)
                                                              SUBR SET HIGHEST MARGIN
                                             *SUBTEST
                                              FFFFEERESTANGESTANGESTANGESTANGESTANGESTANGESTANGESTANGESTANGESTANGESTANGESTANGESTANGESTANGESTANGESTANGESTANGE
  5952
5953
                                                      RECOGNIZES THE "INHIBIT MARGINS SWITCH" .ENABL LSB
        CBEEIE
                                                      IF #SW11 SET. IN DSWR OR QVFLAG NE #D
```

MISC SU CEMKAA.	BROUTINE MA1 2	5 4-FEB-78	MACY11 11:01	30A (1052	28-FE SUBP	B-78 09 SET HIG	ED7 :20 PAGE 50-2 HEST MARGIN		-	
٠ <u>5</u> .	036616	032777	004000	143354					BIT	#SW11.05HP L345 QYFLAG
(5) (6) 8) 4)	036624 036626 036632 036634	001003 005737 001401	916500					: 345	TST BEQ	L346
5955	036634	000430				GOTO	15	20.1	BR	
5956	036636	000420				END : OF	IF #SWII	1 246		
5955 (2) 5956 (3) 5957 5958 (4)	036636	013737	001474	001754		MOV	MARGIN OLDMARGIN AG EQ #0	L346		
5 <b>958</b> (4)	036644 036644	005737	001510			IF MKFL	RG EQ #U		TST	MKFLAG L347
( <u>8</u> ) 5959	036625 036620	001004 012737	000005	001474		MOV	#5.MARGIN	:HIGHEST MJ11 MARGIN	BINE	L347
5960 (3)	036660	000403				ELSE				L350
(6) 5959 5960 (3) 5962 5962 5965 5966 5966	036662	012737	000003	001474		MOV	#3.MARGIN	L347 HIGHEST MK11 MARGIN;	::::::	
5962 (3)	036670 036670					END ; OF	IF MKFLAG	·	1:::::	
5963	036670 036674	004737 000402	036704			CALL BR	COREHISTORY 25	:SKIP	.,,	
<u> </u>	036676 036702	005037	001474		1 <b>5</b> : 2 <b>5</b> :	CLR RETURN	MARGIN	SET MARGIN TO "O"		
5367	036/UE	000207			C3:	DSABL	LSB			

SE0 0283

```
G07
MISC SUBROUTINES MACYII 30A 1052) 28-FEB-78 09:20 PAGE 50-4 CEMKAA.MAI 24-FEB-78 11:01 BOOTSTPAP ROUTINE
   3 037046
5996 037046
5997 037052
5998 037054
5999 037062
6000 037064
6001 037066
6002 037072
6003 037076
6004 037102
                                                                                                                                                                                                                              L355::::::
                                   004737 021206
104421
042737 00C040
005001
000005
012700 177406
010160 000004
                                                                                                               CALL MT0030
DEENERGIZE
BIC #BIT5,MMRJ
CLR RI
RESET
MOV #177406,R0
MOV R1,4(R0)
                                                                                                                                                                    :FLUSH OUT DBE'S
                                                                                                                                                                                                             :TURN OFF THE UNIBUS MAP
                                                        000040 172516
                                                                                              BOOT1:
    iS:
                                                                                                                                   #177406,R0
R1,4(R0)
#177400,(R0
#5,-(R0)
(R0)
                                                        177406
000004
177400
                                    010160
012710
012740
105710
100376
062701
005761
005007
                                                                                                                 MÖV
                 037076
037102
037110
037112
037116
037120
037122
                                                         000005
                                                                                                                 MOV
                                                                                                                 TSTB
BPL
ADD
TST
                                                                                             25:
                                                                                                                                   25
#BIT13,R1
(RC)
                                                        020000
                                                                                                                                    $ P
```

5ES 6291

MISC SU CEMKAA.	BROUTINE MAI 2	:S :4-FE8-78		30A (1052	) 28-FEB-78 B0015TRAP R0		:20 PAGE 50	<u>0</u> 7		
(3) (3) eofs	037124				EXIT: SUB': ####################################	TST	HALT PROGRA	*********		
6013 6014 (5) (5)	037124 037130 037130 037134 037136	004737 005737 001003 005737 001402	02020		EXITE: IF	ĀPTF	SHUTUP LAG NE #0 OR	ACTFLAG NE	*0	TST APTFLAG BNE L356 TST ACTFLAG BEG L357
6017 (3) 6019 (4)	037144 037146 037146 037146 037150 037150	000777 000403 000000 30013			ELSE SEKHALT: HÆ	E ALT				BR L360 L357:::::
6019 6019 6019 6019 6019	037156 037156 037156	20013~	003614		END	; OF	START IF APTFLAG  < <shutdown< th=""><th>DIAGNOSTIC&gt;</th><th>,</th><th>_360:;;;;;</th></shutdown<>	DIAGNOSTIC>	,	_360:;;;;;
######################################	037156	104472			: ************************************	### TIA EAR   RELO ISTOR! RN O!	######################################	AGNOSTIC BABBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB	**********	***********
(P) P03: P030	037160 037164 037164 037170	005037	177750 00151£		CLR		MAINT AG NE #0 THE	N SCALL UNRE	ELOCATE	TST RLFLAG BEQ L361
FD35	037172 037176 037176	004737	035340		IF G	DUIC	K EQ #O			JSR PC.UNRELOCATE L361::::::: TST QUICK
6033 6034 6033	037176 037202 037204 037210 037210	005737 001002 004737	051506		CF END	ALL ; OF	MT0030 IF QUICK	;FLUSH	OUT DBE'S	BNE 1362
6036 6037 6038 6039	037210 037214 037220 037224 037224 037226	012700 013701 004737 104421 042737	000001 002114 035570 000046	172516	MOV MOV CALL DEEN BIC	RERG	#1.RO LOADHOME.R1 BANKMCV IZE #BIT5.MMR3	; SOURCE	NATION BANK E BANK ;TURN OFF UN	L362::::::
3356789000000000000000000000000000000000000	037236 037236	000207			RETU APTDOWN: SUB1 : ########## : #SUBTEST : ####################################	IST		N SEQUENCE	*********	*****************

SE0 0292

MISC SU CEMKAA.	BROLTINE MAI 2	S 4-FEB-78	MACY11 11:01	30A : 1052	: 28-FE AP SHU	8-78 TDOWN	ID7 09:20 PAGE 50 6 SEQUENCE		
(3)	037236	010346	000000			MOV CALL	#O_R3 MAPPER		MOV R3,-(SP)
(1) (3) (44)	037244 037250 037252	004737 012603	034510			SUPER	RVISOR		MOV (SP:+.R3
6045 6046 6047 6048 6049	037252 037260 037266 037274	052737 012737 012737 012737	040000 037236 000340 000000	177776 060024 060026 117236		BIS MOV MOV KERNE	#BIT14,PSW #AP\DOWN.FIRST+24 #340.FIRST+26 #O.FIRST+APTDOWN	:DO IT TO IT!	
£049	037302 037304	104417			APTHLT:		£L		

SES 0293

8

MISC SU	BROUTINE MA1 2	S 4-FEB-78	MACY11 30A 105	21 28-FE APT SHL	B-78 09 ITDOWN SE	J07 9:20 PAGE 50-7 GUENCE	
(3) (3) (3) (3)	037306			******	****	<pre> &lt;&lt; BLOCK MOVE SUBROUTINE  BLOCK MCVE SUBROUTINE </pre>	************
6053 6053 6053				*****	*******	HAS 3 ARGUEMENTS HAS 2 ARGUEMENTS HAS 1 ARGUEMENTS HAS 1 ARGUEMENTS	*********
6055 6056 6056 6056 6056 6056 6059	037306 037306 037310 037312 037314	010146		BLOCK1:	ALL AR ENABL PUSH	RE CALLED BY THE BMOV MACRO LSB RO,R1.R2	MOV RO,-(SP) MOV R1,-(SP) MOV R2,-(SP)
6063 6063 6061 6063	037312 037314 037320 037324	010246 012702 012701 000413	177640 000020		MOV MOV BR	#FASTCI* ,R2 #16.,R1 3\$	HOV RE, -15P7
(3)	037326 037326 037330 037332	010246 010046		BLOCK2:		RO,R1,R2	MOV RD,-(SP) MOV R1,-(SP) MOV R2,-(SP)
6064 6065 6066 6067	037334	012701 000404	000020		MOV BR	#16.,R1 2\$	
(3)	037342 037342 037344 037346	010046 010146 010246		BLOCK3:	PUSH	RO,RI,R2	MOV RO,-(SP) MOV R1,-(SP) MOV R2,-(SP)
6068 6069 6070 6071 6072 6073 6074	037350 037352 037354	012501 012502 012500		2 <b>5</b> : 3 <b>5</b> :	MOV MOV MOV	(R5)+,R1 (R5)+,R2 (R5)+,R0	
6072 6073 6074	037356 037360 037362 037362	012022 077102 012602		15:	MOV 50B POP	(RO)+,(R2)+ RI,1 <b>\$</b> R2,R1,RO	MOV (SP)+,R2
(2) (3) (3) 6075 607 <b>6</b>	037364 037366 037370	020205 012600 012601			RTS .DSABL	R5 LSB	MOV (SP)+.RI MOV (SP)+.RU

SEG 0294

SEG C295

8	MAI 2	4-FEB-78	MACY11 30AV. 11:01	BLOCK M		OUTINE FIELD SERVICE	MODE		
<b>9</b> 0 )	278760			FIELDSE : ##### : #SUBTE : #####	******* ST	BTST ((SUBR	FIELD SERVICE COMMAND MODE SERVICE COMMAND MODE	,, ********	*******
)  1  2	037372	104415		; ****	SAVREG	MCC030	LETEL D SERVICE COMMOND MOD	E	
	037374 037374	104401	067105		TYPE TYPEIT	MSG020 ,MSG020	:FIELD SERVICE COMMAND MOD	£	
13 14	037400				IF RLFL	AG NE #O		761	<b>8</b> 1.51.00
)	037400 037404	005737 001404	001516					BEO	RLFLAG L363
5	037406 037406	104401	070660		TYPE	MSGD48 ,MSGD4B	:NOT AVAILABLE NOW - TRY L	ATER!	
6 7 8	037412	104416	0,0000		RĒŠRE RĒTUR	G			
é	037414 037416	000207				IF RLFLAG		<b>.</b>	
) <b>9</b>	037416 037416				IF NOFS	MODE NE #0	L3	63:;;;;;	
)	037416 037422	005737 001404	002110					TST BEQ	NOFSMODE L364
0	037424 037424	104401	070660		TYPE	MSGD48 ,MSGD48 G	:NOT AVAILABLE NOW - TRY L	ATER!	
ĺ	037430	104416	070660		RESRE	, 1130076 G			
3	037432 037434	000207			RĒTUR END ; OF	N IF NOFSMODE		•	
)	037434 037434				PUSH	CONTRL, CSRNO	:SAVE CACHE STATUS	64:;;;;;	
) )	037434 037440	013746 013746	177746 001634				• -	MOV MOV	CONTRL,-(SI CSRNO,-(SP
5	037444 037446	104424		<b>5</b> 51.	CACHOFF TYPE	MSGD26	:COMMAND:		•
)	037446	104/301	067752	FS1:	TYPEIT	,MSG026	·		
3	037452 037454	104410			RDDEC POP	RO	:READ A DECIMAL NUMBER :COMMAND> RD		
<u>)</u>	037454 037456	012600 020027	000014		CMP	RO, #12.		VCM	(SP)+.RO
) 1	037462 037464	101403			BLOS TYPE	1 <b>5</b> MSG021			
<u>.</u>	037464 037470	104401	067141		TYPEIT	.MSGD21			
<u>3</u> 5	037472	000766		18:	BR CASE RO	FSI		***	<b>5</b> 0 (55)
) )	037472 037472 037474	006316 010046						ASL	RO,-(SP) OSP
) 4	037476 037502 037504	004737 037544	037534		FSCMD	n		JSR	PC.L365
Ę	037504	037564 037654			FSCMD	1			
7	037506 037510 037512	040026			FSCMD FSCMD	3			
567890	03/512	040272 040600			FSCMD FSCMD	5			
252	037514 037516 037520	041454 041462			FSCMD FSCMD	6			
۶	037522	041776			FSCMD	R			

FIELD SE	RVICE MO	DE I	LO7  MACY11 30A(1052) 28-FEB-78 09:20 PAGE 51-1 11:01 SUBR FIELD SERVICE COMMAND MODE	3E% G2 <b>%</b>
6116 (	037530	043032 043176 043570	FCMD10 FCMD11 FCMD12 END :OF CASE	
	037534 037536 037540	062616 013646 004736 000741	L365:;;;;;; #DD (SP) MOV a/SP JSP PC.a	+, 35P ; +, - (5P) (5P; +

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								M07								
FIELD S CEMKAA.		MODE 24-FEB-78		30A:1052	28-FE			E 51-2 OMMAND MO	DE							SEG 0297
(3) (3) e150	037544	•			FSCMDO:	******* 5T	< < COMMA COMMAND	*****	EXIT>> EXIT	*****	*****	*****	******	,,,,, ,,,,	***********	
Pigi	037544	062706	200000		,	ADD POP	#2.SP CSRNO,C	ONTRI								
(3) (32) (32) (32) (32) (33) (33) (32) (32	037544 037550 037550 037554	012637	001634 177746				CSRIIO, CI	ONTRE						MOV MOV	(SP)+,CSRNO (SP)+,CONTRL	
6124	037560 037562	000207				RESREG RETURN										
6136	037564	}			FSCMD1:	SUBTST	< <fs< th=""><th>COMMAND</th><th>1</th><th>READ</th><th>CSR&gt;&gt;</th><th>*****</th><th>*****</th><th>****</th><th>*********</th><th></th></fs<>	COMMAND	1	READ	CSR>>	*****	*****	****	*********	
(3)					*SUBTE		FS	COMMAND	1	READ	CSR				**********	
6127 6128	037564	010637	043616 001752		******	CALL MOV SET4	WHICHCS		******	*****	*****	****	*****			
(1) 6130	037574 037574 037602 037604	012737 104426	037630	000004		MOV READCSR SET	815.4			;SET	NEM VE	CTOR				
6133 6135 (1)	037604 037612 037614	012737 104026	177777	005115		MOV ERROR RES4	#-1, NOE! +26	RROR	;USE ERF	ROR RO	UTINE	FÓR PR	TUOTAL			
(1) (1) 6134 6135	037614 037622	012737	032466 177766	000004		MOV CLR	#TIMEOU' CPUERR	T,4		;REST	ORE OL	D (DEF	AULT) V	/ECTO	R	
6135 (1) 6136 6137 (1)	037626 037630 037630 037639	1 104401 1 013706	067721 001752		15:	RETURN TYPE TYPEIT MOV	MSG025 MSG025 FSSTACK	, SP	;THIS CS	SR DOE	S NOT	EXIST				
P138	037640 037646 037646 03765	005037	032466 177766	000004		RÉS4 MOV CLR RETURN	#TIMEOU' CPUERR	Т,4		;REST	ORE OL	D (DEF	AULT) V	/ECTO	R	

## FIELD SERVICE MODE MACY11 30A(1052) 28-FEB-78 09:20 PAGE 51-3 CEMKAA.MA1 24-FEB-78 11:01 FS COMMAND 1 READ CSR

LEMKHH.	пні	54-1 FB-1 F	3 11:01		F 5	COMMHND	1	KEHO CS	K			
6140 (3)	037654				* * * * * * * *	SUBTST	****	COMMAND	*********	OAO CSR>>	*******	***********
(3)					*SUBTE		_FS	COMMAND	.5	AD CSR		
(2) 6141 6142 6143	037654 037660 037664	004737 010637	043616 001752		*****	CALL MOV SET4	WHICHCS	e ACK	*****		*****	
(1) 6144 6145	037664 037672 037674	012737 104426	200040	000004		MOV READCSR TYPE	<b>#15,</b> 4		; 5	SET NEW VECTOR		
(1) 6146	037674 037700	104401	067764			TYPEIT	MSGD27 MSGD27 NOERROR					
(1) 6147 6148	037700 037706 037710	012737 104026	177777	002112		MÖV ERROR RES4 MOV	#-1, NOEF	RRCR	;USE ERROR	ROUTINE FOR F	PRINTOUT	
(1) (1) 6149 (1)	037710	012737 005037	032466 177766	000004		CLR	#TIMEOUT	۲,4	•	RESTORE OLD (DE	EF (ULT) V	ECTOR
(1) 6150	037722	104401 104413	067655			TYPE TYPEIT RDOCT	,MSG023		;FIRST CSR ;REHD AN O	CTAL NUMBER		
6150 6151 6152	037722 037722 037726 037730 037730 037734 037734	012637	001526			POP TYPE	CSR MSG024		; PUT IN IN : 2ND CSR W	LOC "CSR"	}	MOV (SP)+,CSR
6153 6153 6154 (2) 6155 (1) 6157 6158 6159	037734 037740 037742	104401 104413	067677			TYPE TYPEIT RDOCT POP	,MSG024 CSR+2		:READ AN O	CTAL NUMBER		
6155 6155	037742 037742 037746 037746	012637	001530	000000		SET	INTOVR	=		INTERLEAVE OVE	ERRIDE	MOV (SP)+,CSR+2
6156	037754	012737 104425	177777	002042		MÖV LOADCSR	#-1, INTC	OVR				
6157 6158	037754 037756 037762	005037	002042			CLR READCSR	INTOVR					
61 <b>6</b> 0 (1)	037764 037764 037770 037770	104401	070001			TYPE TYPEIT SET	MSG028 MSG028 NOERROR					
6161 5363	037776 040000 040002 040002	012737 104026 000207	177777	002112		MOV ERROR RETURN TYPE	#-1, NOER	ROR	:USE FOR P	RINTOUT - NOT	AN EPROR	
6163 6163 6163 6164 6165	200040 200040 200040 210040	104401 013706	067721 001752		15:	TYPE TYPEIT MOV RES4	MSG025 MSG025 FSSTACK,	SP	;THIS CSR	DOES NOT EXIST	7	
(1) (1) 6166	040012 040020 040024	012737 005037 000207	032466 177766	000004		MOV CLR RETURN	#TIMEOUT CPUERR	',4	; RI	ESTORE OLD (DE	(FAULT) VE	ECTOR

			11.01		. •		_						
9. 6168	040056				FSCMD3:	SUBTST		COMMAND	*******	EXAMINE	MEMORY>>	*****	***********
(3)					*SUBTE	******** ST *******	FS	COMMAND	3	EXAMINE	MEMORY		**********
(5) 9193	040036 040036 040036	013746 013746 013746	001470 001464 001750		,	PUSH	BANK, NOP	ĀŘ, PAŘTI	HÊRE,4				BANK, -(SP) NOPAR, -(SP) PARTHERE, -(SP) 4, -(SP)
(5) 6170 6171	040042 040046 040054	013746 012737	000002	001-64		MOV TYPE	#2 NOPAR	! •	: INDICAT	E PARITY	ACTION	HUV	7,-(36)
6172	040054 040060	104401	070015		15:	TYPFIT	, MSGD29 MSGD31 , MSGD31		;PHYSICA	AL ADDRES	S (0-16777776)	72	
(1) 6173 6174 6175	040060	104401 104413	070054			TYPE TYPEIT RDOCT			READ OC	TAL_NUMB	ER ONTO STACK	& SHI	0C*
6174 6175	040066 040074	013737	057464	001470		MOV POP	SHIOCT,B	ANK	:PUT MSE	S'S IN BA	ER ONTO STACK	MAC	(CD) - DC
2) 61789 6179 6179 6185) 6185) 6185 6185 6186 6186	040074 040076 040100 040102 040106 040110	012600 000241 006100 006137 000241 006000	001473			CLC ROL ROL CLC ROR	RO BANK RO					MU√	(SP)+,R0
6181 (5) (5)	040155 040150 040150	023727 003357	001470	000167		IF BANK	GT #167				OR BANK TOO HI	CMP BGT	BANK, #167
6182 (5)	040126	062700 032700 001352	000001 000000			ADD IF #BIT	#FIRST,R D SET.IN	RO THEN	G070 15	;CHECK F	OR ODD ADDRESS	811	#BITO.RO
6184 (5) (5)	040132 040134 040134 040140	020027	157776			IF RO H	I #LAST T	HEN GOT			OR ADDRESS OVE	R 16K	RQ. #LAST
£185 6186	040142	012737	040214	001750		MOV SET4	#35, PART	HERE	: INCASE : INCASE	OF ABORT	S UT TRAPS		
(1)	040150	012737	040222	000004		MOV MAP	#45,4 BANK		,	SET NEW	VECTOR		
i )	040156 040156 040160 040164	010346 013703 004737 012603	001470 034510			MOV CALL	BANK R3 MAPPER						R3,-(SP
(I) (3) 6188	040164 040170 040172					SUPERVIS	SOR					MOV	(SP)+.R3
6189 6190	040172 040200 040202	052737 011001 104417	040000	177776		BIS MOV KERNEL	#BIT14,P	SW		;DO IT T	0 IT!		
6191 (1) (1)	040204 040204 040206	010146 104403 006				TYPOCS MOV TYPOS .BYTE	R1,-(SP)		SAVE R	1 FOR TYL EOCTAL DIGITS	PEOUT ASCII		
6135 1	040212	000 014000				.BYTE BR	6 D Excmd3		SUPPRE	DIGITS SS LEADII	NG ZEROS		
6193 6194 (1) 6195 6196	040214 040214 040220	104401 000405	070114		35:	TYPE TYPEIT BR	MSGD32 MSGD32 EXCMD3			;PARITY (	ABORT		

FIELD S	ERVICE I	10DE 24-FEB78	MACY11 11:01	30A:1052	) 28-FE FS	B-78 09 COMMAND	COB :20 PAGE 51-5 EXAMINE MEMORY			SE% 0300
6197 6198	255040	062706	P0000C		45:	ADD TYPE	#4 SP MSG033	:FIX STACK :TIMEOUT TRAP		
(1) 6199	040535	104401 000400	070132			TYPEIT BR	MSGD33 EXCMD3			
650!	040536	104417			EXCMD3:	KERNEL POP	4, PHRTHERE, NOPAR, BANK			
6199 6199 6200 6202 6202 (33) (53) (53) 6203	040236 040246 040255	012637 012637 012637 012637	000004 001750 001464 001470			-			MOV (SP)+,4 MOV (SP)+,PARTHERE MOV (SP)+,NOPAP MOV (SP)+,BANK	
6203 (1) (1) 6204	040256 040256 040264 040270	012737 005037 000207	032466	000004		RES4 MOV CLR RETURN	#TIMEOUT.4 CPUERR	:RESTORE OLD (DEFAULT)	VECTOR	

SEC 0301

	ERVICE M	ODE 4-FEB-78		30A 1052	) 28-FE	B-78 09 COMMAND		DOB E 51-6 EXAMINE						
CEMKAA.I	0402 <u>-</u> 5	7-765- 8	11:01		FSCMD4:		< < FS	COMMAND		MODIFY	MEMORY>>			
650P	טייטב ב				. *****	****	****	COMMAND	*****	MODIFY	*******	******	***	**********
(3)	00000				*SUBTE	*****	FS *******	****	****	*****	******	*****	<b>会务等</b>	,,,,,,,,,,,,,,,
6207 (3) (4) (5) 6208 6209	040272 040272 040276 040302 040306	013746 013746 013746 013746	001470 001464 001750 000004			PUSH	SHUK , NO	PAR, PARTI	TERE, T				MOV	BANK, -(SP) NOPAR, -(SP) PARTHÈRE, -(SP) 4, -(SP)
6 <u>50</u> 8	040315	012737	000003	001464		MOV TYPE	#3 NOPA	R		: INDICA : MODIFY	TE PARITY MEMORY	ACTION		
8510 (1)	040320	104401	070270		1 <b>S</b> :	TYPEIT	,MSG036 MSG031 ,MSG031		·PHYSIC		SS (0-1677			
(1)	040324	104401 104413	070054			TYPE TYPEIT RDOCT	, MSG031		•		BER ONTO S			oct
6513 6513 6511	040332	013737	057464	001470		MOV POP	SHIOCT,	BANK	PUT MS	S IN B	ANK			
(5)	040340	015600					NU		, 101 236	J 1/1 ///	J		MOV	(SP)+,RC
6215 6215 6215 6217 6218 6218	040342 040344 040346 040352	000241 006100 006137 000241	001470			CLC ROL ROL CLC	RO BANK							
6218	040354 040356	006000				ROR	RO #157	THEN GO	70 1 <b>S</b>	-CHECK !	FOR BANK T	OO HIGH	ı	
(5) (22) (22) (5) (5) (5) (5) (5)	040356	023727 003357	001470	000167		II DHIN	41 410/	men do		, orizon			CMP BGT	BANK, #167
65 <u>50</u>	040366 040372	062700	060000			ADD #BIT	#FIRST	RO THEN	COTO 18	. CHECK I	FOR ODD AD			
(5)	040372	032700	000001			Ir #D110	S SEI.III	NO INCH	G010 13	, CHECK	TOR ODD HD		BIT	#BITO,RO
4559 4559 4559 6569 6569 6569 6569 6569	040376 040400 040400 040404	001352 020027 101347	157776			IF RO H	I #LAST	THEN GOT	21.0	•	FOR ADDRES	S OVER	IBK CMP RHI	RO. #LAST
ครรูส์ ครรูส์	040406	012737	040452	001750		MOV SET4	#35,PAR	THERE		: INCASE	OF ABORTS OF TIMEOU W VECTOR	TPAPS		
6225	040414	012737	040460	P0000		MOV	84Š.4			SET NE	WVECTOR	ii indi J		
(3)	040422	010346	0020			MAP	BANK						MOV	R3(SF)
(1) (1)	040430	013703 004737	001470 034510			MOV CALL	BANK R3 MAPPER						<b>M O</b> 1 1	/ED): D3
PSSP (3)	040434	015603				SUPERVIS	SOR						MUV	(SP)+.R3
6227	040436 040444	052737 011001 104417	040000	177776		BIS MOV	#BIT14.	P5W		;DO IT				
625 <del>9</del>	040446 040450	104417 000416				KERNEL BR	5 <b>\$</b>		:GETTING	HERE M	EANS WE GO	IT LUCKY	- r	10 TRAPS
6231	040452				3 <b>\$</b> :	TYPE	MSG032			:PARITY	ABORT			
62 <b>32</b>	040452 040456	104401 000431	070114		_	TYPĒIT BR	MSG032 EXCMD4			:EXIT				
(1) 6227 6228 6229 6230 6231 (1) 6232 6233 6234 6235	040469	062706	000004		<b>45:</b>	ADD			;FIX STA	-				
<b>6235</b>	040464 040464	104401	070132			TYPE TYPEIT	#4.SP MSG033 .MSG033		TIMEOUT	TRAP				
62 <b>36</b> 6237	040470	000424	J. 2.02			BR	EXCM04			:EXIT				

CPUERR

RETURN

032466

177766

040572 040576

000004

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	-	_		•	4
	-	•	_		_

FIELD S	ERVICE M	IODE 14-FEB-78	MAC+11	30A 1052	28-FE	18-78 09 COMMAND	FO8		7F.
6255	040600					SUBTST	<pre>&lt;<fs 5="" 5<="" command="" fs="" pre=""></fs></pre>	SELECT BANK, MARGIN, & F	<b>144444444444</b>
6	0030FC F030FC F130FC F130FC F530FC F630FC F630FC F630FC	013746 013746 013746 013746 013746 013746 013746 013737 010637	001470 001502 001474 001710 001764 000060 000062 001474 001752	001754	•	PUSH MOV MOV	MARGIN OLDMARGIN SP.FSSTACK	RFIRST, PCBUMP, THVEC, THVEC :SAVE LAST GOOD STACK F :SELECT BANK, MARGIN, 8	MOV BANK(SP) MOV PATTERN,-(SP) MOV MARGIN,-(SP) MOV CSRFIRST,-(SP) MOV PCBUMP(SP) MOV TKVEC,-(SP) MOV TKVEC+2,-(SP)
(1)	040646 040646	104401	070366			TYPE TYPEIT	MSG040 .MSG040		PATTERN TEST
6260 (1) 6261	040652 040656 040656	104401	070035		15:	TYPE TYPEIT RDOCT	MSG030 ,MSG030	;BANK(D-167)? ;READ AN OCTAL NUMBER (	ONTO THE STACK
6262 6262 6261	040660	012637	001470			POP	BANK	:PUT IT IN BANK	MOV (SP)+,BANK
6263 (5)	040664 040664 040672	023727 003367	001470	000167		IF BANK	GT #167 THEN GOTO 1\$	CHECK FOR BANK TO HIGH	CMP BANK,#167 BGT 18
6264 6265 6266 6267	040674 040706 040704	013701 070127	001470 000006			MOV MUL	BANK RI #6.RI IT OFF.IN CONFIG RI)		
6568 (6)	040704 040712 040714	033761 001003	001476	005530		TYPE	MSGD41	; BANK NGT ACCESSABLE	BIT CPUBIT, CONFIG(R1) BNE L366
6269 (2) 6270	040714 040720 040720 040722	104401 000754	070433			TYPEIT GOTO			BR 13
65.1 (3)	040722					END ; OF	1P	L366:;;	;;;;
6272	040722 040722	104401	070460		25:	TYPE TYPEIT	MSGD42 , MSGD42	:PATTERN(0-37)"	
6273 6274	040726 040730	104413	0.0.00			RDOCT POP	PATTERN	READ AN OCTAL NUMBER OF PUT IT IN PATTERN	INTO THE STACK
6275	040730 040734	012637	001502					CHECK FOR PATTERN TO H	MOV (SP)+,PATTERN
(5)	040734 040742	023727 003367	001502	000037					CMP PATTERN, #37 BGT 25
6276 (4) (6)	040744 040744 040750 040752	005737 001004	001502				ERN EQ #0	BOTTERN B DOTO 154	IST PATTERN BNE L367
6277 6278	040752 040756	104401 104413	070501			TYPEIT	MSGO43 ,MSGO43	;PATTERN D DATA IS? :READ AN OCTAL NUMBER O	NTO THE STOCK
6279	040760 040760	012602				RDOCT POP	R2	PUT IT IN R2	MOV (SP)+.P2
£280 6281	040762					END ; OF	IF	L367:;;	•

REG 0304

								GUE	5			
FIELD SI CEMKAA.	ERVICE   MAI	MODE 24-FEB-~8	MACY11 11:01	30011052	) 28-FE	B-78 09 COMMAND	1:20 PAGE 15	SELECT	BANK, MARG	IN, & PATTERN		
6282	247040				CMD5A:	TYPE	MSG044			:MARGIN(0,2,3,4,5)		
6283 6284	040762 040766 040770	104401	070526			TYPEIT RDOUT POP	,MSG044 MARGIN			READ AN OCTAL NUMBER PUT IN IN MARGIN	OTHO	THE STACK
(5)	040770	012637	001474					0B M0BC	TN 50 ml		MOV	(SP)+,MARGIN
6285 5)	040774 040774 041002	023727	001474	200205		IF MARG	IN GT #5	OR MARG	IN EG MI		CMP BGT	MARGIN. #5 L370_
	041005	003004 023727 001001	001474	200001							ČMP BNE	MARGIN,#1 L371
(¥)	041014					GOTO	CMDEO			L370:		
6286 (2) 6287	041014 041014	000762				END :OF					BR (	CMDSA
3)	041016					•		644E		L371::		
£5 <u>8</u> 6	041016	005737	001474			IF MARG	IN NE BU	HUD #2M	III SET.IN	A MAMA	TST	MARGIN
(6)	041022	001407 032777	004000	141146							BEQ BIT	1372 #5H11,05HP
8,	041032	001403	084008	141140		*	MESSUE			MODELNIC TANADOTTED BY	BEQ	L372
62 <b>9</b> 0 62 <b>9</b> 0	041034 041034 041040	104401	070553			TYPE TYPEIT	MSG045 MSG045 CMDSA			: MARGINS INHIBITED BY	SMS	
<b>2</b> )	041040	000~50									BR (	CMD5A
6291 6292 6293	041042					END ; OF	IF MARGI	(N		L372: ;		
6292 6292	041042					MAP	BANK					
(3)	041042	010346	001470								MOV	R3,-(5P)
$(\frac{1}{2})$	041044	013703 004737	001470 034510			MOV CALL	BANK R3 MAPPER					(CD)
(1) (1) (3) 5294 6295	041054	012603 004737	036052			CALL	EXBANK			SET NEW MARGINS	MUV	(SP)+,P3
(4)	041065 041065	005737	001514			IF RRFL	AG NE #0				IST	RRFLAG
62 <b>96</b>	041066 041070	001403				TYPE	MSGD49			BANK REGUIRES RELOCAT	ION BEG	L373
6297	041070 041074	104401	070720			TYPE TYPEIT GOTO	. MSG049			•	•	
(2)	041074	000527									BR (	CMD5C
6298	041076 041076					·				L373:;	:::::	
6299 6300	041076 041102	004737	036704			CALL TYPE	COREHIST	TORY	:TO ESCA	PE TYPE ANY KEY!		
6301	041105	104401 012737	070606 041354	000060		TYPEIT MOV	MSGD46 ,MSGD46 #CMD5C,1	KVEC	•			
£303	041114	012737 017700	000340	000062		MOV MOV	#340 TKV JSTKB,RC	EC+2		.KTIL ANY OLD INTERRUE	PΤ	
6304 6305	041126	042737 052777	000100	177776 141042		BIC BIS	#BIT7,PS	ō₩		;KILL ANY OLD INTERRUF :LOWER CPU PRIORITY TO :ENABLE KEYBOARD INTER	140 RUPTS	
6301 6302 6303 6305 6305 6307 6309 6311	041142		001474			MOV ASL	MARGIN, F			:SET MARGINS :SET MARGINS		
6310 6303	041150		177750			MOV	PO.MAINT	7		• =		
6311												

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H08
                                   MACY11 304(1052) 28-FEB-78 09:20 PAGE 51-10
FIELD SERVICE MODE
                                                                                                                                                                                      SE 2 0305
                                                                                              SELECT BANK, MARGIN, & PATTERN
                    24-FEB-78 11:01
                                                                       COMMAND 5
CEMKAA. MAI
                                                                                  HEADER
                                                                       SET
           041154
                                                                                  #-1, HEADER
                       012737
                                   177777
                                               002146
    (1)
                                                                       SET
           041162
  6313
                       012737
005037
012737
                                                                                  #-1, MUT
PASFLG
#FIRST, CSRFIRST
                                   177777
                                                                       MOV
           041165
                                               001500
                                                           CMDSB:
  6314
           041170
                                                                       CLR
                                   060000
                                               001710
                                                                       MOV
                                                                       IF #SHO SET. IN DSHR
           041202
  6316
                                                                                                                                                         BIT #SWO. JSWP
           041505
                       032777
                                   100000
                                               140770
                                                                                                                                                         BEG L374
     ( B )
           041214
                                                                      ECCDIS
ELSE
  6317
                       104470
  6318
                                                                                                                                                         BP L375
                       104000
                                                                                                                                             L374:::::
     (3)
           041516
  6319
           041550
                       104502
                                                                         CLRCSR
  6320
                                                                      END : OF IF
           041220
                                                                                                                                             L<sub>2</sub>75::::::
                                                                                  #2,NOPAR
#2,PCBUMP
PATTERN,RG
                                                                                                                     PARITY ACTION TRAPS ADD 2 TO PC
                       012737
012737
                                                                       MOV
   6321
           041550
                                   000005 001464
   6355
           955140
                                   200000
                                               001764
                                                                       MÖV
  6323
6325
                       013700
           041234
                                   001502
                                                                       MOV
           041240
                       006300
004770
                                                                      ASL
                                                                                  DFSPAT(RD)
                                   041254
                                                                       CALL
           041246
                       005037
                                                                       CLR
                                                                                  NOPAR
  6326
                                   001464
  6329
                                                                                                                      :LOOP TILL KEYBOARD INTERRUPT
                                                                                  CMD5B
           041252
                       000746
                                                                       BR
                                                                                  DATA PATTERN TEST
ADDRESS TEST
COMPLEMENT ADDRESS TEST
3 XOR 9 WORST CASE NOISE TEST
                                                                      DCCOTM
           041254
                                                          FSPAT:
                       016315
  6331
6330
           041256
                       016346
                                                                       1000TM
           Q41560
                                                                      $0007M
                       016406
           041564
  6332
                       016450
                                                                                                          ROTATING ZEROS TEST
ROTATING ONES TEST
INITIAL DATA TEST
                       016616
  6333
                                                                       P000TM
  6334
6335
           041266
                       016700
                                                                       MT0005
                       016760
                                                                      MT0006
           041272
                                                                                                          ADDRESS BIT TEST
  6336
                       017014
                                                                       MT0007
                                                                                                         BYTE ADDRESSING TEST
CREATE SINGLE BIT ERROR TEST
WRITE BYTE CLEARS SBE TEST
CREATE DOUBLE BIT ERROR TEST
WRITE INHIBIT DURING DATIP WITH DBE
WRITE INHIBIT OF BYTE WITH DBE
WRITE INHIBIT OF WORD WITH DBE
                       017056
017112
017170
  6337
           041274
                                                                       MT0010
           041276
                                                                      MTOOLL
  6338
                                                                                   ` ₹2
                                                                                        SEC
  6339
           041300
                                                                                        SEC
SEC
                                                                       MT0012
                       017246
                                                                       MT0013
  6341
           041304
                       017322
                                                                      MT0014
  017400
017456
           041306
                                                                      MT0015
                                                                                                         HOLDING 1'S & D'S TEST
MARCHING 1'S & D'S IN CHECK BITS
MARCHING D'S & 1'S TEST
                       017534
017556
020212
020334
020356
                                                                                        SEC
SEC
           215140
                                                                      MT0017
           041314
                                                                                  ; ∢Ī
                                                                      DŠOOTM
                                                                                        SEC
SEC
SEC
                                                                      MT0021
                                                                                                         REFRESH TEST
SHIFTING DIAGONAL TEST
FAST GALLOPING PATTERN TEST
INTERRUPT ENABLE TEST
                                                                      MT0022
MT0023
           041320
           041322
                                                                                  69
                                                                                        SEC
SEC
SEC
SEC
  6349
6350
           041324
                       020404
                                                                                  ;58
                                                                      MTDOSA
                       020510
           041326
                                                                      MT0025
                                                                      MT0026 (1 SE
MT0027 1 SE
MT0030 1 SE
MT0031 3 SE
MT00999; MT0032
  €351
           041330
                                                                                                          RANDOM DATA TEST
   €352
           041332
                       050640
                                                                                                         UNIQUE BANK TEST
  6353
           041334
                       902120F
  6354
6355
                                                                                                          SOB-A-LONG TEST
                       021430
           041336
                       021532
           041340
  6356
6357
6358
                       021532
021532
021532
                                                                      MT0999 MT0033
MT0999 MT0035
MT0999 MT0035
MT0999 MT0036
           041342
           041344
   6359
           041350
            041352
                                                                      MT0999:MT0037
```

			<u> </u>				<del></del>		<del></del>	
FIELD S	SERVICE !	10DE 24-FEB-78	MACY11	30A (1052	FS ^{28-FE}	8-78 09 COMMAND	IO8 :20 PAGE 51-11 SELECT BANK, MAR	GIN, & PATTERN		5E0 0306
6361 6363 6364	041354 041360 041366 041366 041372 041376	013706 042777	001752	140616	CMD50:	MOV BIC POF	FSSTACK SP #BIT6, DITKS TKVEC+2, TKVEC	:RECOVER OLD STACK PGI		
6362 (3)	041372 041376	012637 012637 117700	140604 000062			MOVB POP	JSTKB.RO PCBUMP.CSRFIRST.MARGIN	:GET CHARACTER TO GET	MOV (SP)+ TKVEC RID OF FLAG	
6363 6363 6364 6366 6366 6366 6368 6368	041455 041419 041419 041405 041405	012637 012637 012637 004737	001764 001710 001474 036704			CALL POP	COREHISTORY PATTERN, BANK	:RESTORE OLD MARGINS	MOV (SP)+,PCBUMP MOV (SP)+,CSRFIPST MOV (SP)+,MARGIN	
(2) (2)	041455	012637 012637	001502 001470			MAP	BANK	:REMAP OLD BANK	MOV (SP)+, PATTERN MOV (SP)+, BANH	
3, (1) (1)	041432 041434 041440	010346 013703 004737	001470 034510			MOV CALL	BANK R3 MAPPER	, NEIMI SES SMI	MOV R3,-(SF)	
(3) 6370 6371	041444 041446 041452	012603 004737 000207	036052			CALL RETURN	EXBANK		MO√ (SP)+.R3	
6372 6373 (3)	041454				FSCMD6:	****	<fs 6<="" command="" td=""><td>TYPE CONFIGURATION MAP</td><td>***********</td><td></td></fs>	TYPE CONFIGURATION MAP	***********	
	041454 C3+140	004737 000207	C31162		*SUBTE		FS COMMAND 6 PCONFIG	TYPE CONFIGURATION MAP	************	

								J08							
FIELD SE	RVICE 1	10DE 24-FEB-78	MAC /11 11:01	30A (1052	28-FE FS	B-78 09 COMMAND	:20 PAGE 6	E 52 TYPE CON	NFIGURATION	N MAP					SEG 0307
6379 (3) (3) (2)	041465				FSCMD7:	SUBTST ******** ST ******	< <fs ***********************************</fs 	COMMAND	********* 7 BA	TTERY E	ACKUP	******* TEST	*****	**********	
6380 (2) (3) (4) (5)	041462 041462 041476 041476 041508 041506	013746 013746 013746 013746 013746 013746	001470 001502 001474 001634 000060		•	PUSH	BANK, PAT	TTERN, MAR	RĞİN,CSRNO.	TKVEC.1	.kAEC+S	•	MOV MOV MOV MOV MOV	BANK, -(SP) PATTERN, -(SP) MARGIN, -(SP) CSRNO, -(SP) TKVEC, -(SP) TKVEC+2, -(SP)	
6381 (4) (6)	041515	032777 001402 104470	000001	140460		ECCDI	SET.IN a	72r. <del>4</del> .					BEQ	#5H0.25HR L376	
(6) 6382 6383 (3) (3) 5384	041518 041529 041529 041529 041529 041529 041529	104502				CLRCS	R					L376:;;		_377	
(3) (3)	041530 041530 041530 041530	104401	070752			END; OF TYPE TYPEIT	IF MSG050 MSG050		;BATTERY B			L377:;			
6387 6388 6389 6390	041534 041540 041546	004737 012737	020640	002012		CALL	MT0027 #10. TIN MSG052 _MSG052					KING ADI BACKGRO POWER FO		PATTERN AS BAC	CKGROUM
6391	041546 041552 041552 041556 041560	104401 013746 104405	071100 002012			TYPE TYPEIT TYPDEC MOV	MSG052 TIME TIME,-(9		::SAVE TIM						
6393	041264	104401				TYPDS TYPE TYPEIT TYPE TYPEIT	MSG053 ,MSG053					ANY KEY			
6336	041564 041570 041576 041604 041610 041616 041624	104401 012737 012737 017700 042737 052777 010637	070606 041632 000340 140376 000200 000100 001752	000060 000062 177776 140360		MOV MOV BIC BIS MOV	MSG046 #CMD7A,1 #340,1KV #STKB,RC #BIT7,PS #BIT6,39 SP,FSSTF	TKVEC SW STKS ACK	; K	(ILL ANY OWER CP NABLE K	OLD I U PRIO EYBOAR	NTERRUPT RITY TO D INTERF	T 140 RUPTS		
6401 6402	041630	100000				WAIT									
6399 6390 64903 64903 64903 64903 64903	041636 041636	013706 042777	001752 000100	140340	CMD7A:	MOV BIC POP	FSSTACK, #BITE, 25 TKVEC+2.	TKS	; R	RECOVER	OLD ST	ACK POIM	NTER		
(2) (3) 6406 6407 (1)	041644 041650 041654 041660	012637 012637 117700	140356 000060 000063			MOVB TYPE	astka RC		; G : N	ET CHAR	ACTER	TO GET F	MOV RID OF	(SP)+.TKVEC+2 (SP)+,TKVEC F FLAG MEMORY BANKS	
PAUR	041664	104401	071147			TYPEIT	,MSGD54 K := #0 1	TO #167	•••		- · <del>-</del> /\				
645a	041664 041670 041670	005037 004737	001470			CALL	EXBANK					855:;;	::::	BANK	

FIELD SERVICE CEMKAA.MAI	MODE 24-FEB-78	MACY11	KOB  304(1052) 28-FEB-78 09:20 PAGE 52-1 FS COMMAND 7 BATTERY BACKUP TEST		SES 0309
6410 041674 (4) 041674 (6) 041700 (6) 041702 (8) 041706 6411 041710 (3) 041710 6412 041714 6413 041720 6414 041722 6415 041726	005737 001415 005737 001012 013702 012700 010004 012701 010103	001506 001514 001470 060000 040000	IF ACFLAG NE #0 AND RPFLAG EG #0  LET R2 := BANK  MOV #FIRST.R0  MOV RO R4  MOV #SIZE.R1  MOV R1.R3  CALL  SUPDO3	TST ACFLAG BEQ LYOU TST RRFLAG BHE LYOU MOV BANK.P2	
(6) 041734 (5) 041740 (5) 041746 (5) 041750 6419 041750	004737 005237 023727 003750	021724 001470 001470 070641	END ; OF IF ACFLAG  END ; OF FOR BANK  000167  TYPE MSGD47 ; TEST COMPLETE TYPEIT .MSGD47	1 400::;;;; INC BANK CMP BANK,#167 BLE 855 E55:;;;;;;	
(1) 041750 6420 041754 (2) 041754 (3) 041764 (4) 041764 (5) 041770 6421 041774 6422	012637 012637 012637 012637 000207	001634 001474 001502 001476	POP ČSŘNO, MARGIN, PATTERN, BANK RETURN	MOV (SP)+.CSRNC MOV (SP)+.MARGI'H MOV (SP)+.PATTEPH MOV (SP)+.BANK	

SEG 0309

								LO8	  -		
FIELD SI CEMKAA.I	ERVICE M MA1 2	ODE 4-FEB-78	MACY11 11:01	30A (1052	FS 28-FE	B-78 09 COMMAND	:20 PAG	E 52-2	BACKUP	TEST	
6424 (3)	041776				FSCMD8: :***** :*SUBTE	******* ST	< <fs< th=""><th>COMMAND COMMAND</th><th>******</th><th>SOB-A-LONG TEST&gt; SOB-A-LONG TEST</th><th></th></fs<>	COMMAND COMMAND	******	SOB-A-LONG TEST> SOB-A-LONG TEST	
25 427 5 5 5 6 727 6427 6427 6427 6427	041776 041776 042002 042006 042012 042026 042032 042032 042036	013746 013746 013746 013746 013746 013746 010637	001470 001502 001474 000060 000062 001464 001752		CMDBA:	PUSH MOV TYPE TYPEIT TYPE	SP.FS5T MSG055 MSG055 MSG044	·	RGIN, TK	SAVE LAST GOOD STACE: SOB-A-LONG TEST	MOV BANK, -(SP) MOV PATTERN, -(SP) MOV MARGIN, -(SP) MOV TKVEC, -(SP) MOV TKVEC+2, -(SP) MOV NOPAR, -(SP) K POINTER
(1)	042036	104401 104413	070526		CHECK.	TYPEIT RDOCT	MSGO44			:READ AN OCTAL NUMBE	R ONTO THE STACK
6430 6430	042044	012637	001474			POP	MARGIN	00 4000	TN 50 41	;PUT IN IN MARGIN	MOV (SP)+, MARGIN
6431 5) (5)	042050 042050 042056	023727 003004	001474	000005		IF MMMG	TU () #2	OR MARG	IN EG W		CMP MARGIN, #5 BGT L401
(6) (8)	0450 <b>2</b> 6 0450 <b>2</b> 0	023727	001474	000061						. 40.1	CMP MARGIN, #1 BNE L402
(4) 6432 (2) 6433 (3)	042070 042070 042070 042072 042072	000762				GOTO END ; OF					BR CMD8A
6434 (4)	042072 042072	005737	001474			IF MARG	IN NE #O	AND #SW.	11 SET.1	IN DSWR	TST MARGIN
(b) (b) (8)	042076 042100 042106	001407 032777 001403	004000	140072							BEQ L403 BIT #SW11,2SWR BEQ L403
6435 (1) 6436	042110 042110 042114	104401	070553			TYPE	MSGD45 MSGD45			; MARGINS INHIBITED B	3' SW <b>5</b>
(2) 6437	045114	000750				GOTO : OF	IF MARG	IN			BR CMDBA
(3) £438	045116					·				L <b>4</b> 03	3::::::
6439 (4) 6440 6441	045156 045154 045116 045116	032777 001402 104470	000001	140054		ECCDI	SET.IN	72MK			BIT #5WD, QSWR BEQ L404
(3)	042130	10400				ELSE				ו אטרו	BR L405
(3) (3) 6443 6443 (3)	042132 042132 042134	104502				CLRCS					):::::::
(3) 6444 (1) 6445	042134 042134 042134	104401	071240			TYPE TYPEIT	MSG056 .MSG056			:BELL = EACH PASS CO	mplētē"
6446 (1)	042140 041340	104401	070606			TYPE TYPEIT	MSGD46 ,MSGD46			:TO ESCAPE TYPE ANY	KEY!

FIELD S	SERVICE M MA1 2	10DE 24-FEB-78	MACY11	30A (1052	28-FE FS	18-78 09 COMMAND	8 0	MO8 52 3 508-A-LONG	TEST						SEG 0310
7890-1237567 1115555557 41115555557 6454 6454 6457 6457 6457	042144 042152 042160 042164 042172	012737 012737 017700 042737 052777	00100 00200 140055 00340 042300	000060 000062 177776 140004		MOV MOV BIC BIS	#CMDBC,T #340,TkV <b>35</b> TkB,RC #BIT7,PS #BIT6,3\$	KVEC EC+2 TKS	•	KILL I LOHER ENABLI	ANY OLI CPU PR E KEYBO	O INTER RIORIT DARD II	RRUPT Y TO 140 NTERRUPTS	5	
6454 6454 6455	902240 902240 902240	013700 006300 010037	001474 177750			MOV ASL MOV	MARGIN,R RO RO,MAINT		• •	SET M	ARGINS ARGINS				
6457 (1) 6458 (1)	045550 045515 045515 045515	012737 012737	177777 177777	002146		SET MOV SET MOV	HEADER #-1,HEAD MUT #-1,MUT	ER							
6469 6460 6460 6460	042226 042232 042232 042232 042236	005037 004737	001470		CMD8B:		YK := #0 T					850	CLF 5:;;;;;	R BANK	
1 (4)	045548 045548	005737 001405 005737	001506			ĬFĀC	FLAG NE #	O AND RRFLA	AG EG #I	0			T57	T ACFLAG D L406 T RRFLAG E L406	
(6) (6) (8) 6463 6464 (3) 6465	042250 042252 042256 042256 042256	001002 004737	021430			END ;	L MTDD31 OF IF ACF					ᆫ4(	06:;;;;;	;	
6499 (25) (25) (25)	042256 042256 042262 042270 042272 042272	005237 023727 003760	001470 001470	000167					• 1	RING E	DE: t	<b>E</b> 56	INC CMF BLE	856	
6467 (2) 6468	042276 042276 042276	104401 000753	002215			TYPE TYPEIT GOTO	SBELL SBELL CMD8B		• '	KING E		Á		CMD8B	•
6469 6470 6471 6472	045316 045315 045300	013706 042777 117700	001752 000100 137670	137672	CMD8C:	MOV BIC MOVB POP	FSSTACK #BIT6, D\$ D\$TKB, RD NOPAR. TK	SP STKS SVEC+2, TKVEC	C.MARGI	N.PAT1	RECC; READ; READ, BA	OVER ÖL OCHAR ANK	TO KILL	FLAG	
(2) (3) (4) (5) (6) (7) 6473	042326 042326 042332 042336 042336	012637 012637 012637 012637 012637 012637	001464 000062 000060 001474 001502 001470						•	•	- ,-		MOV MOV MOV MOV	/ (SP)+,NOPAR / (SP)+,TKVEC+2 / (SP)+,TKVEC / (SP)+,MARGIN / (SP)+,PATTERN / (SP)+,BANK	
(3) (1) (1) (3) 6474	042346 042346 042350 042354 042360	010346 013703 004737 012603	001470 034510			MAP MOV CALL	BANK R3 MAPPER							/ R3,-(SP) / (SP)+.R3	
6474 6475 6476 6477	042360 042362 042366	004737	036052		FSCMD9:	CALL RETURN SUBTST	EXBANK	COMMAND 9	SI	UPER 1	right s	SCOPE L			

GOTO CMD9A

6504

042556

SEG 0311

L411:::::;

<del></del>				<del></del>					
							B09		
FIELD	SERVICE '	MODE 24-FEB-79	MACY11 11:31	30A 1052	: 28-FEI FS	3-78 D9 COMMAND	:20 PAGE 52-5 SUPER TIGH	HT SCOPE LOOP	
ر <b>چ</b> ر	042556								BR CMD9A
6505 6506	045260					END : OF	IN WE NO UND NEMIT	L412:::	::. <b>:</b>
(4)	3425bU	005737	001474						TST MARGIN
(6) (8)	042564 042566 042574	001407 032777 001403	004000	137404				; MARGINS INHIBITED B/ S	BEG L413 BIT #SW11, DSWR BEG L413
6507	042576		020553			TYPE TYPEIT	MSG045 . MSG045	:MARGINS INHIBITED B/ S	WS .
6 <b>508</b> (2)	045PDS 045PDS	000750	0, 0330			GOTO	CMD9A		BP CMD9A
6509 (3)	042604					END ; OF	MSG045 MSG045 CMD9A IF MARCIN	1413:;;	<b>;;;</b>
6508 (2) 6509 (510 6511 6512 6513	045604	012737 012737	E00000	001464		MOV	#3, NCPAF	:PARITY ACTION	
<b>6</b> 213	045650 045615		042726	001750		MOV SET4	#3, NCPAF #CMD9LOOP, PARTHERE #CMD9B	L .SET NEW VECTOR	
65:4	045656 045656 045650	012737 010346	042740	999994		MOV MAP	BANK	; SE THEM VECTOR	MOV R3(SP)
(1)	042630	013703 004737 012603	001470 034510			MOV CALL	BANK, R3 MAPPER		
(3) 6515	045645					TYPE	MSG060	; SET NEW VECTOR	MOV (SP)+.R3 DISPLAY
651 <u>6</u>	045645	104401	071327				,		
6517 (1)	045646 045646	104401	070606	00001.0		TYPEIT	MSGD46 MSGD46	; TO ESCAPE TYPE ANY KEY	•
6519 6520	042652 042660 042666	012737 012737 017701	042746 000340 137314	0000PS 0000P0		MOV MOV	#340 TKVEC+2	-KILL ANY OLD INTERRUPT	
6521 6522	042672 042700	042737 052777	000100	177776 137276		BIC BIS	#CMD9C,TKVEC #340,TKVEC+2 #STKB,R1 #BIT7,PSW #BIT6,#STKS	:KILL ANY OLD INTERPUPT :LOWER CPU PRIORITY 10 :ENABLE KEYBOARD IMTERR	140 JPTS
(1) (3) (5) (5) (5) (5) (5) (5) (5) (6) (6) (6) (6) (6) (7) (7) (7) (7) (7) (7) (7) (7) (7) (7	042706	013701	001474			MOV	MARGIN, RI	SET MARGINS	
6525 6526	042712 042714	006301 010137	177750			ASL MOV	RI MAINT	; SET MARGINS	
6527 6528	042720 042720	052727	DHOOOS	177776		SUPERVI		.00 17 70 171	
(1) 6529 6530	042726 042732	<b>052737</b> 017710 011077	040000 137246 137244	177776	CMD9L00F	BIS P:MOV MOV	#BIT14,PSW aswr,(AD) (RD),aDISPLAY	DO IT TO IT! WRITE SWITCH REGISTER READ MEMORY INTO DISPLI	INTO MEMORY BY REGISTER
6531 6532	042736	000773	13/ E 11			BR	CMD9LOOP	LOOP TILL KEYBOARD INT	RRUPT
6533 6534	042740 042744	012716 000002	042726		CMD9B:	MOV RTI	#CMD9LOOP, (SP)		
6535 6536	042746	013706	001752		CMD9C:	MOV	FSSTACK SP	;RECOVER OLD ST	ACK POINTER
6529 6530 6532 6533 6533 6535 6536 6537 6538	042752 042760 042764	042777 117700	000100	137224		BIC MOVB POP	#BIT6, D\$TKS D\$TKB, RO NOPRR, TKVEC+2, TKVE	READ CHAR TO K	ILL FLAG
(3)	042764 042770	012637 012637	000062			FUF	HOPAN, INVESTE, IRVE	so, innusit, entre	MOV (SP)+, NOPAR MOV (SP)+, TKVEC+2
¥) 5,	042774 043000	012637 012637	000060 001474				•		MOV (SP)+ TKVEC MOV (SP)+ MARGIN
									-

SEG 0312

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C09
                              MACY11 30A(1052) 28-FEB-78 09:20 PAGE 52-6
FIELD SERVICE MODE
                                                 FS
                                                                                 SUPER TIGHT SCOPE LOOP
                                                                                                                                                            5E3 C313
                                                            COMMAND 9
                 24-FEB-78 11:01
CEMKAA. MAI
                                                                                                                                    MOV SP)+, BANK
         043004 012637 001470
    (\mathbf{f}_{i})
                                                            MAP
                                                                       BANK
  6540
         043010
                                                                                                                                    MOV R3. - (SP)
         043016
043015
                    013703
   (3)
                                                             MOV
                                                                       BANK, R3
                              מרצומם
                    004737
                                                             CALL
                                                                       MAPPER
                              034510
   (1)
 6541
6542
6543
                                                                                                                                   MOV (SP)+.P3
          043055
                                                            CALL
                              036052
                                                                       EXBHNK
                                                                                                     ERROR SUMMARY
                                                  FCMD10: SUBTST ( FS
                                                                                COMMAND 10
  E544
          043032
                                                  (3)
                                                                                                     ERROR SUMMARY
                                                                                 COMMAND 10
                                                   : *SUBTEST
                                                  . ***********
  6575
         043032
                                                            PUSH
                                                                      RO.R2.R3.BANK
                                                                                                                                   MOV RD.-(SP)
MOV R2.-(SP)
MOV R3,-(SP)
MOV BANK,-'SP,
          043032
                    010046
         043036
                    01034P
01054P
         043040
                    013746
                              001470
                                                            TYPDEC SERTIL
  6546
                                                                                          ::SAVE SERTTL FOR TYPEOUT
::GO TYPE--DECIMAL ASCII WITH SIGN
:ERROR(S) DETECTED
                                                                       SERTTE, -(SP)
   (1)
          043044
                    C13746
                                                             MCV
                              901406
                                                            TYPDS
TYPE
TYPEIT
          043050
                    104405
                                                                      MSG079
  6547
          Ď43ŌŠ2
                                                            TYPEIT MSG079
IF SERTTL NE #0
   (1)
          043052
                    104401
                              072002
  6548
(4)
(6)
          043056
                    005737
001437
                                                                                                                                    TST SERTTL
                              001406
                                                                                                                                    BEG 1414
          043062
                                                            TYPE MSG076
TYPEIT , MSG07
                                                                                                    :BANK EPRORS
          043064
  6549
                                                              YPEIT ,MSGD76
FOR BANK := #D TO #167
                    104401
                              071702
          043064
  655C
          043070
                                                                                                                                    CLR BANK
         043070
043074
                    005037
   (4)
                              001470
   (4)
                                                                                                                         B57:::::
  013703
070327
062703
                                                                 MOV BANK R3
MUL #6,R3
ADD #5,R3
          043074
         043100
                              000006
          043110
                                                                 IFB CONFIG(R3) NE #0
                                                                                                                                    TSTB CONFIG(R3
          043110
                    105763
                              0:15530
         043114
                    001414
                                                                                                                                    BEG 1415
  6555
                                                                    TYPOCS
                                                                                BANK.3
                                                                               GO TYPE--OCTAL ASCII

TYPE 6 DIGITS

SUPPRESS LEADING ZEROS

CONFIG(R3), RO

#1C377, RO

RO
                                                                                           :: SAVE BANK FOR TYPEOUT
                    013746
          043116
                              001470
                                                            MCV
                                                                      BANK, - (SP)
   (1)
         043122
043124
043125
                                                            TYPOS
.BYTE
.BYTE
   \begin{pmatrix} 1 \\ 1 \end{pmatrix}
                    104403
                       006
   (Ī)
                       מממ
         043136
043136
  6556
6557
6558
                                                                    MOVB
                    116300
                              005530
                    042700
                                                                    BIC
                                                                    TYPDEC
         043136
043140
043142
                                                                     RO,-(SP)
                                                                                           :: SAVE RD FOR TYPEOUT
:: GO TYPE--DECIMAL ASCII WITH SIGN
                    010046
   (1)
                                                            MOV
    (\bar{1})
                    104405
                                                            TYPDS
                                                            TYPE SCRLF
TYPEIT SCRLF
END OF IFB CONFIG(R3)
  6559
    \langle 1 \rangle
          043142
                    104401
                              005555
  6560
         043146
    (3)
          043146
                                                                                                                         L415:;;;;
          043146
  6561
                                                               END : OF FOR BANK
    £5,
                    005237
023727
          043146
                                                                                                                                    INC BANK
                                                                                                                                   CMP BANK, #167
BLE 857
          043152
                              001470 000167
                    003745
          043160
```

SEC 0314

> MOV (SP)+.BANK MOV (SP)+.R2 MOV (SP)+.RC

## E09

```
MACY11 30A(1052) 28-FEB-78 09:20 PAGE 52-8
TB 11:01 FS COMMAND 10 ERROR SUMMARY
FIELD SERVICE MODE
               24-FEB-78 11:01
                                              FCMD11: SUBTST <<FS
                                                                                            REFRESH TEST>>
                                                                          COMMAND 11
  6566 043176
   (3)
                                                                                            REFRESH TEST
                                              : #SUBTEST FS
                                                                       COMMAND 11
                                              ************************
                                                                BANK, PATTERN, MARGIN, TKVEC, TKVEC+2, NOPAP
                                                      PUSH
  6567
         043176
                                                                                                                        MOV BANK, -(SP)
MOV PATTERN, -(SP)
MOV MARGIN, -(SP)
                 013746 001470
         043176
   (5)
                  013746
         043202
                           001502
                  013746
         043206
                           001474
                                                                                                                        MOV TKVEC, - (SP)
MOV TKVEC+2, - (SP)
MOV NOPAP, - (SP)
         043212
                  013746
                           000060
                  013746
   (5)
         043216
                           000065
         043222
                  013746
                           001464
                                                                SP.FSSTACK
MSG073
MSG073
MSG044
                                                                                            ; SAVE LAST GOOD STACK POINTER
  6568
         043226
                                                       MOV
                  010637
                           001752
                                                       TYPE
TYPEIT
                                                                                            REFRESH TEST
         043232
  6569
         043232
                           071630
                  104401
   (1)
                                              CMD11A: TYPE TYPEIT
                                                                                            :MARGIN(0.2.3.4.5)?
  6570
         043236
  (1)
6571
                  104401
                           070526
                                                                . MSG044
         043236
                                                                                            :READ AN OCTAL NUMBER ONTO THE STACK :PUT IN IN MARGIN
         043242
                  104413
                                                       RDOCT
  6572
                                                                MARGIN
                                                       POP
  6573
                                                                                                                        MOV (SP)+. MARGIN
         043244
                  012637
                           001474
                                                       IF MARGIN GT #5 OR MARGIN EQ #1
         043250
                                                                                                                        CMP MARGIN, #5
                  023727
         043250
                           001474 000005
                                                                                                                        BGT L416
CMP MARGIN.#1
         043256
                  023727
         043260
    (6)
                           001474
                                    100000
                                                                                                                        BNE L417
   (8)
         043266
043270
                                                                                                               L416:;;;;;
  6574
         043270
                                                        GOTO CMD11A
        043270
043272
043272
043272
043272
043276
  £575
                                                                                                                        BR CMD11A
                  000762
                                                       END : OF IF
                                                                                                               L417::::;;
  6576
                                                       IF MARGIN NE WO AND WSWII SET. IN JSWR
                  005737
001407
032777
001403
                                                                                                                        TST MARGIN
    4)
                           001474
                                                                                                                        BEG L420
BIT #SW11,05WR
    6,
         043300
    6)
                           004000 136672
    B,
                                                                                                                        BEG L420
                                                       TYPE MSG045
                                                                                            : MARGINS INHIBITED BY SWS
         043310
  6577
         043310
                  104401 070553
                                                         GOTO CMDITA
  6578
         043314
  6579
                                                                                                                        BR CMDIIA
         <u>0</u>43314
                  000750
         D43316
                                                       END : OF IF MARGIN
         043316
                                                                                                              L420:;;;;;
  658Ó
6581
        043316
043324
043326
                                                       IF #SWD SET. IN DSWR
   (4)
(E)
                  032777
                                                                                                                        BIT #SWC. JSWR
                           000001 136654
                  001402
                                                                                                                        BEG 1421
  6582
                  104470
                                                         ECCDIS
         043330
  6583
                                                       ELSE
   (3)
                                                                                                                        BR L422
                  000401
                                                                                                              L421:;;;;;
   (3)
         043332
  6584
         043332
                  104502
                                                         CLRCSR
  6585
         043334
                                                       END : OF IF
   (3)
         043334
                                                                                          :BELL = EACH PASS COMPLETE
  6586
                                                                MSGOS6
.MSGOS6
         043334
  6587
         043334
                                                       TYPEIT
                 104401 071240
         043340
  5588
                                                                                           :TO ESCAPE TYPE ANY KEY!
                                                                MSG046
                                                       TYPEIT MSG046
                 164461 070606
```

FIELD S	ERVICE MAI &	100E 24-FEB-78	MACY11 11:01	30A (1052	28-FE	B-78 D9 COMMAND	FC 9:20 PAGE 52-9 11 REFRE	9	SEG 1316
6589 65901 65912 65993 6599 6599 6599	043344 043352 043360 043364 043372	012737 012737 017700 042737 052777	043500 00340 136622 000200 00100	000060 000062 177776 136604		MOV MOV BIC BIS	#CMD11C,TKVEC #340,TKVEC+2 astkb.rc #BIT7,PSH #BIT6,astks	C : KILL ANY OLD INTERRUPT : LOWER CPU PRIORITY TO 140 : ENABLE KEYBOARD INTERPUPTS	
6595 6596 6597 6598	043400 043404 043406	013700 006300 010037	001474 177750			MOV ASL MOV	MARGIN,RO RO RO,MAINT	:SET MARGINS :SET MARGINS	
6600 (1)	21456 043415 043450 043450	012737 767510	177777 177777	002146		SET MOV SET MOV	HEADER #-1,HEADER MUT #-1,MUT		
1044 (FF 5044 (FF	043426 043432 043432 043432	305037 004737	001470 036052		CMD11B:		EXBANK	BBC::;;::	
4) (4) (6)	043436 043436	005737 001405 005737	001506 001514			ĬFĀC	FLAG NE #O AND	D RRFLAG EG #C TST ACFLAG BEG L423 TST RRFLAG BNE L423	
8) 6605 6606 3) 6607	043444 043450 043452 043456 043456 043456	001002 004737	020334			END :	L MT0022 OF IF ACFLAG FOR BANK	L423:;;;;;	
(5) (5)	043456 043462 043470 043472	005237 023727 003760	001470 001470	000167		·		INC BANK CMP BANK, #167 BLE B60 E60::;;;;	
6608 (1) 6609 (2) 6510	043472 043472 043476 043476	104401 000753	005512			TYPE TYPEIT GOTO	SBELL CMD118	RING BELL BR CMD118	
6611 6612 6613 6614	043504 043516 043516			136472	CMD11C:	MOV BIC MOVB POP	FSSTACK, SP #BIT6, D\$TKS D\$TKB, RO NOPAR, TKVEC+2	; RECOVER OLD STACK POINTER ; READ CHAR TO KILL FLAG P, TKVEC, MARGIN, PATTERN, BANK	
(2) (3) (5) (5)	043516 043516 043526 043526 043536 043536 043546 043546	012637 012637 012637 012637 012637	001464 000062 000060 001474 001502					MOV (SP)+, NOPAR MOV (SP)+, TKVEC+2 MOV (SP)+, TKVEC MOV (SP)+, MARGIN MOV (SP)+, PATTERN	
(7) 6615 (3) (1)	043546 043546 043546 043550 043554 043560	012637 010346 013703 004737	001470 001470 034510			MAP MOV	BANK R3 MAPPER	MÖV (ŠP)+,BANK MOV R3,-(SP)	
(3) 6616 6617 5618	043560 043562 043566	012603 004737 000207	036052			CALL CALL RETURN	EXBANK	MOV (SP)+.R3	

5E% 0317

		MODE 24-FEB-78	MACY11 30A 1052	28-FE	8-78 09: COMMAND		E 52-11 SET FILL	COJNT				TE0 03:8
1 3 1	043616			+SUBTES	******	SUBR	********	CORRECT	CSR	************	•••••	
23) 23) 2632 2633 2633 2633 2633 2633	043634 043630 043630 043634 043636	122700 001003 005037	001634 000500		MOV CMPB BNE CLR RETURN	MKCSRS.F #BIT7.RC 1\$ CSRNO	:	GET CSR'S CSR 0' NO - SkIP YES - SET	•			
7.699 8699 9699 (25) (27)	959540 943645 943644 943644	104401 104413	067633	15:	TYPE TYPEIT RDOCT POP	MSGD22 .MSGD22 RO		WHICH CSR GET OCTAL PUT IN RO	NUMBER	<b>m</b> e v	· SP ; + , RC	
	043644 043648 043656 04336668 04336668 04433668 04433668 04433668 04433668 04433668 04433668 0443368 044368 044368 044368 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 0443648 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 044368 0	101371 012701 005200 062701 077003	000007 177774 000004 001634	25:	CMP BHI MOV INC ADD SOB MOV RETURN	RO.87 15 8-4.R1 RO 84.P1 RD.25 RI.CSRNO	:	CHECK LIM	NIT NOP TILL HE	TYPES IT RIGHT		

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ERROR REPORTING \$ SCOPE LOCAS MACY 11 30A(1052) 28-FEB-78 09:20 PAGE 54 CEMKAA. MAZ 24-FEB-78 09:17 SETUP RANDOM INSTRUCTION TEST

7062 7063	.TITLE	ERROR REPORTING & SCOPE LOOPS
7063 7064 046646	SUBTST	<pre>&lt;<subr data="" error="" setup="">&gt;</subr></pre>
(3)	; ************************************	· · · · · · · · · · · · · · · · · · ·
(3)	*SUBTEST	SUBR ERROR DATA SETUP
7065		
7066	USE THIS	IF THIS CONDITION DISCRIBES THE ERROR
7068	PERRO1	TRAP
7069	•	BAD DATA IN RO UNLESS ABORTED THEN BAD DATA IS POINTED TO BY - (R4)
7071		GOOD DATA IN RS
7072	nennon	
7073 7074	PERRO2	TRAP BAD DATA IN RI UNLESS ABORTED
7075	;	THEN BAD DATA IS POINTED TO BY - 'P4)
7076 7077	•	GOOD DATA IN R2
2078	PERRO3	TRAP
7079 7080		BAD DATA IS POINTED TO BY -(RI) GOOD DATA IN RY
7081		
7082 7083	PERRO4	TRAP BAD DATA IN RY UNLESS ABORTED
7084		THEN BAD DATA IS POINTED TO BY -2 RD
7085 7086		GOOD DATA IN R2
7097	PERPOS	JSR PC
7088 7089	•	BAD DATA IS POINTED TO BY -(RO) GOOD DATA IN RE
7090	;	RETURN AFTER SETTING UP GOOD, BAD, ADDRESS
7092	PERRO6	JSR PC
7093	• • • • • • • • • • • • • • • • • • • •	BAD DATA IS POINTED TO BY -(RD)
7099 7095	•	GOOD DATA IS ZERO RETURN AFTER SETTING UP GOOD, BAD, ADDRESS
7064 (32) 7066 7066 7068 7069 7077 7077 7077 7077 7081 7081 7083 7089 7089 7089 7099 7099 7099 7099 7099	050003	
7097 70 <b>9</b> 8	PERRO7	TRAP BAD DATA IN R2 UNLESS ABORTED
7099 7199	;	THEN BAD DATA IS POINTED TO B: (RI
7098 7099 7100 7101	•	GOOD DATA IN DATBUF
7102	PERR10	TRAP
7103 7104		BAD DATA IN R2 UNLESS ABORTED THEN BAD DATA IS POINTED TO BY 2(RI)
7104 7105 7106	•	THEN BAD DATA IS POINTED TO BY 2(RI) GOOD DATA IN DATBUF+2
7107	PERP11	TRAP
7107 7108 7109		BYTE TEST BAD DATA IN RIGHT BYTE OF RO UNLESS ABORTED
7110		THEN BAD DATA IS POINTED TO BY R1,
7111 7112	•	GOOD DATA IS A ZERO BYTE
7113	PERR12	TRAP
7114	•	BYTE TEST

ERROR REPORTING & SCOPE LOOPS CEMKAA.MA2 24-FEB-78 08:17	MACY11 30A(1052) 28-FEB-78 09:20 PAGE 54-1 SUBR ERROR DATA SETJP
7115	. BOD DATA IN RIGHT BYTE OF RO UNLESS

SEG 0320

7115 7116 7117 7118		BAD DATA IN RIGHT BYTE OF PO UNLESS ABORTED THEN BAD DATA IS POINTED TO BY (R1) GOOD DATA IS A BYTE OF ONES
7119 7120 7121 7122	PERR13	TRAP BAD DATA IN RO UNLESS ABORTED THEN BAD DATA IS POINTED TO BY (R1, GOOD DATA IS ZERO
7123 7124 7125 7126 7127 7128	PERR14	TRAP BAD DATA IN RO UNLESS ABORTED THEN BAD DATA IS POINTED TO BY (RI) GOOD DATA IS ONES
7:29 7:30 7:31 7:32	PERR15	TRAP BAD DATA IN RO UNLESS ABORTED THEN BAD DATA IS POINTED TO 97 (R1) GOOD DATA IN TSTDAT
7133 7134 7135 7136 7137	PERR16	TRAP BAD DATA IN RO UNLESS ABORTED THEN BAD DATA IS POINTED TO BY (R1) GOOD DATA IN TSTDAT+2
7138 7139 7140 7141 7142	PERR17	TRAP BAD DATA IN RO UNLESS ABORTED THEN BAD DATA IS POINTED TO BY (RI) GOOD DATA IN R2
7143 7144 7145 7146 7147	PERR20	TRAP BAD DATA IN RO UNLESS ABORTED THEN BAD DATA IS POINTED TO BY 'PI) GOOD DATA IN R3
7148 7149 7150 7151 7152 7153 7154	PERR21	TRAP 7 BIT BYTE TEST BAD DATA IN RIGHT BYTE OF RO UNLESS ABORTED THEN BAD DATA IS POINTED TO BY RI; GOOD DATA IS A 7 BIT BYTE ON ONES
7155 7156 7157 7158 7159	PERR22	TRAP BAD DATA IN R2 UNLESS ABORTED THEN BAD DATA IS POINTED TO BY (R1) GOOD DATA IN RC
7150 7160 7161 7162 7163 7164	PERR23	TRAP BAD DATA IN RO UNLESS ABORTED THEN BAD DATA IS POINTED TO BY (RI) GOOD DATA IN BAKPAT
7165 7166 7167 7168 7169	PERR24	TRAP BAD DATA IN RO UNLESS ABORTED THEN BAD DATA IS POINTED TO BY (R5) GOOD DATA IN BAKPAT
7170	PERR25	TRAP

1/		
K	U	J

SEO C3S1

ERROR REPORTING \$ SCOPE LOOPS MACY11 30A(1052) 28-FEB-78 09:20 PAGE 54-2 CENKAA.MA2 24-FEB-78 09:17 SUBP ERROR DATA SETUP				
7171 7172 7173	; ;	BAD DATA POINTED TO BY -(RI) GOOD DATA IN R2 UNLESS LOC V177654 IS SET THEN GOOD DATA IS IN P3		
7173 7175 7175 7176 7178 71178 71183 7185 7186 7187 7187 7199 7199 7199 7199	PERR26	TRAP BAD DATA IS DOUBLE WORD POINTED TO BY RI AND IN _GW 7 BITS OF PO GOOD DATA IS 000000, 1000000., 100		
	PERR27	TRAP BAD DATA IS DOUBLE WORD POINTED TO BY RI AND IN LOW 7 BITS OF PC GOOD DATA IS 000000,,000000,,077		
7182 7183 7184 7185	PERR30	TRAP BAD DATA IS POINTED TO BY -16(SP) GOOD DATA IS IN RI		
7186 7187 7188 7188	PERR31	TRAP SPECIAL ECC FAILURE HANDLER		
7190 7190 7191 7193	PERR32	TRAP SPECIAL ECC FAILURE HANDLEP		
7192 7193 7194 7196	PERR33	TRAP SPECIAL ECC FAILURE HANDLER		
7196 7196 7197	: BEQ	SEQUENCE FOR TRAP TYPES  :NO - ERROR, BRANCH FOR CARD  TO ERROR BOUTTNE		
7199	PERRXX 25: NEXT	:NO - ERROR BRANCH FOR CARD :TRAP TO ERROR ROUTINE INSTRUCTION :CONTINUE TESTING		

							L	09	 	
ERROR RECEMBAL	PORTING 182 2	8 SCOPE 4-FEB-78	L00PS 08:17	MACY11	30A(1052 SUBR	) 28-FE EPROR (	EB-78 09:20 DATA SETUP	PAGE 55		3E0 0355
7202 7203 7204 7205	046646 046652 046660 046664	010437 162737 010037 010537	001455 00000 001455 001455	001422	SPERG1:	MOV SUB MOV MOV JUMPTO	R4,ADDRESS #2,ADDRESS RD,BAD R5,GOOD			
7206 (2) 7207	046670 046670	000137	047450			JUMPTU	PERRHW		JMF PEPRAW	
7208 7209 7210 7211	046674 046700 046706 046712 046716	010437 162737 010137 010237	001422 000002 001432 001432	001455	\$PERO2:	MOV SUB MOV MOV JUMPTO	R4.ADDRESS #2.ADDRESS R1.BAD R2.GOOD			
(2) 7213	046716	000137	047450			JUMP 10	FERRHA		JMP PERRAL	
7214 7215 7216 7217 7218	046722 046726 046734 046740 046746 046746	010137 162737 010437 016137	001422 000002 001432 177776	001422	SPERO3:	MOV SUB MOV MGV JUMPTO	R1,ADDRESS #2,ADDRESS R4,GOOD -2(R1),BAD PERRAW		JMP PERRAW	
7219 7220 7221 7222 7223 7224	046752 046756 046764 046770 046774	010037 162737 010437 010237 000137	001422 000002 001440 001432 047450	001422	SPERO4:	MOV SUB MOV MOV JMP	RO, ADDRESS #2, ADDRESS R4, BAD R2, GOOD PERRAW			
77 77 77 77 77 77 77 77 77 77 77 77 77	047000 047004 047010 047014 047020 047024	010237 014037 010037 062700 011637 000207	001432 001440 001422 000002 001420		PERRUS: PERAUS:	MOV MOV MOV ADD MOV RETURN	R2.GOOD -(RO).BAD RO,ADDRESS #2.RO (SP),BADPC	;RESTORE RO		
7233 7234 7234	047026 047032	005037 000764	001432		PERRO6:	CLR BR	GOOD PERAOS			
7235 7236 7237 7239 7239 7240	047034 047040 047044 047052	010137 010237 013737 000576	001422 001440 001712	001432	\$PERO7:	MOV MOV MOV BR	R1.ADDRESS R2.BAD DATBUF,GOOD PERRAW			
7241 (3) (5) 7242 (3)	047054 047054 047060 047066	010137 062737	000002	001422	SPER10:		ORESS := R1 +	#2	MOV R1,ADDRESS ADD #2,ADDRESS	
(3) 7243	047066	010237	001440			LET BAD	D := RE DD := DATBUF+i	2	MOV R2, BAD	
(3) 7244	047072 047072 047190	013737 000563	001714	001432		BR	PERRAW	_	MOV DATBUF+2,GOOD	
7243 (3) 7244 7245 7246 (3) 7247 (3) 7248	047102 047102 047106 047106 047112	010137 010037	001455		\$PER11:	LET BAD	DRESS := R1 D := R0 DD := #0		MOV R1,ADDRESS MOV R0,BAD	

ERROR REPORTING & SCOPE LOOPS MACY11 30A(1052) 28-FEB-78 09:20 PAGE 55-1 SUBR ERROR DATA SETUP

(3) 047112 005037 001432 BR PERRAB

7250 7251 047120 010137 001422
7252 047124 (3) 047124 010037 001440
7253 047130 7253 047130 012737 000377 001432
(3) 047130 012737 000377 001432
REPORTING & SCOPE LOOPS MACY11 30A(1052) 28-FEB-78 09:20 PAGE 55-1
SUBR ERROR DATA SETUP

BR PERRAB

SPERI2: LET ADDRESS := R1
LET BAD := R0
LET GOOD := #377
BR PERPAB

3E0 0323

CLR GOOD

MOV RI, ACOPESS

MOV RO, BAD

MOV #377,G000

						NO9	
ROR F MKAA.	REPORTING MA2 2	8 SCOPE 4-FEB-78	L00PS 08:17	MACYII	30A(1052) SUBR	28-FEB-78 09:20 PAGE 55-2 ERROR DATA SETUP	
7256	047140 047140	010137	001422			LET ADDRESS := R1	MOV RI.ADDRESS
(3) 7257 (3)	047144 047144	010037	001440			LET BAD := RO	MOV RO.BAG
7258	047150 047150 047154	005037	001432			LET GOOD := #D	CLP GOOD
7258 7259 7260 7261 7261 7263)		000535				BR PERKAW	
(3)	047156 047156 047162	010137	001455			LET ADDRESS := R1 LET BAD := R0	MOV RI, ADDRESS
(3)	047162 047166	010037	001440			LET GOOD := ONES	MOV RO, BAD
(3)	047166 047174	013737 000525	002154	001432		BR PERRAM	MOV ONES, GOOD
265	047176					ET ADDRESS := R1	
(3) (3)	047176 047202	010137	001455			ET BAD := RO	MOV R1, ADDRESS
,5 <b>68</b> (3)	047202 047206	010037	001440			ET GOOD := TSTDAT	MOV RO, BAD
(3)	047206 047214	013737 000515	001716	001432	į	BR PERRAW	MOV TSTDAT, GOOD
263) (263) (264) (263) (263) (263) (273) (273) (273) (273) (273) (273)	047216 047216	010137	001422		SPERIG: I	ET ADDRESS := R1	MOV BY ODDRESS
272 (3)	047222	010037	001440		i	ET BAD := RO	MOV RI, ADDRESS MOV RO, BAD
273 (3)	047226	013737	001720	001432	l	ET GOOD := TSTDAT+2	MOV TSTDAT+2.GOOD
274 275	047226	000505				IR PERRAW	73.577.2,4005
27 <b>6</b> (3)	047236 047236	010137	001422			ET ADDRESS := R1	MOV RI, ADDRESS
(3) 277 (3) 278	047242 047242 047246	010037	001440			ET BAD := RO	MOV RO, BAD
(3)	047246 047252	010237 000476	001432			ET GOOD := R2	MOV R2,GOOD
280		500 17 6				R PERRAW ET ADDRESS := R1	
585 (3) 581	047254 047254 047260		001455			ET BAD := RO	MOV RI, ADDRESS
(3)	047260 047264		001440			ET GOOD := R3	MOV RC, BAD
284 (3)	047264 047270	010337 000467	001432			R PERRAW	MOV R3,GOOD
586	047272 047272 047276	010127	0014433		SPER21: L	ET ADDRESS := R1	
285 285 286 286 287 288 288	047276 047276		001440		L	ET BAD := RO	MOV RI, ADDRESS
'288 (3)	047302 047302		000177	001432	L	ET GOOD := #177	MOV RO.BAD
7289 7289 7290	047310	000525	0001//	001732	6	R PERRA?	MOV #177,GOOD

ERROR I	REPORTING	\$ 500PE	L00P5 08:17	MACYII	B10 30A(1052) 28-FEB-78 09:20 PAGE 55-3 SUBR ERROR DATA SETUP	SEG 0325
7291 (3) 7292 (3) 7293 7294 7295	047312 047312 047316 047316 047322 047322	010137 010237 010037 000450	001435 001440		SPER22: LET ADDRESS := PI  LET BAD := R2  LET GOOD := RU  BR PERHAW	MOV R1.ADDRESS MOV R2.BAD MOV RC.GOOD
7 (3) 7 (3) 7 (3) 7 (3) 7 (3) 7 (3) 7 (3) 7 (3) 7 (3) 7 (3) 7 (3) 7 (3) 7 (3) 7 (3) 7 (3) 7 (3) 7 (3) 7 (3)	047330 047330 047334 047334 047340 047340 047346	010137 010037 013737 000440	001422 001440 002174	001432	SPER23: LET ADDRESS := R1  LET BAD := R0  LET GOOD := BAKPAT  BR PERRAW	MOV R1,ADDRESS MOV R0,BAD MOV BAKPAT,GGGE
7300 7301 (3) 7302 (3) 7303 (3)	047350 047350 047354 047354 047360 047366	010537 010037 013737 000430	001440	001432	SPER24: LET ADDRESS := R5  LET BAD := P0  LET GOOD := BAKPAT  BR PERRAW	MOV R5, ADDRESS MOV PO, EAD MOV BAKPAT, GOOD

						· · · · · · · · · · · · · · · · · · ·	(	010				
ERROR R CEMKAA.		\$ 500PE 4-FEB-78	L00PS 08:17	MACY 11	30A(1052 SUBR	25 FEB- ERROR DA	-78 09:20	PAGE 55-4				SEC 0356
**306 (3) (5)	047370 047370 047374 047402	010137 162737	001455	001422	SPER25:		SS := RI			M0 / SJB	R1.ADDRESS	
(5) 7307 (4) (6) 7308	047402 047406 047410	005737	001524			IF ABORT	FLAG EQ #0			TST ane	ABORTFLAG	
(1)	047410	052737	040000	177776		SUPERVI	[50k  BIT14,PSW   := -2(RI	•	:DO IT TO IT!			
73311) 73311) 7313) 731333333133313321 73133333133313321 73133133313321 731313313321	047416 047416 047424 047426 047426	016137 104417	177776	091440		KERNEL	F ABORTFL				-2'P1/, BAC	
(3) 7312 (4)	047426	005737	177654			IF 17765				L454:::::: TST	177654	
(6) 73 <u>1</u> 3	047426 047432 047434	001003				LET GOO	D := R2				L455 R2.GOOD	
7314 (3)	047434 047440 047440	010237	001432			ELSE				BR :	L4 <b>56</b>	
7315 7315 73)	047442 047442 047442	010337	001432				DD := R3			L455:::::	R3,GCOD	
7316 (3) 7317	047446 047446 047446	000400				END : OF 1	PERRAW			L456:;;;;		
7318 (3, (3)	247450				PERRAW: : ***** : *SUBTE	****	COATA WAS CARACAMAS A DATA WAS A	****	*********	*********	*******	
7319 7320	047750 047454	004737 004737	047730 050020		*****	CALL F	PERXOR PERBNK PLAG EQ #D	*****	*******	******	*********	
(6)	047460 047460 047464	005737 001003	001524							TST BNE	ABORTFLAG	
73Ž2 7323 7323	047466 047466 047472	011637	001420			LET BAC	OPC := 'SP	)		MOV	(SP),BADPO	
(3)	047472 047474	204000								9R ! L457:;;;;;	L460	
7324 7325 (3)	047474 047500 047500	004737	050324			CALL GE	TDATA F ABORTFL	AG		L460:;;;;;		
7324 7325 (3) 7326 (4) (6) 7327 7328	047500 047500 047500 047506 047510 047510 047512	005737 001002	001524			IF ABORTE	LAG EQ #0			TST	ABORTFLAG	
7327 7328	047506 047510	104011				ERROR 4	-11				L462	
7329	047512	104012				ERROR	12			L461:;:;;;		
7329 7329 7330 7331 7332 7333	047514 047514 047514	000002				END ; OF 1	(F ABORTFL	AG		1462:::::		
7332 7333	047516				PEPRAB:		CDATA WAS	A BYTE				

ERROR R	EPORTING MA2 2	\$ 500PE		D10 MACY11 30A(1052) 28-FEB-78 09:20 PAGE 55-5 DATA WAS A BYTE	
(3) (3) 7334 7335 7336				: ************************************	***********
7334 7335	047516 047522	004737 004737	047730 050020	CALL PERXOR CALL PERBNK IF ABORTFLAG EQ #0	
(336 (4) (6)	047526 047526 047532	005737 001003	001524		TST ABORTFLAG BNE L463
7337 (3) 7338 (3) (3) 7339 7340 (3) 7341	047534 047534 047540	011637	001420	LET BADPC := 'SP'  ELSE	MOV (SP), BADPC
(3) (3) 7239	047540 047542 047542	204000	050324	CALL GETDATA	BP L464 L463:;;;;;
7340	047546 047546	OC 17 J1	J503E 4	END ; OF IF ABORTFLAG	L ·54:;;;;;
/341 (4) (6)	047546 047546 047552	005737	001524	IF ABORTFLAG EQ #G	TST ABORTFLAG BNE L465
7342 734 <b>3</b> (3)	047554 047556 047556	104014		ERROR +14 ELSE	BR L466
75343 77345 77345 77345 77345	047560 047560 047562	104815		ERROR +15 END : OF IF ABORTFLAG	L465::::::
(3)	047562	100003		DIT	L466::::::

RTI

SE0 0328

							Ε	10			
ERROR R CEMKAA.	EPORTING MA2 2	\$ 500PE	L00PS 08:17	MACY11	30A(1052) DATA WAS	28-F( A BYT		PAGE 55-6			
7348 (3) (3)	047564				******* *SUBTES	******  T  ******	A CDATA WAS A CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL	*****	E,, ************** ******	*********	••••••
7349 7350 7351 7352	047564 047570 047574 047576	004737 004737 104022 000002	047730 050020		·	CALL CALL ERROR RTI	PERXOR PERBNK +22				
(353 (354 (355) 7355	047600 047600 047606	012737	100000	001434			002 := <b>*</b> 100000	]			MOV #100000,G00D2
7356 (2)	047606 047614 047614	012737 000406	000100	001436		GOTO PE	ERRA3				BR PERRAS
7358 7359 (3)	047616 047622 047622	012737	001434	001436		LET GOO	GOOD2 DD3 := #077				MOV #077,G00D3
7360 (2) 7361	047630 047630 047632	000400				GOTO PE	ERRA3	LUOPDEXX			BR PERRA3
(S)	U7/632				####### : *SUBTES : *****	****	**************************************	INTERPRETATION			************
324501234)5)6)7899)0)12; 777777777777777777777777777777777777	047632 047632 047634 047636 047640 047644 047646 047652	010046 104505 104426 013700 000300 042700	001526 177600			PUSH CHKIDIS READCSF MOV SWAB BIC	R CSR,RO RO #1C177,RO				MOV RD,-(SP)
(3) 7371 7372 (1)	047654 047654 047660 047664 047664	104503 010137 005037 052737	001422 001432 040000	177776		CLR SUPERVI BIS	DRESS := P1 GOOD ISOR #BIT14.PSW		:DO IT TO IT	<b>!</b>	MOV RI.ADDPESS
7373 7374 7375 7376 7377 7378 7379	047672 047676 047704 047706 047712 047716 047722	011137 016137 104417 110037 105037 004737 104034	001440 000002 001444 001445 050020	001442		MOV MOV KERNEL MOVB CLRB CALL ERROR	(RI),BAD 2(RI),BAD2 RO,BAD3 BAD3+1 PERBNK +34				
7380 (2) 7381 7382 7383	047724 047724 047726	00000S 015e00				POP RTI	RŌ				MOV SP++.P3
7383 (3) (3)	047730				******* *SUBTES	**************************************	<pre>&lt;<determine determine="" pre="" x0<=""></determine></pre>	****	****	<b>*******</b>	***********
73 <b>8</b> 4	047730 047730	010046			; ******	PÚSH	PO		* # # # # # # # # # # # # # # # # # # #		MOV ROSP

		<del></del>	<del></del>								
							G10				
ERROR R	EPORTING MAZ Z	\$ 500FE 4-FEB-78	L00PS	MHCT11	30A:1052 DETERMI	) 28-FE NE XOR C		E 55-8			SEG (
7391	047754				SPER30:	LET GOO	D := R1		•	104 B1 COOD	
<b>-395</b>	047754 047760	010137	001435			LET AUG	RESS := SP: - 19	5		10V R1,600D	
<b>3</b> ) <b>5</b> )	047760 047764	011637 163737	91000P 901455	001422		15 0000	RTFLAG EQ #D			10V (SP, ADDRESS	
7393 4) 6)	047772 047772 047776	005737 001007	001524			IF MBUR	RIPLMG EG WU			TST ABOPTFLAG BNE L467	
7394	050000 050000	052737	040000	177776		SUPER	#BIT14.PSW	:00 IT TO	o IT!		
395	050006 050006	017737	131410	001440			AD := JADDRESS			10V DADDRESS, BAC	
73 <b>96</b> 7397	050014 050016 050016	104417				KERNE END ; OF	L IF ABORTFLAG		L467::::	· • •	
5-67-8 90	050016 050016	0006:→				GOTO PE	RRAW			BP PERRAW	
7399 7400	050020				PERBNK:	SUBTST	LOG ERROR ON BAL	D BANK > ,			
3,					-SUBTE	******	LOG ERROR ON BAL	*************	************	************	
- <u>-                                  </u>					*****	*******	***************	MARK THE BAD BANK	PROFESSION THE CONFIGURE	PATION TORLE	
7402	050020					PUSH	RO,RI	HARP. THE DRU DRIVE			
(3)	050020 050022	010146							į	10V RO(SP) 10V RI(SP)	
7403 7404	050024 050030	013761	000006			MOV MUL	BANK RI #6.Ri				
7405	050034	070127 052761	004000	005530		BIS	#BIT11, CONFIG(R)		30B B.TE		
7407	050048 050046	062701 105261 001002	000005			ADD INCB	#5,R1 CONFIG(R1)	POINT TO MAX ERF	R		
7708 7409	050052 050054	001002 105361	002230			BNE	125 CONFIG(R1)	; NO OVERFLOW - SP :SET BACK TO 255.	CIP		
7410	050060 050066	126137 101403	002230	005134	125:	DECB CMPB BLOS	CONFIG(RI), ERRMA	BUMP BANK COUNTE NO OVERFLOW - SE SET BACK TO 255. Y :IS IT PE NO - SKIP	AST MAX1		
44.2	050070			00000		JE	10011011	YES			
~4îá	050070 050076	012737	17777	002054	115.	MCV POP	#-1.TOOMAN' R1.RO		_		
2,	05007 <b>6</b> 050100	015601								10V (SP)+.R1 10V (SP)+.R0	
7414	050102	012600 000207				RETURN				•	
775 777 7777 7777 7777 7777 7777	050104	010137	254100		PERECC:		R1,ADDRESS				
7418	050110 050114	010037	001440			MOV IF RI E	ROJBAD Q TESTADO				
<b>,</b>	050114	029137 001004	002070						( 5	CMP R1 TESTADD	
7419	050120 050122 050130	001004 013737	001716	00:432		MOV T	STDAT, GOOD		•		
3,	050130	000403				ELSE			, <del></del>	BR LHT1	
742	050132 050132	013737	00:720	001432		MCV	TSTDAT+2.GOOD		L470:;;;	• • • • • • • • • • • • • • • • • • • •	
3,	050140 050140					END : OF	IF RI		۲۹71::::	::	
O TO THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF	050140	004737	947730			CALL	PERXOR HEADER				

CEC	C331
35.0	

H10 ERROR REPORTING % SCOPE LOGPS MACY11 30A(1052) 29-FEB-78 09:20 PAGE 55-9 JEMKAA.MA2 24-FEB-78 08:17 LOG ERROR ON BAD BANK	
10 050144 012737 17777 002146 MOV N-1.HEADER 7425 050152 000207 RETURN	
	ALPAT, BII
7429	
4	ALPAT.B14 73
	ALPAT, #15
TH35 050214 104046  ERROR +46 END : OF IF REALPAT  3. 050216  TH37 050216  IF REALPAT EQ #16	
	ALPAT, DIS
TH39 05023G END ; OF IF REALPAT LH75::::::  3 05023C SET HEADER 1 05023C 012737 17777 002146 MOV N-1, HEADER 744: 050236 000024 RTI	

.. •

RETURN

GETEAL: 0

012600

000207 000000

SE0 0332

MOV SP)+ PC

SEG C333

```
MHINII 30A(1052) 28-FEB-78 09:20 PAGE 55-11 POUTINE SCOPE HANDLER
ERROR REPORTING & SCOPE LOUPS
CEMEAR. MA2 24-FEB-78 09:17
CEMKAA. MAZ
                                                                  SBITL ROUTINE SCOPE HANDLER
  -4-5
                                                      *THIS ROUTINE CONTROLS THE LOOPING OF SUBTESTS. IT WILL INCREMENT *AND LOAD THE DISPLAY DATA INTO THE DISPLAY REGISTER *THE SWITCH OPTIONS PROVIDED BY THIS ROUTINE ARE:

*SWI4=1 LOOP ON TEST
   7478
   7479
   7480
                                                       #SW9=1 LOOP ON ERRUR
   7481
  7482
                                                       *CALL
                                                      $SCOPE ;:SCOPE=IOT ;TEL.
  7483
          050444
050450
050450
050452
050456
050462
                                                                                        TELL APT WE ARE ALIVE
  Ļ4<u>§</u>Ā
                     005237
                                060174
  7485
7)
                     002004
005037
                                                                                                                                               BGE 1476
  7486
7487
                                                                 CLR SDEVCT
INCB SUNIT
END : OF IF RESULT
                      105237
                                060176
  7488
                                                                 L 176::::::

L 176:::::

L 176:::::

IF STOPOK NE #0 AND #SWB SET.IN DSWR
    (3)
   7489
           050462
                     104410
  7490
          050464
                     005737
001410
032777
001404
                                                                                                                                               TST STOPOK
    (4)
                                201200
          050470
050472
050500
050502
                                                                                                                                               BEQ L477
BIT #SWB. DSWF
    (6)
    (6)
                                000400 131500
                                                                                                                                               BEQ 1477
    (8)
                     005037
000137
                                                                            STOPOK
EXIT
   7491
                                002102
                                                                    CLR
   7492
           050506
                                                                     JMP
   (3)
                                                                 END OF IF STOPOK
           050512
                                                                                                                                   L477::::::
          050512
          050512
  7494
                                                                  IF NOSCOPE NE #0
   (4)
(6)
                     005737
001401
                                                                                                                                               TST NOSCOPE
                                002124
                                                                                                                                               BEQ L500
           050516
   7495
                                                                    RTI
          050520
                     ÖÖÖÖÖŽ
  7496
           050522
                                                                 END OF IF NOSCOPE
    (3)
           050522
                                                                                                                                   L500::::::
  7497
                                                                 IF #SW14 SET. IN DSWR THEN GOTO SOVER
          050522
                                                                          BIT #SH BNE $0V
                                                      15:
   (5)
(5)
                     032777
                                                                                                                                               BIT #SW14. DSWR
                                040000 131450
                                                                                                                                               BNE SOVER
           050530
  7498
7499
                                                      : ******START OF CODE FOR THE XOR TESTER****
$XTSTR: BR 2$ ;; IF RUNNING
           050532
                     000416
  7500
7501
           050534
                                000004
                                050560
177060
  7502
           050540
                     012737
                                           060004
                                                                  MÔV
                     005737
  7503
7504
7505
7506
7507
7508
7509
7511
7512
7513
           050546
                                                                  TST
                                                                                                  RESTORE THE ERROR VECTOR

GO TO THE NEXT TEST

CLEAR THE STACK AFTER A TIME OUT
          050552
050556
                                7,000,004
                                                                 MOV
                     000421
                                                                  BR
                                                                            (SP)+,(SP)+
(SP)+,ERRVEC
           050560
                     055656
                                                                  CMP
                                                      15:
                                                                                                  RESTORE THE ERROR VECTOR LOOP ON THE PRESENT TEST
           050562
                     012637
                                000004
                                                                  MOV
           050566
                     000407
                                                                  BR
                                                                             45
                                                                            CODE FOR THE XOR TESTER ##### SERFLG :: HAS AN ERRO
           050570
                                                                        0F
                                                       25: : ****END
                                                                                                 HAS AN ERROR OCCURRED?
          050570
050574
                      105737
                                001404
                                                                 TSTB
                     001412
                                                                             SSVLAD
           050576
                                 001000 131374
                                                                 BIT
                                                                             #SW9. DSWR
                                                                                                  BR IF NO SET LOOP ADDRESS TO LAST SCOPE
           050604
                     001404
                                                                 BEQ
  7514
7515
7516
                                                                            SIPERR, SLPADR
          050606
050614
                                002172 002170
                     013737
                                                                  MOV
                     000410
                                                                  BR
                                                                            SOVER
                                                                                                  ::ZERO THE ERROR FLAG
::SAVE SCOPE LOOP ADDRESS
::SAVE ERROR LOOP ADDRESS
           050616
                      105037
                                001404
                                                                  CLRB
                                                                             SERFLG
  7517
          050622
                                002170
                                                                            (SP). SLPADR
                                                       $5 /LAD: MOV
                     011637
                                                                              SP) SLPERR
```

K10

ERROR REPORTING \$ SCOPE LOOPS MACY 11 30A (1052) 28-FEB-78 09:20 PAGE 55-12 CEMAA. MACY 24-FEB-78 08:17 POUTINE SCOPE HANDLER

SED 0334

SOVER: CALL GETDIS MOV SLPADR. SP

:: CLEAR THE ESCAPE FROM ERPOR ACCRESS

::FLDGE RETURN ADDRESS ::FIXES PS

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L	10	
20	PAGE	55-13

MACY11 30A(1052) 28-FEB-78 09: ERROR REPORTING & SCOPE LOOPS 24-FEB-78 08:17 ROUTINE SCOPE HANDLER CEMKAA. MAZ GETDIS: SUBTST ( SUBR DISPLAY) 7524 (3) 050650 ************************* DISPLAY SUBR (3) *SUBTEST ********************** ****** 050656 050664 050664 050664 BANK, SBANK REALPAT, SPATMAR 7525 7526 7527 (2) 113737 113737 001470 MOVB MOVB 001403 001744 001402 PUSH RO. 4 MOV PO, - (SP) 010046 MOV 4.-(5P) P00000 050666 013746 050672 050672 050672 050700 050702 050714 050714 #25 #25,4 SET4 MOV 7528 012737 005000 013700 072027 000402 062706 042700 150037 005737 005737 :SET NEW VECTOR 000004 050714 RO MAINT, RO CLR 177750 MOV ASH BR 000004 #4,R0 35 #4,SP #10340,R0 :FIX STACK FROM T (AP 000004 177437 2\$: ADD 050719 050720 050724 050730 050734 050736 050752 050760 050764 35: BIC BISB RO SPATMAR 001402 : ARE WE RELOCATED? 001516 BEO 15 #BIT15 SPATMAR SPATMAR DDISPLAY SPATMAR DISPREG 100000 201402 001402 001402 131230 00C174 YES - SET MSB 052737 013777 BIS 15: MOV :SOFTWARE DISPLAY REGISTER 013737 MOV POP 4.RO MOV (SP)+.4 MOV (SP)+.RO 015900 000004 7542 RETURN 050766 000207

```
MAC : 11 30A(1052) 28-FEB-78 09:20 PAGE 57
ERROR REPORTING & SCOPE LOGPS
                                                                                                                                                                                             SEG 0336
                                                             POLITINE ERROR HANDLER
                     24-FEB-78 08:17
CEMKAA. MAZ
                                                                           SBITL ROUTINE ERROR HANDLER
   754<u>6</u>
                                                             *THIS ROUTINE WILL INCREMENT THE ERROR FLAG AND THE ERROR COUNT.
*SAVE THE ERROR ITEM NUMBER AND THE ADDRESS OF THE ERROR CALL
*AND GO TO SERRTYP ON ERROR
*THE SWITCH OPTIONS PROVIDED BY THIS ROUTINE ARE:
*SWIS=1 HALT ON ERROR
*SWIS=1 INHIBIT ERROR TYPEOUTS
  BELL ON ERROR
                                                              : *SW10=1
                                                              *$W9=1 LOOP ON ERROR
                                                                                                  :: ERROR=EMT AND N=EPROR ITEM NUMBER
                                                                         ERROR
                                                                                     N
   7559
                                                             .ENABL LSB
SERROR: IF NOERROR EQ #0
   7560
            858778
                                                                                    SERFLG : TEST FOR CHANGE IN SOFT-SWR

SERFLG : SET THE ERROR FLAG

SPATMAR, JDISPLAY : DISPLAY RELOCATION FLAG, BANK

SPATMAR, STESTN : FOR APT

SPATMAR, DISPREG : SOFTWARE SWITCH REGISTER

#SWID, JSWR : BELL ON ERROR?

SBELL : RING REI!
                                                                                                                                                                TST HOERROR
                        005737
                                    005:12
            050774
    (6)
                        001030
                        104410
   7561
            050776
                                                                            CKSWR
                                                                             INCB SERFLG
                        105237
   7562
            051000
                                    001404
                                                             15:
            051004
                        001775
   7563
                                                                             BEQ
   7564
7565
            051006
                        013777
                                    001402
                                                131166
060170
                                                                             MOV
                                                                             MOV
                                    000200
   7566
7567
7568
                        013737
            051022
                                                 000174
                                                                            MOV
            051030
                                                                             BIT
            051036
                        001402
                                                                            BEQ
                                                                                     SBELL
                                                                         TYPE
                                                                                                               : RING BELL
   7569
            051040
                                                                         TYPEIT SBELL
INC SERTTL
BIC #BIT15 SERTTL
END; OF IF NOERROR
                        104401
                                    002215
    (1)
            051040
   7570
7571
7572
           051044
                        005237
042737
                                                                                                              :: COUNT THE NUMBER OF ERRORS NO NEGATIVE NUMBERS PLEASE
                                    001406
                                                             25:
                                                 901406
                                     100000
            051055
   (3)
7573
7574
7575
7576
                                                                         MOV (SP) ERRORPC ;; GET ADDRESS OF ERROR INSTRUCTION SUB #2 ERRORPC MOVB JERRORPC, SITEMB ;; STRIP AND SAVE THE ERROR ITEM CODE IF NOERROR EQ #0
            051056
           051056
051062
051070
                        011637
162737
117737
                                    001416
                                    130322
                                                 001416
                                                 001414
           051076
           051076
051102
                                                                                                                                                                TST NOERROP
    (4)
                        005737
                                    002112
  (6)
7577
                                                                                                                                                                BNE LSO2
                        001027
            051104
                                                                            IF BADPC NE #0
                        005737
001405
    (4)
                                    001420
                                                                                                                                                                TST BADPC
            051104
    (6)
                                                                                                                                                                BEQ L503
            051110
  7578 (3)
            051112
                                                                              LET ERRORPC := BADPC
                        013737
                                                                                                                                                                MOV BADPC . ERRORPC
            051112
                                    001420
                                                001416
           051120
051124
051124
   7579
                                                                               LET BADPC := 0
    (3)
                        005037
                                    001420
                                                                                                                                                                CLR BADPC
   7580
                                                                            END : IF
            051124
    (3)
                                                                                                                                                   L503::::::
                                                                                     ERRORPC, SFATAL ; FOR APT #SW13, JSWR ; SKIP IY
   7581
                        013737
032777
                                    001416
                                                 991090
                                                                            MOV
                                                                            BIT #SW13, JSWR ; SKIP TYPEOUT IF SET
BNE 35 : SKIP TYPEOUTS
IF #SW5 SET. IN JSWR AND TOOMANY NE #D
   7582
7583
            051132
                                    057000
                                                 131040
            051140
   7584
            051142
                                                                                                                                                               BIT #SW5. DSWR
BEG L504
TST TOOMANY
            051142
                        032777
    (4)
                                    000040
                                                131030
    (6)
    (6)
            051152
                        005737
                                    002054
    (8)
            051156
                        001401
                                                                                                                                                                BEQ L504
   7585
                                                                               GOTO 35
            051160
     2)
            051160
                        000402
                                                                                                                                                               BR 35
```

						N1	Π			•		
ERROR R CEMKAA.	REPORTING MAZ Z	& SCOPE	L00P5	MACY11	30A (1058 POUTINE	2) 28-FEB-78 09:20 P E ERROR HANDLER						SEG 0337
7 <b>586</b> (3)						END ; OF IF #SWS						
7587	021165					END ; OF IF NOERFOR			L504:;;			
7588 7588	051165	004737	051354		26	CALL SERRTYP IF NOERROR EQ #0	:;GO TO	USER ERPOR RO	L502:;;	• • • •		
(4) (4)	051166	005737	005115		3\$:	IF MUERRUR EU WU				TST	NOEPROR	
7587 7588 7589 7589 (6591 7593 7593 7593	051162200 0511162200 0511164211170 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 05111640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 0511640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 051640 0	001063 005777 100002 000000 104410	131000		SHALT:	TST JSWR BPL 75 HALT CKSWR IF NOSCOPE EQ #C AN	: HALT ( : SKIP : HALT ( : TEST )	ON ERROR IF CONTINUE ON ERPOR! FOR CHANGE IN	SOFT-SWR	DIVE	<b>L</b> 303	
(4)	051506	005737	002124		7 <b>\$</b> :	IF NOSCOPE EQ WC AN	D #5 <b>W9 SE</b> T.	.IN JSWR		TST	NOSCOPE	
(6) (8)	051514	005737 001006 032777	001000	130756						BIT	NOSCOPE L506 #SW9, JSWR L506	
7595 7596	051224 051230	001402 013716	002172			MOV SLPERR (SP END ; OF IF NOSCOPE	;;FUDGE	RETURN FOR LO	IOP ING		LSUB	
7597 7598	051230	005737 001402	005035			TST SESCAPE BEQ 95	: CHECK	FOR AN ESCAPE NONE RETURN ADDRES	ADDRESS			
7599 7600	051236	013716	005035		95:	BEQ 95 MOV SESCAPE (SP) IF DETFLAG EQ #0	FÜDGE	RETURN ADDRES	S FOR ESCAP	PE		
(4) _(6)	051545	005737 001035	001702		, ,					TST	DETFLAG L507	
7601 (5)	051250 051250		002020			IF ACTFLAG NE #0	OR APTFLAG	NE #0 OR FATA	LS NE #0	TST	ACTFLAG	
(7)	051256	005737 001006 005737	002022							BNE	L510 APTFLAG	
(7) (9)	051264 051270	001003 005737 001405	001454							IST	L510 FATALS L511	
(6) (6) (6) (6) (6) 7596 7598 7598 7598 7599 7603 7603 7603 7603 7603	051272 051272 051300 051304	012737 000137	000001 037124	060164		MOV #1.5M JMP EXIT END :OF IF ACTFLAC	5GTY G	;FOR APT	L510:;;;	;;;;	C311	
7605	051304					IF XXDPCHAIN NE #		TL HI #20	L511:;;	;;;		
(4) (6) (6)	051304 051310	005737 001414	002024	000000						REG	XXDPCHAIN L512	
(8) 7606 (1)	051320	023727 101410	001406	กกกกรถ		TYPE MEANI	•	FROOD COUNT	FV0FF0FD 30	CMP BL05	SERTTL, #20 5 L512 7 DORTTNG FOR	
7609 7609 7610 7611 7611 7612 7613	051304 051310 051312 051322 051322 051322 051326 051336 051336	104401 013700 005037 000137	071453 000042 000042 011630			TYPE MSG066 TYPEIT MSG066 MOV 42,R0 CLR 42 JMP \$ZAP48 END ; OF IF XXDPCH6	2	;ERROR COUNT	EXCEEDED SO	) - H	BURTING FUR	XXDP CHA
(3) 7611	051342					END ; OF IF DETFLAG	·=· ·	,	L512:::;			
7612 (3)	051342					END ; OF IF NOERROR			L507:;;			
7613 7614	051342 051342 051346	005037 005037	002054 177766		10\$:	CLR TOOMANY CLR CPUERR			L505:;;;	:::		

ERROR REPORTING \$ SCOPE LOOPS MACKINGS: 28-FEB-78 09:20 PAGE 57-2 JEMKAA.MA2 24-FEB-78 08:17 POUTINE ERROR HANDLER EE2 0338 ::RETURY T615 051352 000002 RTI .DSABL LSB

MACY11 30A(1052) 28-FEB-78 09:20 PAGE 58 ERROR REPORTING & SCOPE LOOPS POUTINE ERROR MESSAGE TYPECUT 24-FEB-78 08:17 CEMKAA. MAZ .SETTL ROUTINE ERROR MESSAGE TYPEOUT -620 *THIS ROUTINE USES THE "ITEM CONTROL BYTE" (SITEMB) TO DETERMINE WHICH #ERROR IS TO BE REPORTED. IT THEN OBTAINS, FROM THE "ERROR TABLE" (SERPTB), FAND REPORTS THE APPROPRIATE INFORMATION CONCERNING THE ERROR. 7624 051354 051356 SERRTYP: SAVREG 104415 3537 :: "CARRIAGE RETURN" & "LINE FEED" **S**CRLF **762**7 TYPE SCRLF 051356 051362 051364 104401 005000 153700 TYPEIT 2628 (1) 002233 :: PICKUP THE ITEM INDEX CLR 7629 BISB SITEMB, RO 001414 :: IF ITEM NUMBER IS ZERO, JUST 7630 7631 051370 001004 BNE ERRORPC (ERROR ADDRESS)
ERRORPC - (SP) ;: SAVE ERRORPC FOR TYPEOL 051372 051372 TYPOCT **1632** 013746 MOV 001416 (1) : ERROR ADDRESS GO TYPE--OCTAL ASCII(ALL DIGITS) (1) TYPOC 051376 (1) 7633 7634 000507 005300 051400 BR 051402 HADJUST THE INDEX SO THAT IT WILL WORK FOR THE ERROR TABLE ŘŌ 15: ĎEC 00e300 00e300 7635 ÁSL RO 7636 7637 ASL ASL ADD 051406 051410 006300 RO :FORM TABLE POINTER
:PICKUP "ERROR MESSAGE" PCINTER
:SKIP TYPEOUT IF NO POINTEP
:IS THIS REALLY AN ERROR?
:YES - SKIP
:TYPE HEADER? 062700 *SERRTB, RO 76**38** 909090 7639 7640 051416 012037 (ŖŪ)+,3**\$** 051454 MOV 45 7641 7642 051424 NOERROR 005737 TST 002112 001003 125 HEADER 7643 051432 005737 002146 TST BPL NO - SKIP WAS IT A FATAL ERROR? 7644 051436 100011 45 FATALS 7645 051440 005737 001454 125: NO - SKIP 7646 051444 001402 FATAL 7647 MSG067 051446 TYPE TYPEIT TYPE 051446 104401 . MSGC67 071536 :: TYPE THE "ERROR MESSAGE" 7648 051452 25: 051452 TYPEIT 104401 :: "ERROR MESSAGE" POINTER GOES HERE :: "CARRIAGE RETURN" & "LINE FEED" 7649 051454 051456 000000 . WORD 35. **S**CRLF 7650 TYPE 104401 012037 001412 SCRLF (RD)+,5\$ 7651 051456 TYPEIT ::PICKUP "DATA HEADER" POINTER :SKIP TYPEOUT IF 0 :IS THIS REALLY AN ERROR? MCV BEQ TST 051465 051506 45: 051466 051470 7652 NOERROP 7653 005737 202112 YES - SKIP TYPE HEADER? NO - SKIP 7654 051474 001003 13\$ 7655 051476 005737 941500 TST HEADER 7656 051502 100004 TYPE THE "DATA HEADER" 7657 051504 TYPE 135: 7658 051504 104401 TYPEIT :: "DATA HEADER" POINTER GOES HERE :: "CARRIAGE RETURN" & "LINE FEED" . WORD 051506 000000 5**S**: 7659 051510 **SCRLF** SCRLF (1) 051510 104401 005555 TYPEIT ::PICKUP "DATA TABLE" POINTER ::BR IF NO DATA TO BE TYPED ::PICKUP "DATA FORMAT" POINTER 051514 051516 012001 7560 (RO)+,RI £\$: MOV

(RO)+,R2

(R2)+.R3

38\$ (R3)

R3

:MAKE IT A WORD ADDRESS

BEQ

MOV

ASL

MOVB

CALL

~\$:

7661

7662

76E3

7664

7665

051525

051524

35152E

115503 015005

006303

304773

C5.534

	EPORTING	8 SCOPE	LOOPS	MACY11	30A(1052	28-FE	D11 B-78 09:20 PAGE ESSAGE TYPEOUT	E 58-1		
CEMKAA. 76667 76668 76669 76671 76673 76675 76679 76881 76881 76883 76884	021299 021229 021229 021229 021224 021224 021224 021224 021224 021224 021224 021224	000416 051666 051676 051706 051752 051760 051772 052004 052036 052036 052036 052130	US:1		8 <b>\$</b> :	BR TAG70S TAG71S TAG72S TAG73S TAG74S TAG75S TAG76S TAG77S TAG79S TAG79S	9\$			
7679 7680 7681 7682 7683 7684	051564 051566 051570 051574 051576 051600	052152 052406 062701 005711 001403	000002		9\$:	TAGBIS TAGBIS TAGBIS ADD TST BEQ TYPE TYPEIT	#2.R1 (R1) 10\$ MSG018 _MSG018	:UPDATE DATA TABLE :IS THERE ANOTHER :BR IF NO :TYPE 2 SPACES	POINTE NUMBER?	
7685 7686 7687 7688 7689 7689	051604 051612 051614 051620	000746 005737 001402 005237 104416	001500		10 <b>5</b> :	BR TST BEQ INC RESREG	75 MUT 115 HEADER	::LOOP :IS THERE A MEMORY :NO - SKIP :YES - BUMP HEADER		
7691 (6) (6) (8) 7692 7693	051622 051622 051630 051632 051636 051640	032777 001405 005737 001002 004737	000200 001702 053156	130350		CALL	SET. IN DSWR AND	DETFLAG EQ #U		BIT #SH7. DSWR BEG L513 TST DETFLAG BNE L513
7694	051644 051644 051644	005707	000/10				IF #SW7 ROR NE #0		٤513:;;	:::: TST NOERROR
7695 7696 7696	051644 051650 051652	005737 001405 005037	005115			CLR	NOERROR			BEG LSI4
7697 (3)	051656 051656 051664 051664	012737	177777	002146		SET MOV END ; OF	#=1, HEADER IF NOERROR		L514:;;	
7698 7699 7700 7701	051664	005207				RETURN	*******	*******	*******	********
7702 7703 1) 1704 7705	051666 051666 051672 051674	C1714£ 104402 000207	000000		TAG70 <b>\$</b> :	TAL ***  ******  TYPOCT  MOV  TYPOC  RETURN		::TYPE AN OCTAL NU ::SAVE D(R1) FOR T ::GO TYPEOCTAL A	MBER YPEOUT SCII(ALL DIGI	(TS)
770£ 7707 7708 7759	351676				*** DE	******* CIMAL ** ****** TYPDEC	************	**************** **************** ::TYPE A DECIMAL N		******

ERROR R	EPORTING	& SCOPE	L00P5	MACYII	30A ( 1052 POUT I <b>NE</b>	28-FE	E11 B-78 09:20 PAC ESSAGE TYPEOUT	GE 58-2	
(1) (1) 2710	051676 051702 051704	017146 104405 000207	000000			MOV TYPDS RETURN	a(R1),-(SP)	::SAVE D(R1) FOR TYPEOUT ::GO TYPEDECIMAL ASCII WITH	I SIGN
7711					:###### :### !N	******** TERLEAVE	**************************************	*******************	************
7715	051706 051706 051710	010146 010546				****		***************	MO / R1, - (SP) MOV R5, - (SP)
7716 7717	051712	013701 070127	001470 000006			MOV MUL	BANK RI #6.Ri		
7718	051716 051722 051722 051730 051734	012737	177777 031572	PPCS00		SET MOV CALL	NOTAB #-1 NOTAB TCFIG1	:INDICATE NO TABLE TO	BE PRINTED - MOW
7720	051740	005037	002044			CLR	NOTAB R5.R1		
7720 7721 (2) 7722	051740 051742	012601 012601						1 CDACE	MOV (SP)+,R5 MOV (SP)+,R1
7722	051744 051744 051750	104401	067047			TYPE TYPEIT RETURN	MSGD14 ,MSGD14	;1 SPACE	
7723 7724 7725 7726 7726 7727 7728 7729 7730	051752 051756	004737 000207	052472		: ****** : *** BO : ***** TAG73\$:	******	**************************************	***********	******
7729 7730 7731 7732 7733 7734 (1)	051760 051760	013746	001744		*****	******** TTERN ** ******* TYPOCS MOV		######################################	***********
(1) (1) (1) 7735 7736	051764 051766 051767 051770	104403 002 001 000007				TYPOS .BYTE .BYTE RETURN	2	(0-77)) 2.Z ; SAVE REALPAT FOR TYPEOUT ; TYPE (0-77) ; GO TYPEOCTAL ASCII ; TYPE 2 DIGIT(S) ; TYPE LEADING ZEROS	
7737					****** *** BA	******* NV ***	*******	************	******
7739 7740 (1)	051772 051772	013746	551475		*****	TYPOCS MOV	BANK, TYPE (D-1 BANK, -(SP)	167)> 3 ::SAVE BANK FOR TYPEOUT	**************************************
(1) (1) (1) 7741 7742	051776 052000 052001 052002	104403 063 006 000207	•			TYPOS . BYTE . BYTE RETURN	3	TYPE (0-167) GO TYPEOCTAL ASCII TYPE 3 DIGIT(S) SUPPRESS LEADING ZEROS	
7743 7744					******* *** MT	******* YPE ***	***********	*******	*********
7745 7746 7747	052004 052010	005737 001003	001510		TAG76 <b>5</b> :	******	MYFLAG 18	*************	******

BYTE PETURN

052122

052125

104403 001 003 003 70300C REG 0342

END : OF IF #BIT15:BIT4

000411

052274

BR E112

1517::::::

		:			
EDDAD D	FPARTING	T SCOPE	i Caps	H11 MGCN11 309(1052) 28-FEB-78 09:20 PAGE 58-5	
JEMKAA.	MA2 2	3 500PE 4-FEB-18	29:17	MACY11 30A(1352) 28-FEB-78 09:20 PAGE 58-5 POUTINE ERROR MESSAGE TYPEOUT	
-815 -815	052274 052274			END : OF ON. ERROR	L516::::::
78:3	052274	105701 001407		IFB RI EQ #0 THEN LEAVE FINDTURKE?	TSTB RI BEO Eliz
7814 6,	052274 052276 052300 052300 052300 052306	062737	000004	DC1534 DC1034	ADD #4,15PNG CMP (SRNO) #34
, <b>5</b> ,	052314	023727	30100		BLE B113 E113:::::::
7815	025316 025316 025316			END FINDTURKEY	E112:::::
-8 <u>16</u>	052316	012637	001634	POP CSRNO,R1.CSR+2.CSR	MOV (SP)+, 05P10
	052316 052322 052324 052330	012601 012637 012637	001530	·	MOV (SP)+.RI MOV (SP)+.CSR+2 MOV (SP)+.CSP
7817 (6) 7818 (4)	052330 052334 052334 052336	005702 002416		IF R2 GE #3	TST R2 BLT L521
(4)	052340 052340	020227	000011	IF R2 GT #9.	CMP R2.#9. BLE L522
7819	052344 052346 052352	003406 162702	000012	SUB #10R2	BLE F255
_851 _850	052354	000302 062702	030061	SWAB R2 ADD #"10.R2	
(3)	0253P0 0253P0	000403		ELSĒ	BR L523
7823	052362 052362	000305	22200	SWAB RZ ADD #" D.R2	L522:::::
7825	052364 052370	062702	030040	ADD #" 0.R2 END ; OF IF #BIT3	. 500
6) 919012 78823) 78823 78823 78823 7887 7887	052370 052370 052374	010537	071646	MOV R2 MSGD74 END :OF IF R2	L523:;;;;;
(3)	052374			END ; OF IF MKFLAG	L521:::::
7828 (3) 7829 (1)	052374 052374 052374	164401	071646	TYPE MSG074 TYPEIT MSG074	L515:::::
(1) 7830, (3) 7833 7833 7833 7833 7833 7833,	052400 052400	012602		POP RZ,RO	MOV (SP)+,R2
(3) 783 <u>1</u>	052402 052404	012600 200207		RETURN	MOV (SP)+.RC
7832 7833					
7834 7835	052406			######################################	
(3)	052410 052410	010246 010246		·	MOV RD SF MOV R2 SF
7P36	052412 052412	104401	067076	TYPE MSGD18 ;2 SPACES TYPEIT MSGD18	·
7837 7838	052416	017100	000000	MÓV - D(RÍ) RO FOR R2 := #1 10 #8.	<b></b>
다. 나,	055456	012702	000001		MOV #1.P2 B114::::::

SE3 0344

ERROR R CEMKAA.	EPORTING MA2 2	\$ SCOPE	L00PS 08:17	MACY11 30	A(1052) 28-FEE OUTINE ERROR ME	8-78 09:2 ESSAGE TYP	III PAGE 58 PEOUT	8-6	•
7839	052426 052430	106100			ROLB On.ERF	RO POR			
(8) 7841	052430 052432	103004 112737	000061	067051	MOVE ELSE		11,MSG015		BCC L524
(3)	052440 052440	000403			ELSE				2R L525 L524::::::
790)123)34 848(843)344)5)55 77(77)77(77)555	052442 052442 052450 052450	112737	200060	067051	MOVE END ;		ro,MSG015 PR		L525:::::
7845 7846	052450 052450 052454	104401	067051		TYPE TYPEIT END ; OF	MSG015 MSG015 FOR R2			
(5) (5)	052454 052456 052462 052464	005202 020227 003761	000016						INC R2 CMP R2.08. BLE B114 E114:::::::
7847 2) 3)	052464 052464 052466	015600			POP	R2,RU			MOV /SP:+.R2 MOV /SP:+.RC
7948	C\$2470	000207			RE*URN				

5EG 0345

SEG D346

							K1				
ERROR R CEMKAA.	EPORTING MAZ 2	\$ 500PE 4-FEB-78	L00P5 09:17	MACY11	30A(1052 SUBP	) 28-FE	8-78	AGE 59-1			
7881 (5)	052656 052656	005737	002002			I	F SUCCESS NE #0	THEN LEAVE	E WHODUNIT		TST SUCCESS BHE ELIS
(5)	052656 052662	001007				END	OF IF FIRSTB				BINE EIIS
(3)	052664 052664 052664 052664						•			L527:;	:::::
7 <b>883</b> (3)	052664					•	OF IFB R3			L526:;	* * * * * *
7884 7885	052664 052666	002501 006003				ROR INC	R3 RI				
-88 <u>ę</u>	052670		00000			END OF	FÖR CSRNO				∆∩r: +2 P4
(5)	052670 052674	062704 020427	000016								ADD #2.P4 CMP R4.#16 BLE 8116
(5) (5)	052700	003717								F116::	STE BIID
7887	052702 052702 052702					END MHO	DUNIT			£.15:;	
7888	052702					IF SUCC	ESS NE #O			21.5.,	
( <del>4</del> ) (6)	052702 052706	005737 001402 110137	202005								TST SUCCESS BEQ L531
7889 7890	052710	110137	071274			MOVB END OF	R1,MSG057+1 IF SUCCESS				
(3)	052714 052714 052714					•				L531:;	;;;;
(1)	052714 052720	104401	071273			TYPE TYPEIT	MSG057 ,MSG057				
7892 7893	052720 052726	112737	000077	071274		MOVB POP	#'?,MSGD57+1 R4,R3,R2,R1,C5	RNG			
\$8333)456 \$8333)456 \$83384689331)23))}} \$83886 \$83846893919923456999 \$777 \$777 \$777 \$777 \$777	052726 052726 052730	015603 015604					• - • - • - •				MOV (SP)+,R4 MOV (SP)+,R3 MOV (SP)+,R2 MOV (SP)+,R1 MOV (SP)+,CSRN3
(4)	052732 052734	012602									MOV (SP)+,R2
(6)	052736	012601	001634								MOV (SP)+, CSRNO
7894 7895	052742	000207				RETURN					
7 <b>896</b>	052744	012737	177777	002002	ADDD:	SET MOV	SUCCESS #-1.SUCCESS				
(1) 7897 7898	052744 052752 052754	000207	******	002002	000	RETURN	·	e Tuen Let	CHCCECC .	- 0855	
(4)	052754	032737	000004	001422	HUU1:	Th #RII!	2 OFF.IN ADDRES	S IMEN LET	: בפשטטננ	= JNES	BIT #BIT2, ADDRESS BNE 532
ر <b>6</b> ) (5)	052762 052764	001003 013737	002154	002002							MOV DNES SUCCESS
(3) 78 <b>99</b>	052772 05277 <b>2</b>	000207				RETURN				L532:;	; ; ; ; ;
7900	052774		000010	2011122	ADD2:	IF #BIT	3 OFF.IN ADDRES	S AND #BITE	OFF.IN A	DDRESS THEN I	LET SUCCESS := ONES
(4) (6)	052774 053002	032737 001007	000010	001422							BIT #BIT3, ADDRESS BNE L533
( <b>6</b> ) (8)	053012 053012	032737	000004	001455							BIT #BIT2,ADDRESS BNE L533
(7) (5)	053014 053022	001003 013737	002154	005005						1522	MOV ONES, SUCCESS
7 <b>9</b> 01	053022	000207			000 0	RETURN			. AFF 111 A	£533:;;	
7902 (4)	053024 053024	032737	000010	001422	HDD3:	IF #BIT	3 SET.IN ADDRES	2 HUD #RT19	: UFF.IN A	INNKE22 THEN I	LET SUCCESS := ONES BIT #BIT3, ADDRESS
( <del>6</del> )	053032 053034	001407 032737	000004	001422							BEQ L534 BIT #BIT2,ACORESS
8) 7)	053042 053044	001003 013737	002154								BNE L534 MOV ONES, SUCCESS
( )	UJJUTT	313/3/	00E124	002002							1104 01463,3000633

ER CE	ROR R	EPORTING MAZ Z	& SCOPE	L00PS	MACY11	30A(1052 SUBR	DETAILE	D ERROR		1 AGE	59-3				SE0 0349
	(1) 7934 7935 7936	053270 053276 053302 053304	012737 005037 104031	177777 001500	005146		ERROR	#-1, HEA MUT +31							
	(3)	053304 053310	012637 012637	001200 001200		15:	POP :WARNING	MUT,HE					MOV MOV	(SP)+.MUT (SP)+.HEADER	
	7937 7938 7939 7940	053314 053320 053322	004737 000207	053156		<b>45</b> :	CALL RETURN PUSH	DETAIL	3110						
	(2) 7941 (1)	053322 053324 053324	104401	072260			TYPE TYPEIT	MSG088	3	•	KERNEL STACK		MOV	RO/SP	
1	7942 (3) (3) 7943	053330 053330 053332 053332	010600				FOR	RU := 9	5P 10 #K	ERS	IK-5 BA #5	Ε	MOV	SP.RO	
	(1) 7944 (1)	053332 053336 053336	010046	005555			TYPEIT TYPOC' MOV	,SCRLF r ro,-(sf	, RO	: :	:SAVE RO FOR T	YPEOUT			
1	(1) 7 <b>945</b> (1)	053340 053342 053342	104402	067076		•	TYPOC TYPE TYPEIT	.MSG018	MSGD18	3	SAVE RO FOR T GO TYPEOCTA 2 SPAC	L ASCII(AL ES	L DIGITS)		
1	7946 (1) (1) 7947	053346 053346 053350 053352	011046 104402				TYPOC' MOV TYPOC END : OF	(RO),-(	(RO) (SP)	•	SAVE (RO) FOR GO TYPEOCTAI	TYPEOUT L ASCII(AL	L DIGITS)		
	(6) (5) (5) (5)	053352 053356 053362	062700 020027 003763	000002 001376				7 OK KO				_	CMP BLE	#2,R0 R0. #FERSTF-2 B117	
	7948 7949 7950	053364 053364 053372 053400	042737 052737 006506	030000	177776 177776		SET PRE	VIOUS N BIT13:	10DE TO BIT12,P PSW	SUPE	ERVISOR	Ł	117:;;;;;	;	
	7951 7952 (2) 7953	053400 053402 053402 053404	015600				MFPI POP TYPE	SSP RO MSG089			SUPERVISOR STAG	∩k	MOV	(SP)+.RO	
	(1) 7 <b>95</b> 4 (4)	053404 053410 053410	020027	072276 000700			TYPEIT IF RO L	. MSG089	j rk	••	SUPERVISOR STA	<b>.</b>	CMP	RD, #SUPSTK	
1	(6) 7955 (3) 7956	053414 053416 053416 053416	002016				FOR RO		TO #SUP	PSTK-	-2 BY #2	8	3120:;;;;;	L540	
1	(1) 7 <b>957</b> (1)	053416 053422 053422	010046	005555			TYPEIT TYP( MOV	SCRLF OCT	RO	;;	SAVE RO FOR T	YPEOUT		`	
1	(1) 7958 (1) 7959	053424 053426 053426 053432	104402	067076			TYPOC TYPE TYPEIT TYPO	.MSGO18		3 ; ;	GO TYPĒOCTAL ;2 SPACE	L ASCII(AL ES	L DIGITS)		
	(1) (1) 7960	053432 053434 053436 053436	011046 204405				MOV TYPOC		(SP)	;;	SAVE (RO) FOR GO TYPEOCTAL	TYPEOUT L ASCII(AL			
	(E)	053436	062700	200000				· ·					ADD	#2,R0	

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ERROR F		& 500PE 24-FEB-78	L00PS 08:17	MACY11	30A(1058 SUBR	20-FE DETAILE	N1 1 B-78 09:20 PAG D ERROR REPORT			
(5) (5)	053442 053446 053450 053450 053452 053452 053452	020027 003763	000676						6 E120::::	MP RO. #SUPSTK-2 BLE 8120
(5) (5) (5) 7961 (3) (3) 7962	053450 053450 053452	204000				ELSE				IR L541
7962	053452 053452 053456 053456	104401	072334			TYPE TYPEIT END : OF	.MSGD91	; IS EMPTY		••
7963 (3) 7964 7965 7966 7967 (2)	053456	052737	030000	177776		SET PR	EVIOUS MODE TO L #BIT13!BIT12,PS	JSER 5W	L54.:;;;	::
7967 (2) 7968	053464 053466 053466 053470 053470	015e00 00 <u>e</u> 20e				POP	RO		M	lov (SP)+,RO
7969 (4)	053470 053474 053474	104401 020027	000600			TYPEIT IF RO L	MSG090 ,MSG090 T #USESTK	:USER STACK		MD DD AUCECTU
(6) 7970 (3)	053474 053474 053502 053502 053502 053502 053506 053506 053516 053516 053516 053516 053516 053516 053516 053516 053516 053516 053517 053517 053517 053517	005016	000600			FOR RI	0 := R0 T0 #USES	STK-2 BY #2	B121:;;;	MP RO, #USEST/ GE L542 
7971 (1) 7972	053502 053502 053506	104401	005555			TYPEIT TYPEIT	SCRLF OCT RD			
(1) (1) 7973	053506 053510 053512	010045 104402				MOV TYPOC TYPI	RO,-(5P) E MSG018	;;SAVE RO FOR TYPEOU ;;GO TYPEOCTAL ASC ;2 SPACES	T II(ALL DIGITS	,
(1) 7974 (1) (1)	053516 053516	1044CS 011046 104401	067076			MOV TYPO	_MSG018 OCT (RO) (RO),-(SP)	;;SAVE (RD) FOR TYPE ;;GO TYPEOCTAL ASC		
7975	053522 053522 053525	062700 020027	000002 000576			TYPOC END ;	OF FOR RO	;;GO TYPEOCTAL ASC		
(6) (5) (5) (5) 7976	053532 053534 053534	003763	000376			ELSE		•	E121:;;;	DD #2.RO MP RO.#USESTK-2 LE BIZI :::
(3) (3) 7977	053536 053536	204000				TYPE	MSG091	;IS EMPTY	L542:;;;	R L543 ;;
7978 (3)	053536 053542 053542 053542		072334			TYPEIT END ; OF	MSG091 IF RO	¥ • • • • • • • • • • • • • • • • • • •	L543:;;;	<b>: :</b>
7979 7980 (2) 7981	053542 053546 053546 053550	005037	001702			CLR POP	DETFLAG RD			ov (SP)+,R0
, ,,,,	JJJ550	000207				RETURN				

```
POWER FAIL AUTO RESTART MACTIL 30A(1052) 28-FEB-78 09:20 PAGE 60 CEMKAA.MAZ 24-FEB-78 08:17 SUBR DETAILED ERROR REPORT
                                                                       .TITLE POWER FAIL AUTO RESTART
   7983
   -984
   7985
7986
7987
7988
                                                                        .SBTTL ROUTINE POWER DOWN AND JP
                                                           013746 177746
013746 177750
104423
012737 054472
012737 000340
                                                                                                                                                           MOV CONTRL, -(SP)
MOV MAINT, -(SP)
                                                                       CACHON
                                                                                   #SILLUP_PHRVEC ;:SET FOR FAST UP
#340_PHRVEC+2 ::PRIO:7
RO.PI.R2.R3.R4.R5.CSRNC
                                   054472 000024
0000340 000026
                                                                       MO∨
                                                                        MOV
                                                                        PUSH
                                                                                                                                                           MOV RO, -(SP)
MOV R1, -(SP)
MOV R2, -(SP)
MOV R3, -(SP)
                       010046
                       010146
                        010246
           053606 010346
053610 010446
053612 010546
053614 013746
    .51
                                                                                                                                                           MOV R4 - (SP)
MOV R5 - (SP)
    (6)
                                                                                                                                                            MOV CSRNO - (SP)
    (8)
                                  001634
                                                                       ;SAVE USER PAR'S & PDR7
MOV #1777CD,RD
MOV #17.,R1
PUSH -(RD)
   ~994
           053620
053624
                      012700 177700
012701 000021
   7995
   7996
   7997
                                                        15:
           053630
                                                                                                                                                          MOV -(RD).-(SP)
           053630
053632
                       014046
    (2)
                                                                       SOB R1.15;
SAVE SUPERVISOR PAR'S
MOV #172300,R0
   7998
7999
                       077102
          053634
053640
053644
                      012700 172300
012701 000020
   8000
                                                                                   #16.,R1
-(R0)
   8001
                                                                        MOV
   8002
                                                                        PUSH
                                                                                                                                                          MOV -(RD).-(SP)
                        014046
    (5)
           053644
          053646
053650
053650
   8003
                       077102
                                                                       SOB R1,2$
IF RLFLAG NE #0 THEN SCALL WOOPS
   8004
                                                                                                                                                         IST RLFLAG
BEQ L544
JSR PC.WGOPS
                       005737 001516
001402
004737 054500
    (4)
           053654
053656
053662
    (6)
    (4)
    (3)
                                                                                                                                            L544::::::
                                                                       ; COPY KERNEL MAP TO USER & SUPERVISOR MOV #KIPDRO.RO
   8005
                      012700
012701
012702
012703
                                  172300
177600
172200
   8006
8007
           053662
                                                                      MOV #SIPDRO,R1
MOV #SIPDRO,R2
MOV #32.,R3
MOV (R0),(R1)+
MOV (R0)+,(R2)+
SOB R3,3$
;SAVE USER & SUPERVISOR STACK POINTERS
USER
           053666
053672
053676
   8008
   8009
                                    000040
           053702
053704
053706
   8010
                       011021
   PUT
                       012022
077303
   8012
   8013
          053710
053710
053716
053720
053722
053722
053724
053724
   P109
                       052737 140000 177776 010600
                                                                       BIS
                                                                                    *BIT15!BIT14.PSW
                                                                                                                  :DO IT TO IT!
    (1)
   8015
                                                                                   USP.RO
   8016
8017
(2)
                        104417
                                                                       KERNEL
                                                                       PUSH
                        010046
                                                                                                                                                           MOV RD. - (SP)
   8018
                                                                        SUPERVISOR
                                                                       BIS #BIT14.PSW ;DO IT TO IT!
                        052737
    (1)
                                   040000 177776
   8019
            053732
                        010600
   8020
           053734
                        104417
                                                                       KERNEL
```

POWER F CEMKAA.	AIL ALTO MA2 29	RESTART	MACY11 08:17	30A:1052	28-FE	B-78 09:20 PAGE 60-1 POWER DOWN AND UP	
8021	053736 053736	010046				PUSH RO	MOV RG(SP.
8025 8024 (3)	053740 053744	013701	001706			;SAVE MK11 REGISTERS MOV MKCSRS.R1 ;GET CSR'S B/TE BEGIN LCSRSAVE	B122:;;;;;
8025 3)	053744 053744 053744	005037	201634			FOR CSRNO := #D TO #34 BY #4	CLR CSRNO B123:;;;;;
8025 8025 8025	053750 053752 053752	106301				ASLB R1 ON.ERROR	BCC L545
8058	053750 053750 053752 053752 053754 053756 053766 053766	103005	001536			READCSR PUSH CSR,CSR+2	
8030	053762 053766	013746 013746	001526			END ; OF ON. ERROR	MOV CSR(SP) MOV CSR+2(SP)
8031 (6)	053766 053766 053766 053770 053772 053772	105701				IFB RI EQ #0 THEN LEAVE LCSRSAVE	L545:;;;; TSTB R1 BEQ E122
8032 (E)	053772 053772	001407 062737 023727	000004 001634	001634 000034		END ; OF FOR CSRNO	ADD #4.05RNO CMP CSRNO,#34 BLE B123
(5) (5)	054000 054006 054010 054010	003760	001634	- EUUUU		END LCSRSAVE	BLE 8123 E123::::::
(3) 8034 8035	054010					:SAVE MMRO 1,2,3 PUSH MMRO,MMR1,MMR2,MMR3	E122:::::
172377557678977001177207375575789700122222222222222222222222222222222222	054010 054014 054020 054024	013746 013746 013746	177572 177574 177576			r dan inino, inino, inino, inino	MOV MMRO(SP) MOV MMRI(SP) MOV MMR2(SP) MOV MMR3(SP)
(5) 8036 8037	054030	013746	172516			;SAVE KERNEL PAR'S MOV #172400,RO MOV #16.,R1 PUSH -(RO)	MOV MMR3(SP)
8038 2)	054034 054040 054040 054042	012701 014046 077102	000020		45:		MOV -(RD)/SP)
8042	054044					SOB R1,45 ;SAVE UNIBUS MAP REGISTERS PUSH MAPH36,MAPL36,MAPH0,MAPL0	MOU MORUZE CR
(S)	054050 054054 054060	013746 013746 013746 013746	170372 170370 170202 170200				MOV MAPH36SP; MOV MAPL36SP MOV MAPHDSP MOV MAPLDSP
(5) 8043 8044	054064 054064	017746	126110			:SAVE POSSIBLE SOFTWARE SWITCH REGISTER PUSH JSWR	MOV DSWR SF
6045 8045 8046 8047	054070	010637	054476			;SAVE STACK POINTER ;;SAVE SP	OF BUNK, SI
8047 8048 8049 8050 8051	054074 054102 054104	012737 000000 000776	991106	000024	SDOWN:	;NOW SET UP REAL VECTOR MOV #SPWRUP,PWRVEC ::SET UP VECTOR HALT BR2 ::HANG UP	*******

POWER F		RESTART		30A (1052		D12 B-78 09:20 PAGE 60-2 POWER DOWN AND UP		
8053 8053	054106	012737	054472	000024	POWER SPURJP:	UP ROUTINE MOV #SILLUP, PWRVEC ;; SET FOR FAST DOWN ; RESTORE STACK FOINTER		
8054 8056 8056 8057 8059 8060 (2) 8061 8062	054114 054120 054124 054130	013706 005037 005237 001375	054416 054416		15:	MOV SSAVRE SP :: GET SP CLR SSAVRE :: WAIT LOOP FOR THE TTY INC SSAVRE :: WAIT FOR THE INC BNE :: OF A WORD : RESTORE POSSIBLE SOFTWARE SWITCH REGISTER		
8060	054132 054132	012677	156045			POP DSWR	MOV (	(SP)+. JSHR
(3)	054136 054148 054146 054158 054158	012637 012637 012637 012637 004737	170200 170202 170370 170372 035524			CALL LOWMAP :SETUP LOWER 16K OF UNIBUS MAP	MOV ( MOV ( MOV (	(SP)+,MAPLO (SP)+,MAPHO (SP)+,MAPL36 (SP)+,MAPH36
8063 8064 8065 8066 8067 8068 (2) 8070 8071 8072	054162 054166 054172 054176	012700 012702 012701	172340 172300 000020		6 <b>\$</b> :	;RESTORE KERNEL PAR'S \$ PDR'S MOV #172340,R0 MOV #KIPDRO,R2 MOV #16.,R1 POP (R0)+	<b>MQ</b> 11	<b></b>
9069 8070 8071	0541 <i>7</i> 6 054200 054204	012520 012722 077104	077406			MOV #77406,(R2)+ SOB R1,6\$ ;RESTORE MMR3,2,1,0	HCV '	'SF)+, 'RO,+
(3)	054555 024516 024515 024506	012637 012637 012637 012637	172516 177576 177574 177572			POP MMR3, MMR2, MMR1, MMR0	VOM VOM	(SP)+,MMR3 (SP)+,MMR2 (SP)+,MMR1 (SP)+,MMR0
8073 8074 9075 8076 (3)	054536 054535 054536	013701 042701	001706 177400			;RESTORE MKII REGISTERS MOV MKCSRS.RI ;GET CSR'S BYTE BIC #177400.RI BEGIN LCSRRESTORE		
8077	054236 054236					B12+:;;; FOR CSRNO := #34 DOWNTO #0 B1 #4		
(3)	054236 054244	012737	000034	001634		B:25::;;	MOV #	#34,05RN0
8078 8079 (8)	054244 054246 054246	106201				ASRB R1 ON.ERROR	BCC L	546
8080	054250 054250	012637	001530			POP CSR+2.CSR	MOV (	(SP)+,CSP+2
(3)	054246 054250 054250 054254 054260	012637 104425	001526			LOADCSR	MOV (	LŠP → LÕŠR
8081 8082 (3)	054262					END ; OF ON. ERROR L546::::	. : : :	
8083 (£)	054262 054264	105701 001407				IFB R1 EG #0 THEN LEAVE LCSRRESTORE	TSTB BEQ E	R1 124
8084	051262 051262 051262 051266 051266 051272 051330 051330 051330	162737 023727 002360	000004 001634	000000		END ; OF FOR CSPNO E125::::	SUB CMP C	H.CSRNG CSRNO.#G

RTI

. -2

SILLUP: HALT

3)

054470

054472

054474

000002

000000

000776

1518

8123

SEG 0354

MOV (SP)+.CONTRL

:: THE POWER UP SEGUENCE WAS STARTED

BEFORE THE POWER DOWN WAS COMPLETE

F12

POWER FAIL AUTO RESTART MACY11 30A 1052) 28-FEB-78 09:20 PAGE 60-4 CEMKAA. MAZ 24-FEB-78 08:17 POUTINE POWER DOWN AND UP

5EG 0355

8124 054476 000000 9125 SSAVR6: 0 .EVEN

::PUT THE SP HERE

```
POWER FAIL AUTO RESTART MACY11 30A(1052) 28-FEB-78, 09:20 PAGE 60-5
                   24-FEB-78 08:17
                                                      ROUTINE POWER DOWN AND UP
CEMKAA.MAZ
                                                      HOOPS: SUBTST < POHER FAIL WHILE RELOCATED,
         054500
   (3)
                                                                            POWER FAIL WHILE RELOCATED
   (3)
                                                       : *SUBTEST
                                                       ***********************************
          054500
054500
054504
054510
054510
054512
  8128
                                                                 PUSH
                                                                                                                                              MO, BANK, - (SP.
                     013746 001470
005037 001470
                                                                 CLR
                                                                            BANK
  B129
                                                                 MAP
                                                                            BANK
  8130
                                                                                                                                              MOV #3.-(5P)
                     010346
013703
004737
     3)
                                                                            BANK R3
                                001470
034510
                                                                 MOV
  (i)
3)
8131
                                                                 CALL
                                                                                                                                              MOV (SP.+.P3
          054522
054524
                     015603
                                                                     #BIT14,PSW ; CO IT TO IT!

/ FIRST+PWRVEC,WOOPSAV

/ FIRST+PWRVEC+2,WOOPSAV+2

IV FIRST+WOOPUP,WOOPSAV+4.WOOPEND-WOOPUP 2+12.

JSR R5,BLOCK3

WOOPEND-WOOPUP/2+12.

WOOPSAV+4

FIRST+WOOPUP

#WOOPIP FIRST-BURUEC
                                                                 SUPERVISOR
                     052737
013737
013737
          054524
                                                                 BĪS
                                040000
                                           055062
  8132
8133
8133
                                060024
                                                                 MOV
          054540
                                920090
                                                                 MOV
                                                                 BMOV
          054546
054552
                     000102
                                037342
    (1)
                     055066
134656
012737
012737
          054554
                                                                      8135
8135
8137
          054560
054566
                                054656
                                                                 MOV
                                           060024
                                                                 MOV
                                           060026
          054574
054574
                                                                 BMOV
                                037342
   (1)
                     134626
          054600
    (1)
                                                                      FIRST+WOOPUP
     1)
                     054656
012700
012701
          054604
                                                                      WOOPUP
                                172340
135032
                                                                            SKIPARO, RO
  8138
                                                                 MOV
          054616
                                                                            #FIRST+WOOPEND.R1
  8139
                                                                 MOV
                                                                            #8.,R2
(RO)+,(R1)+
  8140
                     012702
                                000010
                                                                 MOV
  8141
8142
          054622
                     012021
                                                      15:
                                                                 MOV
                                                                           R2.15
MMR3,(R1)+
MMR2,(R1)+
MMR1,(R1)+
MMR0,(R1)+
                     077202
                                                                 SOB
                     013721
013721
013721
013721
                                172516
177576
177574
  8143
          054626
                                                                 MOV
  8144
          054632
054636
                                                                 MOV
                                                                 MOV
  8146
9147
          054642
                                                                 MOV
                                                                 KERNEL
          054646
                     104417
          054650
  8148
                                                                            BANK
                                                                 POP
                     012637
                                                                                                                                              MOV (SP)+.BANK
                                001470
  8149
          054654
                                                                 RETURN
  9150
  8151
                                                      MOOPLP: SUBTST </POWER UP FROM BANK D TO RELOCATION>>
          054656
    (3)
                                                      *SUBTEST
                                                                            POWER UP FROM BANK D TO RELOCATION
                                                                       *********
                     012700
012701
012703
                                055032
172340
172300
                                                                            #WOOPEND,RO
#KIPARD,R1
#KIPDRO,R3
          954650
  2152
                                                                 MOV
  8153
8154
                                                                 MOV
          054666
                                                                 MOV
  8155
8156
8157
                                                                            #8. R2
(RO)+,(R1)+
#77406,(P3)+
          054672
                     012702
                                 000010
                                                                 MOV
                     012021
012723
077204
          054676
                                                                 MÖV
                                                      15:
                                077406
                                                                 MOV
                                                                            R2,1$ (R0)+,MMR3
          054704
  8158
                                                                 SÓB
          054706
                                172516
177576
177574
  2159
                     012037
                                                                 MÖV
          054712
  3160
                     012037
                                                                 MOV
                                                                            (RO)+.MMR2
           05471E
                     012037
                                                                 MO.
                                                                             RG;+,MMR1
```

E "WER	FAIL AUTC	RESTART	MAC Y11 08:17	30A (1052	28-FE		H12 19:20 PAGE 60-6 BANK O TO RELOCATION	
9162 9.63 9:64	054722 054726 054732	012037 013706	177572 054476			MOV MOV PUSH	(RO)+,MMRO \$SAVR6,5P BANK	
9163 9164 2164 9165 9166	054732 054736 054742	013746 005037	001470			CLR	BANK BANK	MOV BANK (SP.
3)	054742 054744 054750 054754	010346 013703 004737 012603	001470 034510			MOV	BANK, P3 MAPPER	MOV RS,-(SP)
8167 8168 8169 8170	054756 054756 054764 054772	052737 013737 013737	040000 055062 055064	177776 060024 060026		SUPERV BIS MOV MOV :SIMUL	ADTTIM DCM ADD TT TO IT!	ACCESSES
8168 8169 8171 8172 8173 8174 8175 8176	055000 055004 055010 055014 055016	012700 012701 012702 012022 077102	055066 000102 134656		25:	MOV MOV MOV SOB	WOOPSAV, FIRST+PWRVEC HOOPSAV+2, FIRST+PWRVEC+2 ATE THE FOLLOWING BLOCK MOV BUT WITH NO STACK WOOPSAV+4, FIRST+WOOPUP, WOOPENE-WOOPUP 2+ #WOOPSAV+4, RD #WOOPEND-WOOPUP/2+12., R1 #FIRST+WOOPUP, P2 (RD)+, (R2)+ R1, 25	
8178 8179 (2) 8180 8182 8183 8183	055020 055022 055026 055032 055062 055272 055272	104417 012637 000137 000014 000104 001 001 002506	001470 054106		WOOPEND WOOPSAY PERLIMI	:	SPWRUP .BLKW 12BLKW HOOPEMD-WCOPUP 2+12.+2	MOV SPU+,BANK

5E% 03**5**7

```
112
IC SUBROLTIMES MACYII 30A 1052 CEMKAA.MA2 24-FEB-78 08:17
                                                            29-FEB-78 09:20 PAGE 61
                                                                                                                                                                                                                           SES C358
                                                                       POWER UP FROM BANK D TO RELIGIATION
                                                                                      .TITLE IO SUBROUTINES
   8190
                                                                                      .SBTTL ROUTINE TYPE
   8192
8193
                                                                        · ***************
                                                                       #ROUTINE TO TYPE ASCIZ MESSAGE. MESSAGE MUST TERMINATE WITH A D BITE.

#THE ROUTINE WILL INSERT A NUMBER OF NULL CHARACTERS AFTER A LINE FEED.

#NOTE1: SNULL CONTAINS THE CHARACTER TO BE USED AS THE FILLER CHARACTER.

#NOTE2: SFILLS CONTAINS THE NUMBER OF FILLER CHARACTERS REGUIRED.

#NOTE3: SFILLC CONTAINS THE CHARACTER TO FILL AFTER.
   B194
   8195
   819E
   8198
8199
   850T
                                                                       *CALL:
                                                                       #1) JSING A TRAP INSTRUCTION # TYPE MESADR
                                                                                                                                :: MESADP IS FIRST ADDRESS OF AN ASCIZ STRING
   8503
8503
                                                                       : +OR
   8204
8205
                                                                                     TYPE
                                                                                     MESADR
                                                                       . .
                                                                                                                                :: IS THERE A TERMINAL?
:BR IF NO
:: SAVE RO
              055272
055276
                           105737
                                                                       STYPE:
                                                                                    TSTB
                                                                                                   STPFLG
                                          005030
                                                                                                   6$
RO.-(SP)
                                                                                     BMI
                                                                                     MOV
                                                                       15:
```

8206 8207 8208 8209 8210 055300 055306 055310 055311 055311 010046 017600 112046 GET ADDRESS OF ASCIZ STRING
PUSH CHARACTER TO BE TYPED ONTO STACK
BR IF IT ISN'T THE TERMINATOR
IF TERMINATOR POP IT OFF THE STACK
RESTORE RO
ADJUST RETURN PC 22(SP), RO 200000 MOV 8212 (RO)+,-(SP) MOVB 8213 001005 7**\$** (SP)+ TST 8214 005726 (SP)+,R0 #2,(SP) 8215 015600 8516 055316 062716 200000 ADD **6S**: 8217 RTI RETURN 055322 200000 055324 055330 BRANCH IF NOT (HT) #HT,(SP) 8218 122716 000011 75: CMPB 8550 8513 2001005 BNE 115 . (SP : REPLACE TAB WITH SPACE 055332 112716 000045 MOVB 8221 8222 8223 055336 055342 122716 BRANCH IF NOT (CRLF) 000200 #CRLF (SP) CMPB i15: BNE 85 ::POP (CR)(LF) EQUIV ::TYPE A CR AND LF 055344 055346 (SP)+ 005726 8224 TYPE 055346 055350 (1) 104401 TYPĒIT 002555 8225 **SCRLF** ::CLEAR CHARACTER COUNT ::GET NEXT CHARACTER ::GO TYPE THIS CHARACTER ::IS IT TIME FOR FILLER CHARS.? :IF NO GO GET NEXT CHAR. 105037 000753 004737 CLRB BR 8226 055352 055462 **SCHARCHT** 8222 055356 45 8228 9239 9231 9232 9233 9233 9235 9235 9237 055360 STYPEC SFILLC, (SP)+ 055416 002214 ČALL **35**: 123726 CMPB 001346 055370 BNE 45 GET # OF FILLER CHARS. NEEDED

AND THE NULL CHAR.

DOES A NULL NEED TO BE TYPED?

BR IF NO -- GO POP THE NULL OFF OF STACK 055372 013746 920S6 SNULL, - (SP) MOV 055376 055402 055404 055410 055414 055416 055422 055423 105366 000001 DECB 1(SP) 195: BLT 002770 95 004737 105337 000770 105777 STYPEC GO TYPE A NULL 055416 DECB BR : DO NOT COUNT AS A COUNT 055462 **SCHARCHT** 105 LOOP 8238 DSTPS : WAIT UNTIL PRINTER IS READY 124566 STYPEC: TSTB STYPEC 2(SP), astpb #CR, 2(SP) 8239 100375 BPL 8240 ::LOAD CHAR TO BE TYPED INTO DATA REG. :: IS CHARACTER A CARRIAGE RETURN 210000 116677 MOVE 122766 200005 CMPB 8242 055440 BRANCH IF NO BNE :: YES- CLEAR CHARACTER COUNT 055442 105037 055462 CLRE SCHAPL "

IC SUBROUTINES MACY11 30A 1052 28-FEB-78 09:20 PAGE 61-2 CEMKAA.MA2 24-FEB-78 08:17 POUTINE TYPE

SE'S 0359

### D55446 D00406 | BR | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE | STYPE

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IO SLBR CEMKAA.	OUTINES MA2 2	MACY11 4-FEB-78	30A (1052 08:17	. 28-°E	B-78 09 POUTINE	:20 PAG BINARY	E 62-1 TO OCTAL	ASCII)	AND TYPE
8307 8308 8309 8310 8311	055630 055632 055636	005204 052703 052703	000040 000060		4 <b>\$</b> : 5 <b>\$</b> :	INC BIS BIS	R4 #'0,R3 #' R3 R3,B\$		::DON'T SUPPRESS ANYMORE O'S ::MAKE THIS DIGIT ASCII ::MAKE ASCII IF NOT ALREADY
(1)	055642 055646 055646 055652	110337 104401 105337	055706 055706 055710		6 <b>5</b> :	MOVB TYPE TYPEIT DECB	8 <b>5</b> 8 <b>5</b> \$001•T		MAKE ASCIL IF NOT ALREADY SAVE FOR TYPING GO TYPE THIS DIGIT COUNT BY 1
8313 8314 8315 8316	055656 055662 055664	003347 002402 005204 000744				BG BLT INC BR	2 <b>5</b> 7 <b>5</b> R4 2 <b>5</b>		BR IF MORE TO DO  BR IF DONE  INSURE LAST DIGIT ISN'T A BLANK  GO DO THE LAST DIGIT
8314 8315 8316 8317 8318 8319 5321 8322 8323 8325 8325	055666 055670 055672 055674 055702	012616 012603 012604 012605	000002	000004	<b>75:</b>	MOV MOV MOV MOV	(SP)+,R5 (SP)+,R4 (SP)+,R3 2(SP),4(SP)	5P	GO DO THE LAST DIGIT RESTORE RS RESTORE R4 RESTORE R3 SET THE STACK FOR RETURNING
8322 8323 8324 8325	055704 055706 055707 055710	200002 000 000			BS: SOCNT:	RII .BYTE .BYTE .BYTE	0 0 0		: RETURN : STORAGE FOR ASCII DIGIT : TERMINATOR FOR TYPE ROUTINE : OCTAL DIGIT COUNTER
832 <b>5</b>	055711 055712	000			SOFILL: SOMODE:	.BYTE .WORD	0		ZERO FILL SWITCH :: NUMBER OF DIGITS TO TYPE

SEC 0361

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IC SUBROUTINES MACY11 30A 1052
                                                      26 FEB-78 09:20 PAGE 63
                                                                POUTINE CONVERT BINARY TO DECIMAL AND TYPE
                      24-FEB-78 09:17
CEMKAA. MAZ
                                                                              SBITL ROUTINE CONVERT BINARY TO DECIMAL AND TYPE
   8329
8330
                                                                 **************************
                                                                *THIS ROUTINE IS USED TO CHANGE A 16-BIT BINARY NUMBER TO A 5-DIGIT *SIGNED DECIMAL (ASCII) NUMBER AND TYPE IT. DEPENDING ON WHETHER THE *NUMBER IS POSITIVE OR NEGATIVE A SPACE OR A MINUS SIGN WILL BE TYPED **BEFORE THE FIRST DIGIT OF THE NUMBER. LEADING ZEROS WILL ALWAYS BE
   8331
8332
   8333
   B334
                                                                 *REPLACED WITH SPACES.
   8335
                                                                *CALL:
   8336
                                                                                                                   : PUT THE BINARY NUMBER ON THE STACK GO TO THE ROUTINE
   8337
8338
                                                                             MOY
                                                                                         NUM, -(SP)
            055714
                                                                $TYPDS: PUSH
                                                                                         RO,R1,R2,R3,R5
   8339
                                                                                                                                                                      MOV RO - (SP
                         349818
     {3}
                                                                                                                                                                      MOV R2 - (SP)
MOV R3 - (SP)
MOV R5 - (SP)
            055720
055722
055724
055726
055732
                         010246
     (5)
                         010346
                         012546
012746
016605
     (6)
                                                                                                                  SET BLANK SWITCH AND SIGN
GET THE INPUT NUMBER
BR IF INPUT IS POS.
MAKE THE BINARY NUMBER POS.
MAKE THE ASCII NUMBER NEG.
                                                                                         #20200,-(SP)
20(SP),R5
                                                                            MOV
MOV
                                      020200
   8340
   8341
                         100004
005405
112766
   8342
                                                                             BPL
                                                                                         15
   8343
8344
            055740
055742
                                                                             NEG
                                                                                          RS
                                                                                            -.1(SP)
                                      000055
                                                   000001
                                                                             MOVB
                                                                                                                   ZERO THE CONSTANTS INDEX
SETUP THE OUTPUT POINTER
SET THE FIRST CHARACTER TO A BLANK
CLEAR THE BCD NUMBER
            055750
055752
055756
055762
                         005000
012703
112723
005002
                                                                                         ŘO
   8345
                                                                15:
   8346
8347
                                                                                         #$DBLK.R3
                                                                             MÖV
                                      056130
                                                                                         #1,(R3)+
R2
                                      000040
                                                                             MOVB
                                                                             CLR
   8348
                                                                25:
                                                                                                                  GET THE CONSTANT
FORM THIS BCD DIGIT
BR IF DONE
            055764
055770
055772
055774
   8349
                                                                                         SDTBL(RO).R1
                         016001
                                      056120
   8350
8351
                          160105
                                                                            SUB
                                                                                         R1, R5
                                                                35:
                         002402
                                                                                          45
                                                                                                                   INCREASE THE BCD DIGIT BY 1
   8352
                         005202
                                                                             INC
            055776
   8353
                         000774
                                                                                                                   : ADD BACK THE CONSTANT
: CHECK IF BCD DIGIT=D
: FALL THROUGH IF D
                                                                                         ŘÍ, R5
R2
5$_
   8354
8355
            056000
                         060105
                                                               45:
                                                                             ADD
                                                                             TST
            056002
                         005702
   8356
8357
            056004
                         001005
                                                                             BNE
                                                                                                                   STILL DOING LEADING 0'57
            056006
                                                                             TSTB
                                                                                          (SP)
                         105716
            056010
056012
056014
056016
056024
056030
  8358
8359
                                                                                         7$ (SP)
                          100407
                                                                            BMI
                                                                                                                   MSD?
                         106316
                                                                            ASLB
BCC
                                                                55:
                                                                                                                   BR IF NO
YES-SET THE SIGN
MAKE THE BCD DIGIT ASCII
MAKE IT A SPACE IF NOT ALREADY A DIGIT
PUT THIS CHARACTER IN THE OUTPUT BUFFER
   8360
                         103003
                                                                                         65
                                                                                         1(SP),-1(R3)
#'O,R2
#',R2
R2,(R3)+
(R0)+
                         116663
052702
052702
110223
                                                                            MOVB
BIS
BIS
  8365
8361
                                                  177777
                                      000001
                                      0000060
   8363
                                      000040
                                                                7S:
   8364
            056034
                                                                             MOVB
                                                                                                                  JUST INCREMENTING
CHECK THE TABLE INDEX
GO DO THE NEXT DIGIT
GO TO EXIT
                         005720
020027
002746
   8365
8366
            056036
                                                                             TST
                                                                            CMP
BI T
            056040
                                      000010
                                                                                         RD, #10
                                                                                         25
   8367
            056044
   8368
            056046
                         003005
                                                                                         85
                                                                                                                   GO CHANGE TO ASCII
   8369
            056050
                         010502
                                                                                         R5, R2
                                                                             MUV
  8370
8371
8372
8373
8373
            056052
                         000764
                                                                            BR
TSTB
                                                                                         65
                         105726
                                                                                         (SP)+
            056054
                                                                85:
            056056
                         100003
                                                                                                                   ; BR IF NO
                                                                             BPL
                                                                                         95
                                                                                                                   YES--SET THE SIGN FOR TYPING
            056060
                          116663
                                      177777 177776
                                                                             MOVB
                                                                                         -1(SP),-2(R3)
                         105013
                                                                             CLRB
                                                                95:
                                                                                          (R3)
   8375
            056070
                                                                                         R5,R3,R2,R1,R0
                                                                                                                                                                      MOV (SP)+,R5
MOV (SP)+,R3
MOV (SP)+,R2
            056070
056072
                         015603
     (2)
     (3)
            056074
                         015605
     (4)
             056076
                                                                                                                                                                      MOV (SP)+,RI
                         015601
```

N12

IO SUBROUTINES MACY11 30A(1052) 28-FEB-78 09:20 PAGE 63-1 CEMKAA.MAZ 24-FEB-78 08:17 POUTINE CONVERT BINARY TO DECIMAL AND TYPE

SEC 0363

MUV SP + RC

(6) 8376	056100	015600				TYPE	<b>S</b> DBLK	:: NOW TYPE THE NUMBER
(1)	056102	104401	026130			TYPĒIT	, SDBLK	
8377	05610 <del>6</del> 056114	015616	000005	900004		MOV	2(SP),4(SP) (SP)+.(SP)	::ADJUST THE STACK
8377 8378 837 <b>9</b>	056116	000005				MOV RTI	(36)7,(36)	::RETURN TO USER
8380	026150	023420			SDTBL:	10000.		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
8380 8381 8382	056122	001750 000144				1000. 100.		
<b>8</b> 383	056126	000015				10.		
8384	056130	000004			SDBLK:	BLKW	4	

							C13	3	
IO SUBROL CEMKAA.MA	LTINES	MACYII 4-FFR-78	30A (1052	28-FC	B-78 09 POUTINE	:20 PAG	E 64-1 LT		
8435 0	056364	062706	900006		8\$:	ADD	#6,SP	: : IGNORE PREVIOUS IMPLT	
8436 0 8437 0	056370 056372	000737 021627	000015		8 <b>\$</b> : 9 <b>\$</b> :	BR CMP	3 <b>\$</b> (SP).#15	::LET'S TRY IT AGAIN ::IS IT A 'CR'?	
8437 8438 8439 8440 8440	056372 056376 056400	021627 001025 005756	1 00004			BNE TST	13 <b>5</b> 4(SP)	::BRANCH IF NO ::YES, IS IT THE FIRST CHAP?	
8440 ( 8441 (	056400 056404 056406	001403 016677	שטטטטט	170564		BEQ MOV	10 <b>5</b> 2(SF), <b>2</b> SWR	::BRANCH IF YES ::SAVE_NEW_SWR	
l ouus r	neku i u	062706	900006		. □⊈	ADD TYPE TYPEIT	#6,5P \$CRLF	;;CLEAR UP STACK ;;ECHO <cr> AND /LF/</cr>	
(1) ( 8444 (	056420 056420 056424 056432 056434 056442	104401	002222	000001	115:		1 7 2	::IGNORE PREVIOUS IMPUT ::LET'S TRY IT AGAIN ::IS IT A 'CR'? ::BRANCH IF NO ::YES, IS IT THE FIRST CHAP? ::BRANCH IF YES ::SAVE NEW SWR ::CLEAR UP STACK ::ECHO 'CR' AND 'LF'  ::RE-ENABLE TT' KBD INTERPUPTS ::BRANCH IF NOT ::RE-ENABLE TTY KBD INTERPUPTS ::RETURN :FIX STACK :RETURN :FIX STACK :RETURN :FIX STACK :RETURN ::ECHO CHAR ::CHAR ' O? ::BRANCH IF YES ::CHAR ' 7? ::BRANCH IF YES ::STRIP-OFF ASCII :IS THIS THE FIRST CHAR ::BRANCH IF YES ::NO, SHIFT PRESENT ::CHAR OVER TO MAKE :ROOM FOR NEW ONE. :KEEP COUNT OF CHAR :SET IN NEW CHAR :GET THE NEXT ONE :TYPE 'CCR' (LF') ::SIMULATE CONTROL-6	2
8444 ( 8445 ( 8446 (	056434 056434	001003	000100	123542	126.	MOV	#โ๋oืo,อ <b>ร</b> ⊤หร	RE-ENABLE TTY KBD INTERPUPTS	
8447 ( 8448 ( 8449 (	056444 056450	062706	000005		CKEND:	ADD	#2,SP	FIX STACK	
8450 ( 8451 (	056426 056456	004737 021627	0554.6 000060		12\$: CKEND: 13\$: 14\$: 15\$:	CALL	STYPEC (SP),#60	ECHO CHAR CHAR ( D?	
8452 ( 6453 (	056462 056464 056470	002420 021627	000067			BLT CMP	15 <b>\$</b> (SP), <b>#</b> 67	BRANCH IF YES CHAR > 72	
8454 ( 8455 (	056470 056472	003015 042726	000060			BGT BIC	15\$ #60 ₁ (SP)+	;;BRANCH IF YES ;;STRIP-OFF ASCII	
8450 8452 8452 6453 6455 8455 8456 8457 8459 8450	056476 056502	005766 001403	000002			TST BEQ	2(5P) 14 <b>\$</b>	; IS THIS THE FIRST CHAR ; BRANCH IF YES	
8458 C	056504 056506 056510	006316				ASL ASL	(SP) (SP)	: CHAR OVER TO MAKE	
1 8461 C	056512 056512	005266	000002		145:	INC BIE	(SP) 2(SP) -3(SP) SP.	KEEP COUNT OF CHAR	
8463 ( 8464 (	056516 056522 056524	000664	1////6		158.	BR TYPE	45 45	GET THE NEXT ONE	
1) ( 8465 (	056524 05653C	104401 000715	005551		133.	TYPĒIT BR	SQUES 85	::SIMULATE CONTROL-U	
8466 8467						DSABL	LSB	• • • • • • • • • • • • • • • • • • • •	
94 <u>6</u> 8 (	056532				CONTT:	SUBTST		*****	************
2 ;					*SUBTE	ST *******	CONTROL T	*************	**********
8469 ( (2)	056532	010046							MOV RO SP
(4) [	056534 056534	005737	001516			IF REFL	AG NE #0		TST RLFLAG BEG L547
/E) ( 8471 ( /l) (	056540 056542 056542	001402	0722U			TYPE	MSG092 .MSG092	:RELOCATED	DES LOTA
8472 (	056546 056546	104401	072346			END OF	IF RLFLAG	L547:;	• • • •
1 8473 f	ハスムスリム	104401	072362			TYPE TYPEIT	MSG093 . MSG093	;BANK=	
8474 ( (1) (	056546 056552 056552 056556 056560	013746	001470			TYPOCS MOV	BANK3 BANK(SP)	TYPE 3 DIGITS SERVE BANK FOR TYPEOUT	
	056556 056560	104403				TYPOS .BYTE	3	SAVE BANK FOR TYPEOUT GO TYPEOCTAL ASCII TYPE 3 DIGIT(S)	
'i, i	056561 C56562	ōōč				.BYTE TYPE	Ö MSG094	SUPPRĒSS LĒADĪNG ZEROS MAR=	
ĺ									

SCRLF

POP

RETURN

104401

CCCSC_ CTSPOC

8483 056626 2 056626 2 056630

205555

MO. SP +.FC

SES 0366

```
CONTROL T
               24-FEB-78 09:17
                                                  ** THIS ROUTINE WILL INPUT A SINGLE CHARACTER FROM THE TT/
8487
                                                  *CALL:
8488
                                                                                            :: INPUT A SINGLE CHARACTER FROM THE TTY
8489
                                                  . #
                                                            RETURN HERE
8490
                                                                                            WITH PARITY BIT STRIPPED OFF
8491
8492
8493
                                                                      (SP),-(SP)
4(SP),2(SP)
                                                                                            :: PUSH DOWN THE PC
                  011646
8494
        026635
                                                 SRDCHR: MOV
                                                                                           SAVE THE PS
                                       000002
8495
        056634
                  016666
                             000004
                                                            MOV
                  105777
                                                            TSTB
                                                                       DSTKS
8496
        056642
                             123336
                                                  15:
                                                                                            ; A CHARACTER
                  100375
                                                            BPL
8497
        056646
                                                                      astkB,4(SP)
#1C<177>,4(SP)
4(SP),#23
                                                                                            READ THE TTY
                            123332
177600
000004
8498
        056650
                                                            MOVB
                                       000004
                                                                                           GET RID OF JUNK IF ANT
8499
        056656
                  042766
                                       000004
                                                            BIC
8500
                                                            CMP
       056664
                                       000023
                  026627
                                                                                             BRANCH IF NO
                                                            BNE
8501
                  001013
                                                                       35
8502
        055674
                  105777
                                                 25:
                                                            TSTB
                                                                       DŠTKS
                                                                                            HAIT FOR A CHARACTER
                             123304
                                                                                            LOOP UNTIL ITS THERE
8503
        056700
                  100375
                                                            BPL
                                                                      25
                                                                                           GET CHARACTER

MAKE IT 7-BIT ASCII

IS IT A CONTROL-G?

IF NOT DISCARD IT

YES RESUME

IS IT UPPER CASE?
                                                                      55TKB,-(SP)
#10177,(SP)
(SP)+,#21
       056702
056706
8504
                  117746
                                                            MOVB
                             123300
                             177600
8505
                  042716
                                                            BIC
8506
                  022627
                                                            CMP
        056712
                                                            BNE
8507
        056716
                  001366
                                                                      25
8508
8509
       056720
056722
                  000750
                                                            BR
                                                                       4(SP).#140
                  026627
                             000004
                                                            CMP
                                       000140
                                                                                            BRANCH IF YES
                  002407
                                                            BLT
8510
       056730
                                                                      45
                                                                                              IS IT A SPECIAL CHAP?
                                                                      4(SP),#175
8511
        056732
                  026627
                             000004
                                       000175
                                                            CMP
                                                                                              BRANCH IF YES
MAKE IT UPPER CASE
GO BACK TO USER
8512
       056740
                  003003
                                                                      45
                                                            BGT
8513
8514
        056742
                  042766
                             000040
                                                                       #40.4(SP)
                                       000004
                                                            BIC
                  500000
        056750
                                                            ŔŤĬ
                                                  45:
8515
8516
8517
                                                   *THIS ROUTINE WILL INPUT A STRING FROM THE TTY
                                                   *CALL:
                                                                                           ; INPUT A STRING FROM THE TTY
; ADDRESS OF FIRST CHARACTER WILL BE ON THE STACK
; TERMINATOR WILL BE A BYTE OF ALL D'S
8518
                                                            RDLIN
                                                  : ¥
8519
                                                            RETURN HERE
                                                  *
8520
BŠŽĪ
       056752
056754
                  010346
                                                 $RDLIN: MOV
                                                                      R3,-(SP)
-(SP)
                                                                                              SAVE R3
8522
                                                                                              CLEAR THE RUBOUT KEY
                  005046
                                                            CLR
9523
8524
       056756
056762
                  012703
                            057230
057254
                                                                                           GET ADDRESS
BUFFER FULL?
                                                                      #$TTYIN,R3
                                                            MOV
                  022703
                                                                       #STTYĪN+20..R3
                                                            CMP
                                                                                           SE IF YES : GO READ ONE CHARACTER FROM THE TTE
8525
8526
8527
8528
       056766
056770
                  101467
                                                            BL05
                                                                      85
                  104411
                                                            RDCHR
       056772
056774
                  112613
                                                                      (SP)+,(R3)
#3,(R3)
                                                                                           GET CHARACTER
                                                            MOVB
                             000003
                                                            CMPB
                                                                                           BRANCH IF NO :: TYPE A CONTROL-C (10)
8529
       057000
057002
                  900100
                                                            BNE
                                                                       35
8530
                                                            TYPE
                                                                      SCHTLC
       057002
057006
                  104401
005726
                                                                      SCNTLC
SPJ+
 (1)
                             057254
                                                            TYPEIT
                                                                                           :: CLEAN RUBOUT KEY OFF OF THE STACE
8531
                                                            TST
8532
        057010
                  015603
                                                            MŌV
                                                                       (SP)+,R3
                                                                                           GOTO CONTROL-C RESTART
IS IT A RUBOUT
BR IF NO
        057012
8533
                  000137
                             037020
                                                            JMP
                                                                      BOOT
                  122713
8534
        057016
                             000177
                                                 35:
                                                            CMPB
                                                                      #177,(R3)
8535
        057022
                                                            BNE
                                                                      5$
                                                                                           LIS THIS THE FIRST RUBOUT?
8536
8537
8538
        057024
                  005716
                                                                       (SP)
                                                                                           BR IF NO
TYPE A BACK SLASH
        057026
                  001007
                                                            BNE
                                                                      45
       057030
057036
                  112737
                                                                          ,10$
                             000134
                                       057226
                                                            MOVB
3535
                                                            TYPE
                                                            TIPEIT
        05703£
                  104401
                            057226
                                                                      .105
```

10 SUBROUTINES MACY11 30A(1052) 28-FEB-78 09:20 PAGE 65

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SUBROUTINES MACY11 30A(1052) 28-FEB-78 09:20 PAGE 65-1 EMKAA.MA2 24-FEB-78 08:17 CONTROL T
CEMKAA MAZ
          057042
057046
057050
057054
057054
057062
057062
                                                                                                       :: SET THE RUBOUT KET
                      012716
005303
020327
103434
                                                                                #-1.(SP)
  8540
                                 177777
                                                                                                       : BACKUP BY ONE
                                                         45:
                                                                    DEC
                                                                                R3
  8541
                                                                                                      STACK EMPT (2
                                                                                R3. #$TT IN
                                                                    CMP.
  8542
                                  057230
                                                                                                      SETUP TO TYPEOUT THE DELETED CHAP.
                                                                    BLO
                                                                                85
  8543
                                                                                (Ř3),10S
                      111337
                                                                    MOVE
  8544
                                  057226
                                                                    TYPE
                                                                                105
  8545
                                                                    TYPEIT
                                                                                25
                       104401
                                  057226
                                                                                                      :: GO READ ANOTHER CHAR.
:: RUBOUT KEY SET?
:: BR IF NO
                      000735
                                                                    BR
          057066
  8546
                                                                                (SP)
  8547
          057070
057072
                      005716
                                                         55:
                                                                    TST
                                                                    BEQ
  8548
8549
                                                                                65
                                                                                                       TYPE A BACK SLASH
                                                                                # 105
           057074
                      112737
                                  000134 057226
                                                                    MOVB
                                                                                105
                                                                    TYPE
           057102
  8550
                                                                                , 10$
          057102
057106
                      104401
                                  05722E
                                                                    TYPĒIT
    (\underline{\underline{1}})
                                                                                                      ::CLEAR THE RUBOUT KEY
::IS CHARACTER A CTRL L'?
::BR IF NO
                      005016
122713
001003
                                                                    CLR
  8551
                                                                    CMPB
                                                                                #25, (R3
  8552
           057110
                                  000025
                                                         65:
                                                                    BNE
           057114
  8553
                                                                                                       TYPE A CONTROL "U"
                                                                    TYPE
                                                                               SCNTLU
          057116
  8554
                                                                    TYPEIT
                                                                                SCHTLU
           057116
                       104401
    (1)
                                  057261
                                                                                                      ::GO START OVER
::IS CHARACTER A "TR"?
::BRANCH IF NO
                      000715
           057122
                                                                    BR
  8555
                                                                    CMPB
                                                                                #22, (R3)
           057124
                                  250000
                                                         75:
  8556
  8557
8558
          057130
057132
                                                                    BNE
                      001011
                                                                                95
                                                                                                      CLEAR THE CHARACTER
                                                                    CLRB
                                                                                (Ř3)
                       105013
           057134
                                                                               SCRLF
  8559
                                                                               SCRLF
STTYIN
                      164401
                                                                    TYPEIT
                                  005555
    (1)
          057134
          057140
057140
                                                                                                      :: TYPE THE INPUT STRING
                                                                    TYPE
  8560
                                                                    TYPEIT
                                                                                STTYIN
    (1)
                       104401
                                  057230
                                                                                                      :: GO PICKUP ANOTHER CHACTER :: TYPE A '?
           057144
                      000706
                                                                    BR
  8561
                                                                    TYPE
                                                                                SQUES
          057146
                                                         E$:
  8562
          057146
057152
057154
                      104401
    (1)
                                                                    TYPĒIT
                                                                                SOUES
                                  002221
                                                                                                      ;;CLEAR THE BUFFER AND LOOP
;;ECHO THE CHARACTER
  8563
                                                                    BR
                                                                                (R3),10$
                                                                    MOVB
  8564
                      111337
                                  057226
                                                         95:
                                                                    TYPE
TYPEIT
  8565
           057160
                                                                                105
          057160
057164
                      104401
122723
001274
                                                                                105
15,(R3)+
                                  057226
000015
  8566
                                                                    CMPB
                                                                                                      :: CHECK FOR RETURN
                                                                                                      LOOP IF NOT RETURN
                                                                    BNE
  8567
           057170
                                                                                25
                                                                                -I(R3)
  8568
                                  177777
                                                                    CLRB
           057172
                       105063
          057176
057176
                                                                                                       : TYPE A LINE FEED
  8569
                                                                    TYPE
                                                                                SLF
                                                                                $LF
(SP)+
    (1)
                       104401
                                                                    TYPEIT
                                  005553
          057202
057204
057206
057216
057216
057224
057226
057227
                                                                                                      ::CLEAN RUBOUT KEY FROM THE STACK
::RESTORE R3
::ADJUST THE STACK AND PUT ADDRESS OF THE
::FIRST ASCII CHARACTER ON IT
  8570
8571
8572
8573
                      005726
                                                                    TST
                                                                               (SP)+,R3
(SP),-(SP)
4(SP),2(SP)
#STTYIN,4(SP)
                                                                    MOV
                      011646
                                                                    MOV
                      999910
                                  000004
                                                                    MOV
  8574
8575
8576
8577
                      012766
                                  057230
                                             000004
                                                                    MOV
                                                                                                       ; ; RETURN
                      000002
                                                                    RTI
                                                                                                       STORAGE FOR ASCII CHAR. TO TYPE
                          000
                                                         105:
                                                                    . BYTE
                                                                                                       TERMINATOR
                           ŌŌŌ
                                                                     BYTE
                                                                                                      RESERVE SIZE BYTES FOR TTY INPUT
          057230
057254
057261
057266
                                                                               20.
/*C/(15/(12/
/*U/(15/(12/
/*G/(15/(12/
  8578
                      000024
                                                         STTYIN: .BLKB
                                  005015
005015
                                                        SCNTLC: ASCIZ
SCNTLU: ASCIZ
SCNTLG: ASCIZ
                      041536
                                                 000
  8579
  8580
                      136
043536
015
                                             $10000
                                                                                                      CONTROL "G"
  8581
          057273
057300
057304
057312
                                                                                <15/ 12/ SWR = /
  8582
                                  051412
                                             051127
                                                         SMSWR:
                      036440
020040
020075
057316
                                  000040
                                  3125PD
  3583
                                             020127
                                                         SMNEW:
                                                                    .ASCIZ
                                                                                   NEW =
   3524
                                                                    .EVEN
```

```
28-FEB-78 09:20 PAGE 66
IC SUBROUTINES MACTIL 30A 1052
                                                                    POUTINE READ A ! OCTAL NUMBER FROM THE TT
                       24-FEB-78 08:17
CENKAA. MAZ
                                                                                  SBITL ROUTINE READ AN OCTAL NUMBER FROM THE TTY
   858
                                                                   *THIS ROUTINE WILL READ AN OCTAL (ASCII) NUMBER FROM THE TTY AND *CHANGE IT TO BINARY.

*THE INPUT CHARACTERS WILL BE CHECKED TO INSURED THEY ARE LEGAL *OCTAL DIGITS. IF AN ILLEGAL CHARACTER IS READ A "?" WILL BE TYPED *FOLLOWED BY A CARRIAGE RETURN-LINE FEED. THE COMPLETE NUMBER MUST
   8588
   8589
   8590
8591
8592
                                                                    *THEN BE RETYPED. THE INPUT IS TERMINATED BY TYPING A CARRIAGE RETUP!.
   8593
   8594
8595
                                                                    +CALL:
                                                                                                                           :: READ AN OCTAL NUMBER
                                                                                 RDOCT
                                                                                                                          LOW ORDER BITS ARE ON TOP OF THE STACK HIGH ORDER BITS ARE IN SHIDST PROVIDE SPACE FOR THE INPUT NUMBER
                                                                    : #
                                                                                 RETURN HERE
   8596
   8597
                                                                                               (SP),+(SP)
4(SP),2(SP)
PD.R1.R2
                                                                    $RDOCT: MOV
   8598
            057316
057326
057326
057326
057332
057334
057336
057340
057352
057350
057350
057350
057372
057372
057376
057376
057402
                          011646
                                        200004 000002
                                                                                 MOV
   8599
                           016666
  8600
                                                                                 PUSH
                                                                                                                                                                                 MOV RO. - SP
MOV RO. - SP
MOV RO. - SP
                           010046
                           ğPIÖIC
                           945010
                                                                                                                          : READ AN ASCIZ LINE
: GET ADDRESS OF 15 CHARACTER
: AND SAVE IT
; CLEAR DATA WORD
   8601
                           104412
                                                                   15:
                                                                                 RDLIN
                                                                                               (SP)+.R0
                           015600
                                                                                 MOV
   3605
                                                                                               RO.55
   8603
                           010037
                                         057444
                                                                                 MOV
                                                                                               RI
R2
                          002005
                                                                                 CLR
   8604
                                                                                 ČĽŘ
MOVB
   8605
                                                                                                                          ::PICKUP THIS CHARACTER
::IF ZERO GET OUT
::MAKE SURE THIS CHARACTER
::IS AN OCTAL DIGIT
   8606
8607
                                                                                               (RO)+,-(SP)
                                                                    25:
                           112046
                          001420
122716
003026
122716
                                                                                 BEQ
                                                                                               35
                                                                                               #*0.(SP)
   9608
                                        000066
                                                                                 BGT
CMPB
   8609
                                                                                               45
                                                                                               #'7.(SP)
                                        500067
   8610
                          006301
   8615
8611
                                                                                               45
                                                                                  BLT
                                                                                 ASL
ROL
ROL
ROL
ROL
                                                                                               RI
R2
                                                                                                                          ;;*2
   8613
                           006105
                           006301
                                                                                               RI
                                                                                                                          ;; #4
   8614
                          00P301
00P105
   8615
                                                                                               R2
   9616
8617
                                                                                               RI
                                                                                                                          ;;*8
                           006102
                                                                                               R2
                                                                                                                          ::STRIP THE ASCII JUNE
::ADD IN THIS DIGIT
::LOOP
             057404
057410
057412
057414
                                                                                               #107,(SP)
(SP)+,R1
                                                                                 BĪC
   8618
                           042716
                                        177779
                          062601
000756
005726
010166
   9650
8613
                                                                                 ADD
BR
                                                                                                                          CLEAN TERMINATOR FROM STACK
                                                                                               <u>(</u>$P)+
   8621
                                                                    35:
                                                                                  TST
                                                                                               R1,12(SP)
R2,SHIGGT
R2,R1,PD
   8653
8655
             057416
057422
                                        000012
                                                                                 MÖV
                           010237
                                         057464
                                                                                 MOV
             057426
057426
057426
057430
   8624
524
524
                                                                                 POP
                                                                                                                                                                                MOV (SP)+.R2
MOV .SP +.R1
MOV /SP +.R0
                           012601
      4)
             057432
                           012600
                                                                                                                          :: RETURN
:: CLEAN PARTIAL FROM STACK
   8625
8625
8628
             057434
057436
                          000002
                                                                                 RTI
                                                                                               (SP)+
             057440
057442
057442
                                                                                                                          SET A TERMINATOR
                           105010
                                                                                 CLRB
                                                                                               (RO)
                                                                                                                           TYPE UP THRU THE BAD CHAR.
                                                                                 TYPE
TYPEIT
                           104401
   8629
             057444
                           000000
                                                                                  . WORD
                                                                                               057446
057446
057452
                                                                                 TYPE TYPE TYPE
                                                                                               MSG062
MSG063
MSG063
   3630
                                                                                                                          :INPUT MUST BE A
                           104401
                                        071400
                                                                                                                          :N OCTAL
             057452
05745£
                                                                                  TYPEIT
                           104401
                                        071420
                                                                                               MSG064
                                                                                  TYPE
                                                                                                                          : NUMBER
```

SE% 0370

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28-FEB-78 09:20 PAGE 66-1
IC SUBROUTINES MACY II 30A (1052)
                                                                             POLITINE READ AN OCTAL NUMBER FROM THE TI
CEMKAA. MA2
                          24-FEB-78 08:17
                                                                                                            MSG064
              357456
                              104401
                                                                                             TYPEIT
                                              071431
   8633
                                                                                                                                           :: TRY AGAIN
                                                                                            BR
                                                                                                           O :HIGH ORDER BITS GO HERE ROUTINE READ A DECIMAL NUMBER FROM THE TTY
                                                                             SHIOCT: .WORD .SBITL
   8634
8635
8636
               057464
                               מממפמכ
                                                                            *THIS ROUTINE WILL READ A DECIMAL (ASCII) NUMBER FROM THE TTY AND *CHANGE IT TO BINARY. IF TOO MANY CHARACTERS OR ANY ILLEGAL CHARACTERS **ARE READ A """ FOLLOWED BY A CARRIAGE RETURN-LINE FEED WILL BE TYPED. **THE COMPLETE NUMBER MUST BE RETYPED. THE INPUT IS TERMINATED BY THE **USER TYPING A CARRIAGE RETURN. THE RANGE OF THE INPUT NUMBER IS **POSITIVE 32767 TO NEGATIVE 32768.
   8637
   8645
8645
8645
   8642
   8643
                                                                              *CALL:
   8644
                                                                                                                                           :: READ A DECIMAL NUMBER :: NUMBER IS ON TOP OF THE STACK
   8645
                                                                              *
                                                                                            RETURN HERE
   8646
8647
   8648
              057466
057470
057476
057476
                                                                                                           (SP),-(SP,
4(SP),2(SP)
RO,P1,R2
                                                                                                                                           :: PROVIDE SPACE FOR
   8649
8650
8651
                              011646
                                                                             SRDDEC: MOV
                                                                                                                                           THE INPUT NUMBER
                                             200000 +000002
                              999910
                                                                                            MOV
                                                                                            PUSH
                                                                                                                                                                                                        MOV PO. - 'SP,
MOV R1. - 'SP,
MOV P2. - SF,
                              010046
               057500
057502
     (3)
                              010146
                              010246
                                                                                                                                           : READ AN ASCIZ LINE
: ADDRESS OF 1ST CHAR.
: SAVE INCASE OF BAD INPUT
               057504
057506
   8653
8653
                              015600
                                                                                            RDLIN
                                                                             15:
                                                                                                           (SP)+,R0
R0,6$
-(SP)
R2
                                                                                             MOV
              057510
057514
057516
057520
   8654
8655
8656
8657
                                                                                            MOV
                              010037
                                              057634
                                                                                                                                          SAVE INCASE OF BAD INPUT
CLEAR DATA WORD
SIGN SET POSITIVE
SEE IF A MINUS SIGN WAS TYPED
BR IF NO MINUS SIGN
SAVE FOR LATER USE
PICKUP THIS CHARACTER
GET OUT IF ZERO
MAKE SURE THIS CHARACTER
IS A DIGIT BETWEEN 0 8 9
                              005046
005002
122710
                                                                                             CLR
                                                                                             ČĽR
                                                                                             CMPB
                                              000055
              057524
057524
057526
057530
057532
057534
057546
057554
057554
                                                                                                           25
(RD)+,R2
   8658
8659
                              001001
                                                                                             BNE
                               112002
                                                                                             MOVB
                                                                                             MOVB
   <u>8</u>660
                               112001
                                                                                                            (RO)+RI
                                                                             25:
                              001424
122701
003032
122701
002427
032716
001024
   8663
8665
8667
                                                                                                            35
*'0,R1
                                                                                             BEQ
                                              000060
                                                                                             CMPB
                                                                                                           5$
*'9,RI
                                                                                             BGT
    8664
                                              000071
                                                                                             CMPB
                                                                                             BLT
   8665
                                                                                                                                           ::DON'T LET NUMBER GET TO BIG
                                                                                                            #†C7777.(SP)
   8666
                                              170000
                                                                                             BIT
    B667
                                                                                             BNE
                                                                                                            (SP)
                                                                                            ASL
MOV
    8668
               057556
                              006316
              057560
057562
057564
   8669
8670
8671
                                                                                                                                           SAVE FOR LATER
                              011646
                                                                                                            (SP),-(SP)
                                                                                            ASL
ASL
ADD
                                                                                                            (SP)
                              006316
                                                                                                                                           ;;*8
                               006316
                                                                                                            (SP)
              057566
057570
057572
057576
057600
057602
057604
057606
057610
   8672
                                                                                                            (SP)+,(SP)
                              062616
                                                                                                                                           OVERFLOW ISN'T ALLOWED
STRIP AWAY THE ASCII JUNE
ADD IN THIS DIGIT
OVERFLOW ISN'T ALLOWED
   8673
8674
                               102416
                                                                                            BVS
SUB
                                                                                                            5$
#'0,RI
                                              000060
   8675
8676
8676
                                                                                            ADD
                              060116
                                                                                                            RI,(SP)
                              102412
000752
005702
                                                                                            BVS
                                                                                                            5$
                                                                                                                                           ; : LOOP
                                                                                                            2$
                                                                                             BR
                                                                                                                                           : CHECK IF NUMBER IS NEG
   8678
8679
8681
                                                                                             TST
                                                                                                                                           BR IF NO
                              001401
                                                                                            BÉQ
NEG
                                                                                                            45
                                                                                                                                           FEST-NEGATE THE NUMBER
                                                                                                            (SP)
                                                                                                            (SP)+.12(SP)
R2.R1.R0
                               339510
                                              000012
                                                                                             MÖV
                                                                             45:
               057616
057616
057616
057620
                                                                                             POP
       27
                                                                                                                                                                                                         MOV (SPI+.R2
                                                                                                                                                                                                                  SP + RI
```

IC SUBROUTINES MACY II 30A 1352 29-FEB-78 09:20 PAGE 66-2 CEMKAA.MAZ 24-FEB-78 38:17 POUTINE READ A DECIMAL NUMBER FROM THE TTO 9689 9689 9689 9686 9689 9689 9699 057622 012600 057624 000002 MD7 SP .+ . RG RTI ::RETURN ::CLEAN PARTIAL NUMBER FROM STACK ::SET A TERMINATOR ::TYPE THE INPUT UP TO BAD CHAR. 057626 057630 057632 057632 057634 (SP)+ (RO) 005726 105010 TST 53: CLAB TYPEIT .WORD TYPE TYPEIT TYPEIT 104401 : POINTER GOES HEPE : INPUT MUSST BE A 63: MSGD62 MSGD65 MSGD65 MSGD65 057636 057636 057642 057642 057646 057646 057646 104401 071402 :DECIMAL 104401 071441 TYPE TYPEIT 8691 : NUMBEP 104481 200714 MSGD64 071431 9£9£ :: TRY AGAIN

```
IO SUBROUTINES MACY11 30A (1052: 28-FEB-78 09:20 PAGE 67 CEMKAA.MAZ 24-FEB-78 08:17 POUTINE SAVE AND RESTORE RO-RS
                                                                                      SBITL ROUTINE SAVE AND RESTORE PC-PS
   8694
8695
                                                                       8696
                                                                        *SAVE RO-RS
                                                                        ≠ĈALL:
   8698
                                                                                    SAVREG
                                                                       : *
  *UPON RETURN FROM SSAVREG THE STACK WILL LOOK LIKE:
                                                                        #TOP---(+16)
                                                                       * +2---(+18)
* +4---R5
                                                                        * +6---R4
                                                                        * +B---R3
                                                                       *+10---R2
                                                                       : #+12---RI
                                                                       : *+ 14---RO
                                                                      $SAVREG:
             057654
057654
057656
057660
057662
057664
057565
057670
057674
057704
                                                                                                    RO.RI.R2.R3.R4.R5
                                                                                                                                                                                         MOV RO.-(SP)
MOV RI.-(SP)
MOV R2.-(SP)
MOV R3.-(SP)
MOV R4.-(SP)
MOV R5.-(SP)
                            010046
                            010346
     (6)
(7)
                            010446
                            010546
  8713
8714
8715
                                                                                                                                :SAVE PS OF MAIN FLOW
SAVE PC OF MAIN FLOW
SAVE PS OF CALL
SAVE PC OF CALL
                                          000055
000055
000055
000055
                                                                                                   22(SP),-(SP)
22(SP),-(SP)
22(SP),-(SP)
22(SP),-(SP)
                            016646
                                                                                     MOV
                            016646
                                                                                     MOV
                                                                                      MOV
  8716
8717
8718
                            016646
                                                                                      MOV
              057710
                            200000
                                                                                      RTI
  87223
87223
87223
87223
87223
87225
7723
(3)
                                                                        : *RESTORE RO-RS
                                                                        *CALL:
                                                                                      RESREG
             057712
057712
057716
057726
057726
057732
057734
057736
057742
057744
                                                                        . .
                                                                       SRESREG:
                                                                                                   (SP)+.22(SP) :: RESTORE PC OF CALL (SP)+.22(SP) :: RESTORE PS OF CALL (SP)+.22(SP) :: RESTORE PC OF MAIN FLOW R5,R4,R3,R2,R1,R0
                           015699
015699
015699
015699
                                          000055
000055
000055
000055
                                                                                      MOV
                                                                                      MOV
                                                                                      MÖV
                                                                                      MCV
                                                                                     POP
                                                                                                                                                                                         MOV (SP)+.R5
MOV (SP)+.R4
MOV (SP)+.R3
MOV (SP)+.R2
MOV (SP)+.R1
MOV (SP)+.RC
                           000COS
015600
015603
015603
015603
015602
      4)
      5)
     (6)
              057746
                                                                                     RTI
```

RETURN

SE'S 0373

IO SUBROUT CEMKAA.MA	TINES MACY11 24-FEB-78	30A 1052; 28-FE 3 09:17	B-78 09 POUTINE	:20 PAG DOUBLE	SE 68-1 LENGTH BINARY TO	OCTAL ASCII CONVERT	ES 0374
8759 8760 8761 8762			***** *THIS *UNSIG			LENGTH BINARY TO OCTAL ASCII CONVERT ####################################	
8760 8761 8762 8763 8765 8765 8765			#CALL	MOV CALL RETURN	#PNTR,-(SP) \$DBc0	::POINTER TO LOW WORD OF BINARY NUMBER ::CALL THE ROUTINE ::THE ADDRESS OF THE FIRST ASCIZ CHAP. IS ON THE STA	HCK
8/68	50044 104415 50046 016601 50052 012705 50056 012704 50062 012703 50066 012100 50070 012101	000002 060163 000014 177770	<b>\$</b> DB20:	SAVREG MOV MOV MOV MOV MOV	2(SP),R1 #\$0CTVL+13R5 #12.,R4 #+C7,R3 (R1)+,R0 (R1)+,R1	SAVE ALL REGISTERS PICKUP THE POINTER TO LOW WOPD POINTER TO DATA TABLE DO ELEVEN CHARACTERS MASK LOWER WORD HIGH WORD	
8779 06 8780 06 8781 06 8782 06 8783 06 8784 06	50066 012100 50070 012101 50072 005002 50074 110245 50076 010002 50100 005304 50102 003007 50104 001405 50106 005205 50110 010566 50114 104416 50116 000207 50120 006203	ดดดดดว		MOV RESREG	R2 R2,-(R5) R0,R2 R4 3\$ 2\$ R5 R5,2(SP)	MASK LOWER WORD HIGH WORD TERMINATOR PUT CHARACTER IN DATA TABLE GET THIS DIGIT COUNT THIS CHARACTER BR IF NOT THE LAST DIGIT BR IF IT IS THE LAST DIGIT ALL DIGITS DONE-ADJUST POINTER FOR FIRST ASCIZ CHAR. & PUT IT ON THE STACK RESTORE ALL REGISTERS RETURN TO USER POSITION THE MASK FOR THE LAST DIGIT POSITION THE BINARY NUMBER FOR THE NEXT OCTAL DIGIT	
8785 06 8786 06 8787 06 8788 06 8789 06 8790 06 8791 06 8792 06	90134 006000 90135 006000 90136 006000 90137 006000	,	2 <b>\$</b> : 3 <b>\$</b> :	RETURN ASR ROR ROR ROR ROR ROR ROR	RO R1 R0		
8794 06 8795 06 8796 06 8797	50134 006000 50136 040302 50140 062702 50144 000753 50146 000016 060152	000060	SOCTVL: SOCTB=S	OCTVL+4	R3,R2 #'0,R2 1 <b>\$</b> 14.	; MASK OUT ALL JUNK ; MAKE THIS CHAR. ASCII ; GO PUT IT IN THE DATA TABLE ; RESERVE DATA TABLE ; POINTER TO 11 DIGIT NUMBER	

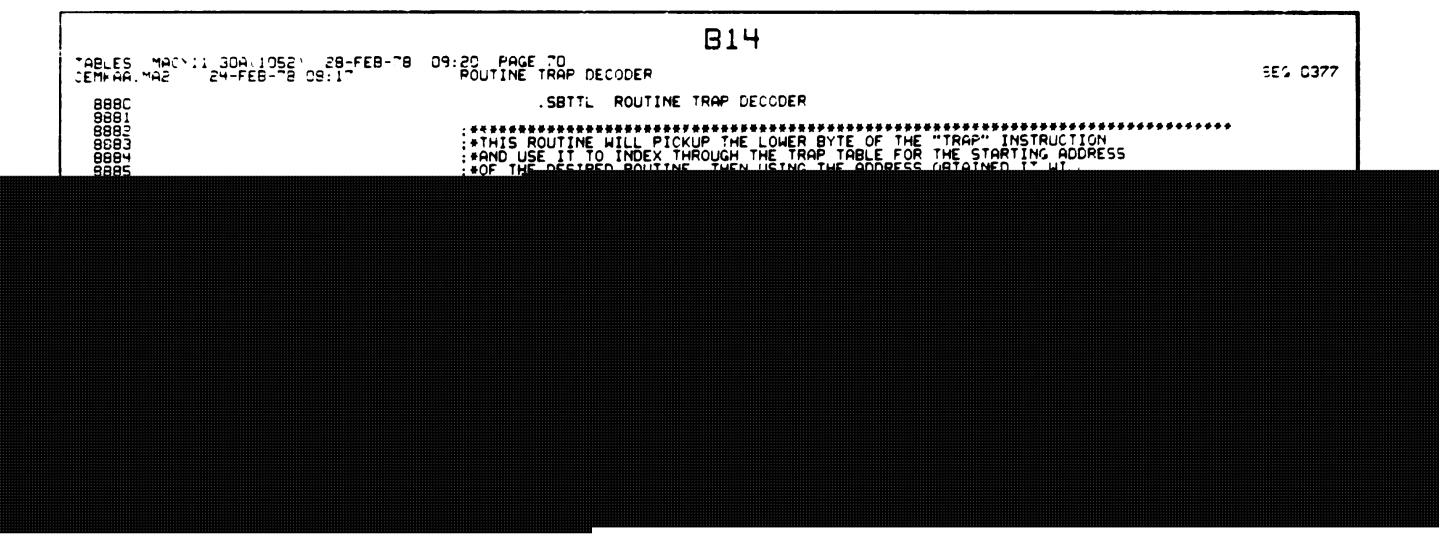
```
M13
TABLES MACTIL 30H(1052) 29-FEB-78 09:20 PAGE 69
                                                                                                                POUTINE DOUBLE LENGTH BINARY TO OCTAL ASSII CONVERT
                                                                                                                                                                                                                                                                                                                                                                 SEG 0375
CEMKAA. MA2 24-FEB-78 08:17
                                                                                                                                          .TITLE TABLES
      8800
8800
8801
                                                                                                                                          .SBTTL APT MAILBOX-ETABLE
                      060164
                                                                                                                  SMAIL:
      8802
                                                                                                                  SMSGTY: . WORD
                                                                                                                                                                                        :: MESSAGE TYPE CODE
                                              000000
      8803
                      P3103G
                                                                                                                                                                                     FATAL ERROR NUMBER (ERROR PC)
TEST NUMBER (DISPLAY REGISTER)
PASS COUNT
DEVICE COUNT
I/O UNIT NUMBER
                                                                                                                  SFATAL: WORD
STESTN: WORD
                                              000000
      8804
                      060166
060170
      8805
                                                                                                                  SPASS: .WORD
SDEVCT: .WORD
SUNIT: .WORD
                      060172
      8806
8807
                                              000000
                                                                                                                                                       DEVICE COUNT
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DEVICE DEVICE DEVICE
DEVICE MAP

THESE 2 HORDS ARE NON ZERO
DEVICE TAYLOUR DEVICE DEVICE
DEVICE DEVICE TAYLOUR DEVICE
DEVICE MAP

THESE 2 HORDS ARE NON ZERO
DEVICE TAYLOUR DEVICE TAYLOUR DEVICE DEVICE
DEVICE MAP

THESE 2 HORDS ARE NON ZERO
DEVICE TAYLOUR DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE DEVICE 
                                              000000
                                                                                                                                        . WORD
      8808
                      060176
                                              ÖÖÖÖÖÖ
                                                                                                                  SMSGAD: . HORD
SMSGLG: . HORD
                     060505
060500
      8809
                                              000000
                                              000000
      8810
                      P05040
      8811
                                                                                                                  SETABLE:
                                                                                                                                                                                                                                                                              -- SET TO A 1 FOR APT AUTO MODE
                                                                                                                  SENV: BYTE
SENVM: BYTE
                       060504
      8813 060205
060205
      8814
                      000310
00030P
                                             000000
                                                                                                                 SSWREG: . WORD
      8815
                                                                                                                SUSWR: .WORD
SCPUOP: .WORD
      8816
8817
                       060515 030400
      8818
      5819
      8820
      8821
      8855
      13823
      เรียร์ส
                                                                                                                  $MAMS1: .BYTE
                      060214
      8825
                      060215
                                                                                                                 SMTYP1: .BYTE
      8826
8827
      8828
                                                                                                                   *
      8829
                                                                                                                    ¥
      E830
                                                                                                                  SMADRI: .WORD
                      060216 177775
      8832
                      0e0555
0e0551
0e0550
                                                                                                                  $MAMS2: .BYTE
$MTYP2: .BYTE
      8833
8834
                                                      ٥٥٥
      8835
                                             000000
                                                                                                                  SMADR2: .WORD
      8836
8837
                      060224
                                                                                                                  SMAMS3: BYTE
SMTYP3: BYTE
                                                      ۵۵۵
                                                                                                                 SMADR3: .WORD
SMAMS4: .BYTE
SMTYP4: .BYTE
                                             000000
                      060530
060556
      8938
      8839
      8840 060231
                                                      000
                      060232
                                                                                                                   SMADR4: . WORD
                                              000000
      8841
                                                                                                                  SVECT1: .WORD
SVECT2: .WORD
SBASE: .WORD
SDEVM: .WORD
                       060234
      8842
                                              000000
                      060236
      8843
                                              000000
      8844
                                              000000
      8845
                      060242 000000
      8846
                                                                                                               :IF EITHOR OF THESE 2 WORDS ARE NON ZERO
:THEY WILL BE LOADED INTO ALL CSR'S & THE PROGRAM WILL STOP
$CDW1: .WORD 0 :CSR
$CDW2: WORD 0 :CSR
      8847
      8848
                      000000 4450900
                                                                                                                                                          0
                                                                                                                                                                                       CSR+2
      8249
      8850
                                                                                                                  SCDW2: . WORD
      8851
                                                                                                                   ; THE FOLLOWING LOCATIONS SPECIFY WHICH PATTERNS
      8852
      9853
                                                                                                                   ARE TO BE RUN FOR PARTICULAR MEMORIES
      8854
```

```
TABLES MACY11 30A 1052) 29-FEB-78 09:20 PAGE 69-1 CEMKAA.MA2 24-FEB-78 08:17 APT MAILBOX-E
CEMKAA.MAZ
                                                                APT MAILBOX-ETABLE
                                                                                                                                                                                                     SEG 0376
                                                                REFERENCE THE TABLE LISTED BELOW TO RELATE BITS TO PATTERNS. BITO SET WILL RUN THE FIRST ENTRY IN THE TABLE, BITO SET IN THE SECOND WORD WILL RUN THE 17TH ENTRY IN THE TABLE ...
   8856
   8857
   8858
   8859
                                                                 NOTE** NULL TESTS DO NOT TAKE ANY TIME
   8860
                       177777
177777
161377
177777
177677
            060250
                                                                SDDWD:
                                                                                                      ;MK11 CSR TESTS
;MK11 CSR TESTS
   8861
                                                                                                                                             TABLE = MKCSRT:
                                                                                         177777
161377
177777
177777
177677
            060252
060254
060256
060260
                                                                                                                                            TABLE = MKCSRT:
TABLE = MKPAT:
TABLE = MKPAT:
TABLE = MIPAT:
TABLE = MIPAT:
TABLE = MIPAT:
   2988
                                                                            WORD
                                                                                                      MKII PATTERNS
                                                                SDDW2:
   8863
                                                                             . WORD
   8864
                                                                             . WORD
                                                                                                      MKII PATTERNS
                                                                                                      MJII PATTERNS
   8865
                                                                SDDW4:
                                                                             . WORD
  9 6
            060565
                                                                SDDW5:
                                                                             . WORD
                                                                                                      MJII PATTERNS
                                                                SETEND: ; SETUP APT PARAMETER BLOCK AS DEFINED IN THE APT-PDP11 DYAGNOSTIC
   8
            060264
      3
                                                                INTERFACE SPEC.
   88 .0
   88
                                                                : "??????SOMEHOW FIGURE OUT WHAT TO SET THERE VARIABLES TO!
  88 '2
8873
9874
                                                                SAPTHD:
            060264
                                                                                                     ::THO HIGH BITS OF 18 BIT MAILBOX ADDR.
::ADDRESS OF APT MAILBOX (BITS 0-15)
::RUN TIM OF LONGEST TEST
::RUN TIME IN SECS. OF 1ST PASS ON 1 UNIT (QUICK VERIFY)
::ADDITIONAL RUN TIME (SECS) OF A PASS FOR EACH ADDITIONAL UNIT
            060264
                         000000
                                                                SHIBTS: . WORD
            992090
                         060164
                                                                SMBADR: . WORD
                                                                                         SMAIL
  8875
8876
8877
            060270
                         000010
                                                                STSTM:
                                                                             . WORD
                                                                                         8.
                         000144
                                                                SPASTM:
                                                                            . WORD
                                                                                         ĬÓO.
            060274
060276
                         000310
                                                                SUNITM: . WORD
                                                                                         200.
   8.83
                         000040
                                                                                         SETEND-SMAIL /2 :: LENGTH MAILBOX-ETABLE (WORDS)
                                                                             . WORD
```



			OI I			
TABLES JEMKAA.	MAC 11 30A(1052) 29-FEB-78 MA2 24-FEB-78 09:17	09:20 PAGE 70-1 TRAP TABLE				5EG <b>C378</b>
893 <u>6</u> 893	060404 032614	SCACHF	; CALL=CACHOFF	TRAP+24(104424)	TURN CACHE OFF	
8938 8939 8940	060406 032624 060410 033056	\$LOADC \$READC	:CALL=LCADCSR :CALL=READCSR	TRAP+25(104425) TRAP+26(104426)	READ CORRECT CSR	
123156789012315678901231567890123 999999999999999999999999999999999999	060412 046646 060414 046674 060416 046722 060420 046752 060422 047034 060424 047054 060426 047102 060430 047120 060432 047140 060434 047176 060436 047176 060440 047216 060440 047236 060440 047272 060450 047312 060450 047312 060450 047350 060450 047350 060460 047600 060462 047600 060462 047600 060463 050154 060464 047754 060466 050154 060472 050240 060474 060600 060475 060600 060502 060600 060504 060600 060504 060600 060505 060600 060510 060600 060512 060600	SPEROJULIZATION SPEROJULIZATION SPEROJULIZATION SPEROJULIZATION SPEROJULIZATION SPEROJULIZATION SPEROJULIZATION SPEROJULIZATION SPEROJULIZATION SPEROJULIZATION SPEROJULIZATION SPEROJULIZATION SPEROJULIZATION SPEROJULIZATION SPEROJULIZATION SPEROJULIZATION SPEROJULIZATION SPEROJULIZATION SPEROJULIZATION SPEROJULIZATION SPEROJULIZATION SPEROJULIZATION SPEROJULIZATION SPEROJULIZATION SPEROJULIZATION SPEROJULIZATION SPEROJULIZATION SPEROJULIZATION SPEROJULIZATION 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8975 8977 8977 8977 8978 8981 8988 8988 8988	060514 033314 060516 033350 060520 033402 060522 033422 060524 033526 060526 033570 060530 033630 060532 033744 060534 033774 060534 034110 060540 034162 060542 034214 060546 034250 060550 033474 060550 033474	SCBLCSR SCBLCSR SWASISE SWASISE SWASIDE SCLRCSR SCLRICS SCHKIDI SCHKIDI SENASBE SENAISE	CALL=ECCDIS CALL=ECCIDIS CALL=ECCIDIS CALL=ECCIDIS CALL=ECCIDIS CALL=ECCIDIS CALL=ECCIDIS CALL=CBICSR CALL=HASSBE CALL=HASSBE CALL=HASSBE CALL=HASSBE CALL=CLRICSR CALL=CHKIDIS CALL=CHKIDIS CALL=CHKIDIS CALL=ENASBE CALL=ENASBE CALL=TSTREAD	TRAP+75(104475) TRAP+75(104475) TRAP+76(104477) TRAP+100(104500 TRAP+101(104501 TRAP+103(104502 TRAP+103(104503 TRAP+104(104504 TRAP+105(104505 TRAP+106(104506 TRAP+107(104507	DISABLE ECC ON ALL CSR'S DISABLE ECC ON 1 SELECTED CSR INITIALIZE ALL MK11 CSR'S INITIALIZE 1 SELECTED MK11 CSI WRITE GENERATED CHECKBITS IN WAS THERE A SBE ON ANY CSR? WAS THERE A SBE ON 1 SELECTED OWAS THERE A DBE ON 1 SELECTED OCLEAR ALL CSR'S OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED CSR OCLEAR 1 SELECTED	I SELECTED  CSR ² CSR ² OM ALL CSR ² OM I SELECT L CSR ² SELECTED CS

THBLES MACYII 30H.1052 29-FEB 78 09:20 PHGE 70-L LEMKAA.MA2 24-FEB-78 09:17 TRAP TABLE SNOTRAP SNOTRAP SNOTRAP 9992 9993 9994 060562 060560 060600 060600 8995 8996 8997 8998 SNOTRAP 060564 060600 8995 060564 8996 060566 8997 060570 8998 060572 8999 060574 9000 060576 9001 060600 1 060600 9002 060604 SNOTRAP
SNOTRAP
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SNOTRAP
TYPEIT ,MSGOOG 060600 060600 060600 060600 :UNDEFINED TRAP INSTRUCTION 104401 D66556 000300 SHALT2: HALT

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E14
TABLES MACHIE 30A 1052 29-FEB-78 09:20 PAGE 71
CEMBAR MA2 24-FEB-78 09:17 TABLE EPROR POINTER
                                                                                                                                                                                                                                                 SES 0385
                                                                                                                            ERROR POINTER
                                                                                              .SBTTL TABLE
    9006
                                                                             *THIS TABLE CONTAINS THE INFORMATION FOR EACH ERROR THAT CAN OCCUP.

*THE INFORMATION IS OBTAINED BY USING THE INDEX NUMBER FOUND IN

*LOCATION SITEMB. THIS NUMBER INDICATES WHICH ITEM IN THE TABLE IS PERTIMENT.

*NOTE1: IF SITEMB IS O THE ONLY PERTINENT DATA IS (ERROPPC).

*NOTE2: EACH ITEM IN THE TABLE CONTAINS & POINTERS EXPLAINED AS FOLLOWS:
    9008
    9009
                                                                                                                            : POINTS TO THE ERROR MESSAGE
: POINTS TO THE DATA HEADER
: POINTS TO THE DATA
: POINTS TO THE DATA FORMAT
                                                                              *
                                                                                              DН
    9015
                                                                              *
                                                                                              DT
    9016
    9018
                                                                                                                                             SPARE
SPARE
               060606
                                                                              SERRIB: :ERROR 1
    9019
                                                                                             EMI
DH2
DT2
DF2
                              061326
064103
065400
065742
               960606
    9020
   9023
9023
9021
               060614
060615
060610
                                                                                                                                             SPARE
                                                                                                                                             SPARE
                                                                                             ERROR 2
    9024
               060655
060650
060616
    9025
9026
9027
                              061326
064046
065366
                                                                                              DHI
                                                                                              DTI
    9028
               060624
                               065742
                                                                                             ERROR 3
EM3
DH3
    9039
               060656
               060634
060635
                              064103
065400
066070
    9032
                                                                                              DT3
    9033
                                                                                              DF9
                                                                                             ERROR 4
               989999
060642
060642
060644
    9035
                              064103
065410
066070
    9036
                                                                                             DH3
DT4
    9037
                                                                                             DF9
ERROR 5
    9038
    9039
    9040
               060646
060650
060652
060654
                               061465
                                                                                             DHS
DTS
DF2
                               064144
    9042
                               065420
                               065742
                                                                                             ERROR 6
    9045
               060656
    9046
               060662
                               064144
                                                                                              DTŠ
    9049
               060664
                               065742
                                                                                             DFŽ
                                                                                             ERROR TEMP
    9050
9051
9052
9053
               060666
060670
060672
060674
                               061567
```

DF2

ERROR 10 EM10

065742

065366 065742

060702 060704

TABLES CEMKAA.	"1ACY11 MA2 Z	30A 1052 4-FEB-78	28-FEB-78 08:17	09:20 PAG	E 71-1 ERROR P	OINTER
9060 9061 9062 9063 9064	060706 060710 060712 060714	062005 064321 065460 065766			:ERROR EM11 DH7 DT7 DF3 :ERROR	11
9065 9066 9067 9068 9069	060716 060720 060722 060724	062005 064321 065460 066003			ERROR EMII DH7 DT7 DF4	12
9070 9071 9072 9073 9074	060726 060730 060732 060734	062027 064602 065542 065742			ERROR EM12 DH10 DT10 DF2	13
9075 9076 9077 9078 9079	060736 060740 060742 060744	062005 064321 065460 066020			ERROR EM11 DH7 DT7 DF5	14
9080 9081 9082 9083 9084	060746 060750 060752 060752	062005 064321 065460 066335			ERROR EM11 DH7 DT7 DF6	15
9085 9086 9087 9088 9089	060756 060760 060762 060764	062053 064733 065600 066102			ERROR EM13 DH13 DT13 DF11	16
9090 9091 9092 9093 9094	060766 060770 060772 060774	062105 064733 065600 066102			ERROR EM14 DH13 DT13 DF11	17
9095 9096 9097 9098 9099	0£0776 061000 061002 061004	062151 064733 065600 065742			ERROR EM15 DH13 DT13 DF2	20
9100 9100 9100 9100 9105	061006 061012 061014	062217 064667 065562 065742			ERROR EM16 DH11 DT11 DF2	21
9106	061016 061020 061022 061024	062245 064321 065460 066020			ERROR EM17 DH7 DT7 DF5	22
911090	061026 061030 061032 061034	062305 064443 065514 066075			ERROP EM18 DH8 DT8 DF1C	23

ES MACY11 3004.1052) 289-FEB-78 09:20 PAGE 11-2 (ARA MAZ 24) 294-FEB-78 08:17 TABLE ERROR POINTER (ARA MAZ 24) 294-FEB-78 08:17 TABLE ERROR POINTER (ARA MAZ 24) 294-FEB-78 08:17 TABLE ERROR 294 ERROR 294 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ERROR 295 ER	5 MACY11 30A(1052) 28-FEB-7	8 09:20 PAGE 71-2	G14
SERROR   25	A.MA2 24-FEB-78 08:17 6 7 061036 062364 8 061040 064733 9 061042 065600	TABLE ERROR POINTER :ERROR 24 EM19 DH13 DT13 DF2	
061056 000000 061060 061060 065742 0712 061066 065562 07111 061070 065662 0713 061076 062562 07111 061070 065601 061070 061070 065742 072 061076 062562 07111 061070 065742 072 061076 062562 07111 0713 06100 06100 0713 061100 06500 0713 061100 06500 0713 061100 06500 0713 061100 06500 0713 061100 06500 0713 061100 06500 0713 061100 06500 0713 061100 06500 0713 061100 06500 0713 061100 06500 0713 061100 06500 0714 061100 06500 0714 061100 06500 0714 061100 06500 0714 061100 06500 0714 061100 06500 0714 061100 06500 0714 061100 06500 0714 061100 06500 0714 061100 06500 0714 061100 06500 0714 061100 06500 0715 061100 06500 0715 061100 06500 0715 061100 06500 0715 061100 06500 0715 061100 06500 0711 05500 06100 06500 0711 05500 061100 06500 0711 05500 061100 06500 06100 06500 0711 05500 061100 06500 061100 06500 0711 05500 061100 06500 0711 05500 061100 06500 061100 06500 0711 05500 061100 06500 061100 06500 0711 05500 061100 06500 061100 06500 0711 05500 061100 06500 061100 06500 0711 05500 061100 06500 061100 06500 0711 05500 061100 06500 06500 0711 05500 061100 06500 06500 0711 05500 061100 06500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500 0711 05500 06500 0711 05500 06500 0711 05500 06500 0711 05500	061046 062441 061050 064733 061052 065600	;ERROR 25 ÉM2D DH13 DT13 DF2	
061104 066102	061056 000000 9 061060 064716 9 061062 065572 0 061064 065742	0 0 0112 0F2	:NO MESSAJE
061104 066102	2 061066 062523 3 061070 064667 4 061072 065562 5 061074 065742	EM21 DH11 DF2	
2 061106 000000 0 ; NO MESSAGE 3 061110 065041	7 061076 062562 8 061100 064733 9 061102 065600 0 061104 066102	EM22 DH13 DT13 DF11	
061116	2 061106 000000 3 061110 065041 4 061112 065624 5 061114 065742 6	0 DH14 DT14 DF2 -EPROP 32	; NO MESSAGE
061126       062636       EM24       SPARE         061130       064667       DH11       SPARE         061132       065562       DT11       SPARE         061134       065742       DF2       SPARE         061136       062636       EM25       DH15         061140       065157       DH15       DH15         061142       065652       DT16       DF7         061144       066052       DF7       ERROR       35         061150       065301       DH16       DH16         061152       065704       DT17       DF3         061154       065766       DH17       DF3         061160       065316       DH17       DF18	061120 064144 061122 065420	£M23 DH5 DT5 DE2	·SPARF
9 061162 065712 DT18	061126 062636 3 061130 064667 4 061132 065562 5 061134 065742	EM24 DHII DTII	SPARE SPARE SPARE
061162 065712 DT18	061136 062636 061140 065157 061142 065652 0 061144 066052	EM25 DH15 DT16 DF7	
061162 065712 DT18	2 061146 062663 3 061150 065301 4 061152 065704 5 061154 065766	€M26 DH16 DT17 DF3 :ERROR 36	
	9 061162 065712	EM8 DH17 D*18	

BLES 1kaa.		30A(1052) 28-FEB- 4-FEB-78 08:17	TABLE	ERROR P	GIH.
17.5	061166 061170 061172 061174	061664 064543 065530 065742		ERROR EM9 DH9 DT9 DF2	37
	061176 061200 061202 061204	062734 065301 065704 066066		DF2 :ERROR EM27 DH16 DT17 DF8	40
	061210 061210 0612100	063023 065316 065726 065742		ERROR EM28 DH17 DT19 DF2	41
3	061224 061220 061216 061216	063645 064321 065460 065766		ERROR EM35 DH7 DT7 DF3	42
	061226 061230 061230 061234	063056 064321 065460 065766		ERROR EM29 DH7 DT7 DF3	43
}	061236 061240 061242 061244	063140 064321 065460 066020		ERROR EM30 DH7 DT7 DF5	44
23 + 5	061246 061250 061252 061254	063257 064321 065460 065766		ERROR EM31 DH7 DT7 DF3	45
	061256 061260 061260 061256	063357 064321 065460 065766		ERROR EM32 DH7 DT7 DF3	46
100756789C	061266 061270 061272 061274	063464 064321 065460 065766		:ERROR EM33 DH7 DT7 DF3	47
17 18 19 20 21	061276 061300 061302 061304	063572 000000 000000 000000		ERROR EM34 D D	50
20122315±	061306 061310 061312 061314	063732 064252 065444 065742		ERROR EM36 DH6 DT6 DF2	51

**I14** 

TABLES MACY11 30A(1052) 28-FEB-78 09:20 PAGE 71-4 CEMKAA.MAZ 24-FEB-78 09:17 TABLE ERROR POINTER 9228 1230 061316 064001 EM37 9231 061320 065316 065712 9232 061324 065742 DF2

REG 0394

							JIT
TABLES JEMKAA.	MACY 11	30A 1052 4-FEB-78	28-FE	18-78 09	1:20 PF ERROR	AGE 72 MESSAGES	(EM)
9235	00.1.226				EM1.	. SBTTL	ERROR MESSAGES (EM)
9235 9237 9238	061326 061334 061350 061350 061356	040503 042523 041040 042117	023516 020124 052111 020105 051115	020:24 031062 046440 047111	EM2:	:SPARE :ASCIZ	CAN'T SET 22 BIT MODE IN MMP3
9239	061356 061364 061372 061400 061406 061414	046440 040520 042440 040140 040140 044460	044522 051122 020051 047101	000063 054524 051117 047111 020113	EM3:	.ASCIZ	PARITY ERROR(S) IN BANK D.
9240	061417 061424 061432 061440 061446 061454 061462	0244530 020124 054522 042514 020116 030040	000 047117 052123 042515 024040 024523 040502	042455 047510: 047515 047510 044440 045516	EM4:	.ASCIZ	NON-EXISTANT MEMORY (HOLES) IN BANK O
9∈+1	061465 061472 061500 061506 061514 061522 061530	046101 042522 042105 051124 047117 050101	046114 047440 042523 044440 041525 024040 052040 000051	043505 020122 053122 051516 044524 051124 020117	245:	.ASLIZ	ILLEGAL OR RESERVED INSTRUCTION (TRAP TO 13)
9242	061536 061542 061550 061556 061564 061567	030061 047125 052103 040522 032040	054105 042105 020120	042520 052040 047524	EM6:	.ASCIZ	VUNEXPECTED TRAP TO 4/
9243	061602 061610 061616	020131 045204 055040 055040 055040	000 046505 040515 042515 051124 020117	051117 040516 052116 050101 032462	EM7:	.ASCIZ	MEMORY MANAGEMENT (TRAP TO 250:
3244	061624 061627 061634 061642 061650 061656	047503 047503 044524 052117 047101	000 051117 052116 047117 041040 042503	020124 047105 047040 046101 000104	EM8:	.ASCIZ	PORT CONTENTION NOT BALANCED.
9245 9246	061664 061672 061700 061706 061714 061722 061730	047516 051511 041440 052501 047111 041505 047522	026516 040524 051123 042523 047503 020124 020122	054105 052116 04440 020104 051120 051124	EM9:	.ASCIZ	NON-EXISTANT CSR CAUSED INCORRECT ERROR TRHP
9247	061736 061741 061746 061754 061762 061770	050101 111 042522 052101 046517 041511	000 041516 052103 020101 042040 020105	051117 042040 051106 053105 042522	EM10:	.ASCIZ	INCORRECT DATA FROM DEVICE REGISTER

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TABLES JEMKAA.	MACYII MAZ Z	30A:1052 4-FEB-78	08:17	8-78 09	: 20 PA ERROR	GE 72-1 MESSAGES	(EM)
	062004 062004	044507 000	052123	051105			•
9248	062005 062012 062020	020131 020131 042440	046505 040504 051122	051117 040524 051117	EM11:	.ASCIZ	MEMORY DATA ERROR
9249	062026 062027 062034 062042	104 042514 047522	052105 020122 020122	044501 051105 052504	EM12:	. ASC IZ	DE AILED ERROR DUMP.
9250	062050 062053 062060 062066 062074 062102	050115 115 043516 041505 041123 043501	000 051511 042440 042524 020105 000	044523 050130 020:04 046106	EMI3:	.ASCIZ	MISSING EXPECTED SBE FLAGA
9251	062105 062126 062126 062134 062134	127 041040 040506 052040 040505 020105	044522 052131 046111 020117 020122 046106	042524 020105 042105 046103 041123 043501	EM14:	.ASCIZ	VWPITE B:TE FAILED TO CLEAR SBE FLAG
<del>1</del> 252	062150 062151 062156 062164 062172 062200 062206 062214 062217	020104 020104 052105 051105 053440 041104 043501	044501 047524 044440 052522 052111 020105 000	042514 043440 052116 052120 020110 046106	EM15:	.ASCIZ	FAILED TO GET INTERRUPT WITH CBE FLAG
9253	062217 062224 062232 062240	117 047117 020105 051440	046116 020105 046106 052105	020131 041104 043501	EM16:	.ASCIZ	VONLY ONE DBE FLAG SETV
7254	062245 062252 062260 062266 062274 062302	020131 020131 042440 044440 041505 051524	046505 046505 040504 051122 020116 020113	000 051117 040524 051117 044103 044502	EM17:	.ASCIZ	MEMORY DATA ERROR IN CHECK BITS/
9255	062305 062312 062320 062334 062334	123 020115 051040 042524 020127 047040	051531 044523 043505 020122 047504 052117	042524 042532 051511 047514 051505 046440	EM18:	.ASCIZ	SYSTEM SIZE REGISTER LOW DOES NOT MATCH MEMORYS
925 <b>&amp;</b>	062350 062356 062364 062372 062400 062406 062414 062422 062430	052101 046505 041123 042040 052501 040520 052040 044127 044116	044103 051117 020105 042502 042523 044522 040522 047105 041111	046440 000131 051117 041440 020104 054524 020120 044440 052111	EM19:	.ASCIZ	SBE OR DBE CAUSED PARITY TRAP WHEN INHIBITED.
3257	06243E 062441	042105 123	000	047440	EM20:	.ASCIZ	SBE OR DBE DID NOT CAUSE PARITY TRAP WHEN ENABLED

						36F <b>33</b> 3		
TABLES JEMKAA.		30A(1052 4-FEB-78	29-FE 08:17	.8 78 09	1:20 FA ERROR	AGE 72-2 MESSAGES	(EM	SEG 0387
	062446 062454 062462 062476 062504 062512	020122 044504 020124 020105 054524 020120 042440	041104 020104 040503 040520 052040 052040 041127 040516	020105 047516 051525 044522 040522 047105 046102				
9258	062520 062523 062530 062536 062544 062552 062560	042105 123 020122 047117 042524 052123 000104	000 042502 041104 046440 251020 050122 050122	047440 020105 051501 042524 051117	EM21:	.ASCIZ	SBE OR DBE ON MASTER TEST WORD?	
9259	062562 062570 062576 062604	044515 020107 052103 042502	051523 054105 042105 000	047111 042520 042040	EM22:	.ASCIZ	MISSING EXPECTED DBE/	
9260	062607 062614 062622 062630	125 041505 040520 052040	042516 042524 042522 040522	050130 020104 054524 000120	EM23:	. ASC I Z	VUNEXPECTED PARITY TRAP/	
926 <b>2</b> 9261	062636 062636 062644 062652	044103 044502 040524	041205 04124 042440	020113 040504 051122	EM24: EM25:	:SPARE .ASCIZ	CHECK BIT DATA ERROR	
9263	062660 062663 062670 062676 062704 062712 062720	051117 101 051523 052111 047522 020104 040503 041101	000 042104 050040 020131 020122 047516 051525 051117	042522 051101 051105 044504 020124 020105 000124	EM26:	. ASCIZ	ADDRESS PARITY ERROR DID NOT CAUSE ABORT.	
9264	062726 062734 062734 062739 062756 062756 062756 063772 063000 063006	045515 047522 047511 047111 040506 020105 020104 051120 020124	030461 042524 020116 042524 046111 020055 047516 052117 040502	050040 052103 047520 020122 051125 044504 020124 041505 045516	EM27:	.ASCIZ	MEIL PROTECTION POINTER FAILURE - DID NOT PROTECT BANK	
9268	063014 063022 063056 063064 063072 063100 063106 063114 063122 063130 063136	000 047503 044524 044501 053440 041505 041101 047117 042503 000105	051122 047117 052514 052111 020103 042514 043040 020104	041505 043040 042522 020110 047105 020104 051117 041123	EM29:	. ASCIZ	CORRECTION FAILURE WITH ECC ENABLED ON FORCED SEE	
3269	063146 063146 063154	051127 054502 047515	041126 042524 052111	020105 04040 020051	EM30:	.ASCII	WRITE BYTE (MOVB) WITH ECC ENABLED FAILED TO CLEAR DATA AT CR	LF,

l								M14	
	TABLES CEMKAA.		30A(1052 4-FEB-78		8-78 09		PAGE 72-3 MESSAGES		<b>?38</b>
	9270	063162 063176 063204 063212 063220 063226 053233	044527 041503 046102 044501 047524 051101 020101	041240 042105 042514 041440 042040 052101 051117 041123 040503	045203 043040 043040 0430104 045214 050104 045203		. ASCIZ	Z /FORCED SBE LOCATION/	
		063240 063246	020104	040503	020105 044524				
	9271	063257 063264 063272 063300 063314 063322 063330 063330 0633344 063352	047117 101 051050 044527 041503 046102 040510 042040 052101 042503 020105 044524	000 051123 024463 044124 042440 042105 043516 052101 043040 020104 047514	020102 020053 042440 040516 041440 042105 020101 051117 041104 040503	EM31:			
	9272	063233 063233 0632344 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257 0632257	115 031443 031122 052111 020103 042514 047101 040504 020124 042105	047117 053117 030066 025451 020110 047105 020104 042507 040524 047506 042040 041517	000 020102 0201054 024054 0411505 0411103 0411103 0411502 041522 042502 042502	EM32:		/MOVE #360,(R2)+ WITH ECC ENABLED CHANGED DATA AT FORCED DBE LOCATION/	
	9273	063464 063472 063506 063506 063522 063536 063536 063550 063560	047511 047515 033467 051050 052111 020103 042514 047101 040504 020124 042105 046040 047511	000116 020126 030064 024461 020110 047105 020104 042507 042507 047506 042040 041517 000116 020105	030443 026060 053440 041505 041103 020104 040140 040140 041522 042502	EM33:	. ASCIZ	MOV #177400.(R1) WITH ECC ENABLED CHANGED DATA AT FORCED DBE LOCATION.	
	9274	063672 063600 063614 063622 063630 063636 063644	041123 042524 041040 052117 040514 047524 040440	052125 044440 042524 040440 051122	042504 042105 047040 047523 020104 054516 054501	EM34:			
	9275	063645 063652	125 041505	042516 042524	050130 020104	EM35:	.ASCIZ	UNEXPECTED CORRECTION WITH ECC DISABLE ON FORCED SBE?	

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TABLES MACY11 30A(1052) 28-FEB-78 09:20 PAGE 72-4 (EM)

063660 047503 051122 C41505 063674 052111 020110 041505 063702 020103 044504 040523 063716 043040 051117 042503 063716 043040 041123 000105 063716 043040 041523 063716 063732 050101 020124 044523 EM36: .ASCIZ /APT SIZE DISAGREES WITH PROGRAM SIZING/063740 043512 042522 051505 063740 043512 042522 051505 063746 043501 042522 051505 063746 043501 042522 051505 063746 043501 042522 051505 063754 053140 052111 020110 063746 043501 042522 051505 063776 051120 043512 040522 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 044532 045532 044532 044532 044532 044532 044532 04552 04552 04552 04552 04552 04552 04552 04552 04552 04552 04552 04552 04552 04552 04552
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TABLES CEMKAA.	MACY11 30A 105 MA2 24-FEB-7	2 28-FEB-78 09 8 08:17	09:20 PAGE 73 ERROR DATA HEADERS (DH)	RED 0390
9283 9284	064046 020040 064054 042040 064062 042104 064070 047517 064076 041040	04040 04040 04040 04040 040050		
7295 7286	064103 064103 040 064110 020040 064116 042101 064124 047440 064132 047522	050040 020103	<del>1</del> 0 5	
9288 9288	064137 040 064144 020040 064152 020040 064160 051122 064166 042515	050040 000103 041520 020040 050103 042525 020040 042515 051122 020040 042101 051522	3 DHY: .ASCIZ / PC/ D DHS: .ASCII PC CPUERR MEMERR HIADRS LOADRS 5 5 6 7 8	
<b>9289</b>	064515 050040 064550 050060 064515 051115	046440 051115 046440 046440 046040 130050 040040 046440		
329C	064252 020040 064260 040440	041520 020040 052120 047503 020040 045115 042532 020040 046524 051517		
183E	064274 044523 064274 044523 064302 050101 064310 020040 064316 042532 064321 040 064326 020040 064334 020113 064342 020104 064350 040520 064356 020040 064364 104	050040 020103 041040 047101 053040 042101 020040 020040 042104 020040 043440 047517		
3292	064365 040 064372 040502	020040 020040 020104 020040 047530 020122 051101 041040 046440 054524 044440 052116 052101 040440		
9293	064406 046440 064414 054117 064422 042520 064436 050040 064436 051122 064436 051122 064436 042104 064450 042104 064456 047517 064456 041040 064450 044527 064506 020040 064506 020040	054501 000 053105 040440 020040 043440 020104 020040 042101 020040 043440 051504 041524 020110	D DHB: .ASCIZ	

TABLES	MACYII	30A (1052	) 28-FE	R-78 09	·20 PAG	E 73-1			C12					
JEMKAA.		19-FEB-18				ATA HEADI	ERS	(DH)						
92 <b>94</b>	064532 064536 064536	047040 024040 020075 040	052117 043117 024461 050040	035105 020106 000 020103	DH9:	.ASCIZ	r	PC	CPUERR	MEMERR	CSRNUM			
7637	064543 064550 064556 064564 064572 064600	020040 051105 046505 041440 0200115	051123 051123 051123	052520 046440 050155 052516	Bri J.	. 43012		, ,	OF BERNY	- Par Par Par				
9295	064602 014640 614640 614640 014640 614640 614640 614640 54640	020040 020040 020040 031122 020040 020040 020040 032522 020040	030122 020040 020040 020040 031522 020040 020040 020040 050123	020040 030522 020040 020040 020040 032122 020040 020040	DH10:	.ASCIZ	,	RO	R1	R2	R3	R4	R5	<b>5P</b> ∕
9296	064667 064674 064702	040 020040 051123 051503	050040 020040 020040 025522	020040 041440 050040	DH11:	.ASCIZ	/	PC	CSR	CSR+2/	,			
9297	064732 064732	041440 041440 000	051123	020040 031053	DH12:	.ASCIZ	/ (	CSR	CSR+2/					
9 <b>298</b>	064733 064740 064746 064754 064762 064770 064776 065004	040 020040 020113 020104 040520 020040 030505 052117	050040 041040 053040 020040 042104 051127 020040 031105	020103 047101 042101 020040 020040 052117 051127	DH13:	.ASCII	<i>Y</i>	PC	BANK V	/ADD	PADD	WROTEI	WROTE2/	
7299	065010 065016 065024 065032 065040	041440 051524 051503 041440	045510 020040 020122 051123	044502 020040 020040 031053		.ASCIZ	/ (	CHKBI1	rs csr	R CSR4				
00EF	065041 065046 065054 065062 065070 065076	115 020122 047111 047117 044040 020123 051104 052520	046505 020040 020124 051124 040511 046040 020123 051105	051105 040515 041440 020114 051104 040517 041440 122	DH14.	.ASCII	∕MI	EMERR	MAINT	CONTRL	HIADRS	LOADRS	OPLERR/	
1355	065112 065117 065124 065132 065140 065146	030122 030122 046515 020040 020040 031522	020040 020040 030522 046515 020040	046515 020040 020040 031122 046515		.ASCIZ		MMR	) MMR1	MMRa	e mmr3	<b>)</b> /		
9302	065154 065157 065164 065172 065200	040 040 040 040 040 040 040 040 040	050040 041040 020040 020104	020103 047101 050040 020040	DH15:	.ASCII		PC	BANK	PADD	GD-WD1	GD-WD2	GD-CHK	

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TABLES CEMMAA.		30A:1052		8-78 09	:20 PAGE ERROR DE	: 73-2 ATA HEADERS	5 \DH				
	065206 065214 065222 065230	042107 020040 031104 041455	053455 042107 020040 045510	030504 053455 042107							
9303	065234 065242 065250 065256 065264 065272	052116 045101 045101 045101 041040	042101 041040 031104 041455 051101 050040	053455 042101 041040 045510 044440 052101		. 45012	BAD-HD.	1 BAD-HD2	BAD-CHY 1	HAR I	INT PAT
9304	065300 065301 065306	000 040 0505-5	041040	020103	DH16:	.ASCIZ	FC	<b>Bothk</b>			
9008	D65314	365366 365113				.EVEN					

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TABLES CEMKAA.	MACY11	30A:1052 4-FEB-78	28-FE 08:17	:B-78 09	:20 PA ERROR	GE 74 DATA TAGS	(DT)
9311 9312	065366 065374	001416	000000	001432	DT1:	.SBTTL .WORD	ERROR DATA TAGS (DT) ERRORPC, ADDRESS, GOOD, BAD, G
931 <b>3</b> 9314	065400 065400	001416	001424	001460	DTZ: DT3:	:SPARE .WORD	ERRORPC, PADDRESS, PARCHT, D
9315	062410	001416	001422	001456	DT4:	. WORD	ERRURPC, ADDRESS, NEMCNT, D
9316	065416 065420 065426 065434	000000 001416 177742 177574	177766 177740 177576	177744 177572 172516	DT5:	. WORD	ERRORPC, CPUERR, MEMERR, HIADRS, LOADRS, MMRD, MMP1, MMP2, MMP3, C
9317	065442	000000 000000	002104	9605046	ST6:	. WORD	ERRORPC, AFTCORE, MJSIZE, APTMOS, MKSIZE, D
9318	065452 065460 065466	001665 001416 005106	002050 001662 001432	000000 000000	517:	. WORD	ERRORPC, DUMMY, ADDRESS, DUMMY, GOOD, BAD, BAD/CR
9319	065474 065476 065504	001446 001662 001446	001665 001665	001PPS 001PPS		. WORD	DUMMY, DUMMY, DUMMY, DUMMY, DUMMY, D
9320	065512	000000	001432	001440	DT8:	.WCRD	ADDRESS, GOOD, BAD, GDSWITCH, BDSWITCH, G
9321	065522 065530	001416	002062	000000 177744	DT9:	. WOPD	ERRORPC, CPUERR, MEMERR, CSRNO, D
9322	065536 065542 065550 065556	001634 001664 001672 001700	000000 001666 001674	001670 001676	DT1G:	. WORD	DETRO, DETR1, DETR2, DETR4, DETR5, DETR6, C
9323	065562 065570	000000	000526 000000	001530	DT11:	.WORD	ERRORPC.CSR,CSR+2.D
9324 9325	065572 065600 065606 065614	001526 001416 001662 001762	001530 001662 001716 001526	000000 001422 001720 001530	DT12: DT13:	. WORD . WORD	CSR.CSR+2.D ERRORPC,DUMMY,ADDRESS.DUMMY,TSTDAT.TSTDAT+2.CHECK.CSR.CSR+2.D
9326	065632 065632 065640	000000 177744 177742 177572	177750 177740 177574	177746 177766 177576	DT14:	. WORD	MEMERR, MAINT, CONTRL, HIADRS, LOADRS, CPUERR, MMRO, MMR1, MMR2, MMP3.C
9327	065652	172516 001416	001665	001665	DT16:	. WORD	ERRORPC.DUMMY.DUMMY.GOOD.GOOD2.GOOD3
9328	065666 065664 065674 065702	001440 001440	001665 001445 001434	001665 001436 001436		. WORD	BAD, BAD2, BAD3, DUMMY, DUMMY, D
9329	362,34	30141P	201665	200000	D*17:	. WGRE	ERRORPC.DUMM:.0

TABLES JEMKAA.		30A 1052 4-FEB-78	29-FEB-3 39:17	<b>.</b> 8 39	:20 PAGERROP (	GE 75 DATA FORM	ATS DF
933 <u>6</u> 933	065742 065750 065753 065756 065761	000 000 000 000 000	000 000 000 000 000	000 000 000 000 000	DF2:	.SBITL .BITE	ERROR DATA FORMATS DE 0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.
9338	065764 065766 065771 065774 065777 066002	000 000 011 000 006 014	002 000 000 000	000	DF3:	.BYTE	0,5,0,9.,0,0,10.,3,6,2,4,12.
5339	065003 066006 066011 066014 066017	000 011 010 006 014	005 000 012 005	000 010 003 004	DF4:	.B:TE	C.5.C.90.88O3.6.2,4.12.
9340	066020 066023 066026 066031 066034	000 011 013 006 014	005 013 012 002	000 013 004	DF5:	.B TE	0.5.0.911.,11.,11103,6.2.4,12.
3341	066035 066040 066043 066046 066051	000 011 010 006 014	005 013 002	000 010 003 004	DF6:	.B, TE	0,5,0,9.,11.,8.,8.,10.,3,6,2,4,12.
9342	066055 066060 066060 066063	000 000 000	005 000 002	011 013 013 004	DF7:	.Bı†E	0,5,9.,0,0,11.,0,0,11.,10.,2,4
9343 9344	066066 066070	000 000	005 001	501	DF8: DF9:	.BYTE	0,5 0,1,1,1,1
9345	066073 066075 066100	001 000 015	001 000 015	000	DF19:	.B:TE	0,0,0,13.,13.
3346	066105 066105 066105	00C 011 013	005 000 300	000 000	CF11:	.BYTE	0,5.0,90,0,0.0
9347	J05.1J	36£114	JCO	UUU		.EVEN	

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TABLES LEMMAA.	MACHII MAZ Z	30m 1052 4-FEB-78	` 28-FE 08:17	B-78 09	:20 PAGE MESSAGES	76								
9350 9351	066130 066130 066136 066136 066152 066152	041600 030101 020060 046440 047516 036040	046505 046505 046505 046505 046505 046505 046505	040512 033461 047111 051117 043501 041511 026463	MSGOOO:	.SBTTL .ASCIZ	MESSAGI CORLF	CEMKAA!	0 11 <b>70</b> (	maih mer	AIG PROP	GNOSTIC ·	/C3-CC /	
9352	066166 066172 066200 066204 066230 066236 066234 066231	030060 020200 020040 020040 020040 046440 020131 043511 047511	000076 020040 020040 020040 020040 046505 047503 051125 020116	020040 020040 020040 020040 051117 043116 052101 040515	MSG001:	.ASIIZ	'CRLF				MEMG	RY CONFIG	JURATISH MA	P
9353	066254 066252 066270 066276 066304 066312 066320 066326	020200 020040 020040 020040 020040 033061 042122 051513	020040 040020 040020 040020 040020 04013 040140	020040 020040 020040 020040 020040 047527 047101	MSGOC2:	.ASCIZ	- ORLF					ISP WORD	) BAt#\S ⁄	
7354	066331 066336 066344 066352 066360 066366	050040 050040 050040 050040 050040	0+0050 0+0050 0+0050 0+0050 540050	0+0050 0+0050 0+0050 0+0050	MSG353:	.ASCII	CRLF -			1	2	3		
7255	066406 066406 066414 066422 066430	0+0 0+0 0+00 0+00 0+00 0+00 0+00 0+00	020040 020064 020040 020040 020040 020067	063 020040 020040 020065 020040 020040 000040		.ASCIZ		4	5	6	7			
9356	066436 066444 066452 066460 066466	020200 020040 032063 031061 030067	030040 030040 032063 031061	020040 031061 030067 033065 032063	MSGOC4:	.ASCII	CRLF		012345	67012345	6701234	567		
7357	066477 065504 066512 066520 066526 066534 066542	033065 060 033065 032063 031061 030067 033065 000063	067 031061 030067 033065 032063 031061 030067	032063 031061 030067 033065 032063 031061		.ASCIZ	012349	56701234	4567012	34567012	3456701	23		
9358	066544	042600	051122	051117	MSG005:	.ASCIZ	(CRLF)	EPRORS	,					
4354	266572 266572	052600 047111 040522	042116	043105 052540 047111	MSGDO6:	.ASCIZ	/ORLF/	UNDEFI	NED TRAI	P INST <b>R</b> L	CTION			

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TABLES JEMKAA.	MACYII 30A MA2 24-F	(1052) EB-78	29-FE	8-78 69	:20 PAGE MESSAGES	<b>~6-:</b>	
		2123 7511	052522	052.03			
9360	066615 04	4600	052116	046155	MSG007:	.ASIII	<pre></pre>
9364	266624 04	0 <b>600</b> 0126	041203	051505	MSG008:	.ASCIZ	(CRLF)/ACCESSED/
9366	066636 04	2523 6600	041503 000104 046505	054524	MSG009:	. ASC IZ	CRLF>/MEMTYPE / :MEMORY TYPE (D=MJ11:1=MV11)
9367	066644 04 066650 05 066656 05	2520 2500 2103	000040 047522 000040	042524	MSGD10:	.ASCIZ	CRLF - PROTECT : MEMORY PROTECTED
<b>3358</b>	066662 02	0940	020040	050060	MSG011:	.ASCIZ	0 i 2 3 4 5 6
	066676 02 066704 02 066712 02 066720 02 066726 02	0040 0061 0040 0040 0040 0064 0040	020040 020040 020062 020040 020040 020040 020065	020040 020050 020050 020050 020050 020050 020050			
<b>-369</b>	066756 03 066764 03 066772 03 067000 03 067006 03 067014 03 067022 03 067030 03	0040 2460 2460 3460 3464 2460 3464 2460 2460	033466 032464 032460 030466 032464 032464 032460 032464 032464	030460 030464 032464 031460 030466 032464 031460 030460 033466	MSGC12:	.ASUIZ	4567012345670123456701234567012345670123456701234567
9370 9371 9372 9373	067051 067053	130 040 000 000 0400	000 000 000 047502 020040	000	MSG015:	.ASCIZ .ASCIZ .BYTE .ASCIZ	SPACE D.D :SPACE FOR SINGLE ASCII CHARACTERS & TERMINATUR
9374	067065	040 040	020040	020040	MSG017:	.ASCIZ	/ :8 SPACES
9375	067076 02 067101 067105 067112 02 067120 04 067126 04	0040 040 200 0104 1511 6515	000 020040 044506 042523 020105 047101	000 046105 053122 047503 020104	M5G018: M5G019: M5G020:	.ASCIZ .ASCIZ .ASCIZ	:2 SPACES :3 SPACES *CRLF*/FIELD SERVICE COMMAND MODE
5378	067141 067146 04 067154 04	7515 200 7101 0526 2514 072	042504 047503 051504 046111 040440	000 046515 040440 041101 041101	MSGO21:	.ASCII	*CRLF ** COMMANDS AVAILABLE ARE:
9379	067171 067176 05 067204 04 067212 05	200 4105 2511 1105 1440	020060 052111 042114 044526 046517	020075 043040 051440 042503 040515		.AS/II	*ORLF D = EXIT FIELD SERVICE COMMANDS
apac	067220 04 067226 04 067231	500 9116	C500F!	020075		ASCII	CRLF : = READ CSR

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TABLES JEMKAA.	MACY11	30A(1052 4-FEB- 8	29-FE 08:17	B-78 J9	.20 PAGE MESSAJES	<b>7</b> 6-ē	
	067236	042522 051123	042101	041440			
9381	067244 067246 067254	031200 040517 122	020104	046040 051503		.ASIII	CRLF 2 = LOAD CSR
9382	067262 067263 067270 067276	200 054105 020105 054522	020063 046501 042515	020075 047111 047515		.ASCII	<pre><crlf>/3 = EXAMINE MEMORY/</crlf></pre>
9363	067304 067306 067314	032200 042117	036440	020131		.ASCII	CREF/74 = MODIFY MEMORY/
9384	067322 067330 067336 067344 067352 067360	042515 032600 046105 040502 051101 023040 042524	047515 036440 041505 045516 044507 050040 047122	054252 051440 020124 026116 052101		.ASCII	CRLF>/5 = SELECT BANK, MARGIN, & PATTERN/
9395	067366 067372 067400 067406 067414	033200 050131 043116 052101 040515	036440 020105 043511 047511	052040 047503 051125 020116		.ASCII	<pre><crlf> 6 = Type configuration map≠</crlf></pre>
9386	067422 067425 067432 067440 067446 067454	200 040502 020131 050125 043057	120 020067 052124 040502 026440 052040	020075 051105 045503 050040 051505		.ASCII	<pre><crlf "7="BATTERY" -="" <="" backup="" f="" p="" pre="" test"=""></crlf></pre>
9387	neguge	124 200 047523 047514	020070 026502 043516	020075 026501 052040		.ASCII	CRLF//8 = SOB-A-LONG TEST/
9388	067504 067507 067514 067522 067530 067536	051505 200 052523 044524 041523 047514	124 020071 042520 044107 050117	020075 020122 020124 020105		.ASCII	(CRLF)/9 = SUPER TIGHT SCOPE LOOP/
9389	067542 067550 067556	030600 051122 046525	036460 051117 040515	042440 051440 054522		.ASCII	<pre> ⟨CRLF \ 10= ERROR SUMMAR'ı </pre>
<del>5</del> 390	067564 067572 067600	030600 043105 052040	036461 042522 051505	051040 044123 124		.ASCII	<pre><crlf: 11="REFRESH" pre="" test<=""></crlf:></pre>
9391	067605 067612 067620 067626	200 042523 046114 052116	031061	020075 044506 052517		.ASC1I	<pre><crlf 12="SET" <="" count="" fill="" pre=""></crlf></pre>
9392	067630 067633 067640 067646 067654	000 026460 015 000	012 044127 051503 024467	000 041511 024122 020077	MSG022:	.BYTE .ASCIZ	15.12.0 (CRLF)/WHICH CSR(D-7)?
9394	067655 067662 067670	200 020055 047527	051503 051461 042122	020122 020124 020077	MSG023:	.ASCIZ	CRLF→ CSR - 1ST WORD?

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TABLES	MACYII	30A (1052	28-FE	8-78 09	:20 PAGE	76-3	
JEMKAA.	_	4-FEB-78	08:17		HESSMUES	•	
9395	067676 067677 067704 067712	000 200 020055 047527	051503 047062 042122	020122 020104 020077	MSGD24:	. ASC IZ	CRLF > CSR - 2ND WORD? /
9396	067720 067721 067726 067734 067742	000 200 041440 042517 020124	051123 051123 050123 054105	051511 042040 047516 051511	MSGD25:	.ASCIZ	CRLF>/THIS CSR DOES NOT EXIST
9797	067750 067752 067760	045716 041600 000154	046517 000072	040515	MSG026:	.ASCIZ	<pre><crlf>/ command:/</crlf></pre>
9398	067764 067772 070000	047600 051123	042114	041440 051501	MSG027:	.ASCIZ	<pre><crlf>/OLD CSR WAS/</crlf></pre>
9399	070001 070006 070014	000 051511 000	051503 047040	020122 053517	MSG028:	.ASCIZ	CRLF > / CSR IS NOW :
9400	070013 070015 070022 070030	000 200 047111 047515	054105 020105 054522	046501	MSG029:	.PSCIZ	<pre><crlf: <="" examine="" memory="" pre=""></crlf:></pre>
9401	070035 070042	200 030050 037451	040502 030455	000 045516 033466	MSG030:	.ASCIZ	(CRLF)/BANK(0-167)? /
9→02	070050 070054 070062 070070 070076	050200 040503 051104 026460 033467	000040 054510 020114 051505 033061 033067	044523 042101 024123 033467 037451	MSG031:	.ASCIZ	(CRLF) PHYSICAL ADDRESS(0-16777776)?
9403	070112 070114 070122	00040 002020 161020 421000	051101 041101	052111 051117	M5G032:	.ASCIZ	<pre><crlf> /PARITY ABORT/</crlf></pre>
d≂2*	070130 070132 070140 070146	052125 052125 000120	046511	047505 040522	MSGD33:	.ASCIZ	CRLF>/TIMEOUT TRAP/
9405	070150 070156 070164 070172 070200	041200 044523 051123 051524 047502	050131 043516 052040 047440 020130	051501 041440 051505 020116	MSG034:	.ASCII	CRLF > /BYPASSING CSR TESTS ON BOX
9406 9407	070204 070205 070212 070220	000 040 047522 040	047503 046114	052116 051105	MSGA34:	.BYTE .ASCII	CONTROLLER
9408 9409	070221 070222 070230 070236 070244 070252	000 042200 020117 047440 020105 046040	042525 040514 020106 051106 041517	052040 045503 041123 042505 052101	MSGB34:	.BYTE .ASCIZ	CRLF / DUE TO LACK OF SBE FREE LOCATIONS
9411 9410	070260 070265 070270 070276 070304	047511 121 046600 020131 054522	051516 000126 042117 042515 000	000 043111 047515	MSG035: MSG036:	.ASCIZ	/GY/ *CRLF>- MODIFY MEMORY/

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TABLES CEMKAA.	MACYII	30A:1052 4-FEB-78	) 28-FE 08:17	8-78 09	:20 PAGE MESSAGES	5 76-4 5	
9412	070307 070314	200	046117 040524	020104 053440	MSG037:	.ASCIZ	<crlf>/OLD DATA WAS</crlf>
9413	070322 070326 070334	051501 042200 051511	000040 052101 047040	020101 053517	MSG038:	.ASCIZ	CRLF>/DATA IS NOW /
3414	070342 070344 070352	000040 044600 047040	050116	052125	MSGC39:	.ASCIZ	(CRLF)/INPUT NEW DATA? /
9415	070360 070366 070374	050154 021600 025101	037501 046105 040502 040515	000040 041505 045516	MSG040:	.ASCIZ	<pre><crlf>/SELECT BANK, MARGIN, &amp; PATTERN TEST/</crlf></pre>
	070402 070410 070416 070424	020054 047111 040520	020054 052124	020046 020046 051105			
2.16	070432	020116	042524	052123	MCCOUL	05017	COLES BONK NOT OCCESSORIE
9416	070433 070440 070446	200 047040 041503	040502 052117 051505	045516 040440 040523	M26041:	.H5C12	CRLF>/BANK NOT ACCESSABLE/
9417	070454 070460 070466	046102 050200 047122	000105 052101 030050	042524	MSG042:	.ASCIZ	<pre><crlf>/PATTERN(0-37)? /</crlf></pre>
9418	070474 070501 070506 070514	024467 200 051105 040504	020077 040520 020116 040524	000 PS15 <del>2</del> 0 040050 044440	MSG043:	.ASCIZ	CRLF>/PATTERN D DATA IS?
3418	070522 07052 <b>6</b> 070534 070542	037523 046600 024116 026063	026064 051101 000040	044507 026062 024465	MSGD44:	.ASCIZ	<pre><crlf>/MARGIN(0,2,3,4,5)? /</crlf></pre>
9420	070550 070553 070560 070566 070574	020077 200 047111 044510 020104	000 040515 020123 0445 054502	043522 047111 042524 051440	MSG045:	.ASCIZ	<pre><crlf>/margins inhibited b/ SW5!</crlf></pre>
9421	070602 070606 070614 070622 070630	020104 032527 052200 040503 050131 020131	054502 000041 020117 042520 020105 042513	051505 052040 047101 100131	MSGO46:	.ASCIZ	CRLF>/TO ESCAPE TYPE ANY KEY//CRLF 12 (12)
9422	070636 070641 070646	005012 200 200 20012	000 042524 046517	052123 046120	MSG047:	.ASCIZ	<crlf>/TEST_COMPLETE</crlf>
9423	070654 070660 070666 070674 070702 070710	052105 047040 040526 042514 026440 046040	000105 052117 046111 047040 052040 052101	040440 041101 053517 054522 051105	MSGD48:	.ASCIZ	/ NOT AVAILABLE NOW - TRY LATER!/
9424	070716 070720 070726 070734 070742	000041 041200 042522 051505 041517	047101 052521 051040 052101	020113 051111 046105 047511	MSG049:	.ASCIZ	CRLF //BANK REQUIRES RELOCATION/
9425	070750 070752	000116	052101	042524	MSG050:	.ASCII	CRLF>/BATTERY BACKUP TEST/

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TABLES MACY11 30A(1052) 28-FEB-78 09:20 PAGE 76-5
                                   24-FEB-78 08:17
                                                                                                    MESSAGES
CEMKAA. MAZ
                                       054522
052513
                                                                               041501
                    070760
                                                           041040
                    070766
                                                           050150
                    סַבַּסַ־זַּאַ
                                       052123
                   070776
                                                                                                                       LASCIZ (CRLF)/WRITING & CHECKING ADDRESS PATTERN AS BACKGROUND
                                                           044522
                                                                                044524
     3456
                                       053600
                                       043516
042510
020107
                                                           023040
                                                                               041440
                    071012
                    071020
                                                           042101
                                                                               051104
                    071026
                                        051505
                                                           050153
                                                                               040520
                    071034
                                       052124
                                                           051105
                                                                               911020
                    071042
                                       051501
                                                           041040
                                                                               041501
                                       043513
000104
050200
                    071050
                                                           047522
                                                                               047125
                   071056
071060
                                                                                                MSGD51: .ASCIZ (CRLF)/POWER RECOVERY
     9427
                                                           053517
                                                                               051105
                    071066
                                       051040
                                                           041505
                                                                               053117
                                                           000131
                    071074
                                       051105
                                                                              053117
052123
053517
                                       020102
                                                           046505
                                                                                                   MSGD52: .ASCIZ /CRLF//REMOVE SYSTEM POWER FOR/
     3428
                    071100
                    071106
                                       046505
051105
                    071114
                                                           050040
                    071122
                                                           043040
                                                                               J51117
                    071130
                                              000
                                                           020153
     4429
                    071131
                                               040
                                                                                                   MSG053: .ASCIZ / SECONDS MAX!/
                                       911240
                    071136
                                                                               040515
                                                          000
047516
051101
                    071144
                                       020530
                                       025153
                                                                               020127
                                                                                                   MSG054: .ASCIZ (CRLF)/NOW STARTING READ TEST OF MEMORY BANKS
                   071147
    343C
                    C71154
                   071162
                                       043516
                                                           051040
                                                                               040505
                                       020104
047440
047515
047101
200
026501
                   071170
071176
                                                           050106
                                                                               052123
                                                                               042515
                                                          054522
054523
047523
047514
051505
                   071204
                                                                               041640
                   071212
071217
071224
071232
                                                                                      000
                                                                              000154
    9431
                                                                                                   MSG055: .ASCIZ (CR_F//SOB-A-LONG TEST/
                                       052040
                   071240
071246
071254
                                       041500
    9432
                                                           046105
                                                                                                   MSGD56: .ASCIZ (CRLF)/BELL = EACH PASS COMPLETE/
                                                                               020114
                                                           040505
                                                                               020123
                                       020075
                                       050040
047503
                   071262
                                                                               045514
                                                           050115
                   071270
                                                           000
                                       042524
                                                                                                  MSG057: .ASCIZ
MSG058: ;SPARE
MSG059: .ASCIZ
    5433
                                              040
                                                                                      000
                                                                                                                                        SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE 
                   071277
    9434
                                       200
020122
020124
0201050
                                                           052523
                                                                               042520
                   071304
                                                           041524
                                                                               044107
                                                                               050117
                   071320
071326
071327
                                                           047514
                                                                               050117
                                       000
200
200
020107
                                                                               142522
J37055
                                                                                                   MSGD6D: .ASCIZ (CRLF)/SWREG ---> MEM, MEM ---> DISPLAY/
    9436
                                                           053523
                   071334
                                                           026455
                                       046440
042515
037055
046120
                                                           020115
                   071342
                                                                               020054
                   071350
                                                                               026455
                                                          042040
054501
037477
                    071356
                                                                               051511
                    071364
                                                                                      000
     9437
                    071371
                                                                               037477
                                              077
                                                                                                   MSG061: .ASCIZ /?????/
                    071376
                                       000077
                                                           025250
     3438
                    071400
                                       047111
                                                                               020124
                                                                                                   MSG062: .ASCIZ
                                                                                                                                             INPUT MUST BE A
                   071406
                                       052515
                                                                               041040
                    071414
                                       920105
                                                           000101
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TABLES CEMKAA.		30A(1052 4-FEB-78		18-78 09	:20 PAGI MESSAGES		
9439	871428	050114	041517	040524	MSGO63:	.ASCIZ	N OCTAL .
9440	071431	116	046525	042502	M5G064:	.ASCIZ	NUMBER CRLF/
9441	071436 071441 071446	040 040 100155	000 042504 020114	044503 000	M5G065:	.ASCIZ	· DECIMAL ·
9442	071453 071460	0402125 040212 040212	051105 047503	047522	MSGD66:	.ASCIZ	CRLF>/ERROR COUNT EXCEEDED 20 - ABORTING FOR XXDP CHAIN/
	071466	050000 045102 050154	054105	042503			
	071502	ĎS <b>ÓÓP</b>	054105 042105 020055	042503 031040 041101			
	071466 071474 071502 071510 071516 071524 071532	051117 043040	044524	043516 054040			
2003	071532	042130 044501	000116	044103	MSG067:	05017	/FATAL /
9443	071536 071544 071545	040506 000	030524	020114			/MJ11/
9444	071552	045515	030515	000061	MSG068: MSG069:	.ASCIZ	/MK11/ /K WORDS OF MEMORY/ <crlf></crlf>
9446	071552 071557 071564 071572 071600	051504 052515 042515	053440 047440 047515	051117 020106 054522	MSG070:	. #3012	A MONDS OF HERONIA CHELA
9447	071600 071602	000200	047515	046440	MSG071:	95017	/K OF MJ11/ <crlf></crlf>
9448	071610 071615	030512	100061	050106	MSG072:		/K OF MK11/(CRLF)
9449	071622 071630	045515 051200	030461 043105 052040	000200	MSG072:		<pre></pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> </pre> </pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> </pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pr< td=""></pr<></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre>
	071636 071644	000124	052040	051505	11300, 5.		
9450 9451			COO		MSGD74+	.EVEN	;THIS STAYS WITH MSG074
9452	071646 071651 071656	037477 200 040503	000 042522 044524	047514 047117	MSGD74: MSGD75:	ASCIZ	CRLF>/RELOCATION NOT POSSIBLE
	071664 071672	047040 051517	052117	050040			
3453	071700 071702 071710	000105 020200 020113		047101	MSG076:	.ASCIZ	(CRLF)/ BANK ERRORS/(CRLF)
	071716	051117	041040 042440 100123	051122			
3454	071723 071730	200 052040	047105 051523	020104	MSG077:	.ASCIZ	(CRLF)/END PASS #/
9455	071736 071737	200 200 000	040527	047122	MSG078:	.ASCIZ	<pre><crlf>&gt; WARNING! ECC IS DISABLED ON BOX &gt;</crlf></pre>
	071744 071752	047111 041505	020507	020040 051511			
	071760 071766	042514	051511	041101 047117			
9456	071774 072002 072010	041040	054117	000040 051117	MSG079:	.ASCIZ	<pre>/ ERROR(S) DETECTED/(CRLF)</pre>
	072016	051450 042524	020051	042504 042105			
9463	072024 072161 072166	041440 200 00200	044506 052517	046114	MSG085:	.ASCIZ	<pre><crlf> /FILL COUNT(OCTAL)? /</crlf></pre>
i	072174	047450	052103	046101			

							N15	
TABLES CEMKAA.		30A 1052 4-FEB-18	29-FE 3 08:1	. <b>8-78</b> 09	9:20 PAG MESSAGE	E 76-7		5EG 0402
947:	072202 072260 072266	037451 045600 020114 000113	000040 051105 052123	042516 041501	M5G088:	. ASCIZ	CRLF - KERNEL STACK	
9472	072266 072274 072276 072304	051600 051600 044526 052123 052600	050125 047523	051105	MSG089:	.ASCIZ	CORLED SUPERVISOR STACK	1
9473	072312 072320 072326	025900 025153	041501 042523	020122 020122 000113	MSG090:	.ASC17	CRLF> / USER STACK	
9474	072326 072334	052120 052120 052123	041501	046505	MSG091:	.ASCIZ	/ IS EMPTY/	!
9475	072342 072345 072354	045254 045255 025150	000131 047514 020104	040503 000040	MSG092:	.ASCIZ	RELOCATED /	
9476 9477	072362 072376 072376 072377	040502	045516 040515	000075	MSG033: MSG094:	.ASCIZ .ASCIZ	/BANK=/ / MAR=	
9478	072377	040	050040	052101	MSG095:	. ASCIZ	PAT=/	l
9479	072404 072406 072414 072422 072430	000075 046200 051522 043516 051124	040517 041040 042040 054517	042504 044505 051505 042105	MSGD96:	.ASCIZ	CRLF > LOADERS BEING DESTROYED.	
08PE	072436 072437 072444 072452 072466 072466 072474 072502 072516 072524 072532	000 200 047111 046111 020114 046122 051440 042524 042511 051105 047440	04C527 02O507 042514 047111 040505 046105 020104 042114 044526 046116	047122 020040 040507 042524 042526 041505 043050 051440 042503 024531	MSG097:	. ASCIZ	CRLF ZWARNING! ILLEGAL INTERLEAVE SELECTED FIELD SERVICE ONLY	
94823 9483 9483 9485	U'ESJE	072534				.EVEN .LIST .TITLE	ODT (CEMKA)	
9485 9486		072726				.=.+144	++26 ; RESERVES SPACE FOR STACK	
99999999999999999999999999999999999999		000000 000001 000003 000004 000005 000006 000007 177776			RRARRASPUT	= = = = = = = = = = = = = = = = = = =	%0 ; REGISTER %1 : NAMING %2 : CONVENTIONS %3 %4 %5 %6 %7 177776 ;STATUS REGISTER	
9497 9498 9499 9500 9501 9502		000016 000014 000340 000020 000003	•		O.BKP O.TVEC O.STM O.TBT TRT	# # # #	; NUMBER OF BREAKPOINTS-1 MULT. BY 2 14 :TRT VECTOR LOCATION 340 :PRIORITY MASK - STATUS REGISTER 20 :T-BIT MASK - STATUS REGISTER 000003 :TRT INSTRUCTION	

ODT LCEMMA CEMMAA. MAZ	MACNII 30A 1052: 84-FEB-76 08:17	28-FEB-78	PAGE 76-8	B16	15.2 C+33
9503 9504 9505 9506 950	177562 177560 177566 177564	0.RDB = 0.RCSR = 0.TDB = 0.TCSR =	177562 177560 177566 177564	R DATA BUFFER R C SR T DATA BUFFER T C SR	

.

TE 2 1414

	MFB =	MACN11 H-FEB-78	30A 1052	28-FE	B-78 09 ME5SAGE		E 76-3	10	
3215 3211 3211 3210 3210 3210	THE E		CS: I		: INITI : USE : USE	ALIZE OD' 0.ODT FOR	R A NORMAL E TO RESTAFT (	0 <b>01 -</b>	WIPING OUT ALL BREAKPOINTS - FAKE A BREAKPOINT.
951123 95113 95115 95116 95116 95123 95123 95123 95123 95123 95123 95123 95123	072726 072730 072736 072736 072742 072746 072750 072754 072762 072766	000421 000440 004737 013746 004737 010746 012637 112737 105037	076124 000016 076134 072600 17777 076243 075012	075245	G.ODT: :\$:	BR BR JSR MOSR MOVR MOVB CLRP	2\$ 3\$ PC.O.RRST O.TYEC+2 PC.O.WST PC(SP) (SP)+,O.UPC #-1.O.P 0.5 0.BK1	5P)	:NORMAL ENTRY :RESTART :RE-ENTER SAVE STATUS :SET UP LOCAL STATUS :FAKE THE PC :DISALLOH PROCEED
9525 9526 9527 9528 9529 9530 9531 9532 9533	072772 072776 073004 073010 073014 073620 073024 073030	004537 012737 004037 012706 012704 012703 004537	075432 072732 075312 075562 076253 076270 076060	056220	25:	RUN AT JSR MSV JSOV MOOV MOOR JSR	CURRENT STA 5.0.5VTT #15.0#CONTA 0.0.5VR #0.URD SP #0.ID, R4 #0.IDND, R3 5.0.TYPE	2+2	:SAVE TTY STATUS :SAVE REGISTERS (MAINL + SP + SET UP STACK : TYPE ID
9536 9537 9538 9539 9540 9541	073032 073036 073042 073046 073050 073052 073054 073056	004037 004537 113704 106004 106004 106004 010446	075312 075534 072604		3\$:	JSR JSR MOVB RORB RORB ROPB MOV JSR	0,0.5VR 5,0.REM 0.PRI,R4 R4 R4 R4 R4 R4,-(SP) PC.0.WST		SAVE REGISTERS REMOVE ALL BREAKPOINTS GET ODT PRIORITY SHIFT INTO POSITION STORE IN STATUS
7543 75445 75445 75446 7547 7548 7548	073062 073066 073074 073102 073110	105037 112737 012737 012737 000137	076243 177777 000340 074774 074362	076245 000016 000014	4 <b>5</b> :	CLRB MOVB MOV JMP	0.\$ #-1.0.P #0.\$TM,0.TV #0.BRK,0.TV 0.RALL		DISABLE SINGLE INSTRUCTION FOR NOW DISALLOW PROCEED STATUS WORD TO TRY VECTOR+2 PC TO TRY VECTOR CLEAR BRK PT TABLES
9550 9551 9553 9553 9555 9556 9556 9561 9563	073114 073120 073124 073130 073134 073140 073141	013706 012704 012703 004537 000137 136 103	072576 073140 073141 076060 037020		i. 0.CTLC:	MOV MOV JSR JMP BYTE '1	0.USP,SP #1\$,R4 #2\$,R3 R5,0.TYPE BOOT		RESTORE USER STACK
9561 9562 9563 9563 9564	073142 073146 073152 073156	013706 012704 012703 004537	072576 073172 073173 076060		:CONTROL	L F PROCE MOV MOV JSR	SSING 0.USP,SP #15,R4 #25,R3 P5,C.TYPE		:RESTORE USER STACK

+ 2 C4US

					DIE	
DDT (JEMKA JEMKAA.MAZ	MACY11 24-FEB-78	30A 1052 3 09:17	29-FEB-78 09 MESSAGES		NE 76-10	
956° N7'	3162 004737 3166 000137 3172 136 3173 106	037372 072726	1 <b>5</b> : 2 <b>5</b> :	JAP JAP .BYTE .BYTE	FIELDSEP-ITE O.ODT *F	
9572 073 9573 073 9574 073 9575 073 9576 073 9577 073	3174 012704 3200 012703 3204 004537 3210 012705 3214 000137 3220 136 3221 105	073220 073221 076060 056222 074556	is: 25: 35: 5PECIO	MOV MOV JSR MOV JMP .BYTE .BYTE	#15, P4 #25, R3 R5, 0. TyPE #CONTP+4, R5 0. GOGO	;E + 'E
9583 07 9584 07 9585 07 9586 07 9587 07 9588 07	3222 004537 3226 012704 3232 120024 3234 001414 3236 022704 3242 101373 3244 042700 3250 010004 3252 006304 3254 062704 3260 005202	075740 076321 076341 177770	: DEPER C.REGT: 1\$:	NDS UPON JSV B MOMPB CMPCHIC BHOVL MOSE MOSE MOSE MOSE MOSE MOSE MOSE MOSE	THE EXPLICIT OR  5.0.GET  #0.TL,R4  R0,(R4)+  3\$  #0.TL+0.LG,R4  1\$  #177770,R0  R0,R4  R4  #0.UR0,R4	SPECIAL NAME, GET ONE MORE CHARACTER TABLE START ADDRESS IS THIS THE CORRECT CHARACTER JUMP IF YES IS THE SEARCH DONE? BRANCH IF NOT MASK OFF OCTAL  GENERATE ADDRESS SET FOUND FLAG
9593 07: 9594 07:	3260 005202 3262 000137 3266 162704 3272 000767	07350£ 076312	33:	JMP SUB BR	0.5CAN #0.7L-7,R4 2\$	GO FIND NEXT CHARACTER GC FIND NEXT CHARACTER

DET C	EMKA .MAZ Z	MACY11 4-FEB-18	30A.1052 09:17	28-FE	3-78 09: MESSAGES	:20 PAG 5	E 76-11	
9597 9598 9599 9600	073274 073300 073302	004537 061202	<b>073350</b>		: "BACK!	ARROW" .ENABL JSR ADD INC	HANDLER - OPEN LSB 5.25 :TEST 382.82	INDEXED ON THE PC BALK APPON HORD MODE AND CLUSE ; COMPUTE
\$039 9603 4036 9605 4036	073304 073306 073312 073316 073322	005202 010237 000137 004537 011202	076232 074160 073350		15: 0.0RAB:	INC MOV JMP JSR MOV	RZ RZ, U. CAD O. OPZA 5, Z\$ aRZ, RZ	WGRD MODE AND CLUSE :COMPUTE : NEW ADDRESS :UPDATE CAD :GO FINISH UP :TEST WORD MODE AND CLOSE :GET ABSOLUTE ADDRESS
9600 9601 9603 9603 9605 9605 9607 96112 96113 96113	073324 073326 073332 073334 073336 073340	000770 004537 011201 110101 006301	073350		C.ORRB:	BR JSR MOV MOVB ASL INC	15 5.25 382.81 81.81 81	: TEST AND CLOSE :COMPUTE NEW ADDRESS :EXTEND THE SIGN :R2=2(QR2) :+2
9613 9614 9615 9616 9617	073342 073344 073346 073350 073354	005201 060102 000757 004737 022737	076146 000002	076240	25:	INC ADD BR JSR CMP RNE	R1 R1,R2 1\$ PC,O.CLSE #2,O.BW	: +PC :CLOSE CURRENT CELL :ONLY WORD MODE ALLOWED :BRANCH IF ERROR :CURRENT ADDRESS IN P2
9617 9619 9619 9612 9612 9612 9612 9613 9613 9613 9613	073362 073364 073370 073372 073374	013702 000205 005726 000137	076232 073442		3 <b>\$:</b> 0.TCL2:	MOV RTS TST JMP .DSABL	(SP)+ 0.ERR LSB	POP A WORD AND SHOW THE ERROR
9625 9626 9627 9628	073400 073404 073406	105737 001773 005702	076251		Ö.SNGL:	PROCESS TSTB BEQ TST	S - SINGLE INS 0.SMFD ; DONT 0.TCL2 R2	REACT IF : NOT TYPED  SEE IF TURN ON OR TURN OFF
9631 9631 9632 9633	073412 073416 073426 073426 073430	105037 000137 112737 300137	076243 073452 177777 073452	076243	i <b>s</b> :	BRE CLRB JMP MOVB JMP	0.5 0.DCD 8-1.0.5 0.DCD	TRUCTION MODE REACT IF : NOT TYPED  :SEE IF TURN ON OR TURN DEF :BRANCH IF TURNING IT ON :CLEAR THE FLAG :CONTINUE THE SCAN :SET THE FLAG

TEN CHOT

ODT (CE Cenkaa.	MKA MAZ 2	MACYII H-FEB-78	30A 1052 09:1	29-FEB-78 09 MESSAGE	20 PAG	E 76-12	
9635 9636				MINUS I	PROCESSI	NG	
9637 9638 9639	07343 <del>4</del> 073440	105237	0-62-1	ð.min:	INCB BR	O.MINS O.DCD1	SET MINUS FOUND SHITCH ON
9641				: COMMA	ND DECOD	ER - ODTI1/	
9640 9642 9643 9643					REGISTER	S MAY BE USED CRO	D-R5:,
9645 9645	073442	012700	000077	C.ERR:	MOV	#'?,RD	; ? TO BE TYPED
9646 9647	073446 073452	004537 005037	075662 076240	o.DCD:	JSR CLR	5.0.FTYP 0.BW	CLOSE ALL
9648 9649	073456 073462	004537 105037	076206 076251	o. <b>DCD3</b> :	JSR CLRB	5,0.CRLS 0.SMFD	:TYPE (CR)(LF)* :SEMICOLON FOUND FLAG
9650 9651	073466 073472	105037 105037	076250 076271		CLRB CLRB	G.CMFD O.MINS	COMMA FOUND FLAG MINUS SIGN FOUND FLAG
9652	073476	005003			CLR	R3 R5	R3 IS A SAVE REGISTER FOR R2 R5 IS A SAVE REGISTER FOR R4
9654	073502	005004	000077 075662 076240 076206 076251 076250	C.ERR: U.DCD: O.DCD3:	CLR	RY R2	RY CONTAINS THE CONVERTED CITAL RE IS THE NUMBER FOUND FLAG
9656	073506	005002 004537 022700 101013 022700 103410 042700	075740 000060	O.SCAN:	JSR	5.0.GET	GÉT A CHAR RETURN IN RC COMPARE WITH ASCII D
3658	073516	101013	000000		BHI CMB	5 <b>5</b>	CHECK LEGALITY IF NON-NUMEF:
3660	073524	103410	177770		BLO	55 *177770 PC	CHECK LEGALITY IF NOT COTHL
\$647890123456789012345678901234567890123456555555666666666677777777	073500 073504 073506 073516 073516 073520 073524 073526 073532 073534 073536 073540 073546 073546 073554	006304	17770	0.DCD1: 0.SCAN: 5%:	ASL	R4	OUTPUT? CLOSE ALL TYPE (CR) (LF) * SEMICOLON FOUND FLAG COMMA FOUND FLAG MINUS SIGN FOUND FLAG MINUS SIGN FOUND FLAG R3 IS A SAVE REGISTER FOR R2 R5 IS A SAVE REGISTER FOR R2 R5 IS THE NUMBER FOUND FLAG GET A CHAR, RETURN IN RC COMPARE WITH ASCII O CHECK LEGALITY IF NON-NUMER: COMPARE WITH ASCII 7 CHECK LEGALITY IF NOT COTH, CONVERT TO BCD MAKE ROOM IN R4 PACK THREE BITS IM R4 R2 HAS NUMBERIC FLAG AND TRY AGAIN CLEAR INDEX DO THE CODES MATCH? JUMP IF YES SET INDEX FOR NEXT SEAFTH IS THE SEARCH DONE? IS THE SEARCH DONE? IF MINUS WAS NOT TYPED DO NOT NEGATE K OTHERWISE, TAKE 2'S COMPLEMENT.
9664	073535 073536	006304			ASL	R4 B0 Bu	POCK TUPES BITS TH 84
9666 2005	073542	060004			INC	R2	RZ HAS NUMERIC FLAG
9668 9668	073546			5 <b>3</b> : 1 <b>5</b> :	CLR CMPB	RI RI	CLEAR INDEX
9670	073554	001402	076275	15:	BEQ INC	25 25	JUMP IF YES
9672	073556 073560 073564	005201 020127 103326	D00024		CMP	RI, #O.CLGT	IS THE SEARCH DONE?
9673 9674	073566	000770			BHIS BR	0.ERR 1 <b>\$</b>	RE-LOOP
3676	073570	105737 001401	076271	25:	TSTB BEQ	0.mins 4 <b>\$</b>	DO NOT NEGATE K
9677 9678	073574 073576 073600 073604	005404 105737	076250	45:	TSTB	R4 O.CMFD	IF A COMMA NOT TYPED,
9679 9680	U/JbUb	001402 063704	076344		ADD BEQ	3 <b>\$</b> 0. <b>b</b> ias.r4	SKIP NEXT INSTRUCTION. OTHERWISE, ADD RELOC. BIAS TO RE-
9681 9682	073612 073616	105037 006301	076271	3\$:	CLRB ASL	O.MINS Ri	OTHERWISE, TAKE 2'S COMPLEMENT. IF A COMMA NOT TYPED, SKIP NEXT INSTRUCTION. OTHERWISE, ADD RELOC. BIAS TO RM. REINITIALIZE MINUS-TYPED SWITCH FOR MAIL SCAN
9683 9684	073620	000171	073624		JMP	MESCRI) ; GO TO P	PROPER ROUTINE
9679 9680 9682 9683 9685 9685 9686 9686 9689 9689	073624 073626	073674 073712		<b>6\$</b> :	O.SEMI O.WRD	: SEMICOLON OPEN WOR	
9687 3688	073630 073632	073724 074072			O.WRD O.BYT O.CRET	: CARRIAGE RETL	TE -BACK SLASH
363C	073634 073636	073222 074530			O.REGT	S REGISTER C	OPS

TE / 0408

```
9706
9707
9708
9709
                                                      : SEMI-COLON PROCESSOR
                                                                                        : A SEMI-COLON HAS BEEN RECEIVED
        073674
                                                                             R2.R3
                   010503
                                                      O.SEMI: MOV
                                                                                       NUMERIC FLAG TO R3 CONTENTS TO PS
SET SEMICOLON FOUND FLAG
RESET COMMA FOUND FLAG
9710
9711
9712
9713
        073576
073700
073704
                   010405
105237
105037
                                                                            R4 RS
0.SMFD
                               076251
076250
                                                                 ÏŇĊB
                                                                 CLRB
                                                                            O. CLIFD
                                                                                                   : GU BACK FOR MOPE
                                                                            O.DCDI
                                                                 BR
9714
                                                      : PROCESS / AND \ - OPEN WORD OR BYTE
9716
                                                      3,50
                                                                            #2,0.BW
        073712
                   012737
                                                      O. WRD:
                                                                                                   : OPEN WORD
                               000002 076240
        073720
073722
073724
                    000404
                                                                 BR
                                                                                                   GET THE ADDRESS BACK
                   006104
012737
005702
9722
                                                     :5:
0.BYT:
                               000001 076240
                                                                             #1, G. BW
                                                                                                   GET VALUE IF RZ IS NCN-ZERO
BRANCH IF NUMBER INPUT
TEST FOR ", "AND";"
7725
9725
9726
9728
9729
9731
        073732
                                                      115:
                                                                 TST
                                                                            R2
        073734
073736
073742
073744
                                                                 UNE
TSTB
                    001011
                                                                            145
                                                                            0.CMFD
12$
0.ERR
                   105737
                               076250
                                                                 BEQ
                                                                 JMO
                    000137
                                                                                                   :ERROR IF PRESENT WITHOUT NUMBER.
                               073442
        073750
073754
073756
                    105737
                               076251
                                                                 TSTB
                                                                            0.5MFD
                                                                             135
                    001373
                                                                 BNE
                                                                                                   :NO NUMBER - REOPEN PREVIOUS LOCATION
                                                                            Ö. WRD1
                    000404
                                                                 BR
                                                                                                   PUT VALUE IN DOT
                                                                            R4.0.DOT
R4.0.CAD
9732
        073760
                    010437
                               076234
                                                     145:
                                                                                                   ALSO IN CAD
CHECK BYTE MODE
JUMP IF BYTE
9733
        073764
073770
073776
074000
                   010437
                               076232
                                                                            #1.0.BW
                               000001
                                          076240
                                                     O.WRD1:
9735
                    001407
                                                                 BEQ
9736
9737
9738
9739
                   013704
                                                                            O.CAD.R4
                               076232
                                                                 MOV
                                                                                                   : MOVE ONE BIT TO CARRI
: JUMP IF ODD ADDRESS
:GET CONTENTS OF WORD
        074004
                                                                 ASR
905
        074006
                    103745
                                                                             15
        074010
                    017700
                                                                            ãO. CAD, RO
                               915500
                                                                            23$
30.CAD,RD
5,0.CADV
#1,0.BH
0.DCD3
        074014
9740
                    204000
                   117700
004537
022737
                                                                                                   GET CONTENTS OF BYTE GO GET AND TYPE OUT DOAD CHECK IF BYTE MODE.
        074016
9741
                               002210
075566
                                                                 MOVB
9742
                                                                 JSR
9743
        074026
                               000001
                                          076240
                                                                            U.DCD3 : IF NOT WE'RE DONE. ELSE

#'=,RO : TYP "=" AND THEN THE ASCII BYTE

5,0.FTYP
        074034
                   001212
9744
9745
        074036
                               000075
                                                                 MOVB
9746
9747
                               075662
        074042
                    004537
                                                                 JSR
                                                                            DO.CAD, RD
5, O.FTYP
# ,RO
        074046
                    117700
                                                                 MOVB
        074052
9748
                    004537
                               075662
                                                                 JSR 
9749
        074056
                                                                            RO
5,0 FTYP
                    112700
                               000040
                                                                 MOVE
9750
        074062
                    004537
                               075662
                                                                 JSR
JMP
9751
9752
9753
9754
        D74066
                                                                            O.DCD3
                                                                                                   :GO BACK TO DECODER
                    000137
                               073462
                                                                 . DSABL
                                                     : PROCESS CARRIAGE RETURN
O.CRET: JSR PC.O.CLSE
O.DCDA: JMP O.DCD
        074072
                   004737
                                                                                                   :CLOSE LOCATION
9755
                               076146
9756
        074076
                    000137
                                                                                                   RETURN TO DECODER
9757
        074102 000137
                               073442
                                                                                                   : INTERMEDIATE HELP
                                                     O.ERR3: JMP
                                                                            Û.ERR
```

ODT CEMMA CEMMAALMAS SH	MACN11 30A -FEB-78 08	:1752 29-FE	B-78 09 MESSAGE	:20 PAGI S	76-15	
9760			; PROCE	SS · LF · ,	OPEN NEXT WURD	
9761 9774116 9774116 97741120 97741130 97741130 97765 97767 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777 97777	005737 070 001771 004737 070 105737 070 001405 013737 070 063737 070 063737 070 013737 070 013746 070 012737 070 012737 070 012737 070 012737 070 012737 070 012737 070 012737 070	6242 6240 6242 6242 6240 6240 6240 6232 6200 6200 6232 6232 6232 6232 623	0.0LD: 0.0P1: 0.ERR2: 1\$: 0.0P2: 0.0P2A:	INCB TST BEQ JSR TSTB BEQ MOV CLRB ADOV MOV	O.SEQ :SET FLOOR O.BH O.ERR3 PC.O.CLSE O.SEQ O.DOT.O.CAD O.SEQ C.BH.O.CAD O.CAD.O.CAD	BRANCH IF NU!
9780 074222 9781 074224 9781 074226 9783 074232 -784	000300 004537 07! 010656	5662	<b>. 3</b> :	JSR ap	5.0.FT P 0.WRC1	TIPE THE LOW BITE OF RO GO PROCESS IT

RES 541.

ODT (CE	MKA) MAZ Z	MACY11 4-FEB-18	30A (1052 09:17	7 28-FE	9-78 09 MESSAGES	20 PAG 5	E 76-16	
9786 9787					; PROCES	55 t. OP	EN PREVIOUS WORD	
9789 9789	074234 074240	005737 001726	076240		O.BACK:	TST BEQ	0.BW 0.ERR2	: 1 RECEIVED :ERROR IF NOTHING CFEM
77.7890 17.7890 17.7890 17.779999999999999999999999999999999999	074242 074246 074254	005737 001726 004737 163737 000736	076146	0-6535		SUB BR	0.8H.0.CAD 0.0P2	T RECEIVED ERROR IF NOTHING CPEN GENERATE NEW ADDRESS GO DO THE REST
9794 9795					; B HAND	DLER - S	ET AND REMOVE BRE	AKPOINTS
9796 9797 9798 9799	074256 074262 074264	01270C 006304 005703	076346		O.BKPT:	MOV ASL TST	#O TRIC PO	
9802 1086 9801 9800	074266 074270 074272	001423 006205 103514				BEQ ASR BCS	35 R5 O.ERRI	:MULTIPLY NUMBER BY TWO :IF R3 IS ZERO GO REMOVE BREAKPOINT :GET ONE BIT TO CARRY :BADNESS IF ODD ADDRESS :RESTORE ONE BIT
9804 9805 9805	074274 074276 074302	006305 062704 005702	072606			ADD TST BNE	#5 #0.ADR1,R4 R2	TUMP IF SPECIFIC CELL
9807 9808 9809	074306 074310 074312	020014 001405 020427	072624		2\$:	CMP BEQ CMP	R2 15 R0, DR4 15 R4.#0.BKP+0.ADR1	JUMP IF SPECIFIC CELL IS THIS CELL FREE? JUMP IF YES ARE WE AT THE END OF DUR POPE YES, THERE IS NOTHING FREE INCREMENT BY TWO
2186 1186 0186	074316 074320 074322	103102 005724 000771				BHIS TST BR	0.ERR1 (RY)+ 25	; YES, THERE IS NOTHING FREE ; INCREMENT BY TWO
9814 9815 9815	074324 074330 074332	101075 010514	U/2624		15:	BHI MOV	RY #0.BKP+0.ADR1 0.ERR1 RS.JRY	ERROR IF TOO LARGE SET BREAKPOINT RETURN .
9817 9818	074336 074340	005702	000011		<b>3\$</b> :	TST BEQ	R2 O.RALL	GO REMOVE ALL
979990:1234567990:123456999999999999999999999999999999999999	074346 074350 074354	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	072606 072630			BHI MOV CLR	0.ERR1 R0.0.ADR1(R4) 0.CT(R4)	GO REMOVE ALL JUMP IF NUMBER TOO LARGE CLEAR BREAKPOINT CLEAR COUNT ALSC
9823 9824 9825 9826	074360 074362 074364 074370	000646 005004 012700 020427	076346 000020		0.RALL:	BR CLR MOV CMP	O.DCDA R4 #O.TRTC,RD R4,#O.BKP+2	
9827 9828 9829 9630 9831	074402	012764	ξοσοσο	072652		MOV	O.DCDA RD.O.ADR1(R4) #TRT.O.UIN(R4)	;JUMP IF YES :RESET BKPT :RESET CONTENTS OF TABLE
9831 9832 9833	074410 074414 074416	005064 005724 000764	072630			CLR TST BR	0.CT(Ř4) (Ř4)± 1 <b>S</b>	CLEAR COUNT INCREMENT BY TWO

5EG 0418

ODT (CE CEMKAA.	MKA) MAZ Z	MACY11 4-FEB-18	30A (1052 08:17	28-FE	B-78 09 MESSAGE	:20 PAC S	GE 76-17	KIO	
9835 9836					: PROCE	<b>SS</b> 0. CC	OMPUTE OFFS	SET	
9837 9838 9839	074420 074426	022737 001036	000005	076240	0.0FST:	DNE	#2.0.BW 0.ERR1		CHECK WORD MODE ERROR OF NOT CORPECT MODE
9840 9841 9842	074430 074434 074440	012700 004537 005703	000040 075662			MOV JSR TST	# .RO 5.0.FT\P R3		TYPE ONE BLANK AS A SEPARATOR HAS SEMI-COLON TYPED NO, CALL IT AN ERROP
9842 9843 9844 9844 9846	074442 074444 074450	001430 163705 005305	076232			JSR TST BEG SUB DEC DEC	R3 0.ERR1 0.CAD.R5 R5 R5		; COMPUTE
984/	074452 074454 074456	005305 010500 004537	075566			DEC MOV JSR	RS RO RS RO S O.CAD√		: 16 BIT OFFSET :NUMBER IN RO - WORD MODE
7819 9851 9851 9852 9553 9854 9855 9855	074462 074464 074466	010500 006200 103414	<b>C</b> : <b>3</b> 300			JSR MOV ASR BCS	R5,R0 R0 1 <b>\$</b>		DIVIDE BY THO ERROR IF ODD
9852 9853	074470 074474 074476	022700 003011 022700	177600 000177			BCS CMP BGT CMP	#-260,R0 15 #177,R0		COMPARE WITH -200 DO NOT TYPE IF OUT OF PANGE
9855 9856	074502 074504	002406 005337 004537	076240			BL* DEC	1 <b>5</b> 0.8W		DO NOT TYPE IF OUT OF RANGE SET TEMPORARY BYTE MODE NUMBER IN RO - BYTE MODE RESTORE WORD MODE
9857 9858 9859	074510 074514 074520	005237 000137	075566 076240 073462		15:	JSR INC JMP	5,0.CADV 0.BW 0.DCD3		RESTORE WORD MODE
9865 9861 9862 9863	074524	000137	073442		O.ERR1:	JMP	O.ERR		; INTERMEDIATE HELP
9863 9864					; PROCE	55 G - (	30		
9864 9865 9866	074530 074534	105737 001773 005703	076251		0. <b>GO</b> :	TSTB BEQ TST	O.ERRI :	WAS ":" BR IF N	nt typkii
9867 9868 9869 9871 9871 9872 9873	074536 074540 074542	001771 112737	000021	076245		BEQ MOVB	R3 0.ERR1 #0.BKP+3.	0.P	WAS K: TYPED? TYPE ? (CR.LF) IF NGT CLEAR PROCEED CHECK LOW ORDER BITEROR IF ODD NUMBER RESTORE WORD SET UP NEW PC
9871 9872	074550 074552 074554	006205 103764 006305				ASR BCS ASL	RS O.ERRI RS RS, J.UPC		ERROR IF ODD NUMBER RESTORE WORD
9873 9874 9875	074556 074562 074566	010537 012746 004737	072600 000340 076134		o.Gogo:	MÖV MÖV JSR	<b>-</b>	SP)	SET UP NEW PC SET HIGH PRIORITY
9876 9877 9878	074572 074576 074602	004537 105037	075466 076244	073( 03	O.TBIT:	JSR CLRB	PC 0. WST 5,0. RSTT 0. T		RESTORE TELETYPE
9879 9880	074610 074614	052737 105737 001005	00002C 076243	072602		BIS TSTB BNE	#0.TBT,0. 0.S 0.Go2		BOTH T-BIT FLAGS SEE IF WE NEED A T BIT IF NOT GO NOW
9881 9882 9883	074616 074624 074630	042737 004537 004037	000020 075402 075350	072602	0. <b>G</b> 02:	BIC JSR JSR	#0.TBT,0 5,0.RSB 0,0.RSP	UST	IF NOT GO NOW SET THE T BIT : ???????????????????????????????????
9884 9885 9886	074634 074640 074644	013746 013746 000240	072602 072600		J. 40E.	MOV MOV	0.UST(S 0.UPC(S	<b>P</b> )	AND STATUS AND PC
9887 9888 9889	074646 074652 074656	013746 042716 004737	072602 177420 076134			MOP MOV BIC JSR	0.UST, -(S #0.TB1!17 PC,0.WST	ip) 7400.(Si	CHANGE TO HALT FOR DEBUGGING MOV IN STATUS FIRST W/O T BIT  SO INTERRUPTS CAN HAPPE!: BEFORE RTT TURNS ON THE T BIT.
9890	C74662	000006				PTT	-		

5EG 0413

```
28-FEB-78 09:20 PHGE 76-18
ODT (CEMMA)
                         MAC' 11 30A (1052
                      24-FEB-78 28:17
                                                               MESSHGES
CEMKAA. MAZ
                                                               : PROCESS P - PROCEED
   9892
                                                                     ONLY ALLOWED AFTER & BREAKPOINT
   9893
   9894
                                                                                        C.SMFD
O.ERRI
O.P.RC
                                                                                                     :WAS ": " TYPED?
BR IF NOT TYPED
            074664 105737
                                                               C.PROC: TSTB
   9895
                                      576251
            074670
                                                                            BEU
  9896
                         001715
  9897
9898
                         113700
                                      076245
                                                                                                                  CHECK LEGALITY OF PROCEED : NOT LEGAL : CHECK FUR ILLEGAL COUNT
            074676
                                                                            TSTE
                                                                                         ŔĐ
           074700
074702
074704
                                                                            BLT
                                                                                         O.ERR1
   9899
9900
                         002711
                                                                                         Ř2
                                                                                                                  JUMP IF ILLEGAL WAS COUNT SPECIFIED!
                                                                                         O.ERRI
   9902
2006
                                                                            BNE
                         001307
            074706
                         005703
                                                                            TST
            074710
                                                                                         G.PRI
                                                                                                                  NO
                                                                            BEQ
   9953
                                                                                                                  YES PUT AWAY COUNT FORCE HIGH PRIGRITY
                                     072630
000340
076134
                                                                                         R5,0.CT(R0
#0.STM,-'SP,
            074712
                         010560
                                                                            VCM
   9904
           074716
                         012746
                                                               O.PRI:
   9905
                                                                            MOV
                                                                                        PC.O.WST
5.0.RSTT
   9906
                                                                            JSR
            074726
                                                                                                                   RESTORE TTY SEE IF A REAL ONE OR A FAKE
   9907
                         004537
                                      075466
                                                                            JSR
                                                                                        0.P.#0.BkP
0.TBIT
            074732
                         123727
                                      076245
                                                  000016 0.01:
                                                                            CMPB
   9908
                                                                                                                  BRANCH IF FALE
SEE IF SINGLE INSTRUCTION MODE
IF SO EXIT NOW
  3310
            074740
                         003316
105737
                                                                            BGT
                                                                            TŠTB
            074742
                                      076243
                                                                                         0.5
            074746
                         001313
                                                                            BNE
                                                                                         O. TBIT
   9911
                        012746
004737
105237
052737
                                     000340
076134
076244
                                                                                        #0.5TM, -(SP)
PC.0.WST
0.1
  9913
            074750
                                                                                                                   SET HIGH PRIORITY
                                                                            MOV
            074754
074760
074764
                                                                            JSR
                                                                                                                   : SET T-BIT FLAG
   9914
                                                                            INCB
                                                                                                                   SET T-BIT
                                                                                         #O.TBT, O.UST
  9915
                                                                            BIS
                                      000020
                                                  072602
  9916
9917
            074772
                         000716
                                                                                         0.G02
   9918
  9919
                                                                  BREAKPOINT HANDLER
                        012637
012637
112737
004037
105737
                                                                                        (SP)+,0.UPC
(SP)+,0.UST
*0.BKP+3,0.P
                                     072600
072602
000021
075312
                                                                                                                   :PRIORITY IS 7 UPON ENTRY
  9921
9920
            074774
                                                               ð.BRK:
                                                                           MÖV
            074774
075000
075004
075012
075016
075022
075024
075030
075034
075036
                                                                                                                   SAVE STATUS AND PC
TELL :P THAT HE CAM CONTINUE
SAVE VARIOUS REGISTERS
CHECK FOR T-BIT SET
                                                                            MOV
  9922
                                                  076245
                                                                            MOVB
                                                                                        0,0.5VR
                                                                            JSP
                                                               0.BK1:
  9924
                                      076244
                                                                            TSTB
                        001265
004537
105737
                                                                                                                   JUMP IF SET
REMOVE BREAKPOINTS
                                                                            BNE
                                                                                         O. TBIT
   9926
                                     075534
072604
                                                                                         5,0.REM
                                                                                                                  CHECK IF PRIORITY
IS AS SAME AS USER PGM
PICK UP USER UST IF 50
   9927
                                                                                         O.PRI
                                                                            TSTB
                        1000C3
11370S
000407
  9928
                                                                                        O_UST,R5
                                                                            BFL
                                      072602
                                                                            MCVB
  9930
            075042
075044
075050
075052
075054
075060
075060
075066
075066
075074
075100
075104
075110
075114
075110
                                                                            BR
                                                                                         3$
                                                                                                                  OTHERWISE PICK UP ACTUAL PRIDRIT CLEAP CARRY SHIFT LOW ORDER BITS
                         113705
000257
106005
                                                                                         O.PRI.RS
   9931
                                      072604
                                                               25.
                                                                            MOVE
   9932
                                                                            CCC
  4933
9934
                                                                            RORB
                                                                                                                      INTO
                         106005
                                                                            RORB
                                                                                         R5
  9935
5936
                                                                                                                          HIGH ORDER
                                                                                         RS
                         106005
                                                                            RORB
                                                                                                                             POSITION
                         106505
                                                                            RORB
                                                                                         RS
                        042705
010546
004737
013705
105737
  9937
                                                                                                                               CLEAR POSSIBLE T BIT (5 I MODE)
PUT THE STATUS AWAY WHERE IT BELONGS
                                      177420
                                                                                         #0.TBT!177400,R5
                                                               35:
                                                                            BIC
                                                                                        RS, -(SP)
PC, O. WST
O. UPC, RS
                                                                            MOV
                                     076134
072600
076243
                                                                            JŠR
                                                                                                                  GET PC. IT POINTS TO THE TRY
SEE IF IT WAS SINGLE INSTRUCTION FUN
IF SO HANDLE THERE
                                                                            MOV
   9941
                                                                                         0.S
                                                                            TSTB
   9942
                         100432
                                                                            BMI
                                                                                         145
                                                                            TST
                                                                                         ÷(R5)
                                                                                        RS.O.UPC
                         010537
   3944
                                      072600
000016
                                                                            MOV
                                                                                                                   :GET A COUNTER
   9945
                                                                            MOV
                                                                                         RS.C.ADRICHH
            075120
   3946
                                                                                                                   COMPARE WITH LIST
                         020564
                                      072606
                                                               115:
                                                                            CMP
```

 $(SP)+R\bar{3}$ 

MOV

015603

SEG DHIH

075534 075540 075542 075544 075552 O.UIN(R4), JO. ADRI (R4) ; CLEAR BREAKPOINT 016474 072652 072606 MOV 005204 INC 075554 005204 84 INC 075556 075562 020427 000016 CMP R4, #0. BKP BLE 15 R5 :RE-LOOP UNTIL DONE THEN QUIT 075564 000205 25:

; TYPE OUT CONTENTS OF WORD OR BYTE WITH ONE TRAILING SPACE; WORD IS IN RO

10056 075566 075572 #6,R3 #-2,R4 :# OF DIGITS :# OF BITS FIRST-3 10057 012703 O.CADV: MOV 10058 012704 MOV

10048

10049

10050

10051

10052

10053

10054 10055

SEO 0416

								CO1	
		MACY11	30A (1052)	28-FE	3-78 09	:20 PAG	E 76-21		
CEMKAA.!		4-FEB-78	08:17		MESSAGE	5			
10059	075576 ,/5604 075606 075612 075614	022737	000001	076240		CMP	#1,0.BW		SEE IF WORD MODE BRANCH IF SO ONLY DO 3 DIGITS DO 2 BITS FIRST AND TURN RO AROUND SAVE RO COMPUTE THE NUMBER OF BITS TO DO
10060	J/5604	001004	000003			BNE SUB INC SWAB	3 <b>\$</b> #3,R3 R4 R0		:BRANCH IF SU :ONLY DO 3 DIGITS
10065	075612	005204	000003			INC	Ř4		DO 2 BITS FIRST
10063	075614	000300			3€.	SWAB MOV	RO -(SP)		; AND TURN RU AKUUMU : SAVE RO
10065	075620	162703 005204 000300 010046 062704 005000	000003		3 <b>5</b> : 2 <b>5</b> :	MOV ADD	RO(SP) #3.64		COMPUTE THE NUMBER OF BITS TO DO
10066	075624	005000			15:	CLR ROI	RO (SP)		:GET A BIT
iooee	075630	006116 006100 005304 003374 062700 004537				ROL	(SP) RO RY		STORE IT AWAY
10069	075632	005304				BGT	16		:LOOP IF MORE BITS NEEDED
10071	075636	062700	000000			ADD	RS.O.FTYF	,	ČŎŇVEŘT TO ASCÍI
10072	075646	005303	U/5662			ROLL ROLC BGT ADD JSR DECT BGT	RS,U.FITE	-	GET A BIT STORE IT AWAY DECREMENT COUNTER LOOP IF MORE BITS NEEDED CONVERT TO ASCII TYPE IT SEE IF MORE DIGITS TO DO LOOP IF SO SET UP FOR TRAILING SPACE GET RID OF JUNK
10074	075650	005303 003363 112700 005726 000400	000000			BGT	R3 25 # R0 (SP)+		LOOP IF SO
10075	075656	005726	000040			MOVB IST	(SP)+		GET RID OF JUNK
10077	075614 075616 075620 075624 075626 075632 075634 075636 075646 075652 075652 075650	000400	000060 075662 000040			BR	O.FTYP		
10079									
10060 10061 10063 10064 10065 10066 10067 10069 10070 10071 10075 10075 10077 10078 10081 10082 10083 10089 10089 10090 10093 10093 10097 10097 10097					; TYPE	ONLY ONE	CHARACTER	R (CONTR	AINED IN ROS
10082	075662 075666	105737 100375	177564		O.FTYP:	TSTB	O.TCSR		
10083	075670	042700	177400			BPL BIC	4 #177400,R	20	:CLEAR HIGH BYTE, SHOULD NOT :CONTAIN INPORTANT INFO.
10085							3\$		
10087	075676	022700	000176			BEQ CMP	#176.RO		:PRINT ? FOR 177:16-37 ; 1-10 AND 200-377.
10089	075702	022700	000037			BLO CMP	2 <b>\$</b> #37,RO		; 1-10 HND 200-377.
10090	075710	103410	000015			BLO	35		
10092	075716	103403				aL'o	25		
10093 10094	075674 075676 075702 075704 075710 075716 075716 075720 075724 075726 075736	001416 022700 103411 022700 103410 022700 103403 022700 103402 012700 110037 000205	010000			CMP BLO	#10,R0 3 <b>\$</b>		Æ ODT11X
10095	075726	012700	000077 177566		25:	MOV	# ⁷ RO		
10097	075736	000205	1//300		0. TYP1:	RTS	RS TOB		
10098					; GENER	AL CHARA CTER INP	CTER INPUT UT GOES TO	r ROUTIN D RO	E ODTIIX
10100	07E7U0	105727	177510		•			,,,,	:WAIT FOR
10101	075740 075744	105737 100375	177560		O.GET:	TSTB BPL	0.RCSR 4		INPUT FROM KBD
10103	075746 075752	113700 042700	177562 177600			MOVB BIC	0.RDB.RD #177600.R	<b>9</b> 0	GET CHARACTER - STRIP OFF PARITY STRIP OFF PARITY FROM CHARACTER
10105	075756	122700	500000			CMPB	#3,R0		; IS IT †C?
10106 10107	075746 075756 075756 075762 075764 075770	113700 042700 122700 001435 122700	900006			BEQ CMPB	3 <b>\$</b> #6,R0		IS IT 1C? IF SO, DO NOT ECHO IS IT 1F? IF SO, DO NOT ECHO
1010 <b>8</b> 1010 <b>9</b>	075770	001432 122700	000005			BEQ CMPB	3\$' #5,RO		IF SO, DO NOT ECHO IS IT TE? IF SO, DO NOT ECHO SHOULD WE ECHO (LF)?
10110	075772 075776	001427 105737				BEQ	3\$		F SO DO NOT ECHO
10112	076000 076004	105737 001003	076252			TSTB BNE	0.5CRN 2 <b>\$</b>		:BR IF TES
10113 10114	076006 076012	120027	000015			CMPB	RO.#012		SEE IF A (LF) IF SO SAVE THE PAPER
19114	OVECTE	001421				BEG	3 <b>\$</b>		, AT 30 SHIE THEEN

ODT (CE	DD1 DT (CEMKA) MACY11 30A(1052) 28-FEB-78 09:20 PAGE 76-22									
CEMKAA.		4-FEB-78	08:17		MESSAGE	.5				
10115 10116	076014	120027	000173		2 <b>\$</b> :	CMPB BGE_	RO,#173 1 <b>5</b>			
10117	076022	122700	000140			CMPB	#140.RO	:TEST FOR LOWER CASE		
10118	076026 076030 076034 076040	002002 162700 004537	000040 075662		15:	BGE SUB JSR BEO	15 #40.RD 5.0.FTYP	CHAR IS LC-CONVERT TO UPPER CASE ECHO CHARACTER IGNORE NULLS		
10155	076040 076042 076046	001737 105737 001003	076252			BEQ TSTB BNE	O.GET C.SCRN 3\$	IGNORE NULLS SHOULD HE PASS ON SPACES? BR IF YES		
10155	076050 076054 076056	122700 001731 000205	000040		<b>3\$:</b>	CMPB BEQ RTS	#40.R0 0.GET R5	CHECK FOR SPACES IGNORE SPACES		
10125 10126 10126 10127 10129 10131 10133 10133 10133					GENER ADDR ADDR EXPEC CHARA 56=C 57=#	AL CHARA ESS OF A ESS OF L TS LOCS CTERISTI HAR TO B OF NULL	ACTER OUTPUT ROUT FIRST BYTE IN RY, AST BYTE IN R3, S6,57 TO BE INIT ICS OF TERMINAL BE FILLED AFTER S TO FILL WITH	INE - ODT11X (R3)>(R4) IALIZED BY MONITOR FOR FILL		
10133 10133 10133 10135 10136 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137 10137	076060 076062 076064 076066 076072 076076 076100 076104	020304 103725 112400 004537 120037 001370 113727	075662 002214 002027		O.TYPE:	BLO MOVB JSR CMPB BNE MOVB	R3.R4 0.TYP1 (R4)+.R0 5.0.FTYP R0.3#\$FILLC 0.TYPE 3#\$FILLS,(PC)+	CHECK FOR COMPLETION EXIT WHEN DONE GET A CHARACTER TYPE ONE CHARACTER COMPARE CHAR AGAINST FILL REQUIREMENT NO FILL NEEDED FILL COUNT INTO TEMP		
11117	076106 076110 076114 076120 076122	000000 005000 004537 005337 003373 000756	075662 076104		1 <b>\$</b> : 2 <b>\$</b> :	O CLR JSR DEC BGT BR	RO R5,0.FTYP 1\$ 2\$ 0.TYPE	FILL WITH NULLS TYPE NULLS DECREASE COUNT BRANCH IF NOT DONE LOOP UNTIL DONE		
10148 10149 10150					; SUBROU	TINE TO	READ THE PS INDE	PENDENT OF MACHINE		
10151 10152 10153 10154	076124	013737	177776	072602	O.RRST:	MOV	ST,O.UST	STORE THE STATUS IN USER STATUS AREA.FOR AN LSI THIS IS CHANGED TO MFPS 0.UST		
10155	076132	299207				RTS	PC	; MFPS 0.051		
10157 10158 10159 10160					SUBROU CALL R ON THE	OUTINE W	WRITE PS INDEPEN IITH PS VALUE	DENT OF MACHINE		
10163 10163 10164 10165	076134	016637	000002	177776	O.WST:	MOV	2(SP),ST	STORE NEW PS VALUE THIS INSTRUCTION IS CHANGED FOR LSI TO MTPS 2(SP)		
10165 10166 10167 10168	076142 076144	01261E 000207			: CLOSE	MOV RTS WORD OR	(SP)+,(SP) PC R BYTE AND EXIT,	TO RETURN WITHOUT IT ON THE STACK		
10169 1017C					; UPUN	.ENABL		FLAG, R4 HAS CONTENTS		

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ODT (CE CEMKAA.	MKA) MA2 2	MACYII 4-FEB-78	30A (1052 08:17	28-FE	B-78 09 MESSAGE		GE 76-23	
10171 10172	076146 076150	005702	202221	224 240	0.CL <b>SE</b> :	BEQ	R2 1 <b>5</b>	:IF NO NUMBER WAS TYPED THERE IS :NO CHANGE TO THE OPEN CELL
10173 10174 10175	076150 076152 076160 076162	022737 001404 101005 010477	000001	076240		CMP BEQ BHI MOV	#1,0.8W 2 <b>\$</b> 1 <b>\$</b> R4,20.CAD	JUMP IF BYTE MODE JUMP IF ALREADY CLOSED STORE WORD
10177	076164 076170	20400				BR	1 <b>5</b>	
10178	076172 076176	110477 000207	000034		2 <b>5</b> : 1 <b>5</b> :	MOVB RTS	R4, DO.CAD PC	;STORE BYTE
10180	076200	012703	076273		O.CRLF:	MOV BR	#0.CR+1,R3	;LHA (CR,LF)
10195	076204 076206 076212	000402 012703	076274		O.CRLS:	MOV	#0.CR+2.R3	;LWA (CR.LF)*
10183	076212 076216	012704 004537	076272 076060		3 <b>\$</b> :	MOV JSR	#0.CR,R4 5,0.TYPE R5	FWA TYPE SOMETHING
10176 10177 10178 10179 10180 10181 10182 10183 10184 10185	076222	000205	u, 0000			RTS .DSABL	RS LSB	• • • • • • • • • • • • • • • • • • • •
10187					; SUBROU	TINE O.F	RORA	
10188 10189					FUNCTI	C LITLI C	BE PRINTED IN AB	THE SOLUTE FORM
10190 10191					INPUT:	THE ADD	PRESS TO BE PRINTED THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING THE CONTAINING T	TED IS IN RO. F ADDRESS TO RE
10192					PRINTE	D AND	OCATION O.CAD C	ONTAINING
10193					; THE CUI	KKFU! HL	DDRESS WERE SAVE 5,0.RORA	D HAD RESTURED.
10193 10194 10195 10196	076224	004537	075566		O.RORA:	JSR	5.0.CADV	;PRINT ABSOLUTE ADDRESS
10197 16 98	076230 076232	000205 000000			O.CAD:	RTS D	R5	; CURRENT ADDRESS
1 10100	076234 076236	000000			O.DOT:	0	0	ORIGIN ADDRESS TEMPORARY STORAGE
10501	076240	000000			0.XXX: 0.BW:	. WORD . WORD	0	= O - ALL CLOSED
10200 10201 10202 10203 10205 10205 10206 10206 10208 10209								=0 - ALL CLOSED =1 - BYTE OPEN, =2 - WORD OPEN
10204	076242 076243	000			0.5 <b>EQ:</b> 0.5:	.BYTE	0	CHONGE SEQUENCE INDICATOR
10206	0.02.0	555			0.5.		•	D IF NOT ACTIVE
10508								SINGLE INSTRUCTION FLAG D IF NOT ACTIVE -1 IF ACTIVE NO BREAK BOINTS MAY BE SET WHILE IN
10210	076244	000			0.T:	.BYTE	0	: T-BIT FLAG
10211	076245	000			0.P:	BYTE	Ō	PROCEED FLAG = -2 IF MANUAL ENTRY -1 IF NO PROCEED ALLOWED
10213	076 306	200			0.0501	5V76	•	0-7 IF PCEED ALLOWED
10215	076246 076247	000			0.CSR1: 0.CSR2:	BYTE.	0	SAVE CELL - R C/SR SAVE CELL - T C/SR
10216	076250	000			O.CMFD:	.BYTE	O ; COMMA	FOUND SWITCH, =0 NO COMMA FOUND =1 COMMA FOUND
10218	076251	000			O.SMFD:	.BYTE	0	:SEMICOLON FOUND SWITCH
10550							_	=0 NO SEMICOLON FOUND =1 SEMICOLON FOUND
10555	076252	000			0.SCRN:	.BYTE	0	FLAG: 1=PASS SPACES ON FROM TT/ ALSO, IF =1, <lf echoed<="" is="" td=""></lf>
10212 10213 10214 10215 10216 10217 10218 10221 10221 10223 10223	076253 076254	012 015			0. ID:	ATYE.	012 015	, 221, 3. 2, 2 30 33.322
10556	076255	040	630130	201055		.EYTE	40	
1 70556	076256	042117	020124	34145D		.A3CII	ZODT (CEMKA)Z	

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ODT (CE CEMKAA.	MKA) MAZ Z	MACYII 14-FEB-78	30A:1052 · 08:17	28-FE	B-78 09 MESSAGE	:20 PAC S	E 76-24	
10227 10228	076264 076271	046505 07670 000	040513	051	O.IDND= O.MINS:		0	:MINUS SIGN TYPED 'SWITCH) :D=NO MINUS TYPED: 1=MINUS SIGN TYPED
10535 10535 10535	076272 075273 076274	015 012 052			0.CR:	.BYTE .BYTE .BYTE	015 015	<pre></pre>
10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223 10223	076275 076276 076277 076300 076301 076302 076303 076305 076306 076310 076311 076312 076313 076314 076315 076317 076320	7.2757201.761.20006959657 0020000000000000000000000000000000000			O.LGCH:	. BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE . BYTE	\. \. \. \. \. \. \. \. \. \. \. \.	(BACK SLASH) CARRIAGE RETURN  S G (LF) (BACK ARROW) (UP ARROW)  O B P D CTRL C CTRL C CTRL F CTRL E :TABLE LENGTH
10255 10256 10257 10258 10259 10260 10261 10263 10264 10265 10265 10267 10268 10269 10270 10271 10272 10273 10274 10275 10276 10277 10277 10277	076321 076322 076323 076324 076325 076327 076330 076331 076333 076334 076335 076337 076340	123 120 100 000 103 106 100 000 000 000 000 000 000 000 000			O.TL:  O.LG  O.BD: O.BIAS: O.TRTC:	BYTE BYTE BYTE BYTE BYTE BYTE BYTE BYTE	SPM CFR 0000000	DO 1 NOT 2 CHANGE 3 THE 4 ORDER 5 7 10 11 12 13 14 15 16 17 20
10279		072562				.=0.0DT	-144	; ODT'S STACK IMMEDIATELY PRECEDES ODT
10581	072562	960000			0.JRD:	0	; USER	PO

ODT (CE		MACY11 30A(1052) 4-FEB-78 08:17	GD1 28-FEB-78 09:20 PAGE 76-25 MESSAGES	
10283 10284 10285 10285 10286 10286 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289 10289	072564 072566 072570 072572 072574 072576 072600 072602 072604	000000 000000 000000 000000 000000 00000	O RI  D RZ  D RZ  D RY  O RS  O.USP: D USER SP  O.UPC: D USER PC  O.UST: D USER ST  O.PRI: 7 ODT PRIORITY  E BREAK POINT LISTS, ADRI = ADDRESS OF BREAKPOINT.CT = COUNT.  UIN = CONTENTS	
10294	072606	072630	0.ADR1: .=.+0.BKP+4	
10296	072630	072652	O.CT: .=.+0.BKP+4 O.UIN:	
10299 10300 10301	076350	072674 076350	.=.+0.8KP+4 .=0.TRTC+2 \$\$END	
10302	076350 076350	003614 001430 001	END: .PRINT 100000-END ;ADDRESSES LEFT .END START	

5EG 0420

		MACCAL 200 (072)	20 55	n 20 00	. 20 - 000	- 7 <b>-</b>	H01							
ODT (CE CEMKAA.)		MACNII 30A(1052) 84-FEB-78 08:17	28-FE	CROSS RI	:20 PAGE EFERENCE		- USER 5	YMBOLS						SE0 0421
ABORTF ACFLAG	001506	1031 <b>*</b> 1024 <b>*</b> 2401 6786	5178* 1723 2475	7307 1752 3274	7321 1786* 3292	7326 1787 3323	7336 2030 5644	7341 2120 5835*	7393 2153 5850*	7467# 2186 6410	2226 6462	2271 6604	2312 6678	2360 6743
ACTFLA	002020	3165 1105# 248	6821 1371* 3169	1546 3175	1709 3233	2857 6014	3058 7601	3067	3075	3085	3095	3104	3117	3156
ADDPAR ADDRES	011462 011462	2027 998# 7202* 7256#	2043# 1540* 7203* 7261* 7416*	1799* 7208* 7266* 7448*	3769* 7209* 7271* 7463	3783* 7214* 7276* 7767	3841* 7215* 7281* 7898	3855* 7220* 7286* 7900	3927 <b>*</b> 7221 <b>*</b> 7291 <b>*</b> 7902	5209* 7228* 7296* 7905	5224* 7236* 7301* 7907	5225* 7241* 7306* 7909	5226 7246* 7370* 9312	5228 7251* 7392* 9315
ADD	052744 052754 052774 053024 053054 053056 053076 053126 002074 002104	7395 9318 7872 7873 7874 7875 7876 7877 7878 7879 1128# 1133#	9320 7896 7898 7900 7902 7902 7905 7905 7907	9325										
ALLCPU APTCOR	002074	1129 <b>*</b> 1133 <b>*</b>	6692* 1986*	6694* 1994	6695* 9317	6740	6783	6818						
APTDON APTFLA APTHAN APTHLT	037236 002022 011720 037304	1364 1103 <b>*</b> 1926 6049 <b>*</b>	5103 <b>*</b> 1360 <b>*</b> 1045 <b>*</b>	6045 1965 2109	6047* 3058	3067	3075	3085	3095	3104	3117	3233	6014	7601
APTMOS A3 =	901200	1134# 7047#	1989*	1994	9317									
BĀCKGN BAD	031124	3013# 1004# 7262* 7417*	3024* 1801* 7267* 7449*	3041* 5228* 7272* 7450*	3191* 7204* 7277* 7466*	4935 <b>*</b> 7210 <b>*</b> 7282 <b>*</b> 9312	5978* 7217* 7287* 9318	7222* 7292* 9320	7227* 7297* 9328	7237* 7302*	7242* 7309*	7247* 7373*	7252 <b>+</b> 7386	7257 <del>*</del> 7295*
BADPC BADXOR BAD2 BAD3 BAFPAF	001446 001446 001444 001444	997# 1007# 1005# 1006# 2005	5179* 7386* 7374* 7376* 2116*	730* 5193* 7387* 9328 7377* 2145*	5217* 9318 9328	5221*	\$226*	7230*	7322 <b>*</b>	7337*	7577	7578	7579¥	
BAFPAR BAKPAT	012070 002174	2006 1166 <b>*</b>	2149# 1279#	2178¥ 3190	4611	4645*	4683	4690	4699	4723 <b>*</b>	7298	7303		
BALANC=	: 000277 00147C	6799# 1017# 1728* 2223* 3290* 5706* 6216* 6411 6539* 6676* 6980* 8164 1018# 6703	6808 1553* 1729* 2266* 3293 5710* 6219 6418* 6540 6688* 6998*	1560* 1732 2307* 3306* 5839 6225 6420* 6545 6701* 7040	1561 1750* 2355* 3320* 5907* 6251* 6425 6550* 6705* 7403	1563 1758* 2396* 3329* 5908 6256 6460* 6551 6708* 7525	1569 1785* 2463 3339* 6169 6262* 6465* 6555 6739* 7716	1584* 1788* 2473* 3353 6174* 6263 6472* 6561* 6777* 7740	1651* 1791 2476 3371 6178* 6265 6473 6563* 6782* 7769	1652 2028* 2598* 3504 6181 6293 6567 6813* 7866	1657 2037* 2512* 5642* 6187 6368* 6488* 6602* 6817* 8128	1705* 2117* 3272* 5645 6202* 6369 6492* 6607* 6849* 8129*	1707# 2150# 3275 5653# 6207 6380 6495 6614# 6909 8130	1721* 2183* 3287* 5705 6212* 6408* 6515 6615 6967*
BANKIN	001472	8164 1018 <b>*</b>	6998* 8165* 1468*	8166 1469	8179* 1486*	7525 8474 1565*	1613	1654#	1696	1733	5649	5708	5841*	6634
BANKMO BANKOK BAWPAF	035570 036334 012204	1739* 2269* 2007	6710 2101* 2310* 2182*	5648* 2358* 2210*	5704* 2399* 2218*	5741# 5882#	6037*							

ODT (CEMKA) MACY11 304(1052	) 28-FEB-78 0	9:20 PAGI	E_77-1	IO1							SEG 0422
CEMKAA.MA2 24-FEB-78 08:17		REFERENCE	IHRTE -	- USER 3	TUBUE2						SEW OVER
BAWPAR 012342 2008 BDSWIT 002062 1122* BEGIN G04676 1249 BITC = 000001 249*	2222 <b>*</b> 2250 <b>*</b> 1808 <b>*</b> 9320 1281 1282 1446 1815	2258* 1383 1815	1385 <b>*</b> 5167	5240	5244	5249	5254	5345	5347	5373	5378
BĪŤC = 000001 249* 5383 5719	5389 5430 6183 6221	5432 6497	5438 7036	5441 7464	5463 7470	5465 7809	5480	5482	5693	5695	5378 5717
BIT1 = 000002 248 5503	1816 1850	2043	2527	2629	5361	5367	5383	5389	5396	5403	5496
BIT10 = 002000 239* BIT11 = 004000 238* 7469	1620 1638	5011	5276	5278	5299	5301	5658	5871	6724	7405	7465
BI*12 = 010000 237* BI*13 = 020000 236*	1401 1402 1401 1407 7949 7965	1407 1471	1473 1473	1697 1656	2641 1934	5138 1935	5663 2642	5842 5116	7949 5661	7950 5662	7965 5735
BIT14 = 040000	1472 1579 3426 4571 6226 6243 7017 7046	1592 4572 6528 7057	1609 5352 6876 7308	1630 5354 6884 7372	1656 5661 6901 7394	1659 5662 6908 8014	1934 5681 6917 8018	1935 5714 6933 8096	2540 5765 6966 8100 2578	2834 5781 6979 8131 3146	3354 6044 699: 8167
BIT15 = 100000 234# 5452	1380 1381 5650 5658	1719 5659	1734 5681	1843 5688	1852 5709	2559 5714	2571 5765	2574 5781	5862	6685	535+ 670+
BIT2 = 390004 6711 247	6717 6902 1815 1817	7538 1850	7571 2629	7772 5254	7805 5396	5403 8014	8100 5496	5503	7898	7960	7902
3173 = 000010 7905 246#	7907 7909 1475 1818	1819	2628 7902	2634 7907	5112 7909	5254	5362	5368	5384	53 <del>9</del> 0	5397
BIT4 = 000020	5497 5504 964 1336 5344 5419	7900 1492 5439	1493 5847	1718 6671	1817 6673	1819 6691	1867 6692	1878 6695	2097 6742	2559 6785	2578 6820
BITS = 000040 244# 6033	7805 1353 1426	1850	1821	1829	2097	5094	5684	5692	5721	5725	5998
PIT6 = 000100 243* 6522	1821 1822 6537 6593	6615 1833	4 <b>95</b> 4 7007	4989	5094	6305	6363	6398	6404	6451	6470
BIT7 = 000200 242 6632	1356 1818	1822	1837	2636	4953	5094	6304	6397	6450	6521	6592
BITB = 000400 241* BIT9 = 001000 240* BLOCK1 037306 1557 3179 6963	1446 5254 2851 2852 2027 2962 3197 3200 7001	5240 2971 3204	5244 2980 3207	5254 2999 3250	5693 3016 3255	5695 3027 3267	5717 3149 3317	5719 3154 4420	7036 3160 4940	7809 3167 5330	3173 6058#
BLOCK3 037342 2995	3000 3001	3017	3058	3251	3252	3355	5682	5715	5766	5782	506 <b>7</b> *
BMFLAG OC:520 1029* B00T 03702C 5984* B00T1 037062 5993 B0 004304 1319* B1 006532 1651* B10 010340 1883* B100 045004 6800* B101 045076 6817* B102 045140 6823* B103 045174 6830* B104 045216 6836* B105 045220 6837*	8137 1723 2188 8431 8533 5999# 1325 1705 6810 6849 6828 6828 6835	2228 9556	2314	2403	5644	5838 <b>÷</b>	5873*	5877*			
8106 045276 68538 8107 045372 68718	<b>6859</b> 6880										

		JO1
ODT (CEMKA) CEMKAA.MAZ	MACY11 30A(1052) 24-FEB-78 08:17	
B11 010350	1986*	1897 7056
B11 010350 B111 04655 B111 04660	7047#	7054
B112 052220 B113 052220 B114 052426 B115 052536 B116 052536 B117 053333	7801	7814 7846
8114 052426 8115 052536 8116 052540	7861 <b>•</b>	7885
B117 053333	79428	7947 19 <del>96</del>
812 010352 8120 053416 8121 05350	7955 <b>8</b> 7970 <b>8</b>	7960 7975
8122 053745 8123 053750	1 8024 <b>8</b>	8032
8124 054238 8125 054244	80768	8084
B13 010458 B14 010548	1905 <b>*</b> 1919 <b>*</b>	1911 1924
B15 010614	1932 <b>*</b> 1968 <b>*</b>	1939 1993
817 011404 82 007074	1720	2037
B20 013466 B21 013504	2469#	2510 2505
821 013504 822 013510 823 013526 824 013606	? <b>2473</b> #	2498 2495
B24 013602 B25 013622 B26 017632 B27 020716	2485#	2490 3138
l 83 - 00710a	3271#	3288 1728
B30   020722   B31   021050	2 3272 <b>8</b> 3 3289 <b>8</b>	3287 3307
<b> </b> B33	3320	3306 3329
B34 027102 B35 027140	3 4509 <b>*</b>	4564 4563
836 027154 837 027266 84 007260	4536#	4527 4560
840 027446 841 027470	- 1568₩	4570 4575
842 033642 943 033648	5414 <b>8</b> 5415 <b>8</b>	5425
844 034008 845 034018	5447 <b>8</b> 5448 <b>8</b>	5458
846 034310 847 034314	5513#	5519
85 007264 850 034734 851 034742	5641	1758
852 03504 853 035050	5656#	<b>5653</b> <b>5671</b>
854 036160 855 041670	5848#	5853 6418
856 04223	6460#	6465

5E% 0423

ODT (CEMKI	A) MACY11 2 24-FEB-7	( 30A(1052) 8 08:17	28-FEI	9-78 09 CROSS RI	:20 PAGI EFERENCE	E 77-3 TABLE -	KO1	Y <b>M8</b> 0⊾S						5E0 C424
B6 01 B60 01	43074 07516 43432 43716 43770 44006	6550 1787 6602 6660 6670 6675	6561 1790 6607 6669 6690											
364 09 865 09 866 09 87 00 87	44014 44134 44204 44366 10254 44400 44436 44516 44500 44672 44760 44760 45002	66768 66938 67018 67368 18668 67398 67448 67578 67678 67828 67838 67938	6688 6696 6705 6778 1877 6777 6775 67761 67761 6813 6798											
CACHK DI CACHOF= 10 CACHON= 10	02132 04424 04423 00114	1147# 105# 3395 104# 2849 264#	5248 1530 3428 1533 3397 265	1578 4535 1582 3430	1591 5287 1595 4512	1608 5321 1612 7990	1629 5339 1634	1647 6095 1715	1762 6656 1784	1827 6868 1879	1882 6975 1899	2483 6988 2491	2541 7012 2582	2935 2530
CHKDIS= 10	04475 01762 04504 34350	148# 149# 1086# 156# 3732#	2833 2831* 1660 3819*	3743 5395 1669 3908*	3828 5402 1677 3980*	3919 5548# 1685 4056#	3992 9325 4132*	4068 4738*	4144 5525 <b>*</b>	479s				
CHK1DI= 10	56444 04410	5535 157 <b>8</b> 8409 87 <b>8</b> 154 <b>8</b>	5552 <b>*</b> 4307 8411 7489 1663	4328 8413 7561 1672	4336 8448# 7593 1680	4350 1688	4371 2860	4380 3266	4395 3332	6319	7364 6384	6445	6484	658 <del>4</del>
CLRICS= 10 CMDIIA DO CMDIIB DO	04503 43236 43426	6962 155# 3811 4148 6570# 6602#	2525 3830 4184 6574 6609	2550 3882 4425 6578	2569 3888 4772	2585 3902 7369	2838	2847 3949	314B 3974	3181 3996	3715 4031	3;'60 4050	3773 4070	3804 4106
CMD11C DI CMD5A DI CMD5B DI CMD5C DI CMD7A DI	43500 40762 41170 41354 41632	6589 6282 <b>*</b> 6314 <b>*</b> 6297	6611 <b>*</b> 6286 6327 6301 6403 <b>*</b>	6290 6362 <b>*</b>										
CMD88 DI CMD8C DI CMD9A DI	42036 42226 42300 42524 42740 42746 42726	6394 6428# 6460# 6447 6500# 6513 6518	6432 6467 6469# 6504 6533# 6536#	6436 6508										
CONFGT DI	42726 03550 05472 05154	6518 6512 1232 <b>*</b> 1437 1439 <b>*</b>	6529# 1491# 1499	6531	6533									

ODT (CEMKA) MACY11 30A(1052)	28-FEB-78 D9:8	20 PAGE 77-4	LO1						
CEMKAA.MA2 24-FEB-78 08:17	CROSS REF	FERENCE TABLE -	- USER SYM	IB0LS					SEG 0425
CONFG3 005342 1469# CONFG4 005446 1476 CONFG5 005516 1490 CONFIE 003550 1227# CONFIG 002230 1226# 1621# 5049 5663	1489 1486# 1496# 1332 1330 1380# 1638# 1641# 5056 5088 5709# 5842	1381* 1470* 1655 1656 5094 5111 5849 5856	1471# 1697# 5134 5862	1719* 1 5138 5	475* 1481* 734* 1933 650* 5658 267 6554	1485* 1934 5659 6556	1542* 1935 566C 6685*	1570 5011 5661 6704*	1620+ 5029 5662 6711+
7405* CONFSP 005560 1438* CONTFL 001704 1060* CONTP 056216 8407* CONTRL= 177746 272* 6122*	7407* 7409* 1491 1503* 2000* 2452 9527* 9574 1436 1501*	7410 2511* 5248* 5249*	5254* 9326	5286 5	306* 5320	5324*	5338	5341#	6034
CONTT 056532 8402* COREHI 036704 5920* COUNT 002040 1113* CPUBIT 001476 1020* 5660 CPUBRR= 177766 282*	7465* 7469* 8468* 5934* 5947* 4513* 4516* 1336* 1542 5849 6267 1256* 1348* 6252* 7614*	7989 8120*  5963* 5969*  4517* 4518  1621 1641  6674* 6691*  1397* 1492	6299#	1718 1 6742* 6	537* 4538* 829 1833 783* 6785* 585* 1777*	1837 6818 <b>≠</b>	4558* 1869* 6820* 6137*	1878* 6862 6148*	1933 6165*
CR = 000015 1818 CRLF = 000200 1828 9367 9388 9402	8241 8221 9269 9373 9377 9389 9390 9403 9404	9316 9321 9351 9352 9378 9379 9391 9393 9405 9409	9353 9380 9394 9411	9381 9 9395 9 9412 9	9356 9359 382 9383 396 9397	9359 9384 9398 9415	9360 9385 9399 9416	9364 9386 9400 9417 9432	9366 9387 9401 9418 9435
9419 9436 9459 058 001526 1032# 2578 4341 5278# 5361# 5389# 5452 5505# 9325	9420 9440 9440 9461 1443 1462 2601 2628* 4349* 4363 5282 5282 5362* 5363* 5390* 5471 5473 6151* 6154*	9422 9446 9447 9465 1463 2629* 4365 4370* 5299* 5301* 5367* 5368* 5395* 5485* 7797	9448 9467 1658* 2635 4379* 5305 5369* 5397*	9449 9471 1668* 12639 2639 2386 4386 4386 5316* 5373* 5398* 5490*	9427 9453 9453 9472 9473 676* 1684* 941 9306* 9317* 9317* 9322* 9374* 9374* 9374* 9378* 948* 9491* 9491* 9496* 9491*	4320 4407 5323* 5379* 5404* 5497*	9431 9455 9480 1918* 4322 4413* 5344 5383* 5498* 8080*	9432 9456 2527 4327* 5265 5355* 5384* 5419 5503* 9323	2559 4335* 5276* 5356* 5385* 5439 5504* 9324
CSRCAS 014666 2489* CSRFB 001572 1035* CSRFBA 001766 1088* CSRFIR 001710 1067* 2762*	2654# 1464* 7864 2498 2597* 2480 2704* 2780* 2788*	2710* 2726* 2712* 2714* 2790* 2796*	2720*	2728* 2	786* 2802* 730* 2736* 812* 2820*	2744*	2746* 2832	2752* 3142	2760* 3166
CSRINC 001772 4301 2808*	6256 6315* 2495 2706* 2814* 2824*	6366* 2716* 2722* 3131* 3144	2732 <b>*</b> 4302	2738* 2	748* 2754*	2764*	≥782 <b>*</b>	2792*	2798*
CSRIND 001774 1091# CSRLB 001612 1036# CSRLBA 001770 1089# CSRL00 001776 1093# CSRNO 001634 1038# 5313	2464# 2467 1465# 7865 2473 2598# 2466# 2501 1435# 1460 5322 5415# 7797 7801#	2508* 2510* 2529 1477 1436* 5425* 5448* 7814* 7816*	1497 5458*	1919* 1 5513* 5 7893* 7	924* 2524* 519* 6094 993 8025*	3125* 6122* 8032*	5262 6380 8077*	5269 6420* 8084*	5292 6634* 8116*
CSROUD 001775 1092* CSROUT 034302 5364*	2465* 2509* 5375* 5386*	2519 5399* 5487*	5499 <b>*</b>	5509#					

ODT (CE		MACY11 30A(1052)	28-FE		**	E 77-5	MO1	Y <b>mb</b> ols						5E0 0426
CEMKAA.		24-FEB-78 08:17			FERENCE	TABLE	- USER 5 5333	IUBUES						367 0 .60
CSRSTU=	<b>0000055</b>	1037 2471	1391*	1396*	<b>526</b> 3	2317	5333							
CSRO CSR2	001532	1033 <b>*</b> 1034 <b>*</b>	1463* 1465*	7868								24.22	04.00	24.05
DATBUF	001712	1034 <b>*</b> 106 <b>8*</b> 360?	3583* 3612	7868 3584* 3616	3585 3618*	3586 3717*	3588 3718*	3593 3723	3597 3724	3599* 3792	3602* 3794*	360 <b>3*</b> 3812*	3604 3813*	3605 3816
		3817 4044	3874 4045	3876* 4115*	3890* 4116*	3851# 4121	3896	3897 7238	3597 3724 3962* 7243	3963*	3968	3969	4038*	4039*
DBEMSK	001726	1071 <b>*</b> 3985	3894* 3987	3895* 4013	3903 4015*	3905 4042*	3913 4043*	3915 4051	3931 4053	3933* 4061	3966* 4063	3967 <b>*</b> 4088	3975 4090*	3977 4119 <del>4</del>
		4150#	3987 4127	4113	4137	4139	4166	4168*	7053	7001	7063	1000	10 10 2	1113
DDISP = DECMAR	177570 036556	4120* 17 <b>5#</b> 2163*	4127 1171 2238*	4129 1342 2368*	2411*	5939#								
DEENER=	053156	100 <b>*</b> 7692 <b>*</b>	1399 7912#	5997 7938*	6038	6730								
DECIMAR DEENER= DETAIL DETFLA DETRO DETRO DETRO DETRO DETRO DETRO DETRO DETRO DETRO DETRO	001702	1059#	7600	7691	7913*	7914	7916	797 <b>9</b> *						
DE TRU	001666	1052# 1053# 1054# 1055# 1056#	7921* 7922	7929 9322	9322									
DETRZ DETR3	001666 001670 001672 001674 001676	1054 <b>*</b> 105 <b>5</b> *	7922 9322 9322 9322 9322											
DETR4 DETR5	001674 001676	1056 <b>*</b> 1057 <b>*</b>	9322					•						
DETR6 DF10	001700 066075	1058 <b>*</b> 9114	9322 9345#											
DF11	066102	9089	9094	9140	9346#	0053	9058	9074	anaa	9104	9120	9125	9130	9135
DF2	065742	9023 9145	9150 9150	9043 9155	9048 9170	9053 9176	9186	9074 9226	9099 9232	<b>9337</b> *	,120	,123	,100	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
DF3 DF4	065766 066003	9064 9069 9079	9165 9339 <b>#</b>	9191	9196	9206	9211	9216	9338#					
DF5 DF6	066035	9079 9084	9109 9341#	9201	9340#									
DF7 DF8	066066	9084 9160 9181	9342 <b>*</b> 9343 <b>*</b>											
DF9 DH1	りんたりてり	9033 9026 9072	9038	9344 <b>*</b> 9284 <b>*</b>										
DHIO	064046 064602 064667	9072	9056 9295#		0300 #									
DH15	064716	9102 9128	9133 9297	9153	9296#									
DH14	064733 065041 065157	9087 9143 9158	9300 <b>*</b>	9097	9118	9123	9138	9298#						
DH15 C416	065157 065301	9163 9163	9302 <b>*</b> 9179	9304#										
DH17 DH2	065301 065316 064103	9168	9184 9285#	9230	9306#									
DH3 DH4	064103	9021 9031 9287#	9036	9286#										
DHS	C64144	9041	9046	9051	9148	9288*								
DH6 DH7	064351	30 <b>65</b> 3554	9290# 9067	9077	9082	9107	9189	9194	9199	9204	9209	9214	9291#	
DHB DH9	064137 C64144 064252 064321 064443 064543	9041 9224 9062 9112 9174 1171#	9293#											
DISPLA	ひしててして	1171# _482#	1342*	1350* 7540*	6530* 7566*	7539 <b>*</b> 8115 <b>*</b>	7564*	8114*						
DISPRE= DISPTB DSWR =		2003 <b>*</b>	1350 2005#		. 500*	<i></i>								
DT1	065366	174 <b>#</b> 9027	1170 9057	1341 9312#										

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ODT (	CEMKA) IA.MAZ 2	MACY11 30A(1052) 24-FEB-78 08:17	28-FEB	78 09 CROSS RE	:20 PAGI EFERENCE	E 77-6 TABLE	NO1							SEQ 0427
DT10 DT11 DT12 DT13 DT14 DT16 DT17 DT18 DT19 DT2 DT3	065542 065562 065572 065600 065624 065652 065704 065712 065726 065400 065410	9073 9103 91029 91129 91159 91159 91169 91175 9037 90425 9043 91175 91175 91175 91175	9322# 9134# 9324# 9093 9326# 9327# 9180 9231 9313# 9314#	9154 9098 9329* 9331*	9323 <b>*</b> 9119	9124	9139	9325#						
DT4 DT5 DT6 DT7	065420 065444 065460	9037 9042 9225 9063	9315# 9047 9317# 9068 9320#	9052 9078	9149 9083	9316 <b>#</b> 9108	9190	9195	9200	9205	<b>35</b> 10	9215	9318#	
ECC11 EMTVE EM1	S= 10447@ (I= 104472 )I= 104471 (N= 104473	146#	9321 # 9318 9318 1699 1521 2542 4102 4102 2586 * 9237	9319 2858 1549 2561 4142 2589 1287*	9325 3318 1712 2844 4180 4743	9327 6317 2867 3741 4423 4786	3328 6382 3335 3748 4777	9329 6440 3342 3800 4784	6482 3346 3826 4793	6582 5992 3878	6029 391 <i>7</i>	3945	3 <b>9</b> 90	4027
	061325 061325 061327 062053 062053 062053 062151 0622305 0623365 0623365 0623567 06256635 06263356 063355 063355 063355 063355 063355 063117 0635732 063117	404 404 405 405 405 405 405 405	191124219999999999999999999999999999999	9076	9081	9248#								

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ODT (CE	MKA)	MACY11 30A(1052) 24-FEB-78 08:17	28-FE	B-78 09 CROSS R	):20 PAGI REFERENCE	E 77-7 TABLE -	B02 - USER S					-	SEG 0428
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1751 1751 1751 1751 1751 1751 17	1:20 PAGE REFERENCE 4788 6732 1541 4806 6882 7930 7575 7327 7564* 1789* 3291* 6616* 6201*	1754 4817 7327 7935 7578* 9329 7502* 2029* 3321* 6677*		1995 5222 7344 9312 2185* 5707* 6741*	2034 5229 7351 9314 2225* 5819* 6784*	2050 5475 7379 9315 2268* 6294* 6819*	3770 5479 7429 9316 2309* 6370*	3784 6132 7432 9317 2357* 6409*	SEG 0429  3842 6147 7435  9318  2398+ 646:+
E125 E13 E14 E15 E16	054304 010506 010572 010676 011232	8084 <b>8</b> 1911 <b>8</b> 1924 <b>8</b>											

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ODT (CE CEMKAA)		MACY11 30A(1052)	28-FE	3-78 09: CROSS RE	20 PAG	E 77-8 TABLE -						SEG 0429
E20 E20	011454 007166 014014	2037 <b>*</b> 1725 2510 <b>*</b> 2505 <b>*</b>	1731#									
	013766 013724 013724 013710	2505# 2493 2498# 2495#	2499#									
E25 E25 E27	013660 017716 021042	2490* 3138* 3288*										
E35 E30 E30	051164 051500 051056	3287# 3307# 3306#										
E33 E34 E35 E36	021336 027440 027424 027246	3329# 4564# 4563# 4527#										
E40	027410 007332 027464	4560* 1756 4570*	1759#									
E45	033714	5421 5421	5424	5426#								
E44 E45	034060	5454 5454 5458#	5457	5459#								
	034344 034344 007332	5518 5519 <b>8</b> 1758 <b>8</b>	5520#									
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E5555555555555555555555555555555555555	0113724 01137210 01137210 01137210 01137210 01137210 01137210 01137210 01137210 01137210 01137210 01137210 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 0113340 011	2495# 4995# 4995# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24900# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24990# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900# 24900	5665	5676#								
E57 E6 E60 E61	043764	5607 <b>*</b> 6669 <b>*</b>										
E63 E63	044114 044104 044104 044156	6690# 6686 6688# 6696# 6705#	6689#									
E67 E7 E70	044625 010356 044665	18//# 6777#										
E70 E71 E72 E73 E74	044636 044545 044636	6775 <b>8</b> 6761 <b>8</b> 6774 <b>8</b>										
E75 E76 E77	045066 044752 045002 045052 = 177640	6813# 6791# 6799# 6808 312#	6811 <b>#</b> 1580*	1610#	2997	3396*	4424*	5335+	5340 <b>*</b>	6053		

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FATAL\$ 00145 FCMD10 04303 FCMD11 04317 FCMD12 04357	2 6114 6 6115 0 6116	1537 <b>+</b> 6544 <b>*</b> 6566 <b>*</b> 6620 <b>*</b>	1541*	4751+	5194*	5218*	5222*	5229*	6882*	7601	7645		
FIELDS 03737 FINDBA= 00005 FINDTU= 00011 FIRST = 06000	2 6080 <b>*</b> 2 5656 <b>*</b> 2 7800 <b>*</b>	8399# 5661 7810 1573 2746 2959 3355 6047# 6967 8135*	9565* 5665 7813 1602 2752 2967 3360 6182 6970 8136*	1627 2760 2988 3361 6220 6980 8137	1649 2762 3014 4195 6315 6384 8139	2025 2780 3025 4421 6412 6992* 8168*	2704 2788 3042 4514 6496 6998 8169*	2712 2790 3196 4534 6877 7009 8174	2714 2796 3219 4568 6885 7018#	2720 2804 3227 4570 6887 7041	2728 2806 3247 4571 6902* 7768	2730 2812 3276 4938 6909 8132	2736 2820 3295 6045* 6918 8133
FIRSTE 00163	2786	1464 2802	1466 2818	1487* 7864*	1488 7866	2597	2645*	2646	2648 <del>*</del>	2710	2726	2742	2758
FIRSTP= 00000 FLIPLO 00216 FLIPHA 03077 FLUSH 01152 FSCMD1 03754 FSCMD2 03755 FSCMD3 04002 FSCMD4 04027 FSCMD5 04060 FSCMD6 04145 FSCMD7 04146 FSCMD8 04177 FSCMD9 04237 FSINFL 00212 FSPAT 04125 FSSTAC 00175 FS1 03744 GALHOR 00174	1720# 1758# 1758# 1758# 1758# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756# 1756#	17273# 172773# 172703# 172703# 161148# 161148# 161257794# 16125334478# 161079# 161079#	2773 6136 6118 4714*	2774* 6142* 4715	4910+ 6164 4717	4911 6258+ 4718+	4913 6362 4721	4915 6399*	6403	6426 <i>*</i>	6469	6479 <del>*</del>	6536
GDSWIT 00206 GETDAT 05032 GETDAI 05044 GETDIS 05065 GETSIZ 01447	+ 7324* 2 7460* 3372*	1804* 7339* 7468 3405* 2596*	9320 7458# 7473# 7520* 2625#	7524#									
GOOD2 00143 GOOD3 00143 GTSWR = 10440	2 1001 <b>*</b> 725 8 <del>*</del> 738 5 4 100 2 <b>*</b> 5 100 3 <b>*</b>	1493# 7263# 7391# 7354# 7355#	1800* 7268* 7419* 7358* 7359*	7205* 7273* 7421* 9327 9327	7211* 7278* 7451*	7216 <b>*</b> 7283 <b>*</b> 9312	7223 <b>*</b> 7288 <b>*</b> 9318	7226* 7293* 9320	7233# 7298* 9327	7238* 7303*	7243* 7313*	7248 <del>*</del> 7315*	7253* 7371*
HEADER 00214 HIADRS= 17774	5 1153 <b>#</b> 3854 <b>*</b> 7455 <b>*</b> 2 270 <b>#</b>	1415 1274* 3857* 7643 9316	2018* 3926* 7655 9326	2021* 3929* 7689*	2446* 4807* 7696*	2459* 4818* 7918	2486* 6312* 7919*	3768* 6457* 7932	3771* 6599* 7933*	3782* 7424* 7936*	3785* 7440*	3840* 7445*	3843 <del>*</del> 7453 <del>*</del>
HIBANK 00207 HIPAT 03636 HT = 00001 I 00213	6 <b>2353*</b> 179 <b>*</b>	1793* 2394* 8218 1319* 3299	5901 <b>*</b> 1325 <b>*</b> 3302	1953+ 3307+	1954* 7003*	1 <b>95</b> 6 7016	2485* 7024	2488	2490*	3271*	3280	3283	3288*

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ODT (CEMKA) MACY11 30A(1052 CEMKAA.MAZ 24-FEB-78 08:17	CROSS	REFERENCE	TABLE -	- USER 5	YMBOL5						SEG 0432
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INTKRA 014344 2470* INTOVR 002042 1114* INT.0 015006 2605 INT1 015032 2606 INT2 015076 2607 INT3 015122 2608 INT4 015166 2609 INT5 015212 2610 INT5 015256 2611 INT7 015302 2612 INT10 015346 2613 INT.11 015346 2613 INT.12 015370 2615 INT.13 015414 2616 INT.14 015460 2617 INT.15 015504 2618 INT.15 015574 2620 INT.17 015574 2620 ISECCO 014034	25948 3129 2630* 2632 27048 2777 27108 2777 27208 2778 27368 27528 27528 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27588 27	<b>▶</b> 526 <i>7</i>	5290	6155*	6157*						
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KIPARO= 172340 393# KIPARO= 172300 373# KMAP = 104422 102#	5600 5625 5627 5791 1430 6731	5789 8006	8066 5808	8138 8087	8153 8154						
PPELAS 001504 1023	1648* 1724	1753	5362	5368	5384	5390	5397	5404	5497	5504	5834*

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LBLS1 = 000125	7485# 748 7691# 769 7900# 790 8004# 802 1321# 132 1750# 175 1994# 199 3068# 307 3151# 315 3290# 330 5094# 509 5513# 628	7 6660 # 6849	6653	70	0 6693# 6864# 6974# 6974# 7330 7497# 7838# 79472# 84555# 19153# 31502# 95672# 6464	6696 6866 7042# 7336# 7431# 7560# 7846 7954# 1704 1919# 2467# 3175# 4505# 5300# 5674 6503#	6701# 6871# 7056 7338# 7433 7572 7861# 7961# 1709# 1924 2506 3105# 3105# 3107# 4508 5302# 6552#	6705 6880 7307* 7340 7434* 7576* 7887 7963 1720* 1933* 2857* 3117* 3233* 4509* 5415* 5851 6561 6879	6881 # 7311	6778 6883 7312# 7343# 7437# 7589# 7890 7976# 1735# 1968# 3059# 3127# 3272# 4572# 5448# 5971# 6604#	60188 61888 62838 64988 65789 65789 65789 7776198 7776198 777777 776198 77777 776198 77777 7789 7789 7789 7789 7789 7789
LBLS10= 000127 LBLS11= 000025 LBLS2 = 000547	6675# 668 7580 758 7844 786 2482# 249 2485# 249 1656# 170 1969# 199 3323# 332 5517 551 6776 678	34# 7586 52# 7886 34 30 30 1721# 32 1994#	7594# 75 7955# 79 1728 17 2033# 20 4527 45	60 797 52# 175 35 246 36# 456 58# 567	7 1887# 9# 2505 0 5417# 0 5972#	6848 7800# 8025# 1896 3130# 5423 5979 6823#	5872# 7815 8032 1921# 3132 5424# 6554# 6828	5879 7817# 8077# 1923 3274# 5450# 6560 6830#	7042# 7827 8084 1934# 3286 5456 6676# 6835	7056 7840# 1935# 3292# 5457# 6688 6836#	7577# 7842# 1937 3305 5515# 6743# 6847

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ODT (CEMKA) CEMKAA.MAZ	MACY11 30A(1052) 24-FEB-78 08:17	28-FEI	8-78 09 CROSS RI	:20 PAGI EFERENCE	E 77-13 TABLE -	- USER S	YMBOLS						SEG 0434
LBLS3 = 000527	6877* 7883 1667* 1985* 3301 5972*	7047 <b>*</b> 8027 <b>*</b> 1693 1987 3302 <b>*</b>	7054 8030 1694# 1988# 3304	7601 * 8031 * 1698 1990 4515 * 6744 *	7604 8079# 1723# 2471# 4527 6775	7605# 8082 1727 2499 4536#	7610 8083# 1753# 2500# 4560 6810	7801 <b>*</b> 1755 2504 5419 <b>*</b> 6837 <b>*</b>	7814 1888* 3280* 5422 6846	7818# 1895 3282 5452# 7049#	7822 <b>1</b> 1972 <b>1</b> 3283 <b>1</b> 5455 7051 <b>1</b>	7825 1974* 3285 5659* 7053	7863 <b>*</b> 1976 3299 <b>*</b> 5669 7601 <b>*</b>
LBL54 = 000531	7803 <b>*</b> 1675 <b>*</b> 4537 <b>*</b> 6767 <b>*</b>	6678# 7812 1692 4538# 6774	6687 7813# 1724# 4539# 6836#	7866# 1726 4548# 6809	7862 1889# 4557 6842#	6800# 1894 5660# 6845	2473 <b>*</b> 5668 7805 <b>*</b>	2498 6749 <b>#</b> 7811	4516# 6753 7871# 4547	4517# 6757# 7880 4550#	4518# 6761 7881# 4552	4521 <b>*</b> 6762 <b>*</b>	4524 6765 4556
LBLSS = 000520 LBLS6 = 000336 LBLS7 = 000024 LCSROU= 000046 LCSRRE= 000124 LCSRSA= 000122 LF = 000012 LKS = 177546	5512# 8076# 8024#	1691 5662# 2479# 2495 5518 8083 8031 8245 7007#	1724# 5667 2496 7013#	2475# 6760# 5663#	2497 6770# 5666	4541 <b>*</b> 6773	4543 6806 <b>*</b>	4545 <b>*</b> 7809 <b>*</b>	7577	**************************************	3567	******	~556
LOADBA	1138 <b>*</b> 102 <b>*</b>	1922 1922	5702 2631	5706 5370	5380	5392	5406	5492	5506	5516	6156	8081	
LOADER= 000050 LOADHO 002114 LOADRS= 177740	269#	5651 1732* 5173	1735 9316	1737 9326	2099	5647	5703	6036	6708				
LOOP 011254 LOWBNK 001736 LOWMAP 035524 LSYSS = 000000	975** 1725** 1336739554777997 13367395547771888036985800217689948048555677777881111111111111111111111111111	2118** 118** 15918* 5934675502880755963513287 77778268813599999995132868 11111111111112222222222222222222222	9 * 0249880057619111887169201224398 11556703521699576924680 115677778813887169201224398 11567777801445920122222222222222222222222222222222222	\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	# 055401127842932942777778 1137312784293294450024791 1150614772842932944500247791 116614778429329429222222222222222222222222222222	1357 1357 1357 1357 1357 1357 1357 1357	2627103857265356736682098568 27527103857265356736682098568 1111111111222222222222222222222222222	133743610903264465847877777791118926787932122222222222222222222222222222222222	1994767210463777770659810213780 1994767210463777770659810213780 1111111111111222222222222222222222222	1367568 1367568 11567568 1156756837487341324021 11667568374823760921 116777778883760921324021	31490044360723905372042468132 3334554925140723905372044468132 11345667723905372042468132	13388548 133885498557 133885498557 13398549557 145549859 14554959 147777888 1477777888 1477777888 1477777888 1477777888	1339927 1339927 1339927 136777558 188055 1177777888 189055 1177777888 189055 1177777888 189055 1177777888 189055 11777777888

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ODT (CEMKA) CEMKAA.MA2	MACY 11 30A (1052 24-FEB-78 08:17	() 20-re	8-78 09 CROSS R				YMBOLS							0435
	#1559999020##6##7886#98169?#9#655522#618#C#51858929?025 #007.0#69809099?*12#655999029##796095555599825 #007.0#69999?*12#69566678999011#22229###7990957 #007.0#609997 #007.0#6099997 #007.0#6099997 #007.0#6099997 #007.0#6099997 #007.0##6## #007.0##6## #007.0##6## #007.0##6##6## #007.0##699997 #007.0##609999 #007.0##609999 #007.0##609999 #007.0##609999 #007.0##609999 #007.0##609999 #007.0##609999 #007.0##60999 #007.0##60999 #007.0##60999 #007.0##60999 #007.0##60999 #007.0##60999 #007.0##60999 #007.0##60999 #007.0##6099 #007.0##6099 #007.0##6099 #007.0##6099 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##609 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##60 #007.0##	16661112216090539075128808695961364495721516720690307336 800111223331893555555555555555555552233111223579666666666666666666666666666666666666	27777289576350401816902:107960728865198729832937729677 800111223378075555999205259957987518358984263883293772 2333333333333377717177755555555555555556666666666	37 + 833055683+71762200802222+071125098301567590++5+5540108 8281575803335101762200802224071125098301567596455705667 23333333333333335171762200802222407112555566759301567590++5+555667777	7859+516759782873+53973833038255621953+69960155758669512 8001117380+95101357619606251257031638369900111225798135758667512 2333333333333334+44555555555555555555555	9764672773891395761084444259304702075810071766879770626 8000111223336805555901233344566678990011122334444555666777 23333333333333444445555555555556666666666	187788589482040961880570555555555555466666666666666666666666	29+09979051925107798+717665115+8823+51383+05992291996651 90011122337780555589012337+5665115+8823+513808137036707369 2333333333333++++++55555555555555555566666666	1C52080C262636218807395187722659971662797526013302118963 900111223378055555890123111566678990011222331115555566777 2333333333333337111111111555555555555555	0664727123156673398161091988433961098885908630538753356378 9001111223379055559901237175666788990011223377555666666666666777 2333333333333333333347777775555555555555	5776402373898844022731041991510310319102976174056751740996936373933333333333333333333333333333	98375++98303095530278335310262802173133308828616796289730 960360792993702+6+8878+13625633638605581478819248616796289730 970111222333333791555599902783354+455555687802173122223334+45555566789730	091877519015136748314047421377544347249729073780849046 0603607020937124648999941462568659715814782933444555566778 33333333333333333444444455555555555555	

ODT (CEMKA) CEMKAA.MAZ	MACY11 30A(1052) 24-FEB-78 08:17	28-FEB	9-78 09 CROSS R	:20 PAG EFERENCE	E 77-15 TABLE -		YMBOLS						5E0 04	36
LHDBE = 000003636 LHDBE = 000003636 LI	54148 12498 1321 1372 1988 1994 2030 2033 2048 2049 2049 20548 20738 21768 21768 221768	688788444236487077777777777777777777777777777777777	6889515636777777777777777777888888888555 68895156367777777777777777777777777777777777	68472 68472 696177777777777777777777777777777777777	266877777777777777777777888888888888777777	37783328 68478 6972233333344777777777788889 6877777777777777777888889 68477777777777777777888889	7887178871887188718871888889 6887777777777777777777778888888888	1907901236565308518126683198188888888888888888888888888888888	6888105223310527777777777777777777888888888888888888	8992196788086400415748824023285242 89921967777777777777777777888888888888888888	68838 6999447 7777777777777777777777777777777	68883197777777777777777778888888888888888	688367 77777777777777777777888888886 6696772337344267 6696777777777777777777777778888888888	

ODT (CENKA) CENKAA.MAZ	MACY11 30A(1052) 24-FEB-78 08:17	KO2  28-FEB-78 09:20 PAGE 77-1E  CROSS REFERENCE TABLE USER SYMBOLS
L117 01262 L12 00525 L120 01300	2 1447 4 2346# 2 2387#	1456*
L123   D1376   L124   D1371	6 246/ 0 2475	2506 <b>*</b> 2497 <b>*</b>
L126 01371 L127 01367 L13 00551 L130 01375 L131 01412 L132 01412 L133 01446 L134 01457 L135 01469 L136 01464 L137 01466	2479 2482 5 1492 2500 2527 6 2532 0 2604 0 2641 <b>8</b> 2648 <b>8</b> 2648 <b>8</b>	2496 * 2494 * 2504 * 2532 * 2621 *
L14 00575 L140 01477 L141 01506 L142 01515 L144 01515 L145 01524 L146 01524 L147 01533 L151 01536 L152 01544 L153 01545 L154 01554 L155 01563 L156 01563 L157 01563 L157 01563	2655 2711 2713 2713 2727 60 2745 00 2745 00 2745 2759 1546 2773 2787 2787 2789 2803 2805 2805 2811	2692* 2713* 2715* 2729* 2731* 2745* 2745* 2746* 2763* 2776* 2776* 2805* 2807* 2807* 2823* 1550*
L160 01574 L161 01577 L162 01601 L163 01601 L164 01602 L165 01712	C 2852# 2 2857# 6 2857 D 2859	2859 <b>*</b> 2861 <b>*</b>
L166 01713 L167 01714 L17 00647	6 3058 6 3058 70 1637 6 3059#	3060 <b>*</b> 1639 <b>*</b>
L172	94 3067 94 3068#	3069*
L175 01726 L176 01727 L177 01727	2 3075 <b>*</b> 2 3075	3077*
[2] 00436	0 1329	1334#

		LO2
ODT (CEMKA) CEMKAA.MAZ	MACY11 30A(1052) 24-FEB-78 08:17	
L20 0065 L200 0173 L201 0173	1640 132 3084 146 3085	1642
L201 0173 L202 0173 L203 0173 L204 0174	156 3085 156 3086#	3087*
L205 0174 L206 0174 L207 0174	24 3095 <b>*</b> 34 3095 34 <b>3096*</b>	3097♥
L21 0067 L210 0174 L211 0175	74 1666	1704*
L212 0175 L213 0175 L214 0175	3105 <b>#</b> 3117 <b>#</b>	3106*
L215 0176 L216 0176 L217 0177	02 3117 02 3118# 00 3127	3119 <b>*</b> 3137 <b>*</b>
L220 0175	74 1656 70 3130	1703 <b>*</b> 3132 <b>*</b>
7553 0500 7555 0500 7551 0500	102 3151 132 3156 <b>8</b>	3153*
L224 0200   L225 0200	66 31628	3159#
L226 0200 L227 0201 L23 0067	26 3169#	3165 <b>*</b> 1693 <b>*</b>
L23 0067 L230 0201 L231 0201 L232 0201	62 3175#	3172 <b>*</b> 3178 <b>*</b>
L233 0204   L234 0204	956 3233 <b>#</b> 966 3233	3235*
L235 0204 L236 0210 L237 0207	115 337u	3286#
L240	746 1675 112 3283	3282# 1692# 3285# 3305#
1241 0211 1242 0211 1243 0211	50 3292 34 3299 50 2302	3305 <b>*</b> 2301 <b>*</b> 3304 <b>*</b>
L244 0213	EE 33EE	3328 <b>*</b> 3327 <b>*</b>
I 1247 - 0213	120 3330 172 3334 146 1683	3345 <b>*</b> 3338 <b>*</b> 1691 <b>*</b>
L250 0271	.34 4505	4505# 4508# 4527#
L252 0272 L253 0271 L254 0272 L255 0272	10 4517 <b>8</b>	4521*
L256   0272   L257   0274	?34	4524 <b>*</b> 4560 <b>*</b>
L26 0067 L260 0273	762 1694 810 4537#	1698

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ODT (C		MACY11 30A(1052) 24-FEB-78 08:17	28-FEB-78 09:20 PAGE 77-18 CROSS REFERENCE TABLE	USER SYMBOLS	•	SEG 0439
TS62 TS63 TS63 TS63 TS63 TS61	027322 027354 027340 027352	4538 <b>0</b> 4539 4541 4545	4548* 4543* 4547*		`	
L265 L266 L267	027376 027364 027376	4548 4550 4554	4557# 4552# 4556#			
L27 L270 L271	007046 027510 031264	1709 <b>*</b> 4572 49 <u>6</u> 0*	4575#			
12277777777 001234267 011234267 01234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011234267 011244267 011244267 011244267 011244267 011244267 011244267 011244267 011244267 011244267 011244267 011244267 011244267 011244267 011244267 011244267 011244267 011244267 011244267 011244267 011244267 011244267 011244267 011244267 011244267 0112447 0112447 0112447 0112447 0112447 0112447 0112447 0112447 0112447 0112447 0112447 0112447 0112447 011247 011247 011247 011247 011247 011247	27356 73570 027356 027356 027356 027356 027356 02736 02736 02736 02736 02736 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 02320 0	5450 5452 5452 5464 5494 5515 15644 5659 5665 5662	\$5093			

			NOS
ODT ((	CEMKA) A.MAZ 24	MACY11 30A(1052) -FEB-78 08:17	28-FEB-78 09:20 PAGE 77-19 CROSS REFERENCE TABLE USER SYMBOLS
F343 F344	036432 036520	5915 5927	5917 <b>*</b> 5929 <b>*</b> 5932 <b>*</b>
L344 L345	036540 036634	5930 5954 <b>*</b>	
L345 L346 L347	036636 036662	5915 5927 5930 5954 5954 5958 1724 5960 5970 5971 5972 5972 5975	5956# 5960#
L350	036662 007140 036670 037012	5960 5970	1726# 5962# 5981# 5980#
L352	037012 036770	5971 5972#	5980*
L354 L355	037012 037046	5972 5995#	5979*
L35/ L350 L351 L352 L353 L354 L355 L356 L357	037144 037150	6014 <b>#</b> 6014 1735	6016#
L360 L361	007250 037156	1735 6016	1742 <b>*</b> 6019 <b>*</b>
F365 F361	037156 037176 037210 037416 037434	6016 6031 <b>*</b> 6032 6084 6089 6103	6034a
L363 L364 L365	037434 037534	6089 6103	6088* 6093* 6117*
L366 L367	040722 040762	6267 6276	6270# 6280# 1757#
L37 L370	007316 041014	1752 6285 <b>#</b>	
L366 L366 L37 L37 L370 L371 L372 L373 L374 L375	041016 041042 041076	6267 6276 1752 6285 6285 6288 6295 6316 6318 6381 6383	6207
L374 L375	041216 041220	6316 6318	6318# 6320#
L376	041526 041530	6383 6383	6383 <b>*</b> 6385 <b>*</b>
L40 L40 L406	004516 007314 041734	1356 1753 6410	1358# 1755# 6417#
1401 1402	042070 042072	6431 <b>*</b> 6431	6433#
L403 L404	045135 045116	643 <b>4</b> 6439	6437 <b>:</b> 6441 <b>:</b>
L405 L406 L407	042134 042256	64 <b>62</b> 64 <b>62</b>	6443 <b>*</b> 6464 <b>*</b>
L410	042440 007532 042442	6481 1787 <b>#</b> 6483	6483# 6485#
L411 L412	042556 042560	6503 <b>*</b> 6503	6505#
L413 L414	043165 043165	6506 654 <b>8</b> 65 <u>5</u> 4	6509 <b>*</b> 6562 <b>*</b>
L415 L416 L417	043146 043270 043272	6573#	6560 <b>*</b> 6575 <b>*</b>
L420	007544 043316	6573 1787 6576	1790 <b>*</b> 6579 <b>*</b>
F455	043332 043334	6581 6583	6583# 6585#

			B03
ODT (CEMKA) CEMKAA.MAZ	MACY11 30A(1052) 24-FEB-78 08:17	28-FEB-78 09:20 PAGE 77-20 CROSS REFERENCE TABLE	USER SYMBOLS
1 124 D43426 1 124 D44076 1 124 D43456	D 6678 6743	6606 <b>*</b> 6687 <b>*</b> 6776 <b>*</b>	
1427 044502 1427 044532 143 007570	2 6749 2 6760 <b>*</b> 0 1794 <b>*</b>	6753#	
1426 044500 1427 044530 143 007570 1430 044570 1431 044610 1432 045050 1433 045030	6 6762 6 6770 2 67 <b>86</b>	6766# 6773# 6812#	
1434 045047 1435 045254 1436 045244 1437 045344	2 6806 4 6821 4 6842	6809# 6848# 6845# 6864#	
L44	4 1815 <b>#</b> 5 6864	6866# 6879#	
L443	2 6881 4 6890 2 6921	6883 <b>*</b> 6898 <b>*</b> 6928 <b>*</b>	
L446 045774 L447 046154 L45 007716 L450 046166	4 6973 <b>8</b> 5 1816 <b>8</b> 5 6974 <b>8</b>	6944#	
L451 046630 L452 046610 L453 046620 L454 047420 L455 047440	5 7049 2 7051 5 7307	7056# 7051# 7053# 7311# 7314#	
L456 047446 L457 047474 L46 007730	6 7314 4 7321 D 1817#	7316 <b>*</b> 7323 <b>*</b>	
L460 047500 L461 047510 L462 047514 L463 047540	2 7323 2 7326 4 7328 2 7336	7325# 7328# 7330# 7338#	
L464 047546 L465 047566 L466 047566 L467 050016	6 7338 0 7341 2 7343 6 7393	7340# 7343# 7345# 7397#	
L47 007746 L470 050146 L471 050146 L472 050176 L473 05020	2 1818 <b>8</b> 2 7418 0 7420 2 7428	7420# 7422# 7430# 7433#	
1 L474 050210 1 L475 050230	7431 6 7434 0 7437	7436# 7439# 7488#	
L476 05046 L477 050516 L5 00456 L50 00775 L500 05052	2 7490 6 1359 4 1819#	7493# 1366# 7496#	
L503 05105 L503 05116	6 7560 2 7576	7572* 7587* 7580*	

1			CO3	
ODT (	(CEMKA) MACY NA. MAZ 24-FEB	11 30A(1052) -78 08:17	28-FEB-78 09:20 PAGE 77-21 CROSS REFERENCE TABLE USER SYMBOLS	SEG 0442
L504 L505 L506 L507 L51	051162 051342 051230 0512342 007766	7584 7589 7594 7600 1820*	7586# 7612# 7596# 7611#	
L510 L5112 L5134 L515 L515	0513346 05133766 05133766 051337677777 0513677770 05136777 0513777 0513777 0513777 0513777 05230577 05230577 0533057 0533153 0533153 0533153 0533153 0533153	7584 7589 7594 7600 1820 7601 7605 7691 7694 7796 7803 7805 1821 7809	7604# 7610# 7693# 7697# 7828# 7812# 7811#	
L5167 L5147 L552234567 L552234567 L5533333333333333333333333333333333333	010000 052272 052374 052362 052370 052442	7803 # 7809 # 7817 7818 7822 7840	7827 <b>*</b> 7822 <b>*</b> 7825 <b>*</b> 7842 <b>*</b>	
L525 L526 L527 L530 L531 L532	052450 052664 052664 010012 052650 052714 052772	7818 7822 7840 7842 7863 7866 1822* 7871 7888 7898* 7902* 7902* 7907* 7909* 1828* 7961 7969	7844# 7883# 7882# 7880# 7890#	
L533 L534 L535 L536 L537 L54 L540	053022 053052 053074 053124 053154 010030	7900* 7902* 7905* 7907* 7909* 1828*	7961*	
L541	053456	7961 7969 7976 8004# 8027	7963# 7976# 7978# 8030# 8082#	
L543 L544 L545 L546 L557 L57 L60	053536 053542 053662 053766 054262 056546 010050 010070 010110 004646 010250 010402 010402 010522 010602 010640	7976 8004 <b>*</b> 8027 8079 8470 1829 1833 1837 1367 1862 1888	8082	
L60 L61 L63 L64 L65 L65 L67 L7	010250 010402 010402 010522 010602 010554	1862 1888 1889 1915 1915	1895# 1894# 1927# 1923#	
L66 L67 L7 L70 L71 L72	010664 010640 004640 010664 011014 011072	1889 1915# 1915 1921 1933 1934# 1370 1935 1954#	1938# 1372# 1937#	

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ODT (CEMKA) MACNII 30A(1052 CEMKAA.MA2 24-FEB-78 09:17	28-FEB-78 09 CROSS F	3:20 PAG REFERENCE	E 77-22 TABLE -	- USER 5	Y <b>MB</b> OLS						SEG 0443
L73 011254 1965 L74 011222 1969 L75 011140 1972 L76 011142 1974 L77 011202 1985	1997# 1992# 1974# 1976# 1987#										
MAINT = 177750	1418* 2043* 7464* 7470*	2445* 7530	3265* 7969	3315* 8120*	5975* 8476	5994* 9326	6030*	6310#	6455*	6526 <i>*</i>	6597#
MAPHO = 170202 417* MAPH36= 170372 477*	1423* 5690* 1421* 1763*	5723* 1770*	8042 1771	8062* 1776*	1780*	1781	1782*	8042	8065*		
MAPH37= 170376 4798 MAPL0 = 170200 4168	1424* 5688*	5722*	5731	8042	8065*						
MaPL1 = 170204	5732 1422* 1764* 1569* 1657* 6473* 6514* 2126* 2194* 5927 5930 5971 5972 6430* 6431 6573 6576	1769* 1706* 6540* 2275* 5933* 5973 6434 6595	1775* 2476* 6615* 2318* 5935 6256 6453 6614*	1779* 3253* 6869* 2443 5942 6257 6472* 6960*	1783* 3371* 6900* 3264* 5943* 6284* 6478 7781	8042 3404* 6912* 3314* 5944 6285 6502*	8062* 5599* 6989* 5918 5946* 6288 6503	6043* 7015* J919* 5948 6307 6506	6187* 7040* 5922 5957 6366* 6524	6225# 8130# 5923# 5959# 6380 6539*	6293* 8166* 5924 5961* 6420* 6567
MASTER 043676 2054 MAST01 044364 6697* MAST02 044664 6698* MAST03 045070 6699* MAST04 045272 6700* MEMDON 011322 2004 MEMERR= 177744 271*	6655# 6735# 6781# 6816# 6852# 2017# 5167 5174*	5181 <b>*</b>	5187 <del>*</del>	9316	9321	9326					
MJPAT 016212 1313 MJSIZE 002046 1116# MJTEST 016156 2457*	2913* 2921* 1930* 1934*	1940*	1941*	1942*	1943*	1953	1958	1994	9317		
MJTEST 016156 2457* MKCONT 013434 2454* MKCSRS 001706 1061* 7798	2908# 2462# 1439* 1441* 7863 8023	1446* 8074	1916	2167	3123	5272	5295	5412	5445	5511	6631
MKCSRT 014676 1303 MKFLAG 001510 1025# 7746	2660 <b>*</b> 1724 1752 7796 7851	1787	2449	3322	5833 <b>*</b>	5860*	5888	5927	5930	5958	5970
MKPAT 016056 1308 MKSIZE 002050 1117#	2866* 2875 <b>*</b> 1931* 1936*	1944*	1945*	1946*	1947*	1953	1960	1994	9317		
MKTEST 015774 2455* MK11AD= 172100 486* MMR0 = 177572 286* 9326	2856# 1389 5261 5240* 5244*	5312 5693*	5331 5695*	5717 <b>*</b>	5719*	7036*	8035	8072*	8146	8165*	9316
MMR1 = 177574 287	8035 8072* 8035 8072* 1417* 1426* 9316 9326	8145 8144 2097*	8160* 8160*	9316 9316 5692*	9326 9326 5721*	5725 <b>*</b>	5998*	6039+	8035	8C72*	8143
MMTRAP	5221 <b>#</b> 1298 <b>*</b> 1299 <b>*</b> 6686										
MP1 010202 1853 MRUNSE 046534 6822* MSEEDH 002150 1154# MSEEDL 002152 1155# MSGA34 070204 2501* MSGA87 072253 1904* MSGB34 070221 2502*	1857* 1860 7039* 1275* 1277 1276* 1278 9406* 1908* 9468* 9408*	1861									

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ODT (CEMKA) MACYII 30A(1052) 8 CEMKAA.MA2 24-FEB-78 08:17	28-FEB-78 CR09	09:20 F SS REFEREN	PAGE 77-23 ICE TABLE -	EO3							SEG 0444
MSG000 066114 1384 936 936 MSG001 066172 1956 93 MSG002 066254 1957 93 MSG003 066331 1958 93 MSG004 066436 1965 1901 93 MSG005 066544 1901 93 MSG007 066612 1901 93 MSG007 066612 1901 193 MSG007 066612 1901 193 MSG009 066636 1901 1901 1901 1901 1901 1901 1901 190	3553# 3553# 3553# 3553# 3553# 3553# 3553# 3664# 3666# 3666# 3773# 378# 378# 378# 378# 378# 378# 378# 378# 378# 378# 378# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 379# 3	56 # 7722 56 # 7722 37 # 5036 36 # 5140 74 # 7945 96 # 9402 03 # 04 # 9402	7789 5054* 5141 7958	9371¢ 5075* 7841* 7973	5076 7843* 9375#	5092* 7845	5095+9372#	J097*	510C	5114#	5118*

FD3  ODT (CEMKA) MAC)11 30A(1052) 28-FEB-78 09:20 PAGE 77-24 CEMKAA.MA2 24-FEB-78 08:17 CROSS REFERENCE TABLE USER SYMBOLS  MSG055 071217 6427 9431# MSG056 071240 6444 6586 9432# MSG057 071273 7854 7889* 7891 7892* 9433# MSG058 071277 9434# MSG058 071277 6480 9435# MSG059 071277 6480 9435# MSG060 071327 6515 9436# MSG061 071371 7761 9437#
ČĚMKÁŘÍMAZ       24-FEB-78 08:17       CROSS REFERENCE TABLE USER 5YMBOLS         MSG055       071217       6427       9431*         MSG056       071240       6444       6586       9432*         MSG057       071273       7854       7899*       7891       7892*       9433*         MSG058       071277       9434*         MSG059       071277       6480       9435*         MSG060       071327       6515       9436*         MSG061       071371       7761       9437*
MSG055 071217 6427 9431# MSG056 071240 6444 6586 9432# MSG057 071273 7854 7889* 7891 7892* 9433# MSG058 071277 9434# MSG059 071277 6480 9435# MSG060 071327 6515 9436# MSG061 071321 7761 9437#
MSGD6D
MSGD62 071400 8630 8689 9438* MSGD63 071420 8631 9439* MSGD64 071431 8632 8691 9440*
MSGD65
MSG068 071545 7748 9444# MSG069 071552 7750 9445# MSG070 071557 1957 9446# MSG071 071602 1959 9447# MSG072 071615 1961 9448#
MSG073
MSG075 071651 5673 9452# MSG076 071702 6549 9453# MSG077 071723 2072 9454# MSG078 071737 2528 9455# MSG079 072002 6547 9456# MSG080 072026 1857 9458# MSG081 072060 1872 9459#
MSG084 072117 1891 9461# MSG085 072161 6622 9463# MSG086 072206 1902 9465# MSG087 072245 1909 9467# MSG088 072260 7941 9471# MSG089 072276 7953 9472#
MSG090 072320 7968 9473* MSG091 072334 7962 7977 9474* MSG092 072346 8471 9475* MSG093 072362 8473 9476* MSG094 072370 8475 9477* MSG095 072377 8480 9478* MSG096 072406 5654 9479* MSG097 072437 2775 9480*
MTAO3O 021212 3313# 3341# MTEST 013334 2120# 2120# 2161# 2196# 2236# 2277# 2320# 2366# 2409# 2442# MTPAO3 022212 2995 3484# MTPAO4 022354 3016 3544#
MTPA21 026724 3197 4429#   MTPA25 030456 4742* 4776* 4783* 4793#   MTPA26 030570 3250 4823#   MTPB03 022254 2999 3509#
MTPBOY 022410 3017 3028 3557# MTPB21 026754 3200 4446#
MTPB25 030478

SES 0445

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CEMKAA.		24-FEB-78 08:17		CROSS RE	FERENCE	TABLE	USER 5	YMBOLS
MTPC25 MTPC26 MTPD03	027010 030530 030640 022334	3204 4780* 3251 3001	4463# 4787* 4848# 3535#	47 <b>89</b> +	4811#			
MTPD21 MTPD25 MTPD26	027044 030404 030660	3207 4753* 3252 4764*	4480 <b>*</b> 4755 <b>*</b> 4861 <b>*</b>	4758¥	4760+	4776#		
MTP000 MTP0001 MTP0005 MTP0005 MTP0007 MTP0010 MTP0011 MTP0013 MTP0013 MTP0013 MTP0014 MTP0015 MTP0020 MTP0020 MTP0020 MTP0020 MTP0030 MTP0030 MTP0030 MTP0030 MTP0030 MTP0030 MTP0030	030836 030936 0220126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126 0221126	1557 2980 2980 3025 3045 3052 3052 3079 3099 311214 3223 3237 3237	* * * * * * * * * * * * * * * * * * *	4769* 3267 4868* 4896 4230	4771# 3447#	4783# 3449	4940	6963
MTP208 MTP20C MTP20D MTP20E MTP20F MTV02D	026102 026134 026166 026220 026252 017720	3355 3149 3154 3160 3167 3173 3179 3124*	4226# 4234# 4247# 4260# 4273# 4286# 3125	4243 4256 4269 4282 4293 3138*	3140*			
00007W	016406 016346 016315	2957 <b>#</b> 2877 2878	2923 2921 2924 2984	2965# 2974#	6330 6331			
MT0003 MT0004 MT0005 MT0006 MT0010 MT0011 MT0013 MT0014 MT0015 MT0016 MT0017 MT0021	016450 016616 016700 016760 017014 017056 017112 017170 017246 017322 017456 017534 017556	2878 2923 2880 2860 2866 2663 2665 2665 2665 2666 2882 2881	2924 2925 3038 3049 3056 3065 3065 3083 3111 3116 31187 3187 3187	6332 3009# 3020# 6335 6337 6339 6339 63340 6343 6344 6345 6346	6333 6334			
SSOCTM ESOCTM	020334 02035£	2883 2885	3212# 3217#	6347 6348	6605 <b>*</b>			

5EG 0446

ODT (CEMKA) MACY11 30A(1052) 28-	FEB-78 09:20	PAGE 77-26	HOS	3		-				
CEMKAA.MA2 24-FEB 78 08:17		ENCE TABLE -	USER S	SYMBOLS						5EG 0447
MT0024       020404       2886       3232         MT0025       020442       2662       3232         MT0026       020510       2884       2926         MT0027       020640       2020*       3262         MT0030       021206       2057*       3311         MT0031       021430       2887       2927         MT020X       020204       3158       3164         MT020Y       020072       3152       3166         MT020Z       017722       3135*       3142         MT0999       021532       1322       2669	3240	88* 33* 6353 54 6463*								
MT0202 017722 3135* 3142 MT0999 021532 1322 2669 2681 2682 2890 2891 2903 2904 2937 2938 2950 2951	2670 26 2683 26 2892 28 2905 29 2939 29	84 2685 93 2894	2673 2686 2895 2929 2942 6356	2674 2687 2896 2930 2943 6357	2675 2688 2897 2931 2944 6358	2676 2689 2898 2932 2945 6359	2677 2690 2899 2933 2946 6360	2678 2691 2900 2934 2947	2679 2888 2901 2935 2948	268C 2823 2902 2949
MULTIP= ***** L 1126 1129 2055 3958	1182 110 3961 500	94 1186	1199 5854	6650 1228	1242 6651	1250 7061	9265	1825 9267	1912 9277	2046 9279
9305 9307 MLT 001500 1021# 2019 7936*	9330 933 2022* 24	33 9361 47* 2458*	9457 6313*	9462 6458*	9464 6600*	9470 7687	7918	7920*	7932	793++
NEMCNT 001456	5679* 561	58* 1588 5712*	1600 5797	1618 5809	1640	£50P*	5207	5211*	9315	
NOECCF	8 2533* 309 8 6146* 619 8 3308* 33 8 1555* 166	57 3066 50* 7560 19* 3336* 26* 1635*	3084 7576 3347* 5204	3094 7589 6089	3103 7641	7653	7694	7695 <b>+</b>		
NONEXI 032422 1527 1556 NOPAR 001464 1015# 1524 2909# 2914 6170# 6202	: 1554* 150 : 3080* 31	36* 1736* 21* 3316* 58* 6251*	1740* 3352* 6321*	1766* 4739* 6326*	1778* 4773* 6425	2026 <b>*</b> 5165 6472 <b>*</b>	2038* 5176 6478	2484* 5184 6511*	2862* 5189 6539*	2868* 6169 6567
NOSCOP 002124 11418 3188 NOTAB 002044 11158 5077 NULLFL 002014 11008 3366 OLDCAC 001746 10808 5286	7718# 777	20* 32* 20* 5324	5338*	5341						
OLDMAR 001754 1083# 5918 ONES 002154 1156# 1249 6721 6722 0.30R1 072606 9804 9803	1606 163 6872 686 9813 988	12* 5957* 70 1671 31 7263 21* 9828*	5971 2564 7898 9946	5972 2566 7900 9960*	6257* 3012 7902 9976	4504 7905 10012	4506 7907 10013*	4918 7909 10047*	10534 <b>*</b> 4354	5977
0.BACK 074234	10274#									
0.8kP = 000016 9497# 9809	9912 99	19 9826	9869	9908	9922	9945	9959	10011	10053	10295
0.BKPT 074256 10297 10299 0.BKPT 074256 9636 9797 0.BK1 075012 9523 9923 0.BRK 074774 9545 9920 0.BW 076240 9617 9647	9720 <b>&gt;</b> 97	23* 9734	9743	9763	9770	9773	9774*	9777*	9789	9792
9838 9856 0.BYT 073724 9687 9723 0.CAD 076232 9603* 9619	€ 9858* 991 <b>I</b> 9733* 971		10173 9741	10201# 9747	9768*	9770*	9771	9775	9792*	9844
10176* 10178* 10.CADV 075566 9742 9848	• 10198 <b>*</b> 9857 1009		21 T &	J. 11	,, JU-	J. 7 U.	<b>.</b>			
C.CLGT = 000024 9672 10254 C.CLSE 076146 9616 9755	9 <b>7</b> 65 979	91 10171#								

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							103							
ODT CEMK	(A) MACYI	11 30A (1052 -78 09:17	. 29-FE	B-78 09	:20 PAG EFERENCE	E 77-27								FE9 0448
CEMKAA.MA							- USER S	HOLD						
0.CMFD 0 0.CR 0 0.CRET 0 0.CRLF 0 0.CRLS 0 0.CSR1 0	176250 176272	9650* 10180	10185 87.96	9712 <b>*</b> 10183	9726 10230 <b>#</b>	10516#								
O.CRET D	74072 176200	9688 9772	9755 <b>#</b> 9952	10030	10180#									
O.CRLS D	76206	9648	10182*		10100									
0.05R2 0	176247 176247	10055 <b>*</b>	10037 10038	10214#			10000							
O.CT D	172630 173114	9822* 9552* 9571*	9830 <b>*</b> 9702	9904*	9962*	9964#	10296#							
O.CTLE D	)73174 173142	9571# 9561#	9704 9703											
	176272 176200 176206 176246 176247 172630 173114 173142 173142	9908# 9631 9756#	9963	0647 <b>=</b>	9756	9978								
O.DCDA D	74076	9756	9816 9633	9647 <b>*</b> 9823	9756 9827	7770								
0.DCD1	173452 174076 173502 173462	9639 9649#	9654# 9744	9713 9751	9859									
O.CSR2 O.CSTLC O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O.CTLE O	176234 173442	27724	9768 9645 <b>#</b>	9771* 9673	10199 <b>*</b> 9728	9758	98 ₅ 1							
0.ERR1 D	)74524 )74116	9802	9810 9790	9814	9820	9839	9843 9843	9861*	9866	3868	9871	9896	9899	330:
O.ERR3 D	374102	9758	9764	9748	9750	9782	9841	9967	9971	9973	10072	10077	:0082=	:0120
0.5175	75662	9622 9802 9764# 9758# 9646 10139	9746 10145				17071	7707	33/4	, ,, ,	100, 5	100.	10002	
lo.go d	)75740 )74530	9582 9690 9575	9656 9865 <b>*</b>	10101#	10151	10125								
0.6060 0	)74556 )74630	9575 9880	9873 <b>*</b> 9883 <b>*</b>	9916										
0. ID D	174630 176253 176270	9880 9530 9531	10223#	*****										
0.LG = 0	00020 176375	9586	10272#	וחסבוו										
0.G0G0 0 0.G02 0 0.IDND= 0 0.LG = 0 0.LGCH 0 0.MIN 0 0.MINS 0	176270 180020 176275 173434 176271 172726	9586 9669 9638#	10234# 9701	10254	24.04.0	4.0000								
0.001 0	176271 172726	9638* 8407	9651* 95:4 <b>*</b>	9675 9566	9681* 10279	10558#								
0.0FST D	)79420 )74106	9695 9693	9838 <b>*</b> 9762 <b>*</b>											
I 0.0P1 0	174112 174152	9691 9771 <b>#</b>	9763 <b>#</b> 9793											
I 0.0P29 N	174160	9604	9772#											
0.0RPC 0	173316 173274 173326 176245 172604	9605 <b>*</b> 9599 <b>*</b>	9698 9692											
0.0RRB 0	173326 176245	9608 <b>*</b> 9521*	9699 9543*	9869*	9857	9908	9922*	9961+	9968	9975	10211:			
I U.PRUL U	<i>/</i> 4664	9536 9697	9927 9895#	9931	10290#									
0.PRI 0	)74716 )74362	9903 9546	9905# 9818	9824#										
1 0.RC5R= 1	77560	9505#	10103	10053*	10033	10035	10037*	10101						
S.REGT O	177562 173222 175534	9505# 9504# 9582#	9689	100000										
O.REGT D O.REM D O.RORA D	175534 176224 176124	9535 9776	9926 9977	10044 <b>*</b> 10196 <b>*</b>										
0.RSB 0	J75402	9516 9882 9883	10152#											
O.RSR D	175350 175466	9883 9876	9998	10030*										
		,												

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	MOCN 11 700.	1053) 30 E		:20 PAG	`F 77_20	JOB							
ODT (CEMA CEMAAA.MA	kA) MACY11 30A( A2 24-FEB-78 08:	17	EB-78 09 CROSS R	ÉFERENCE	TABLE -	- USER S	YMBOLS						SEG 8449
O.S.CAN CO.SCRN C	076243 95 073506 95 0735252 101	22* 9542* 93 9656* 11 10122 85 9709*	9630* 9667 10221*	9632*	9879	9910	9941	10044	10205#				
O.SEQ C	076252 101 073674 96 076242 97 076251 96 073400 96	בררסד ס>	9769* 9711*	10204 <b>#</b> 9729	9865	9895	10218#						
0.51M = L 0.5VR C 0.5VTT C	000340 94 075312 95 075432 95	998 9544	9874 9923 9965 9924 9911	9905 9984# 10021# 10210# 9925	9912								
0. TBT = 0	<b>95</b> 00000 95	77 3303 00 9878 22 9627	9881	9888	9915	9937							
0.TCSR= 1 0.TDB = 1	177564 95 177566 95	07 <b>#</b> 10022 06 <b>#</b> 10096*	10024*	10025	10031	10038*	10085						
0.TL	076321 95 076346 97 000014 94	83 9586 97 9825 98* 9517	9594 10013 9544*	10256# 10276# 9545*	10272								
O. TYPE D	076060 95 075736 100 072652 98	32 9555 97 <b>8</b> 10137 29* 10012*	9564	9573	9955	10136#	10141	10148	10184				
O.UPC (	072600 95 072600 95 072562 95 072576 95	20* 10012* 20* 9873* 29 9591	10047 9885 10281#	10298 <b>*</b> *0599	9940	9944#	9957*	10288#					
O.TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE DO TYPE	072602 98 073712 96	86 9/2US	9985 <b>*</b> 9884	9986 9887	10005 9915*	10287 <b>*</b> 9921 <b>*</b>	9929	10152*	10289*				
0.WRD1 C 0.WST C 0.XXX C	076134 95 076236 99	31 9734# 18 9541 84* 9992 99# 5173*	9783 9875 9999*	9889 10006	10500 <b>*</b> 3309	9913	9939	10165#					
PAFBAF (	012500 20 012636 20	09 2263 <b>#</b> 10 2304 <b>#</b>	9314 2292* 2335* 2381*	2300* 2340* 2389*	2348¥								
PARCHT C	UU 1 45U IU	12 2393 <b>*</b> 13 <b>*</b> 1523*	2424* 1535	2429* 1567*	2437* 1598	1616	1637	1741#	2031*	5033	517C#	5171	9314
PARTHE D	032234 12 001750 10 000114 2	81	4800* 1293*	4811*	4814*	5186	6169	6185*	<b>e</b> 505 <b>*</b>	6207	6223 <b>*</b>	6251#	6512*
PASFLG C	001734 10 40	73 <b>8 2448</b> *	2487# 4046	3312* 4098	3330 4100*	3331 <b>*</b> 4123	3725 4176	3796 4178*	3798* 4597*	3898 4619	3941 4634*	3943 <del>*</del> 4636	3970 4641
PATPLL [	001462 10 004276 13 001502 10	148 1559 04* 1306* 22* 2124* 02* 6256	1566* 1309* 2166* 6274*	1596 1311* 2192* 6275	1614 1314* 2241* 6276	1316# 2264#	1318 <b>*</b> 2305 <b>*</b> 6368*	2374# 6380	2417* 6420*	2864	2911 6472*	5896* 6567	5897 6614*
PCBUMP C	00176 <del>4</del> 10	87 <b>*</b> 2863*	5910*	2986*	3011*	6323 3022*	3033*	3051*	3556*	6425 3242*	5180	6256	6322*
PCONFS C	031162 19 031442 49 031352 49	62 4947 <b>#</b> 49 <b>#</b> 4988 60 4978 <b>#</b>	6374* 4994 <b>*</b>										
PDP110 C PDP70M C PDR0NE C	031410 49 032512 12 002226 11 002156 11	50 4976	4988 <b>*</b> 1254*	1828	1863≠	1893*	2054						

						KO3				<del></del>			
ODT (CEMKA)	MACY11_30A(1052)	28-FE	8-78 09:	20 PAGE	77-29 TABLE		MRO.S						SEG C45G
PERBNK 050020	-FEB-78 08:17 7320*	7335*	7350*	7378*	7400#	DJEN J	110000						
PĒRĒCC 050104 PĒRRAB 047516 PĒRRAH 047450 PĒRRAS 047632	7416# 7249 7206 7299 7356	7427* 7254 7212 7304 7360	7443* 7333# 7218 7317 7362#	7224 7318 <b>*</b>	7239 7398	7244	7259	7264	7269	7274	7279	7284	72 <del>94</del>
PERRA7 047564 PERRO1= 104427 PERRO2= 104430 PERRO3= 104431 PERRO4= 104432 PERRO5 047000	7289 110* 111* 112* 113*	7348# 3466 3454 3530 3553	3479 3538 3575										
PERROS 047000 PERRO6 047026 PERRO7= 104433 PERR10= 104434 PERR11= 104435 PERR12= 104436 PERR13= 104437 PERR14= 104440 PERR15= 104441	7226# 7233# 114# 115# 116# 117# 118# 119# 120#	3590 3595 3631 3637 3645 3651	3609 3614 3680 3687	4325	4368	4410							
PERR16= 104442 PERR17= 104443 PERR20= 104444 PERR21= 104445 PERR22= 104446	121 <b>a</b> 122 <b>a</b> 123 <b>a</b> 124 <b>a</b> 125 <b>a</b>	4434 4440 4347 4210	4456 4450 4392	4467 4473	4490 4484	4542 4551	4546 4555	4629					
PERR23= 104447 PERR24= 104450 PERR25= 104451 PERR26= 104452 PERR27= 104453	126# 127# 128# 129# 130#	4693 4701 4836 4239 4251	4706 4841 4264 4278	4290									
PERR30= 104454 PERR31= 104455 PERR32= 104456 PERR33= 104457 PERR34= 104460 PERR35= 104461 PERR36= 104462 PERR37= 104463 PERR40= 104464 PERR41= 104465 PERR42= 104466	131# 132# 133# 134# 135# 136# 137# 139# 140# 141#	4881 3752 3764 3848	3758 3778	4001	4007	4079	4084	4154	4160				
PERRY3= 104467 PERXOR 047730 PFLAG 001512 PHYADD 001426 PORTDI 003554 PROTEC= 000004	142 <b>*</b> 7319 <b>*</b> 1026 <b>*</b> 1000 <b>*</b> 1238 <b>*</b> 1749 <b>*</b>	7334# 5836# 7767# 1847#	7349* 5864* 7768* 1889	7383 <b>*</b> 6678 7769 <b>*</b> 1903	7423* 6743 7770* 1910	7452* 6786 7772* 6877	6821 7773 9332						
PSW = 177776	171# 3426* 6397* 6991* 8096*	1756 1401* 4953* 6450* 6997* 8100*	1402* 5352* 6521* 7017* 8131*	1407* 5354* 6528* 7046* 8167*	1579* 5681* 6592* 7057*	1592* 5714* 6876* 7308*	1609* 5765* 6884* 7372*	1630* 5781* 6901* 7394*	1659* 6044* 6908* 7949*	2540# 6188* 6917* 7950*	2834* 6226* 6933* 7 <b>9</b> 65*	3354* 6243* 6966* 8014*	3393* 6304* 6979* 8018*
PT/BUF 003604 PTYFLA 003574	1241 <b>#</b> 1240 <b>#</b>	6803	6804	6856*	6840	6841	6982*	6986	6992*	7000*	7018*	7025*	9331
PWRVEC= 000024	258 <b>*</b> 8168*	1290* 8169*	1291*	1364*	7991⊁	7992 <b>*</b>	8048 <del>*</del>	8053≠	8117#	8132	8133	8135#	8136*

							L03				-			
ODT (CEMK CEMKAA.MA		(1 30A(1052) -78 08:17	28-FE	8-78 09 CROSS RI		E 77-30 TABLE -	- USER 5	YMBOLS						SEG 0451
	00501P 005155	1140 <b>*</b> 1101 <b>*</b> 5954	1363* 1361*	6032 1368*	2073	2075*	3151	3791	3873	393£	4018	4093	4171	5915
RANODD D RDCHR = 1 RDDEC = 1 RDLIN = 1	104414	3254* 89* 92* 90*	4838 <b>*</b> 8526 1858 8601	4842* 6097 8652										
ROOCT = 1	104413	91# 6571	6150 6623	6153 6638	6173	6211	6541	6261	6273	6278	6583	6429	6487	6501
READCS= 1		108 <b>#</b> 4816	1440 5418	2526 5+37	2600 5451	2633 5470	6130 5840	4319 4319	6128 4340	4362 7365	4385 7804	4404 7867	4750 8028	4805
RÉALPA D	002066 001744	1124 <b>*</b> 107 <b>9*</b> 3088* 3351*	6936* 2958* 3098* 3365*	6945* 2966* 3107* 6969*	6974 2975* 3112* 6983*	2985* 3120* 7002*	3010* 3189* 7428	3021* 3213* 7431	3032 <b>*</b> 321 <b>8*</b> 7434	3039* 3225* 7437	3050* 3236* 7526	3061* 3241* 7734	3070# 3263# 8481	3079 <del>*</del> 3313*
REGCOP D   RELOCA D	)00400 )27442 )27512 )30764 )34720 )35212	4499# 4530# 4569# 2961# 2142#	4578 4566# 4573# 2970# 2175#	4578 <b>#</b> 2979 <b>*</b> 2215 <b>*</b>	4901 <b>*</b> 2255 <del>*</del>	6972* 2297*	2345 <b>*</b>	2386*	2434*	3333*	5639#			
RESREG= 1   RESTAR D	104416 102052	5679# 95# 976#	6911# 3002 978#	3256 1118#	4943 1329	5748	5785	6086	6091	6153	7690	8784		
RESVEC= 0 RLFLAG 0	001516	1058 <b>*</b> 523 <b>*</b>	1294* 2139	1295*	2212	2252	2294	2342	2383	2431	5696 <b>*</b>	5720#	5867	5995
	001514	6031 1027 <b>#</b> 5644	6084 2122 5837*	6913* 2155 5845*	7536 2190 5865*	8004 2230 5869*	8470 2273 6295	2316 6410	5362 2362	2405 6604	2475	3274	3292	3323
RSX11M= * RUNCOU= 0	000104	6836 <b>*</b>	6844											
SAMESA = 0 SAVREG = 1	104415	1883 <b>*</b> 94 <b>*</b>	2996 1892	3249	4937	5746	5749	6081	7626	8769				
SBEMSK 0	001412 001722	993# 1070# 3870 <del>*</del> 3981 4118*	2048 3720* 3892* 3983 4127	2067* 3721* 3893* 4019 4129	4300* 3736 3903 4021* 4133	3738 3905 4040* 4135	3786 3909 4041* 4172	3788* 3911 4051 4174*	3814* 3937 4053	3815* 3939* 4057	3820 3964* 4059	3822 3525* 4034	3831 3975 4396*	3968 3977 4117*
SCOPE = 0   SDPARO= 1   SDPAR7= 1	172276	2481* 170 <b>*</b> 363 <b>*</b> 370 <b>*</b>	2537 <b>*</b> 143" 3001	1522 3252	1552 3533	1646	1747	1999	2017	2024	3399	3432		
SETMAR O	172236 102142 102144 136616 136366	350# 1151# 1152# 2159# 2157#	1277 <del>*</del> 1278 <del>*</del> 2234 <del>*</del> 2232*	3244 3243 2364* 5900*	3259* 3258* 2407*	7044 8742 5951#	8743 8748	8750 8754*	8755 <del>*</del>					
SHUTUP 0	037156 002000	2084* 1094* 3128*	2469*	6021 <b>*</b> 2502	2505*	2711	2727	2743	2759	2787	2803	2819	2951	2852
SIPARO= 1 SIPAR3= 1 SIPDRO= 1	172246 172200 040000	2478 353* 356* 333* 491* 3297 277*	2828 # 5601 5615 5603 1529 3324 1797	8008 1575 4422 1799	8089 1604 4939 1801	1628 5682 1805	2960 5715	2968 5766	2977 5782	2991 6414	3015 6971	3026	3248	3278

ODT (CE	mka)	MACY11 30A(1052)	28-FE	8-78 09	:20 PAG EFERENCE	E 77-31 TABLE -	MO3	YMBOLS						SEQ 0452
CEMKAA. SLAVES	002072	1127# 6778	1859* 6791	1860 6798	1861 6810	1862	1877 6835	1884 6846	1911 6859	5853	6690	6696	6761	6774
SLAVUP SLPATO SLPATI SLPATI SLPATI SLPATI SLPATI SLPATI SLPATI SLPATI SLPATI	044346 050300 046010 0460319 046030 0460349 0460349 032136	6658 6549 6942 6923 6924 6925 6926 6927	6729# 6951 6938 6939 6940 6942 6943 3357	6953 6950* 6952* 6954* 6956* 6958*	6955	6957	6959#							
SOBLEN= SOURCE SPECIA	000056 001760 002010	3355 1085 <b>*</b> 1098 <b>*</b>	3360 3731# 2478	4896# 3818* 2599*	3907* 2705*	3979* 2721*	4055* 2737*	4131* 2753*	4737* 2781*	5536 2797*	2813 <b>*</b>	3130		
ST = STACK =	177776	9495# 165# 977 973 974	10152 166 979 976#	10162* 167 1246*	168	969 10307	980	1248	1255	1265	.367	2080	2096	6729
START STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STARTI STA	002102 002036 001740 004336 004456	1132# 1112# 1077# 1317 1344	978# 1745* 4509* 4607* 1327# 1351#	7490 4513 4635	7491* 4533	4563 <b>*</b>								
SUBAAC SUBAAD SUBAAP SUBAAQ SUBAAR	004646 005040 005052 006510	1365 1412 1420 <b>*</b> 1587 1828	1378# 1414 1645# 1864	1417#	•									
SUBAAS SUBAAT SUBAAU	010506 005606 010014 011474	1502 1798 2039 1095 <b>*</b>	1521# 1811 2048#	1826#									<b>3005</b> ×	2002
	002002	1095 <b>#</b> 7909#	2472*	2492*	2500	7858 <b>*</b>	7881	7888	7896 <b>*</b>	7898*	7900*	7902 <b>*</b>	7905*	7907*
SUPDOA	001732	1072 <b>*</b> 3214*	2997* 3220*	3035* 3229*	3045* 3237*	3053* 3269*	3361*	3071* 3429*	3079* 6965*	3089* 6984*	3099*	3108*	3113*	3122*
SUPD01	021546	2032 <b>*</b> 6973	2963* 7011*	2972*	2981*	3150*	3198*	3253 <b>*</b>	3257*	3281*	3300*	3326*	3370#	4942*
SUPDO2 SUPDO3	021562	30U3 <del>*</del> 2998* 3230* 3184*	3018* 3036* 3238* 3362*	3029* 3046* 3284* 3405*	3155* 3054* 3303*	3161* 3063* 3404 <b>*</b>	3168* 3072* 6416*	3174* 3081* 6974	3180* 3090* 6987*	3100* 3501*	3205* 3109*	3208* 3114*	3372 <b>*</b> 3215 <del>*</del>	3551*
SUPDOY SUPDRO SUPDR2 SUPDR3 SUPDR4 SUPDR5 SUPDR5	021740 001644 001650 001652 001654	1043# 1044# 1045# 1046# 1047#	3362* 3374* 3375	3405 <b>*</b> 3382 3408	3407*	3415								
SUPDRS SUPSTK= SWAPAT	001656 001660 000700 002176	1048# 1049# 167#	3385 1403	3418 3394 4704	3427 4722*	7954	7960							
SWR	302200	1167# 1170# 3156 5915 7497	1280* 1341* 3162 5954 7512	1343 3169 6288 7567	1349* 3175 6316 7582	1357* 3790 6381 7584	1413 3872 6434 7590	1546 3935 6439 7594	1709 4017 6481 7691	1962 4092 6506 8044	2001 4170 6529 8060*	2073 4960 6576 8408	2857 5640 6581 8416	3151 5672 7+90 8441*
SWREG =	: 000176	483#	1349	1413	8408		- · •							

			20.55	. 70 00	30 BOCE		EON							
ODT ((	R.MAZ	MACY11 30A(1052) 24-FEB-78 08:17	28-FE	:B-78	EFERENCE	77-32 TABLE	- USER S	YMBOLS						SEG 0453
SMO	= 000001	231 <b>*</b> 230 <b>*</b>	1546	1709	2857	3156	3162	3169	3175	6316	6381	6439	6481	6581
SW1 SW10 SW11	= 000002 = 000000 = 000000	221#	7567 2073 6576	3151	3790	3872	3935	4017	4092	4170	5915	5954	6288	6434
SW12 SW14 SW15 SW2 SW3	= 010000 = 020000 = 040000 = 100000 = 000004	218# 217# 216#	5640 5672 7497	7582										
545 546 547 548 549	= 000010 = 000020 = 000040 = 000100 = 000200 = 000400 = 001000 2 007670 = 177764	227 <b>8</b> 226 <b>8</b> 225 <b>8</b> 224 <b>8</b> 223 <b>8</b> 222 <b>8</b> 1803*	4960 7584 1962 7691 7490 7512 1807*	7594 1814#										
SYSSII SYSSIII TAG2S TAG3S TAG70! TAG70! TAG72! TAG73! TAG75! TAG75! TAG75! TAG75! TAG75! TAG75! TAG75! TAG75! TAG75! TAG75! TAG75! TAG75! TAG75! TAG75! TAG75!	052116 052130 052152 052152 052406 006036 003564	1562 1583 3383 7667 7668 7669 7670 	1584# 1588# 7703# 7703# 7705# 7715# 7728# 7734# 7746# 7756# 7767# 7781# 7781# 7781# 7781# 7782# 6857	1622 1875 6885	1643 6681* 6887	6682 6902*	6748* 6918	6754 6934	6760*	6771	6790 <del>≴</del>	6796	6827*	6833
TASKDO TASKO TASKO TASKO TASKO TASKO TASKO TASKO TASKO TASKO TASKO TASKO	1 031572 I 031444	6862# 6891 6892 6893 6894 6895 6896 6897 3416 5049#	6733 6904 6906# 6907# 6916# 6932# 6978# 7034# 7034# 3418# 5079	6751* 7719* 4986*	6887 6764* 5010*	6792*	6918 6829*	6863	6868#					
TEMP TESTAL		1125 <b>*</b> 3989	1966* 2480* 3995	1983 2495* 4028	1984* 2539 4065	3034 4071	3052 4075	3740 4103	3801 4141	3824 4150	3863 4181	3879 4740	3889 7418	3946
TIME TIMEO	002012 002012	1099 <b>*</b> 1256	6389 <b>*</b> 1296	1348 6391	1397	1500	1543	1585	1777	5217#	6133	6137	6148	6165

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			804							
ODT (CEMKA) MACY11 30A(1052) CEMKAA.MA2 24-FEB-78 08:1	28-FEB-78 09: CROSS RE	20 PAGE 77-33 FERENCE TABLE -	- USER SY	'MB0L5						SEG 0454
TKVEC = 000060 2618 6465 TMFLAG 001522 10308 T00MAN 002054 11198 TRAPVE= 000034 2608 TRT = 000003 95018 TSK05A 046510 7001 TSTBAN 006404 1571 TSTDAT 001716 10698	6252 4948	4951* 4991* 6472* 6478 2377* 2420* 7613*	6256 6518* 5886	6301 <b>*</b> 6519 <b>*</b>	6302* 6539*	<b>6364*</b> 6567	6380 6589*	6394# 6590#	6395# 6614#	6405*
3756 3910* 3986* 4062* 4138* 4759* 9325	1625# 3723# 3724# 3816# 3817# 3912# 3914# 3988# 3991 4064# 4067 4140# 4143 4762# 4763#	3727* 3728* 3818 3821* 3916* 3918 3993 3999 4069 4077 4145 4152 4765* 4767*	3729 3823* 3920 4005 4082 4158 4768*	3730 3827 3968* 4044* 4121* 4735* 4770*	3731 3829 3969* 4045* 4122* 4736* 4794	3737* 3896* 3972* 4048* 4125* 4737 4796	3739* 3897* 3973* 4049* 4126* 4752* 268	3742 3900* 3979 4055 4131 4754* 7273	3744 3901* 3982* 4058* 4134* 4756* 7419	3750 3907 3984* 4060* 4136* 4757* 7421
TSTRD1 033262 5330 TSTREA= 104510 1600 TST1 005130 14340 TST2 005610 15220 TST3 005764 15520 TST4 007256 17470 TST5 011254 19990 TST6 011322 20170 TST7 011356 20240 TYPDS = 104405 830 TYPEIT= 104401 790	5351 <b>*</b> 2558 2577	3766 3780	3836	3850						
4971 5087 6101 6231 63300 6480 6588 7722 7943 8376 8530 8632	1956 1384 1384 1857 2503 2528 4972 4982 5100 5110 6135 6235 6235 6238 6386 6390 6486 6500 6608 6608 6622 7748 7750 7945 7945 7953 8414 8415 8539 8687	1960 2077 1872 1874 2530 2775 4983 4984 5124 5133 6149 6152 6240 6247 6392 6393 6507 6515 6637 7569 7761 7776 7956 7958 8417 8426 8550 8554 8690 8691	6391 1891 4956 4985 5141 6159 6259 6407 6517 7606 7787 7962 8434 8559 9001	6546 14957 50143 50143 6160 62147 77968 77968 856	6558 1909 1958 5051 5057 6257 6247 6547 7829 7821 8562 8562	7709 1955 1965 5015 5673 6172 6428 6428 6559 7648 7836 7973 8471 8565	1957 4967 5028 6082 6194 6277 6435 6569 7650 7845 7977 8473 8569	1959 4968 5038 6085 6198 6282 6444 6570 7657 7854 8118 8475 8628	1961 4969 5047 6090 6209 6289 6446 6577 7659 7891 8224 8480 8630	2072 4970 5076 6096 6210 6296 6466 6586 7684 7941 8311 8482 8631
TYPOC = 104402	7632 7703 1873 1903 8481	8690 8691 7944 7946 1910 6191	7957 6239	7959 6248	7972 6555	7974 7734	8416 7740	7781	7788	8474
# YPSC = C00000 1249# 1412# 1651# 1816# 1840 1927 2076 2527# 2711# 2776 2859# 3094#	1319# 1325 1446# 1447# 1705 1709# 1817# 1818# 1853# 1860# 1932# 1939 2102# 2110 2532# 2534 2713# 2715 2787# 2789# 2861 3057# 3095# 3097	1329# 1334 1456 1492# 1711# 1713 1819# 1820# 1861# 1862# 1954# 1962# 2143# 2176# 2559# 2578# 2727# 2729# 2791 2803# 3058# 3060 3103# 3104#	1353* 1495* 1718* 1821* 1865* 1965* 2260* 2731 2805* 3066* 3106	1355 1546# 1743 1822# 1866# 1997 2256# 2621 2743# 2807 3067# 3117#	1356# 1549# 1749# 1828# 1877 2028# 2298# 22441# 2819# 3069 3119	1358 1550 1759 1829* 1883* 2037 20346* 22547 2821* 3075* 3124*	1359* 1637* 1787* 1832 1898 2048* 2387* 2648* 2759* 2823 3077 3138	1366 1639 1790 1833# 1905# 2052 2435# 2649# 2761# 2851# 3084# 3151#	1367* 1640* 1794* 1836 1911 2054* 2466* 2763 2852* 3085* 3153	1375 1642 1815* 1837* 1915* 2073* 2510 2692 2773* 2857* 3087 3156*

		C04	
ODT (CEMKA) MACY11 30A(1052) CEMKAA.MA2 24-FEB-78 08:17	28-FEB-78 09:20 PAGE 77-34 CROSS REFERENCE TABLE	USER SYMBOLS	SEG 0455
3159 3320* 4093* 5099 5404* 5512* 5927* 6016* 6184* 6291 6434* 65291 6434* 65291 6434* 65291 7485* 7485* 7485* 74900* 8004* 77900* 8004* 1750* 1321* 1750* 1321* 1750* 13290* 5513* 6014* 6675* 7590 7844 17PS10= 000000 1482* 17PS2 = 000000 1656* 1369* 3323*	3162* 3165 3169* 3172 3329 3330* 3345 3790* 4170* 4171* 4501* 4564 5267* 5281 5290* 5304 5414* 5426 5429* 5431* 5520 5640* 5641* 5655 5929 5930* 5932 5954* 6019 6031* 6032* 6034 6219* 6221* 6222* 6263* 6295* 6298 6316* 6318* 6437 6439* 6411* 6443 6505 6506* 6509 6548* 6607 6660* 6669 6670* 6817* 6849 6853* 6859 6921* 6928 6937* 6944 7321* 7323* 7325 7326*	3175	340 7341# 7343# 7345
7691 # 7900 # 8004 # 1321 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 1750 # 17	7584# 7586 7594# 7596 7862# 7886 7955# 7960	7496 7497 7560 7572 7828 7838 7846 7861 7942 7942 7947 7954 7961 8470 8472 1546 1655 1704 1709 1897 1915 1919 1924 2051 2073 2467 2506 3095 3171 3175 3177 3175 3177 3338 4502 4505 4505 5671 5672 5674 5849 5867 5671 5672 5674 5849 5812 6821 6821 6848 6872 7600 7611 7800 7815 7970 7975 8025 8032	
5517 6776 6877	2494 2490 1703 1721* 1728 1752* 1992 1994* 2033* 2035 3327 4515* 4527 4536* 5518* 5644* 5652 5658* 6787* 6791 6793* 6798 7047* 7054 7601* 7604 8027* 8030 8031* 8079* 1693 1694* 1698 1723*	1757 1887* 1896 1921* 2463* 2505 3130* 3132 4560 5417* 5423 5424* 5670 5972* 5979 6554* 6799* 6811 6823* 6828 7605* 7610 7801* 7814	1923
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TYPS5 = 000000 1683#	6774 6806# 6809 6842# 1691 1724# 2475# 2497 5662# 5667 6760# 6770#	6845 7805# 7811 76/1# 4541# 4543 4545# 4547 6773 6806# 7809#	7880 7881* 4550* 4552 4554* 4556
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WASIDB= 104501   WASISB= 104477   WHICHC	153 <b>*</b> 151 <b>*</b> 6127 <del>*</del> 7728*	3924 3157 6141* 7850*	3163 6630*	3170	3176							
WHODUN= 000115 WOOPEN 055032 WOOPS 054500	7861 <b>#</b> 8134 8004	7881 8137	8139	8152	8173	8181#	8185					
WOOPS 054500 WOOPSA 055062 WOOPUP 054656 WORST 002140 WRITEO 002064 XXDPCH 002024 ZERO 002004	8004 8132* 8134 1150* 1123* 1104* 1096*	8127# 8133* 8135 1272* 6920* 1373*	8134 8137 2207* 6929* 7605	8168 8151# 2247* 6973	8169 8173 2337*	8172 8174 2426*	8182 <b>*</b> 8182 5875					
ZEROS 002006 \$APTHD 060264	1097 <b>*</b> 971	2845 8872#	2846	4503	4507							
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	SCNTLC SCNTLG SCNTLU SCPUOP SCRLF	057254 057266 057261	8426 8414 8434	8530 8581 <b>*</b> 8554	8579 <b>*</b> 8580 <b>*</b>										
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			BOOF 33 UF	NOH	}	·			···		
ODT (CEMKA) MACY11 30A() CEMKAA.MA2 24-FEB-78 08:	1 <b>052</b> ) 28-FE 17	:8-78	PAGE 77-45 NCE TABLE	USER S	YMBOLS						SEG 0466
725 727 725 737 730 730 730	98# 7301# 70# 7391# 05# 7907#	7258# 726 7281# 726 7302# 730 7392# 739 7909# 794	7262# 7283# 7306# 7578# 7955#	7263# 7286# 7309# 7579# 7970#	7266# 7287# 7313# 7801# 8025#	7267# 7288# 7315# 7809# 8077#	7268# 7291# 7322# 7838#	7271# 7292# 7337# 7862#	7272 <b>8</b> 7293 <b>8</b> 7354 <b>8</b> 7898 <b>8</b>	72738 72968 73558 79008	7276# 7297# 7359# 7902#
\$ZAP42 011630 208 \$Z\$ = 000000 13 188 208 278 278 278 278 278 278 278 27	2468 27128 27128 27128 27128 27928 248 27928 248 31248 25378 45378 588 53848 58488 57398 578 72578 72578 72788 73918	1493# 169 1866# 188 2469# 247 2714# 271 2748# 279 2796# 279 3271# 327 4513# 451 4538# 459 5390# 539 5377# 647 6744# 675 6871# 687 7258# 726 7392# 739 7392# 739	74808 68 27508 27508 28 27548 28 28028 28 32758 48 45168 78 54048 78 67608 78 72418 78 72628 78 72628 78 73068 79588	1750# 17905# 2485# 2725# 2758# 3289# 4517# 45467# 7243# 7263# 7286# 7309# 7579# 7970# 2475# 5970#	1794# 17919# 17918# 27760# 27760# 28909# 4553# 55782# 7264# 7287# 7287# 78025# 8025# 8025# 8025# 8025#	1931# 1931# 27762# 27762# 27762# 27762# 27762# 27762# 27762# 27762# 27762# 28519# 28519# 28519# 28519# 28519# 28519# 28519#	1816# 1934# 26730# 27764# 28120# 28120# 45504# 45504# 45504# 45663# 7291# 7291# 7292# 7292# 7293# 324#	1817# 1936# 2648# 2732# 2780# 2814# 4501# 4523# 4568# 15670# 6800# 7271# 7292# 7337# 7862# 3292# 6462#	1818# 1953# 2649# 2736# 2782# 2818# 4503# 4525# 4571# 56476# 6817# 7251# 7251# 7293# 7354# 7898# 3323# 6506#	1819# 1954# 2704# 2738# 2786# 2820# 4526# 4526# 4527# 6693# 7296# 7355# 7900# 5676#	1820 # 1968 # 2706 # 2742 # 2788 # 2822 # 4506 # 4533 # 5362 # 5679 # 6701 # 6830 # 7253 # 7276 # 7297 # 7359 # 7902 # 5662 # 6604 #
\$\$T = 000544 124 186 227 285 306 326 536	198 14468 208 18218 168 22568 578 30578 958 30968 948 45168	6786# 682 1546# 170 1822# 182 2298# 234 3058# 305 3103# 310 4517# 452	74908 98 17248 98 19158 68 23878 98 30668 48 31058 78 45378 78 55048	7584# 1787# 1934# 2435# 3067# 3117# 4538# 5640# 6973#	7594# 1790# 1954# 2478# 3068# 3118# 4560# 5954# 6974#	7605# 1794# 1962# 2641# 3075# 3151# 4575# 5972# 7056#	7691# 1815# 1994# 2642# 3076# 3156# 4960# 5995# 7601#	7866# 1816# 2054# 2648# 3084# 3162# 5077# 6014# 7809#	7900* 1817* 2073* 2649* 3085* 3169* 5362* 6031* 7898*	7902 * 1818 * 2143 * 2851 * 3086 * 3175 * 5368 * 6285 * 7900 *	7907* 1819* 2176* 2852* 3094* 3233* 5384* 6431* 7902*
\$\$77 = 000547	28 15468 578 30588 598 31718 328 40938 348 62198	6760# 680 7909# 800 1709# 172 3067# 307 3175# 317 4170# 417 6221# 622 7601# 781	5# 3095# 7# 3233# 1# 5424# 2# 6263#	1853* 3095* 3790* 5457* 6275* 8031*	1860* 3104* 3791* 5518* 6285* 8083*	1861# 3117# 3872# 5661# 6431#	1915# 3151# 3873# 5954# 6495#	1994# 3156# 3935# 5972# 6497#	2073# 3158# 3936# 6014# 6498#	2559# 3162# 4017# 6181# 6503#	2578# 3164# 4018# 6183# 6573#
\$0FILL 055711 827 . = 076350 91 101 132 236 457 709 879 1021	30 <b>-</b> 011	8291 832 961 96 1035 103 1675 168 2479 248 4896 527 7803 784 9347 946 10297 1029	5# 966# 6# 1109# 3# 1694# 2# 3127# 5# 5298# 0# 8027#	968 1131 1790 3158 517 8650 10032	970# 1226# 1921# 3164# 5429# 8079# 10036	972# 1232# 2143# 3171# 5450# 8123 10083	975# 1238# 2176# 3177# 5462# 8181# 10102	980# 1239# 2216# 3334# 5515# 8182# 10227	990 <b>*</b> 1240 <b>*</b> 2256 <b>*</b> 3541 5687 <b>*</b> 8384 <b>*</b> 10254	995 * 1241 * 2298 * 4527 6015 8578 * 10272	1010# 1261 2346# 4560 7049# 8584# 10273#

. ABS. 076350 000

**B**05

MACY11 30A(1052) 28-FEB-78 09:20 PAGE 77-46 24-FEB-78 08:17 CROSS REFERENCE TABLE -- USER SYMBOLS ODT (CEMKA) CEMKAR.MAZ

SEG CHE7

ERRORS DETECTED: 0

DSKW:[400,3457]CEMKAA.BIC,DSKW:[400,3457]CEMKAA/EX/CRF:SYM=CEMKAA.MA1,CEMKAA.MA2 RUN-TIME: 145 161 11 SECONDS RUN-TIME RATIO: 3721/318=11.6 CORE USED: 28K (55 PAGES)

USER SYMBOLS: 1727
MACRO NAMES: 153
UNDF SYMBOLS: 2
DISK BLOCKS READ: 1380
DISK BLKS WRITTEN: 1778
KILC ORE SECONDS: 6660

CO5 2 780330 0001000 EOF1CEMKAASEG