Field Feature Bill of Material (FFBM)

PN 17G5472

CONVERT an IBM 3745 Model 31A to 61A

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3745	PN 17G5472	EC C38405	EC C38405A	EC D55799	EC D55883	EC E27926
FFBM	1 of 14	06APR93	17JUN93	16SEP94	11MAY95	14MAR97

1

| 3745 | PN 17G5472 | EC C38405 | EC C38405A | EC D55799 | EC D55883 | EC E27926 |
| FFBM | 2 of 14 | 06APR93 | 17JUN93 | 16SEP94 | 11MAY95 | 14MAR97 |

2

Before Installation (steps 1-8)

VERY IMPORTANT

MES should be installed without delay, after receipt, to avoid multiple MCLs needed for the microcode.

1.0 Machines Affected

3745 Model 31A.

This feature should only be applied on the machine serial for which it is specified.

2.0 Related BMs and ECs

None.

3.0 BMs to be Installed

```
FFBM 17G5470 - Convert a 3745 31A to 61A (4MB)
     or
FFBM 17G5471 - Convert a 3745 31A to 61A (16MB)
and  17G5472 - Installation instructions
```

4.0 Preparation

1. Familiarize yourself with the purpose and details of the installation instruction before negotiating machine time with the customer.

2. Check all items listed on the BM(s) to determine that all parts have been received.

3. The installation must be performed off-line.

4. Ensure that RETAIN search has been performed and all prerequisites have been installed.

5. To check if a new MCLs level is necessary, perform a RETAIN search using **3745UPGRADE CODE LEVEL** for the TDR which gives the most recent level of microcode available for this machine (model).

To install the last level of MCLs, the most efficient way is with the LIC upgrade procedure. Use the RETAIN search, **3745ECA134 COF**, for the TDR which explains the procedure for ordering the latest level microcode from COF.

Third party can get the latest level of code through their normal microcode ordering procedures.

MCLs can be obtained from RETAIN (If if the customer provide an RSF link), or by ordering the 3746 optical disk MCL via CCSS. Use **3745CCUPGRADE** as **SAS keyword**.

6. Before starting Model conversion ensure that the complete 3745 is available.

7. If a 3746-900 is installed, a MES providing the second coupler must be available and installed concurrently on the 3746-900.

8. **For 3745-X1A and 3746-900:**
   Configuration modification in a line adapter chain, in 3745-X1A with 3746-900 connected, requires the relocation of ACTIVE/PASSIVE bypass cards in IOC/DMA bus for proper signals propagation. This will be done in section 11.0. Parts to be used for relocation are part of the 3746-900 shipping group (holders, BPC1, ABP, cables...).

Additional Information

- On 3745 Model 61A the CCU memory size must be the same on both CCUs.

- If you install the FFBM 17G5471, ensure that CCU A contains 16MB or is to be upgraded to 16MB.

- If the CCU A contains 8MB, you must install FFBM 17G5470 and an additional FFBM to upgrade CCU B to 8MB.

5.0 Programming

3745	PN 17G5472	EC C38405	EC C38405A	EC D55799	EC D55883	EC E27926
FFBM	3 of 14	06APR93	17JUN93	16SEP94	11MAY95	14MAR97

5.1 Diagnostic Programs

To reflect this change, CDF will be upgraded in step 11.0. This is essential to allow the internal diagnostics to be run properly.

5.2 System Programs

The customer has to update the control program to implement this change.

6.0 Purpose and Description

6.1 Purpose

Convert a 3745 Model 31A to a 3745 Model 61A.

6.2 Description

Add a second CCU logic in a 3745 with the associated power, fan, and cabling.

7.0 Installation Time

To be reported as MES.

FFBM	Machine Hours	System Hours
17G5470 or 17G5471	1.5	0.0
Test Time	1.0	0.0
Total Time	2.5	0.0

Add 0.3 hour for ABP card relocation.

8.0 Tools/Materials Required

- ESD kit (PN 6428316)

- Isopropyl alcohol.

3745 FFBM	PN 17G5472 4 of 14	EC C38405 06APR93	EC C38405A 17JUN93	EC D55799 16SEP94	EC D55883 11MAY95	EC E27926 14MAR97

4

Installation (Steps 9-11)

9.0 Safety

- Review the **Safety Notices** and the **Safety Inspection Procedures** located at the beginning of the *3745 Maintenance Information Procedure (MIP)* manual, SY33-2054.

10.0 Details of Installation

Before the installation of this MES, ask the customer:

- To set all lines and channel addresses offline for this controller and associated machines.
- To provide the maintenance password.
- To logoff the Service Processor, if not already done.
- To deactivate all resources of the 3746-900 (if installed).

10.1 Checking, Diagnostics

10.1.1 MOSS IML

From the control panel:

___ 1. Check that the **Power Control** indicator displays **3**. If it does not, record the value __. Then, set the **Power Control** indicator to **3**.
Press the **Validate** key.

___ 2. Set the **Function** indicator to **1**.
Press the **Validate** key.

___ 3. Set the **Service Mode** indicator to **2**.
Press the **Validate** key.

The MOSS IML is completed when **F0E** code is displayed.

10.1.2 Logon
From the Service Processor:

___ 1. On the **MOSS-E View** window, click on **Program**.

___ 2. Click on **LOG ON MOSS-E**.

___ 3. Enter the maintenance password, press **Enter** (**Administrator Maintenance Mode** is displayed on the low line of the window).

10.1.3 Open MOSS/MOSS-E Session

___ 1. On the **MOSS-E View** window, double click on the **ICON** of the identified 3745.

___ 2. On the **3745 Menu** window, double click on **MOSS Console**.

Wait for **Function Selection Rules** screen.

10.1.4 Disable Channels Adapters

___ 1. Enter **CID**, press **Enter**.

___ 2. On the **CA Interface Display** screen, record the **Enable Channel Adapters**, then **Disable** all the Channel Adapters.

   Note: If 3746 A11 is installed, press **F8** to display channels 8 through 16.

___ 3. Wait for **Interface Status Disabled** for all channels.

___ 4. Press **F1**.

___ 5. If CCU running, enter **RST** to reset the CCU.

The MOSS goes in **MOSS ALONE** state.

10.1.5 Verify the CDF

___ 1. Enter **CDF**, press **Enter**.
___ 2. Enter **4** (VERIFY), press **Enter**.
The value from the **CDF DATA** and **MACHINE DATA** should be identical.
If there is a discrepancy, verify the features. If correct, update the CDF with the machine values, enter **2**, press **Enter**.

3745	PN 17G5472	EC C38405	EC C38405A	EC D55799	EC D55883	EC E27926
FFBM	5 of 14	06APR93	17JUN93	16SEP94	11MAY95	14MAR97

5

___ 3. When **CDF VERIFY COMPLETED** is displayed, press **F1**.

## 10.1.6 Run the Diagnostics

___ 1. Enter **ODG**, press **Enter**.

___ 2. Enter **3** (IOCB), press **Enter**.

   • If **NO ERROR FOUND** is displayed, press **F1**.

   • Otherwise, see the *MIP*, Chapter 1.
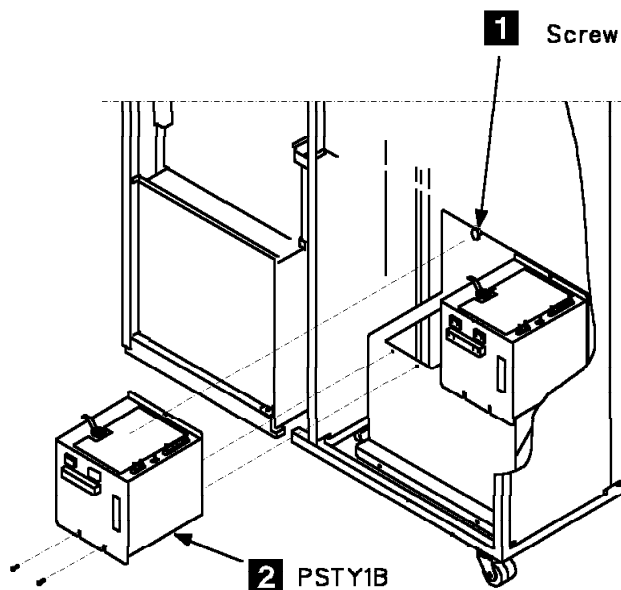
10.1.7 Power OFF

Note

Remove all electrical power from the machine and associated machines before the hardware installation.

___ 1. From the control panel, press the **Power OFF** key.

___ 2. Open the front system covers, then switch OFF **CB1**.

___ 3. Open the rear system cover.

10.2 Hardware Installation
Warning: Follow the existing ESD procedures when handling logic parts.
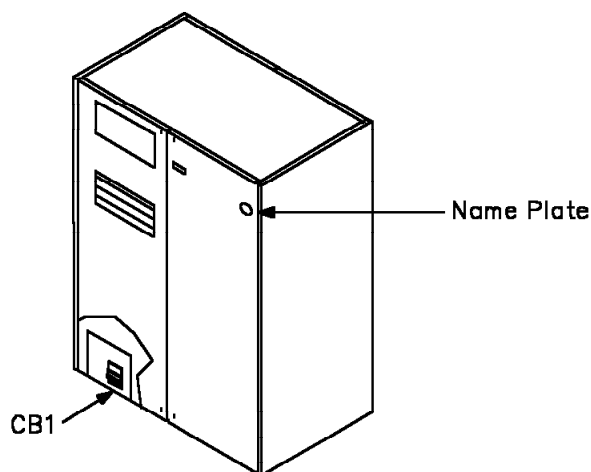
10.2.1 PSTY1B Installation

___ 1. Remove the top left screw securing the PSTY1B bracket .**1**..

___ 2. Install the PSTY1B (PN 26F1733) .**2**. in 01R (three screws PN 2665528, two are provided by FFBM and one from the previous Step).

3745	PN 17G5472	EC C38405	EC C38405A	EC D55799	EC D55883	EC E27926
FFBM	6 of 14	06APR93	17JUN93	16SEP94	11MAY95	14MAR97

6

___ 3. Locate the power control bus cable tied on the raceway (at the top of the PSTY1), and plug it in power connector J2 .**3**.


```
POR Cable    Z4D           01B-A1
   4                          Y5
                              Y4
Clamp
   8          Y5 Y4
                              01B-A2
   6
FDS
Cable
   5
                          Power Bus
                          Cable
     01R
                          J2
     01Q                  3
  J1  4              7  Switch
```

___ 4. Attach the retainers (PN 62X4516) to the FDS connector as shown.

___ 5. Route and connect the FDS cables .**5**. from the PSTY1B to the SACU board as follows:
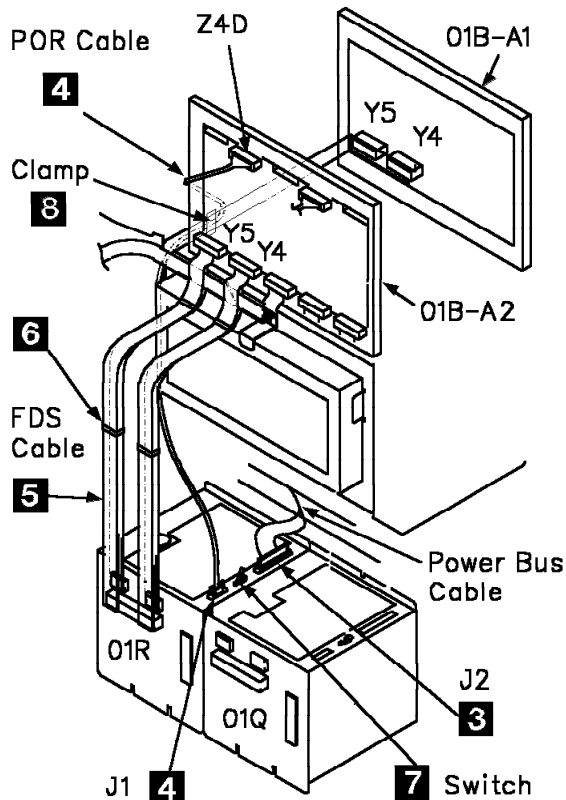
PN	From	To
61F4453	01B-A1-Y5	01R-TB1/3
61F4455	01B-A1-Y4	01R-TB2/4
61F4454	01B-A2-Y5	01R-TB1/3
61F4456	01B-A2-Y4	01R-TB2/4

Note: Screws (PN 61F4511) are provided in a bag attached to the power.
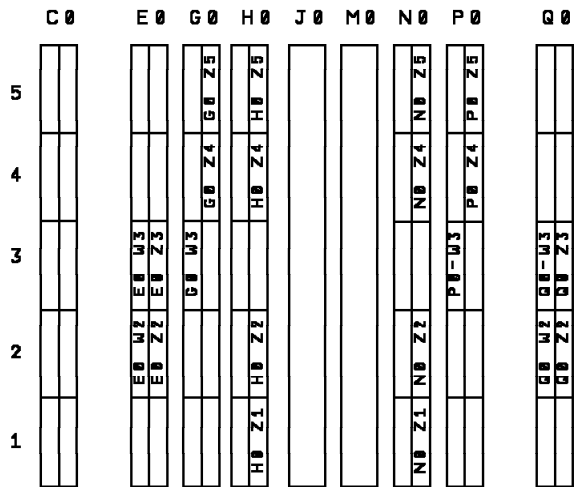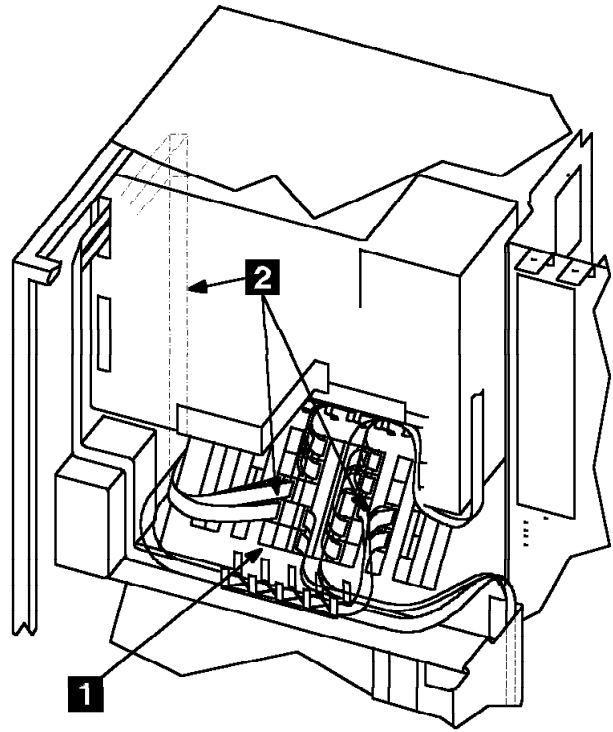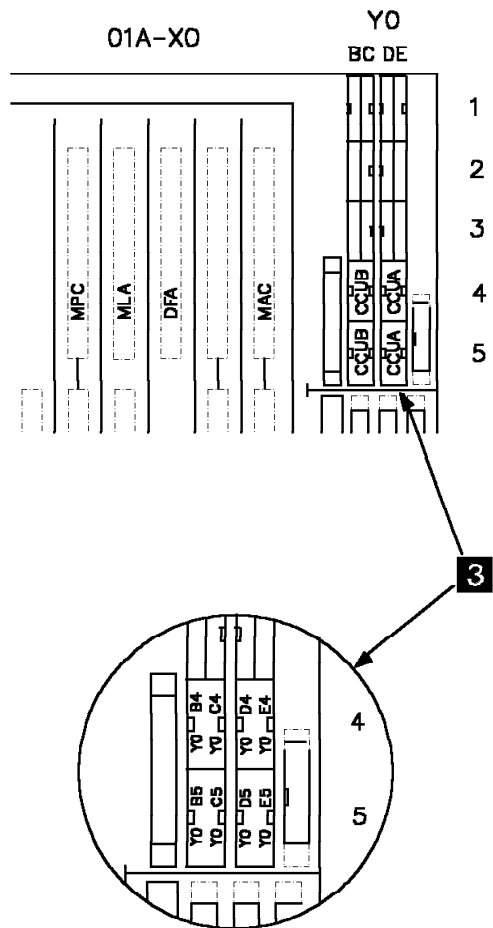
___ 6. Tie the FDS cables together with tie wrap (PN 6846576) .**6**.

___ 7. Mount the retainer (PN 05F0061) on the **Power On Reset** cable (PN 61F4448) as shown in figure.
Note the positions of tabs .**A**.
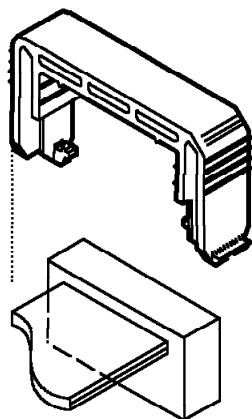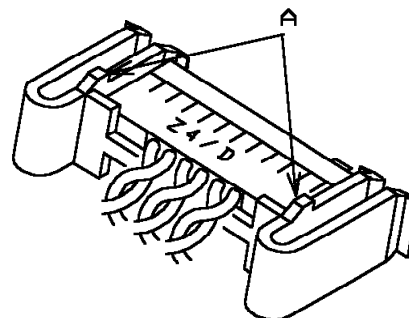
___ 8. Route and connect the cable from PSTY1B 01R-J1 to the SACL board 01B-A2Z4-D .**4**.
Secure the cable in the clamp .**8**. on the left side of the enclosure as shown in the figure.

___ 9. On the PSTY1B in 01R, set the switch 1 to position B (CCUB) .**7**.

___ 10. Route the PSTY1B power cord to the front of the machine.

3745	PN 17G5472	EC C38405	EC C38405A	EC D55799	EC D55883	EC E27926
FFBM	7 of 14	06APR93	17JUN93	16SEP94	11MAY95	14MAR97

7

10.2.2 I/O Cables

___ 1. From the rear of 3745, locate the MOSS board in 01A.

___ 2. Install and route the flat cable group (PN 76F8592).
Secure the cables in the existing clamps.

___ 3. Plug the flat cables, one at a time, on the MOSS in the following sequence: .**3**.

• 01A-Y0C4, Y0B4, Y0C5, and Y0B5.

___ 4. Route the cables through the machine to the SACU, and connect them according to their labels .**1**. .**2**. .

Flat cables connection on SACU board.

3745	PN 17G5472	EC C38405	EC C38405A	EC D55799	EC D55883	EC E27926
FFBM	8 of 14	06APR93	17JUN93	16SEP94	11MAY95	14MAR97

8

10.2.3 FAN Installation, Power Cords

From the front of the machine:

___ 1. Remove the CCU air filter .**1**.

___ 2. Remove 5 screws then remove the bottom bracket from the enclosure .**2**.

___ 3. Remove 4 nuts then remove the plate .**3**. and the pad .**4**.
Save nuts and pad for the re-installation.

___ 4. Install the blower (PN 61F4494) .**5**. and the pad .**4**. saved in the previous Step.
Secure the fan with the nuts (PN 1622419) saved in previous Step.

___ 5. Connect the ground wire .**6**. on the enclosure with a lockwasher (PN 1622348) and a nut (PN 1622419).

___ 6. Place the fan power cord .**7**. as shown, and re-install the bottom bracket of the enclosure.

___ 7. Re-install the filter on the cage and secure it.

___ 8. Plug the power cords in the primary power box as follows:

    a. PSTY1 01R to connector J9.
    b. Fan CCUB to connector J2.

4 Pad
3 Plate
5 Fan
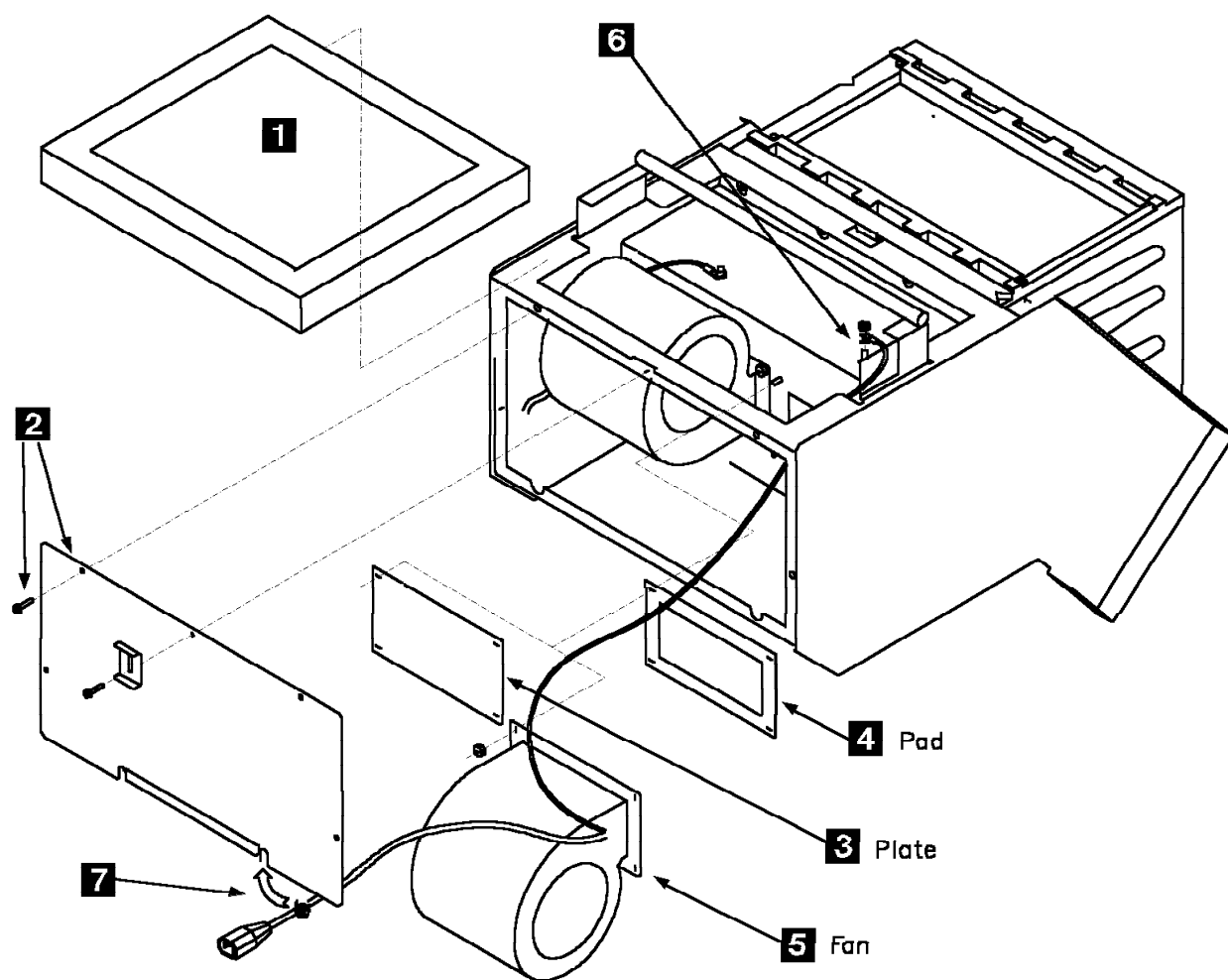
3745	PN 17G5472	EC C38405	EC C38405A	EC D55799	EC D55883	EC E27926
FFBM	9 of 14	06APR93	17JUN93	16SEP94	11MAY95	14MAR97

10.3 Mechanical

__ 1. From the rear of the CCU cage, remove the bracket .**1**. (four screws).

__ 2. Affix the label (PN 34F1289) to bracket (PN 34F1363), and install the bracket on the left side of the enclosure (re-use the two screws removed in Step 1) .**2**..

__ 3. Install the bracket (PN 61F4485) .**3**. (two screws PN 61F4511) at the top of the CCU cage to secure the STER cards.

__ 4. Install the bracket (PN 61F4486) .**4**. (two screws PN 61F4511) at the bottom of the CCU cage to secure the STER cards.

01B-A1

| 3745	PN 17G5472	EC C38405	EC C38405A	EC D55799	EC D55883	EC E27926
FFBM	10 of 14	06APR93	17JUN93	16SEP94	11MAY95	14MAR97
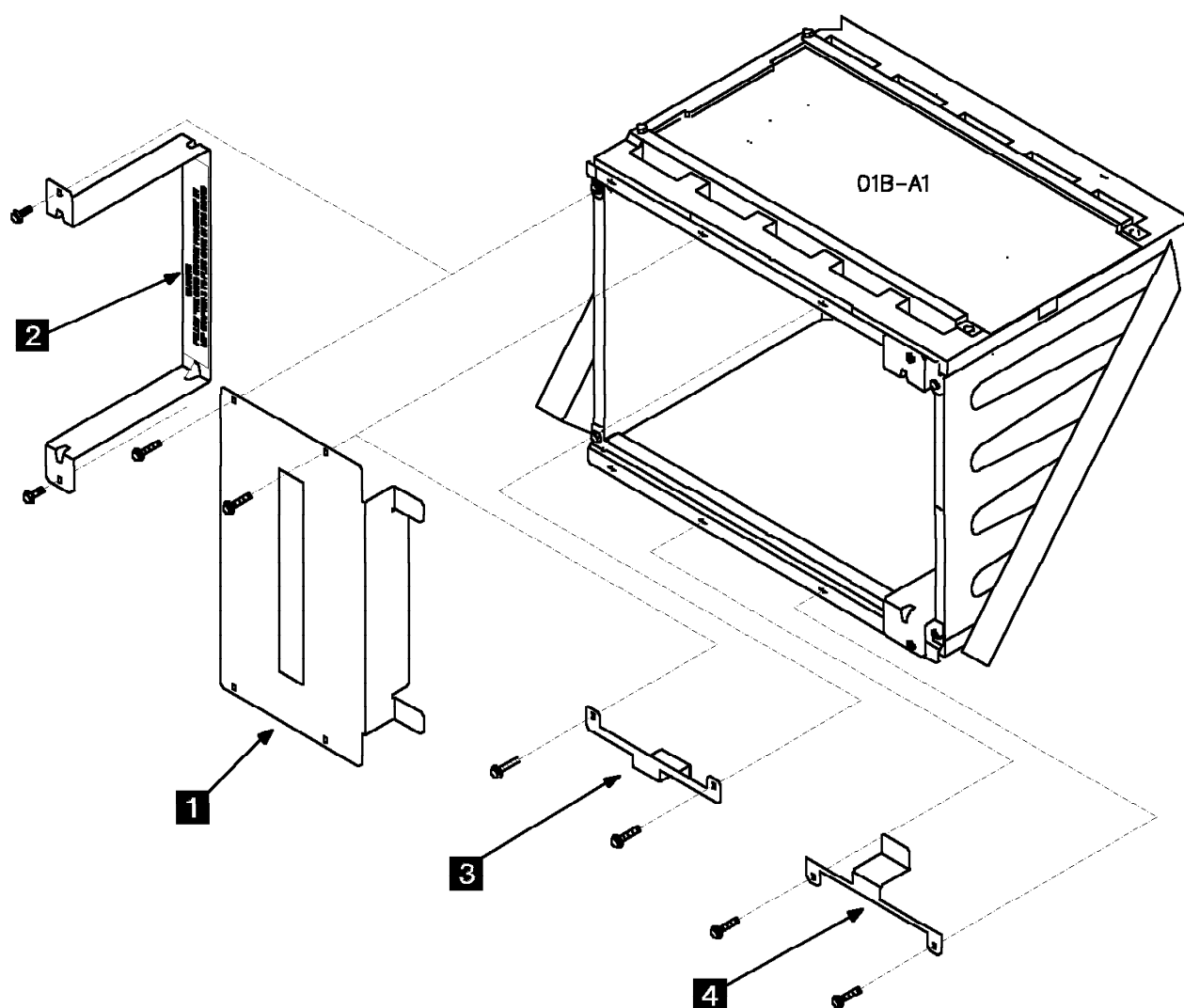
10.4 Card Installation

Install carefully the cards provided by FFBM as follows:

__ 1. At card positions N0, P0, Q0, S0, move levers A and B outwards and carefully remove the dummy cards (and U0 if you install FFBM 17G5470).

__ 2. Insert the cards into their slots and allow them to seat under their own weight ensuring that they have reached the end of their slots.

   - IOSW2 card in position N0.
   - DMSW card in position P0.
   - PUC card in position Q0.
   - SCTL2/SCTL3 card in position S0.
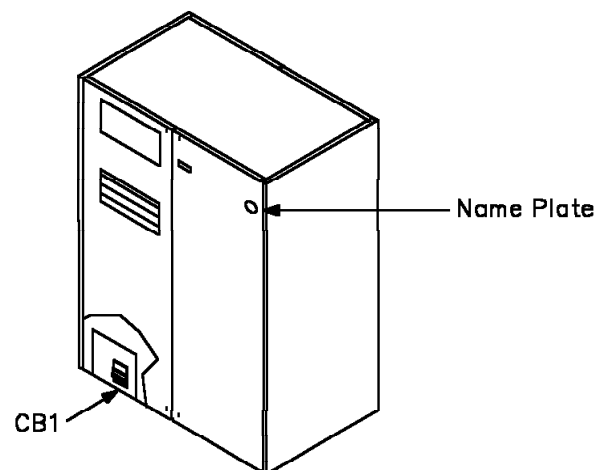   - STO card in position U0.

      Note: No STO card is provided if SCTL3 (16MB feature) is installed.

__ 3. Lock the cards in place by pushing gently on buttons C and D.

__ 4. Using both hands, move levers A and B inwards simultaneously.
      To improve contact, operate the levers three times.

HANDLE
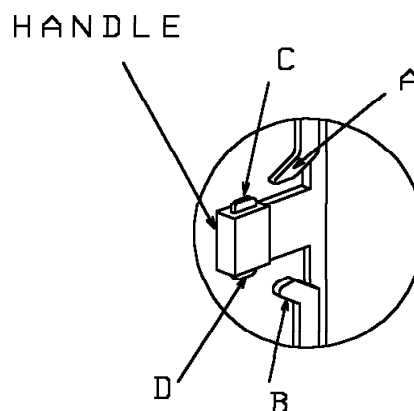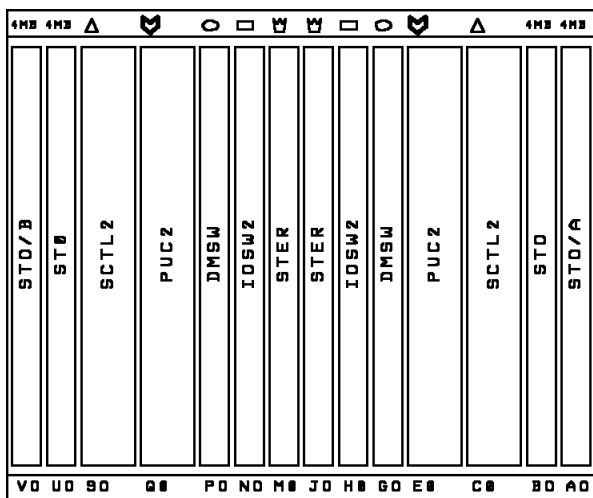
10.5 Name Plate Installation

__ 1. Remove the name plate from the front system cover, and clean any adhesive residue from the recessed area with Isopropyl alcohol.

__ 2. Remove the paper from the back of new name plate (PN 17G5604) and affix the name plate.

__ 3. Strike out the model number on the S/N label, only the nameplate will identify the model type from now on.

Name Plate

CB1

3745	PN 17G5472	EC C38405	EC C38405A	EC D55799	EC D55883	EC E27926
FFBM	11 of 14	06APR93	17JUN93	16SEP94	11MAY95	14MAR97

11.0 Test Procedures

11.1 Power ON

___ 1. From the primary power box, switch **CB1** ON.
Verify that all CPs are switched ON.

___ 2. Close the system covers.

From the control panel:

___ 1. Set the **Function** indicator to **1**.
Press the **Validate** key.

___ 2. Set the **Service Mode** indicator to **2**.
Press the **Validate** key.

___ 3. Press the **Power On Reset** key.

The **MOSS IML** is completed when **F0E** is displayed on the control panel.

11.2 Open MOSS/MOSS-E Session

From the Service Processor, wait until the **ICON** of the identified 3745 becomes purple.

___ 1. On the **3745 Menu** window, double click on **MOSS Console**.

Wait for **Function Selection Rules** screen.

11.2.1 Power Configuration Table

___ 1. Enter **POS** (Power Services), press **Enter**.

___ 2. Enter **C** (Create), press **Enter**.
When the message **CREATED POWER CONFIGURATION TABLE** is displayed, verify on **Base Frame** line that number **3** is displayed.

___ 3. Key **Y** to confirm, press **Enter**.

___ 4. Key **1** to display the base frame 1 power status, press **Enter**.
Check that the PSTY1B ID 3 is **Down**.
Enter **U03** to set the power supply **UP**.

___ 5. Press **F1**.

11.2.2 Update the CDF

___ 1. Enter **CDF**, press **Enter**.

___ 2. Enter **4** (VERIFY), press **Enter**.
The value from the **CDF DATA** and the **MACHINE DATA** should be identical except for the new hardware installed.

___ 3. To update the CDF with the machine values, enter **2**, press **Enter**.

  • When **CDF VERIFY COMPLETED** is displayed, press **F6**.

11.2.3 Define the CCU Mode

___ 1. Enter **1** (DISPLAY/UPDATE), press **Enter**.

___ 2. Enter **9** (CCU OPERATING MODE), press **Enter**.

___ 3. Press **F5** for update.
Choose the correct mode according to the customer request (default value is **Twin Backup**), press **Enter**.

___ 4. Press **F1**.

11.2.4 Record the 3745 Model

From the Service Processor:

___ 1. On the **Service Processor** menu, double click on **Manage 3745/3746-900 Installation**.

___ 2. Click on the line of the 3745 you have just converted.

___ 3. Click on **Change**.

___ 4. On **Controller Model Change** message, click on **Yes**.

From the 3745 control panel:

___ 5. Press the **Power OFF** key.

___ 6. Set the **Service Mode** indicator to **2**.
Press the **Validate** key.

___ 7. Set the **Function** indicator to **1**.
Press the **Validate** key.

___ 8. Press the **Power On Reset** key.
The MOSS IML is completed when **F0E** is displayed on the control panel.

| 3745 | PN 17G5472 | EC C38405 | EC C38405A | EC D55799 | EC D55883 | EC E27926 |
| FFBM | 12 of 14 | 06APR93 | 17JUN93 | 16SEP94 | 11MAY95 | 14MAR97 |

12

From the Service Processor:

___ 9. Click on **OK**.
The 3745 Model number is being recorded.

___ 10. When the operation is completed, click on **OK**.

___ 11. Click on **Cancel**.

___ 12. On the **3745 Menu** window, double click on **MOSS Console**.

Wait for **Function Selection Rules** screen.

11.2.5 Run the Diagnostics

___ 1. Enter **ODG**, press **Enter**.

___ 2. Enter **2** (CCU) in diag field, **B** in ADP field, press **Enter**.

   • If **NO ERROR FOUND** is displayed, press **F6**.

   • Otherwise, see the *MIP*, Chapter 1.

___ 3. Enter **3** (IOCB), press **Enter**.

   • If **NO ERROR FOUND** is displayed, press **F6**.

   • Otherwise, see the *MIP*, Chapter 1.

11.2.6 Air Filter Acknowledge

___ 1. Check all frame filters. replace if needed.

___ 2. Enter **POS**, press **Enter**.

___ 3. Select option **A**, press **Enter**.

___ 4. Select option **F** (Acknowledge Air Filter change), press **Enter**.

___ 5. Enter a **Y** to confirm, press **Enter**. When completed, press **F1**.

11.2.7 Relocate the Bypass Cards

Note: Follow this Step if a 3746-900 is attached. From the Service Processor:

___ 1. On the **3745 Function Selection** screen, enter **OFF**, press **Enter**.

___ 2. On the **3745 menu** window, click on **OPERATION MANAGEMENT**.

___ 3. Double click on **Locate Bypass Card Position**.

___ 4. Follow the instructions.

Note: Refer to the *3746 Model 900 Installation Guide* (SY33-2088), Chapter 4, section: 'Plugging the Active and Bypass Cards and Connecting +5 V Cables'. Then, Chapter 5, perform steps 1, 2, and 5, to verify the CDF and test the IOC/DMA bus.

11.3 Close MOSS/MOSS-E Session

___ 1. Enter **CID**, press **Enter**.

___ 2. Re-enable all channel Adapters disabled in step 10.1.4, "Disable Channels Adapters" on page 5.

___ 3. When CAs are enabled, press **F1**.

___ 4. Enter **OFF**, press **Enter**.

___ 5. On **3745 Menu** window, click on **Function**. Then, click on **Exit**.

The **MOSS-E View** window is displayed.

11.4 General IPL

From the control panel:

___ 1. Set the **Power Control** indicator to its original value, recorded in Step 10.1.1.

___ 2. Set the **Service Mode** indicator to **0** Press the **Validate** key.

___ 3. Set the **Function** indicator to **0** (General IPL).
Press the **Validate** key.

The general IPL starts.

   • If **FF4** code is displayed on control panel, ask the customer to load the control program.

   • If the control program is loaded from hard disk, **000** will be displayed when **IPL** successful.

Note: The control program load can fail if a mismatch exists between control program and hardware configuration.

| 3745 | PN 17G5472 | EC C38405 | EC C38405A | EC D55799 | EC D55883 | EC E27926 |
| FFBM | 13 of 14 | 06APR93 | 17JUN93 | 16SEP94 | 11MAY95 | 14MAR97 |

13

11.5 Disk Save

When the customer network is restarted, save the contents of the hard disk on the **BACKUP** set of diskettes.

11.5.1 Open MOSS/MOSS-E Session

From the service processor:

__ 1. On the **MOSS-E View** window, double click on the **ICON** of the identified 3745.

__ 2. On the **3745 Menu** window, double click on **MOSS Console**.

Wait for **Function Selection Rules** screen.

11.5.2 Save Disk Contents onto Diskettes

__ 1. If NCP is restarted and MOSS ONLINE, set the **MOSS OFF LINE**, enter **MOF**, press **Enter**.

   Note: Select the CCU with CSR function first.

__ 2. Select **DIF**, press **Enter**.

__ 3. Select **2**.

__ 4. Enter the date and save-ID, and press **Enter**.

__ 5. Follow prompts on console.

__ 6. When the function is completed, press **F1**.

11.6 Install Latest MLCs

Prior to returning the 3745 to the customer, you must install the latest MCLs.

__ 1. If you have an RSF link:
   Refer to the *SP Installation and Maintenance* Manual. Follow the procedure **Reporting problem to retain** in Chapter 3 and, when requested enter **Converting a Model A and testing the RSF link** as short description of the problem. The latest MCLs are automatically dowloaded. Then go to :**Handling Microcode Change level** in Chapter 3. When the RSF link is completed and the MCLs

are installed, go to 11.7, "Close MOSS/MOSS-E Session."

__ 2. If you use the LIC Upgrade kit:
   Refer to the *SP Installation and Maintenance* Manual. Follow the procedure **Installing a new version of the Licensed Internal Code** in Chapter 3. When done go to 11.7, "Close MOSS/MOSS-E Session."

__ 3. If you use the 3746 Optical Disk MCLs:
   Refer to the *SP Installation and Maintenance* Manual. Follow the procedure **Handling Microcode Change Level** in Chapter 3. When done go to 11.7, "Close MOSS/MOSS-E Session."

11.7 Close MOSS/MOSS-E Session

__ 1. Enter **OFF**, press **Enter**.

__ 2. On **3745 Menu** window, click on **Function**, then on **Exit**.

The **MOSS-E View** window is displayed.

11.8 Logging OFF from SP

__ 1. On **MOSS-E View** window, click on **Program**.

__ 2. Click on **LOG OFF MOSS-E**.

3745	PN 17G5472	EC C38405	EC C38405A	EC D55799	EC D55883	EC E27926
FFBM	14 of 14	06APR93	17JUN93	16SEP94	11MAY95	14MAR97

14

After Installation (steps 12-15)

12.0 Field Updating

None.

13.0 Publications Update

None.

14.0 Parts Disposition

14.1 Purchased Machines

Refer to the parts ownership matrix to determine the correct owner of removed/unused parts.

- For EMEA/APG/AG Areas, refer to *Hardware and General Service Code Description*.
- For Domestic Areas, return parts to the customer.

15.0 Machine Records

- Install the new **MACHINE HISTORY** supplied.
- Report installation (as MES activity) and quality to existing procedures.

End of instructions.

| 3745 | PN 17G5472 | EC C38405 | EC C38405A | EC D55799 | EC D55883 | EC E27926 |
| FFBM | 15 of 14 | 06APR93 | 17JUN93 | 16SEP94 | 11MAY95 | 14MAR97 |

15

3745 FFBM	PN 17G5472 16 of 14	EC C38405 06APR93	EC C38405A 17JUN93	EC D55799 16SEP94	EC D55883 11MAY95	EC E27926 14MAR97

16