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FCO

 Level of  
 Urgency  
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FIELD CHANGE ORDER

Number CI780-R00D1

Applicability: Retrofit all Ci750s to Revision level "D1". Minimum acceptable Revision levels in spares stock are: L0101 Etch Revision "A", Part Revision "H1". This FCO Incorporates the following ECO: L0101-TW006

Problem/Symptoms: Functional problems discovered in VAX Cluster Testing:  
 1. CI780 did not conform to Architectural Specification, producing "Miscellaneous Errors Type 12 & 13 (%X "B & C")", in turn causing VMS CI-port Re-inits. Correction: Release of V4.0 CI Microcode.

Quick Check

See Page 2.

Compatibility/Prerequisite FCO:  
 Note: CI780-R00C1 is not a prerequisite.  
 This FCO includes CI780-R00C1. (20-Feb-85)

Est. Time to Install  
 1 hour per node

Special Tools or Test Equipment

See Page 2.

## FCO Parts Information

Order by FCO Kit #	Contents		
For:	Quantity	Part Number	Description
CI780-R00C1			
EQ-01344-01			
EQ-01344-02			
EQ-01344-03			
FA-04625-01	1		FCO Document
For:			
CI780-R00D1			
EQ-01344-02			
EQ-01344-03			
FA-04625-01	1		FCO Document

EQ Kit Variation/System-Option Applic:

## Approvals

CSSE Engineer Andy Padla	F.S. Product Safety John Freudenberg	F.S. Logistics Ed Duggan
Responsible CSSE Mgr	F.S. Microfiche Libraries	Affected Population

ESD&P Micropublishing	VAX	8500
Revision A	VAXnotes STARS	Initial Kitting 250/300/250
FCO Release Date 26-June-1985		Hardcopy Publication 500
		Parts Availability July 1985

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QUICK CHECK

-----  
This FCO changes the CI780 microcode in ROMs on the L0101 module, in the CI780.BIN file on Console FLOPPY and in SYS\$MAINTENANCE. A Revision "D1" CI780 will have the following two (2) changes: (NOTE: A "halted" CPU can be easily verified: See APPENDIX B).

1. L0101 Module at PR-"H1": verify socketed ROM P/N in these IC's:

Location	Part #	Location	Part #
-----	-----	-----	-----
E76	23-271F3-00	E134	23-274F3-00
E95	23-270F3-00	E154	23-273F3-00
E114	23-269F3-00	E174	23-272F3-00

2. The console media must have REV-4 CI780.BIN on it. Under VMS-4.X, use DCL "SHOW CLUSTER/CONTINUOUS; ADD RP\_REVIS" command to check for RAM/ROM version of "%X 00040003". APPENDIX A has further information for checking this file.

SPECIAL TOOLS

Field Service Tool Kit

Loopback Attenuators (12-19907-01)

EVGAA 1.4 AND EVGAB 1.3 (AS-T599E-DE) (Released Nov '84)

ESCGA 1.1, ESCGB 1.0, ESCGC 1.1 and

ESCGD 1.0 (AS-T195B-DE) (Released Jan '83)

\*\*\*\*\*  
\* NOTE \*  
\*

\* Self-maintenance customers require a diagnostic license to \*  
 \* get the ZE306-CY (which consists of AV-T637\*-TE, AS-T644D-DE \*  
 \* AS-T695D-DE. Documentation is available through the \*  
 \* Maintenance Documentation Service (MDS). \*  
 \*

\*\*\*\*\*

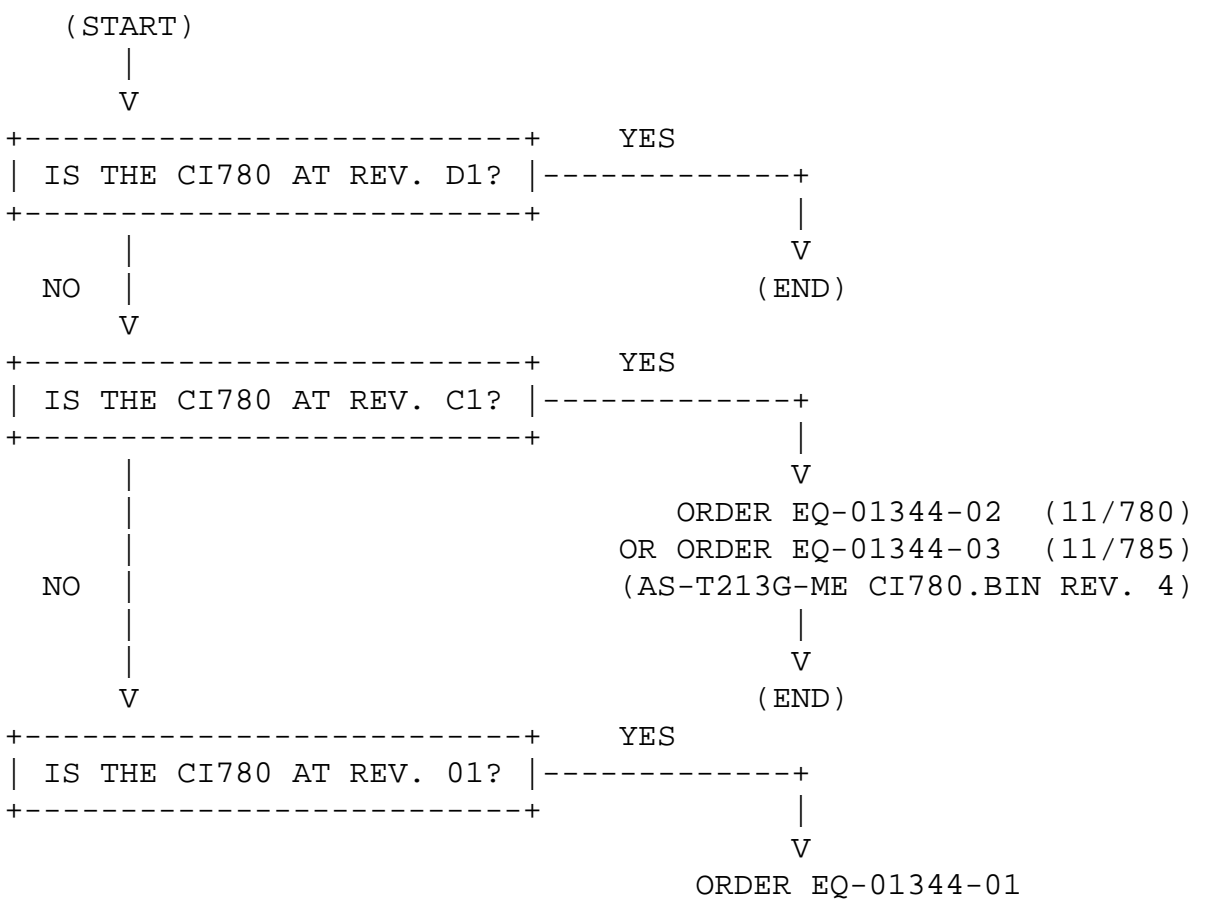
```

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EQ KIT ORDERING FLOW CHART  
 (see page 3 for Revision History)



Quantity	Part Number	Description
(1 EA)	23-269F3-00	Microcode ROM
(1 EA)	23-270F3-00	Microcode ROM
(1 EA)	23-271F3-00	Microcode ROM
(1 EA)	23-272F3-00	Microcode ROM
(1 EA)	23-273F3-00	Microcode ROM
(1 EA)	23-274F3-00	Microcode ROM
(1 EA)	36-19208-01	Wire Marker "1"
(1 EA)	36-19209-08	Wire Marker "H"

(BRINGS THE L0101 TO REV "H1")



AND ORDER EQ-01344-02 (11/780)  
(AS-T213G-ME CI780.BIN REV.4)

OR ORDER EQ-01344-03 (11/785)  
(AS-T793D-ME CI780.BIN REV.4)



(END)

```

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CI780 OPTION LEVEL REVISION CHART

CI780	00	01	C1	D1
L0100	(B), (C)	D1	D1, (B2*)	D1, (B2*)
L0101	(C), (D)	E1, F1	H1	H1
L0102	(B), (B1)	C1	C1	C1
L0104	(C), (C1)	C, C1, D1	C, C1, D1	C, C1, D1
Microcode				
CI780.BIN	Rev 1.0	Rev 2.0	Rev 3.0	Rev 4.0
AS-T213*-ME	A - C	D, E,	F	G
BACKPLANE				
70-17654	(B)	B	B	B

\*(Note) "B2" is being marked on "B" etch and is equal to "D1".

SECTION 1 - INTRODUCTION

Due to the rapid introduction of this FCO, the CI780-R-00C1 has not yet been completed. To make life easier, this FCO incorporates both CI780-R-00C1 and CI780-R-00D1. In doing this, the sites that have NOT yet upgraded their CI's to revision "C1" need only one site visit to implement this FCO.

Reference the flow chart (page 3) to help you decide which EQ kits to order.

SECTION II - Upgrade procedure for Rev. "C1" to "D1" - Console Media only



```

* BY THE QUICK CHECK SECTION, YOU ARE DONE. *
* ALL YOU HAVE TO DO IS REBOOT THE SYSTEM TO UTILIZE *
* THE NEW CI_UCODE. *
* *
* IF YOU HAVE A REVISION "F1" L0101, CONTINUE AT *
* STEP 2. *
* *
*****

```

B. CI780.BIN installation procedure using VMS V3.X

-----  
Install the supplied console floppy. Run FLX and copy the CI780.BIN file off the floppy with the following command:

```

FLX>/RS/IM=CS1:CI780.BIN/RT
FLX>CTRL <Z>

```

Install the current console floppy.  
Run FLX again and delete the CI780.BIN file off of the current console floppy with the following command:

```

FLX>CS1:CI780.BIN/RT/DE

```

```

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```

```

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```

Copy the new CI780.BIN file onto the current console floppy with the following command:

```

FLX>CS1:/RT=CI780.BIN/RS/IM
FLX>CTRL <Z>

```

```

$COPY CI780.BIN SYS$MAINTENANCE:CI780.BIN ;FOR DIAGNOSTICS

```

```

*****
* *
* IF YOU HAVE A REVISION "H1" L0101 AS DETERMINED *
* BY THE QUICK CHECK SECTION, YOU ARE DONE. *
* ALL YOU HAVE TO DO IS REBOOT THE SYSTEM TO UTILIZE *
* THE NEW CI_UCODE. *
* *
* IF YOU HAVE A REVISION "F1" L0101, CONTINUE AT *
* STEP 2. *
* *
*****

```

2. Shutdown the system by executing the Shutdown Command Procedure.
3. Set the five-position keyswitch on the controller panel to the "OFF" position.
4. Set all Memory Power Supply Switches to the "OFF" position. The memory power supplies can be identified by the label "Memory Power Supply" affixed to the top of the H7100s which are used for that purpose.

```
*****
*                                     *
*                               WARNING *
*                                     *
*   If Memory Power Supply switch is "ON" and Circuit *
*   Breaker on Power Controller is set to "OFF", the *
*   Battery Backup Unit (if installed as an option) , *
*   will be turned "ON". To turn off Battery Backup *
*   Unit, Memory Power Supply and Battery Backup must *
*   be turned "OFF". *
*                                     *
*****
```

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```

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5. Set the circuit breaker CB1 on the 869D power controller to the "OFF" position in the CPU cabinet and SBI expander cabinets, if applicable.
6. Disconnect all four BNCIA cables for this VAX-11/780 node at the SC008. Using the loopback attenuators connect:

Transmit Path "A" (TA) to Receive Path "A" (RA)  
 Transmit Path "B" (TB) to Receive Path "B" (RB)

```
*****
*                                     *
*                               C A U T I O N *
*                                     *
*   The L0101 module, as all VAX 11/780 modules, *
*   contains electrostatic discharge sensitive *
*   devices (ESDS). The use of the VELOSTAT kit *
*   is essential to prevent damage which may not *
*   be noticed immediately. *
*                                     *
*****
```

7. Set up VELOSTAT KIT

- a. Unfold the VELOSTAT mat to full size (24" x 24").
- b. Attach the 15 foot ground cord to the VELOSTAT snap fastener on the mat.
- c. Attach the alligator clip end of the ground cord to a good ground on the 11/780.
- d. Attach the wrist strap to either wrist and the alligator clip to a convenient portion of the mat.

8. Remove the module from the CI option slot 3 and place it on the mat.

```

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```

```

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```

- 9. ROM Change ECO L0101-TW006 upgrades L0101 to Rev - "H1": Unplug ROM P/N 23-218F3-00 at location E114 on L0101. Install new ROM P/N 23-269F3-00 in the same location. (See Figure 1)
- 10. Unplug ROM P/N 23-219F3-00 at location E95 on L0101. Install new ROM P/N 23-270F3-00 in the same location. (See Figure 1)
- 11. Unplug ROM P/N 23-220F3-00 at location E76 on L0101. Install new ROM P/N 23-271F3-00 in the same location. (See Figure 1)

```

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```

```

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```

- 12. Unplug ROM P/N 23-221F3-00 at location E174 on L0101. Install new ROM P/N 23-272F3-00 in the same location. (See Figure 2)
- 13. Unplug ROM P/N 23-222F3-00 at location E154 on L0101. Install new ROM P/N 23-273F3-00 in the same location. (See Figure 2)



14. Unplug ROM P/N 23-223F3-00 at location E134 on L0101. Install new ROM P/N 23-274F3-00 in the same location. (See Figure 2)

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```

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15. Install the Wire Marker "H1" on the L0101 module handle.
16. Reinstall the module L0101 in slot 3.
17. Power-up the system.
18. Run the following Macro level diagnostics under the diagnostic supervisor to verify that the CI780 is functional:

DIAGNOSTIC	MINIMUM VERSION	TITLE
-----	-----	-----
ESCGA	1.1	CI780 Repair Level I
ESGCB	1.0	CI780 Repair Level II
ESCGC	1.1	CI780 Repair Level III
ESCGD	1.0	CI780 Repair Level IV
EVGAA	1.4	CI Functional Diag Part I
EVGAB	1.3	CI Functional Diag Part II

**\*NOTE\***

TO RUN THE CURRENT FUNCTIONAL DIAGNOSTICS ON A CI780 YOU MUST "SET EV FL 1" AT THE DS> PROMPT. ALSO, USE THE PATCHES LISTED BELOW TO PREVENT EVGAA & EVGAB FROM ABORTING (DUE TO THE LEGITIMATE MISMATCH OF RAM 4/ROM 3). NOTE, BEFORE INSTALLING THE PATCHES, THE SUPERVISOR AND DIAGNOSTIC MUST BE LOADED.

DIAGNOSTIC	PATCH
-----	-----
EVGAA 2.3	DEPOSIT 21FD E811
EVGAB 2.3	DEPOSIT 1FC1 E811
EVGAA 1.4	DEPOSIT 66FA E811
EVGAB 1.3	DEPOSIT 64FA E811

WHEN USING "EV FL 1", A COPY OF CI780.BIN MUST BE ON THE MEDIA FROM WHICH YOU LOAD THE DIAGNOSTIC.

19. Remove the loopback attenuators and reconnect the BNCIA

cables to their original SC008 ports.

20. Boot the system.

21. Report the FCO activity on the LARS form in the "module/fail area/FCO" column as "FCO CI780-R-D1" as indicated on pages 13, 14 and 15.

All CI's in the cluster need to be at Rev. 3 or Rev. 4 of ucode.

For information on booting CI's with a VENUS, see the VENUS installation manual.

-	-	-	-	-	-	-	-
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	-	-		-	-		-

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### APPENDIX A

-----

#### CI780.BIN MICROCODE FILE VERSION # IDENTIFICATION PROCEDURE

=====

1. Copy the CI780.BIN binary file off your console:

```
VMS-3.X using FLX>
$MCM FLX /RS/IM=CS1:CI780.BIN/RT/IM<cr>
```

```
VMS-4.X using EXCHANGE>
$EXCHANGE COPY CSA1:CI780.BIN/TRANS=BLOCK *<cr>
```

2. Dump the last block of the copied file as follows:

```
$DUMP/BYTE/BLOCK=(S:36) CI780.BIN<CR>
```

This will print out block 36 of the file. On the last line of the printout, the value of the byte at address "%X 1FD" (LOWER LEFT) is the revision of this file. Below is a sample output for a revision V4.0 CI780.BIN file.

```
Dump of file $1$DBA2:[BRASSARD.CI]CI780.BIN;1 on 7-MAY-1985 16:23:33.85
File ID (341,6,0) End of file block 36 / Allocated 36
```

Virtual block number 36 (00000024), 512 (0200) bytes

```
70 29 5F 00 02 21 F0 00 1C 28 00 C3 F0 00 5A 20 ..... 000000
00 00 00 00 00 00 1C F6 00 C1 BB B0 1A 20 4E D9 ..... 000010
00 C1 F0 00 65 16 DC 01 7B B2 5F 00 0A A1 7B AA ..... 000020
00 00 5A E6 00 C1 8B B6 0D 36 67 01 F0 00 1A B6 ..... 000030
```

```

.
.
.
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ..... 0001C0
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ..... 0001D0
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ..... 0001E0
5F 66 04 A1 D0 00 00 00 00 00 00 00 00 00 00 00 ..... 0001F0
--

```

\ BYTE OF INTEREST: MICROCODE VERSION OF RAM-RESIDENT CODE.

```

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```

```

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```

APPENDIX B  
-----

CI780 ROM/RAM MICROCODE VERSION QUICK CHECK  
=====

This procedure can be used to verify the CI750 RAM & ROM microcode version on a "halted" CPU. The RAM version is only valid if the CI780.BIN microcode file has been loaded: i.e., CI has not been powered off since last "boot" attempt. The procedure is also useful in checking for illegal version combinations when encountering boot problems with the CI750: i.e., VMB.EXE reports "UNABLE TO INITIALIZE DEVICE" or "UNABLE TO LOCATE BOOT BLOCK".

CI780 INSTALLED ON 11/780 OR 11/785 (TR 14)

NOTE: >>> INDICATES COMMANDS ARE TO "CCL" OF HALTED VAX-11/780 (USE CTRL-P).

1. Examining ROM revision:

```

>>>H           ; Halt CPU.
>>>U           ; Unjam SBI.
>>>I           ; Init system.
>>>DEP 2001C014 3FA ;Deposit micro-address in MADR.
>>>EXAM 2001C018   ;Examine MDATR.

P 2001C018 ##A1D000 ; ## = ROM version.

```

2. Examining RAM revision, if known to be loaded:

```

>>>DEP 2001C014 BFF ;Deposit micro-address in MADR.
>>>EXAM 2001C018   ;Examine MDATR.

P 2001C018 ##A1D000 ; ## = RAM version.

```

THE ONLY LEGAL COMBINATIONS AS OF THE RELEASE OF THIS FCO ARE:

RAM:	01	02	03	04
ROM:	01	02	03	03

\^ CI780  
\CI780  
\PADLA  
\1985  
\JUN  
\FCO\_DOCS