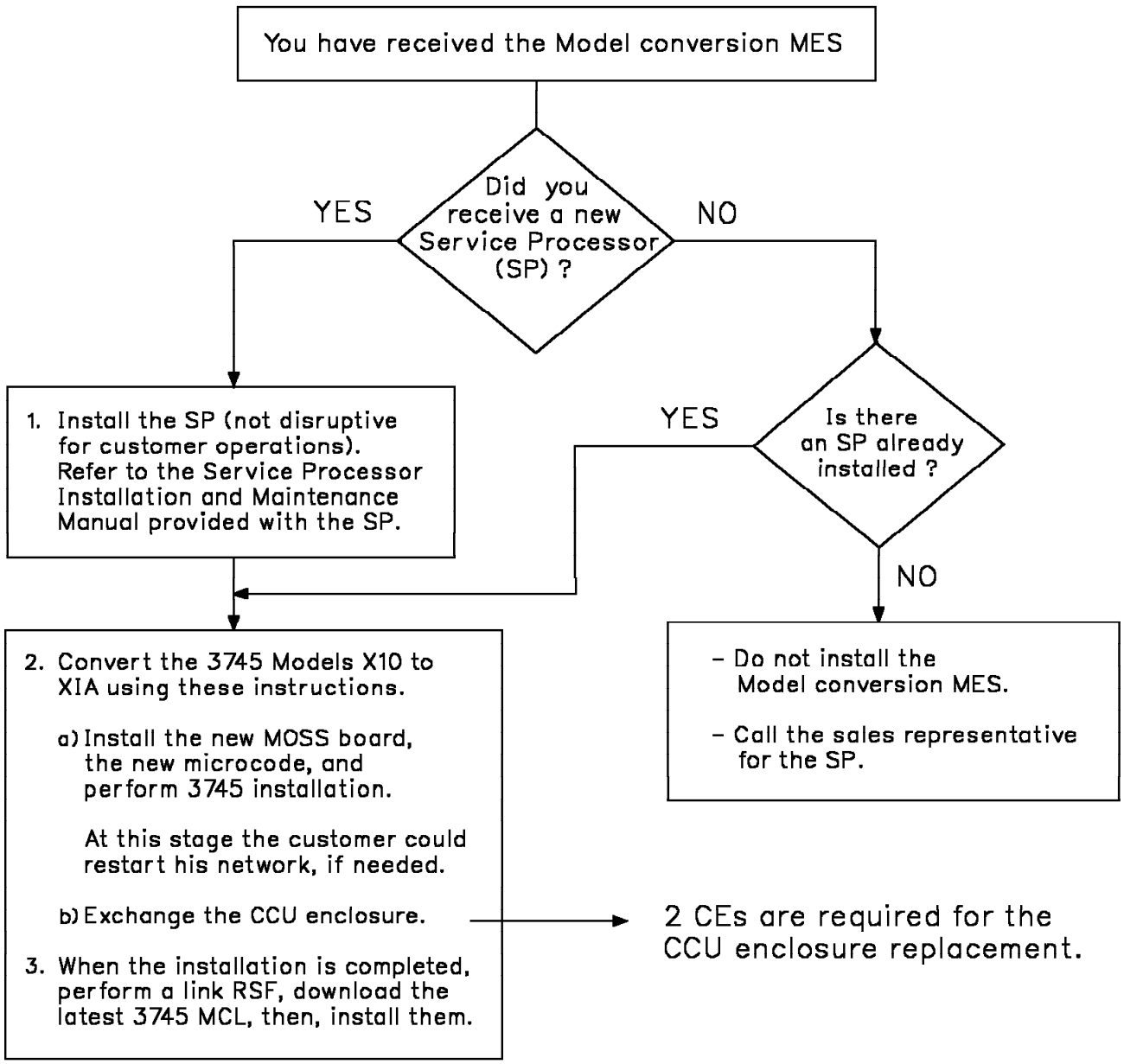
Field Feature Bill of Material (FFBM)

PN 17G5495

CONVERT an IBM 3745 Model 210 to 31A

Written by: J. Michaut
Checked by: J. Combes
Approved by: A. Badino
Reviewed by: B. Smith?

- To meet the customer's requirements for machine availability, the installation of this MES can be performed in either ONE or TWO stages.
- When performed in TWO stages, the installation will be halted after Part 1 and the machine will be tested. At this point, the machine can be restarted and the NCP reloaded. If the customer must use the machine at this point, completion of Part 2 may be delayed until additional machine time is available.
- If you elect to complete this installation in one stage, both Parts 1 and 2 will be completed before testing and returning the machine to the customer.
  1. Part 1: Install the MOSS board and the microcode. Connect the (SP) Service Processor (Steps 10.1 through 10.4).
  2. Part 2: CCU enclosure replacement (Steps 10.5 through 10.10.3).



Before Installation (steps 1-8)

VERY IMPORTANT

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

Net Priced Feature

All parts removed from this machine are IBM property and must be returned to IBM.

1.0 Machines Affected

3745 Model 210.

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

2.0 Related BMs and ECs

2.1 Prerequisites

(Must be installed prior to this installation)

- 72MB HDD must be installed.
  Checkpoint: Check in Machine History for EC A97883, or A98113, or A97906.
- CSP card, P/N 11F5035 or later (see ZZ001).
  Checkpoint: CSP cards in 01G-A1.
- CAL card, P/N 11F6090 or later (see ZZ001).
  Checkpoint: CAL cards in 01L-A1.
- NCP minimum level V6R2 must be installed and validated before starting the Model conversion MES.
  Checkpoint: Perform MLT function on MOSS.
- A Service Processor must be installed before starting the Model conversion MES.
  A Service Processor can connect to a maximum of four 3745 Model XXAs.

2.2 Concurrent

(Must be installed together)

None.

3.0 FFBMs to be Installed

- Model conversion MES:

```
   17G5495 - Installation Instructions
   17G5475 - Convert a 3745 Model 210 to 31A
             MOSS board + CCU enclosure 4MB
or 17G5476 - Convert a 3745 Model 210 to 31A
             MOSS board + CCU enclosure 8MB
or 17G5477 - Convert a 3745 Model 210 to 31A
             MOSS board + CCU enclosure 16MB
```

- An external console cable is provided:

```
    43G3172 - Console cable US only.
or  43G3173 - Console cable World Trade.
```

- An SP is required for 3745 operations.
  One of these FFBMs is provided on request.

```
   58G5543 - Service Processor (World Trade)
or 58G5547 - Service Processor (US/Canada)
```

- If there is neither HSS nor ELA installed in your 3745, install the following FFBM.

```
   43G3171 - DTER card.
```

As required FFB/M(s):

```
80G5106 - CSP Card Exchange
80G5108 - CADS Card Exchange
80G5110 - TRM Card Exchange
80G5112 - Hard Disk Drive Exchange
```

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. Perform a search using **3745AUPGRADE** and **CCUPGRADE** as SAS keywords.

   Note: To avoid a critical situation it is recommended to **have a spare 80 Meg hard disk** available on site.

5. Ensure that RSF link is installed and working. If the customer has not provided an RSF link, review or have marketing review with the customer for maintenance exposure. Before to perform the RSF link, register the 3745 new Model in CCPF.

6. 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.

7. Ensure that a current set of backup diskettes has been created by saving the hard disk contents onto diskettes before powering OFF the 3745 (refer to Disk/Diskette **Management Function** in *Service Function* Manual).

8. The DMA bus is required on the 3745 Model 31A. If the HSS or ELA feature is not already installed, you will receive DMSW (installed in new CCU enclosure) and DTER cards (provided by FFBM 43G3171).

9. Follow the unpacking instructions attached to the case to unpack the MES material.
   Do not damage the packing boxes. They will be used for repacking.

10. To support the new Model, ACF/NCP V6R2 (or later) must be installed.

Additional information:

- All parts to be returned should be handled carefully. Returnable parts must be received at the factory in a good working order.
- To save installation time and machine down time, some tasks will be performed after general IPL section (10.11).
- When hardware installation of the CCU enclosure is complete each CE should check the other CE's work before the "Power ON" section (10.11).
- Before starting the MES, verify that the serial number displayed on the 3745 MOSS console matches the serial number printed on the *3745 Installation Parameters* diskette (PN 43G3225).

  Important Note

  If the last five digits of the 3745 machine serial number do not agree with the serial number printed on the *3745 Installation Parameters* diskette (PN 43G3225), stop the installation immediately and call the IBM Support Center.

  Verify also the plant ID. If plant ID = **00** it will be replace by **23** (see note in Step 10.12.2).

- Use the DII function to purge all NCP dumps from the MOSS hard disk.
- Use the DDD function to delete the MOSS dump (CHGDMP) from the MOSS hard disk.

5.0 Programming

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

NCP V6R2 is the minimum level required to support the 3745 Model 31A.

6.0 Purpose and Description

6.1 Purpose

Convert a 3745 Model 210 to a Model 31A.

6.2 Description

1. MOSS Board changes.
   - Install new Service Processor (if required).
   - Replace the MOSS board/card assembly and console tailgate.
   - Install new MOSS microcode.
2. CCU enclosure exchange.
   - Remove the TCM CCU enclosure, PSTY1, air moving device, and associated cabling.
   - Install a NEW CCU enclosure.
   - New PSTY1B power supplies and associated cabling.

7.0 Installation Time

- 2 CEs are required for the CCU enclosure replacement.
- To be reported as MES

FFBMs	Machine Hours	System Hours	Nbr of CE
17G5475 or 17G5476 or 17G5477	5.1	0.0	2

Installation may be staged with a checkpoint before exchanging the CCU enclosure.
The estimated time for each part is:
Part 1: 2.7 Hours.
Part 2: 3.15 Hours.

8.0 Tools/Materials Required

- ESD kit (PN 6428316)
- Isopropyl Alcohol
- TCM tool kit (PN 69X7667).

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 Procedures (MIP)* manual, SY33-2054.

10.0 Details of Installation

Note

Before starting the Model conversion installation, be sure that a Service Processor is available.
If you received the Service Processor as part of the MES, install the SP within 10m (33 feet) of 3745.

Before the installation of this MES, ask the customer:

__ • To set all lines and channel addresses off-line for this 3745.

__ • To provide the maintenance password.

__ • To logoff the console, if not already done.

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 **Service Mode** indicator to **1**.
Press the **Validate** key.

__ 3. Set the **Function** indicator to **1**.
Press the **Validate** key.

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

10.1.2 Installing in Stages

- If you are beginning the installation, go to Step 10.1.3, “Disable CA(s).”
- If you are resuming the installation after staging following the Service Processor installation and MOSS board exchange, and have returned the machine to the customer as a Model 21A, continue with this Step.

From the Service Processor:

__ 1. If not logged ON, and the **MOSS-E View** window displayed, click on **Program**. Then, click on **LOG ON MOSS-E**.

__ 2. Enter the maintenance password, press **Enter**.

__ 3. On the **MOSS-E View** window, double click on the ICON of the identified 3745.

__ 4. On the **3745 Menu** window, double click on **MOSS Console**.
Wait for **Function Selection Rules** screen.

__ 5. Enter **CID**; Go to Step 10.1.3, “Disable CA(s),” and skip item 3.

10.1.3 Disable CA(s)

From the local console:

__ 1. When the **CA INTERFACE DISPLAY** screen is displayed, record **Enabled Channel adapters** then **Disable** all channel adapters.

Note: If a 3746 A11 is installed, press **F8** to display the channel adapters 8 through 16.

__ 2. Wait for **Interface Status Disabled** for all CA's.
Press **F4**.

__ 3. Enter the maintenance password, press **Send**.
If the MOSS is in **MOSS ALONE** state, go to next Step.

__ 4. If **NCP LOADED** and **CCU RUNNING**, enter **RST** to reset the CCU.

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

10.1.4 Verify the CDF

__ 1. Enter **CDF**, press **Send**.

__ 2. Enter **4** (VERIFY), press **Send**.
The value from the **CDF DATA** and the **MACHINE DATA** should be identical. If it does not, physically, verify the features, and if it is correct update the CDF data with the machine value, enter **2**, press **Send**.
When **CDF VERIFY COMPLETED** is displayed, press **F1**.

10.1.5 Record Scheduled Power ON

__ 1. Enter **TIM**, press **Send**.

__ 2. Enter **2**, press **Send**.

__ 3. Record, on the screen below, the **SCHEDULED POWER ON DATA** if filled.

```
FUNCTION ON SCREEN:   TIME SERVICES
                      SCHEDULED POWER ON DATA

- FILL IN, MODIFY, OR BLANK APPROPRIATE FIELD, PRESS SEND.

   SUNDAY       (HH:MM)  ==>
   MONDAY       (HH:MM)  ==>
   TUESDAY      (HH:MM)  ==>
   WEDNESDAY    (HH:MM)  ==>
   THURSDAY     (HH:MM)  ==>
   FRIDAY       (HH:MM)  ==>
   SATURDAY     (HH:MM)  ==>

   SCHEDULING ACTIVE (Y=YES, N=NO)  ==>
```

__ 4. Press **F1**.

10.1.6 Power Configuration Table

__ 1. Enter **POS**, press **Send**.

__ 2. Enter **C**, press **Send**.

__ 3. Record, on the screen below, the displayed **CREATED POWER CONFIGURATION TABLE**.

```
FUNCTION ON SCREEN: POWER SERVICES
                    CREATED POWER CONFIGURATION TABLE

3745     : _  _  _  _  _  _  _  _  _  _  _  _  _
3746-A11 : _  _  _  _  _  _  _  _  _  _  _  _
3746-A12 : _  _  _  _
3746-L13 : _  _  _  _
3746-L14 : _  _  _  _
3746-L15 : _  _  _  _
```

__ 4. Enter a **Y** to confirm, press **Send**.

__ 5. Press **F1**.

10.1.7 Diagnostics

__ 1. Enter **ODG**, press **Send**.

__ 2. Enter **3** (IOCB), press **Send**.

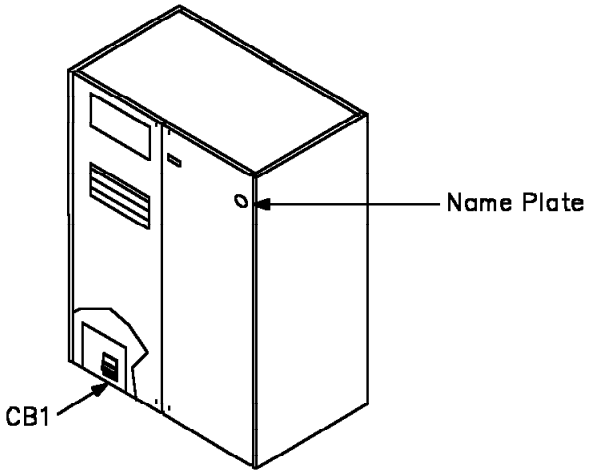
- If **NO ERROR FOUND** is displayed, press **F1**.
- Otherwise, see the *MIP*, Chapter 1.

__ 3. Power OFF the 3745 local console.

10.1.8 Power OFF

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

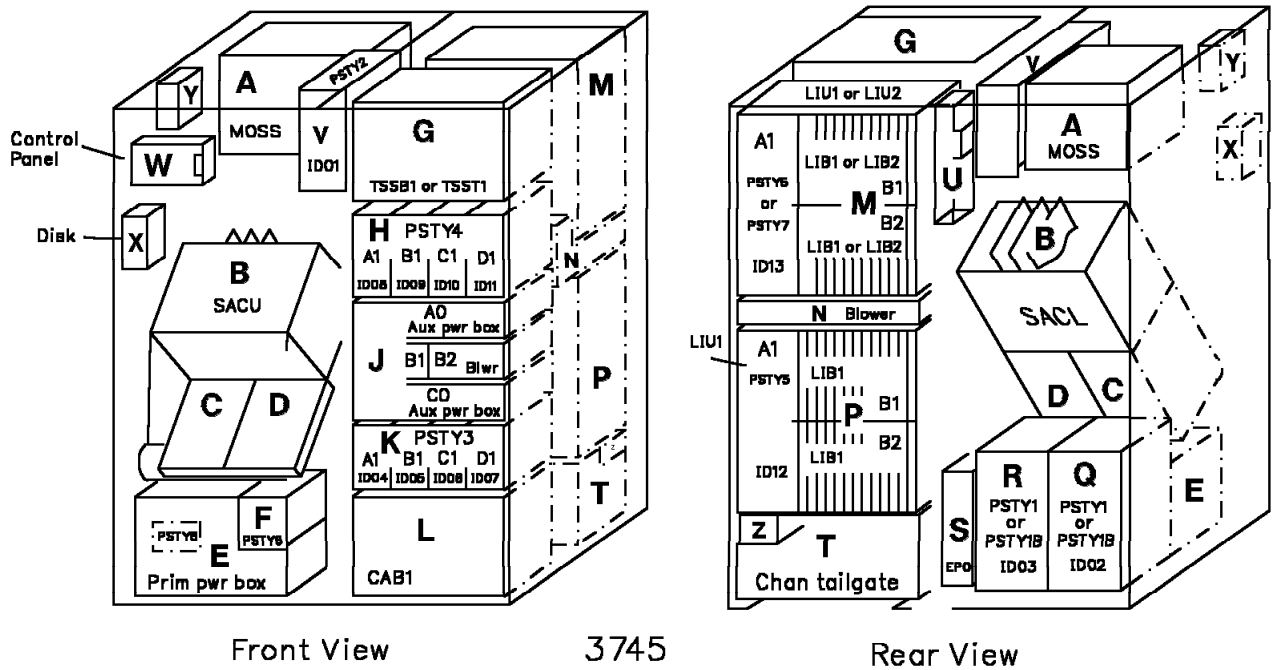
__ 2. Open the front system cover and switch **CB1** OFF.



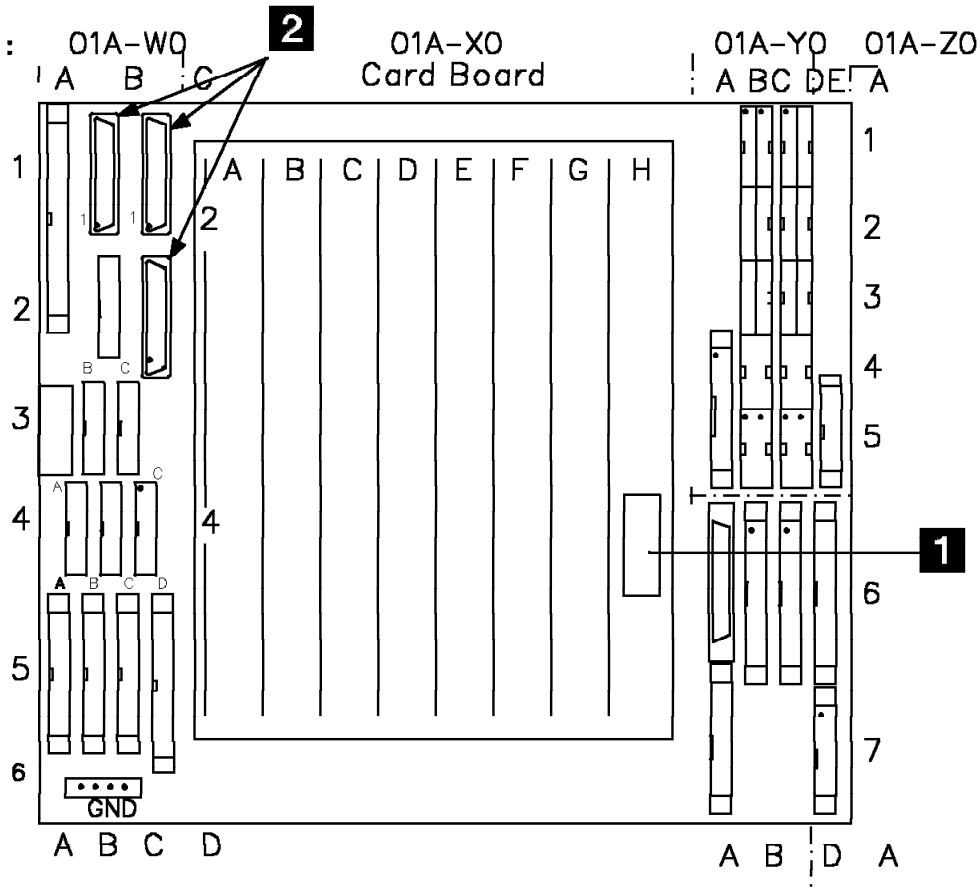
10.2 MOSS Board Exchange

Warning: Follow the existing ESD procedures when handling logic parts.

10.2.1 MOSS Board Removal



__ 1. Open the two rear system covers of 3745, and locate the MOSS board in 01A and console tailgate in 01U.



__ 2. To prevent small parts from falling into the CCU board, cover the CCU board assembly with cloth, plastic, etc.

__ 3. Disconnect the cable from the MAC card in 01A-X0H1 .1..

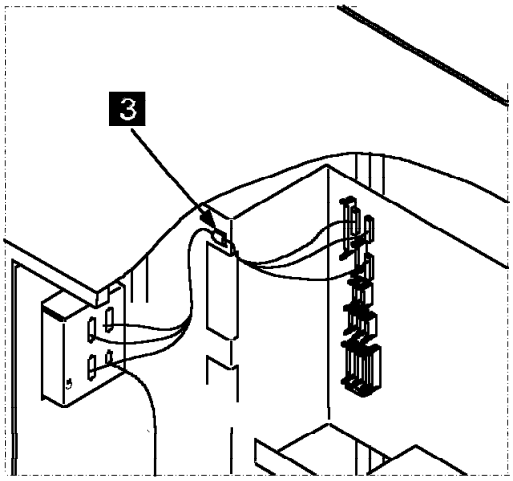
__ 4. From MOSS board positions 01A-W0B1, C1, and C2, disconnect the internal console cables .2..

Warning

To prevent loss of the screws securing the cable, pull lightly on the cable while you are loosening the screws.

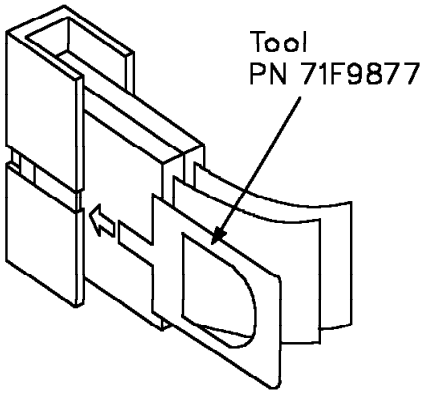
Remove the cables from the clamp .3., and route them back to the console tailgate. They will not be re-connected.

__ 5. In the next Steps, all the remaining cables connected on MOSS board will be unplugged from the MOSS board, then reconnected on the new MOSS board. To identify the positions of the cables to be re-installed, mark the positions of MOSS cables in the above figure.


3

Note

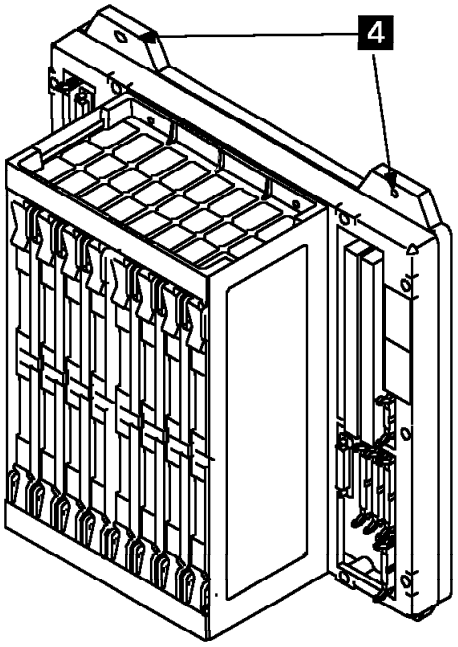
To prevent damage to the cables and the board, use tool (PN 71F9877) to unlock the connector as shown on the following figure.
Gently, insert the blade then, pull on the cable housing to remove the cable.



Disconnect all the cables from the MOSS board (01A-W0, 01A-Y0, and 01A-Z0 areas).
Verify that cables are labelled according to their positions.
If it does not, use labels (PN 811825).

__ 6. Cables Y0C1, Y0C2, Y0C3, Y0D6, Y0E3, and Z0A6 can be pulled through the access holes to the front area of the 3745. This will provide more clearance for the removal/installation of the MOSS board.

__ 7. Secure the remainder of the cables to the right side of the frame to prevent interference during the MOSS board removal and installation.



__ 8. Remove 4 screws securing the MOSS board assembly to the frame .4.. Save screws for re-installation.

__ 9. Carefully, remove the MOSS board assembly from the 3745.
Disengage the right side of the board assembly first.
Place the MOSS board assembly in a safe place.

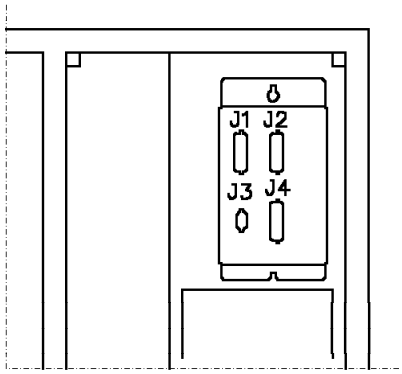
10.2.2 New MOSS Board Installation

__ 1. Carefully, install the new MOSS board assembly provided by the FFBM, using saved screws.

__ 2. Reconnect all the removed cables to the MOSS board, except the three internal console cables.

10.3 Cable Installation

10.3.1 Console Cables Removal

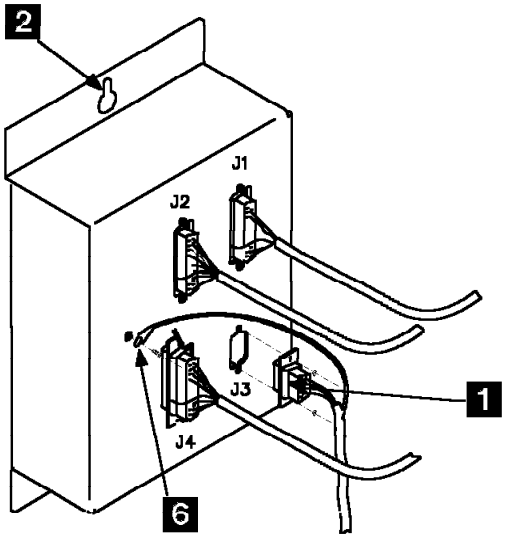


From the console tailgate:

__ 1. Disconnect the external cables from J1, J2, and J4 positions.
Remove them from the machine. They will not be re-used.

__ 2. If present, disconnect the external cable from J3. It will be reconnected later.

10.3.2 Console Tailgate Replacement



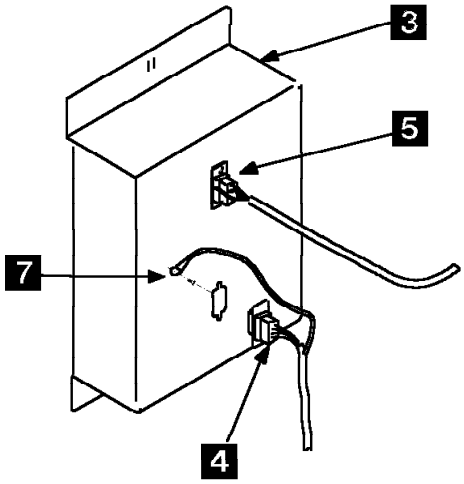
__ 1. Remove screws and nuts securing the **Power On Operate** cable in position J3 .1.. Save screws and nuts.

__ 2. Remove the screw .6. securing the ground cable to the tailgate taking care not to lose the washer.
Save screw and washer.

__ 3. Remove the cable .1. it will be re-installed later.

__ 4. Loosen two screws .2. and remove the tailgate from the machine with the 3 internal cables attached (RSF, REMOTE, and LOCAL).

__ 5. In the same position, install the new tailgate asm (PN 17G5608) .3..



__ 6. Route and connect the internal console cable .5. attached to the console tailgate to the MOSS card 01A-E0 (MOSS LAN attachment card).
Secure the cable in the clamp (see figure on page 10).

__ 7. Re-install the **Power On Operate** cable in connector position J3 of tailgate .4., using the screws and nuts saved earlier.
Attach the ground wire .7. using screw and washer saved earlier.

__ 8. If present, reconnect the external cable to connector J3.

10.3.3 External Console Cable

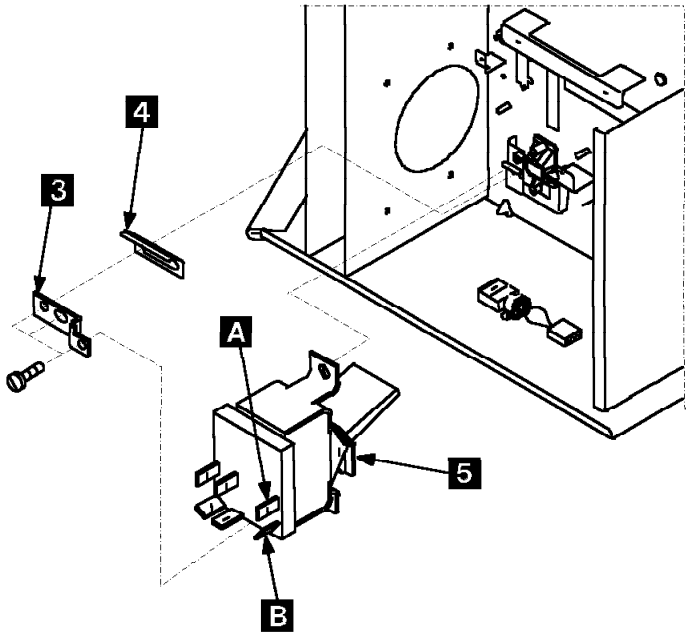
__ 1. Connect external console cable (PN 76F9440 or 76F9441) provided by FFBM 43G3172 or 43G3173 to connector J1 of the console tailgate.

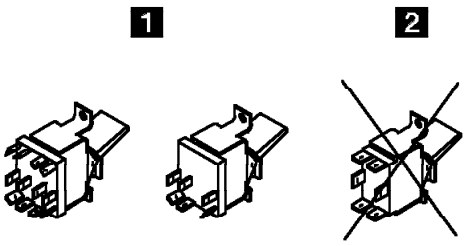
__ 2. Route the cable to the **SP Access Unit**.

__ 3. Connect the cable end in any empty slot of the **Service Processor Access Unit**.

__ 4. If you have just installed the Service Processor as part of this MES, check that the SP is connected to the Service Processor Access Unit.

10.4 EPO Switch Exchange





__ 1. Open the 3745 control panel gate.

__ 2. From the rear of the gate, locate the EPO switch, and compare with the above figure:

__ a. If it looks like switches .1., switch replacement is not required. Skip to the Information Box below.

__ b. If it looks like switch .2., you must install the switch (PN 8492368) with the bracket (PN 43G3154) provided by the FFB/M as follows:

__ c. Remove the bracket .3. by removing three screws. Save screws and spring .4..

__ d. Remove the switch .5. by removing the upper screw. Save the screw.

__ e. Install the new EPO switch using the screw saved in previous step.

__ f. Install the new bracket .3. and the spring .4. using the three screws saved earlier.

Note: Push the spring to the right for switch locking.

__ g. Disconnect the wires from the old switch and reconnect one wire (1) on contact .A. and second wire (2) on contact .B..

__ h. Close the control panel gate.

Information

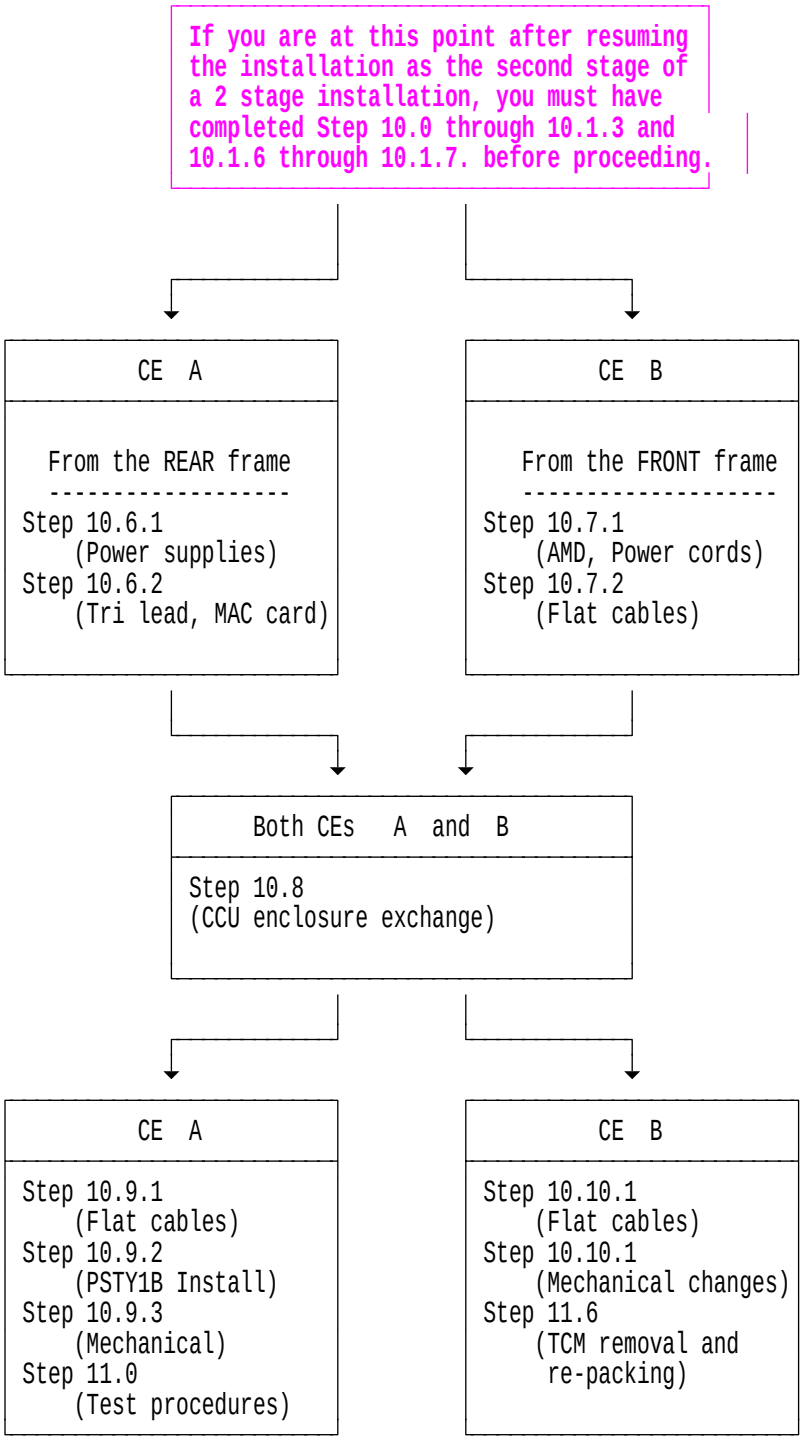
At this point, you have the option of staging the installation. If you want to test, before exchanging the CCU enclosure, you must remove the MAC card (01A-X0H1) installed in the new MOSS board, re-install the original MAC card, and reconnect the cable to the MAC card. Then go to Step 10.11, "Power ON" on page 27, complete Steps 10.11 through 11.1.5 and then return to Step 10.5, "CCU Enclosure Replacement" on page 16.

If you do not want to test before the installation is complete, leave the new MAC card in place, and continue now with Step 10.5, "CCU Enclosure Replacement" on page 16.

10.5 CCU Enclosure Replacement

Because these instructions are divided in two procedures, 2 CEs may be used for the complete installation.

When installing a Model conversion an additional person may be needed because of the weight of the enclosure unit.



10.6 CE 'A' Tasks

Warning: Follow the existing ESD procedures when handling logic parts.

10.6.1 Power Supplies

Open the rear system doors, disconnect the ground wire(s) (if present) from the right door, and remove the door.

Note: To provide clearance for easier door removal, you may have to loosen two screws securing the end cover.

__ 1. From the rear, remove the shield .1. over the CCU cards, if present.

__ 2. Locate the PSTY1 in location 01Q and remove the plastic cover from the power TB .2..
Disconnect all FDS cables from the TB.

Tape the FDS cable ends to the enclosure (use tape provided for repacking).

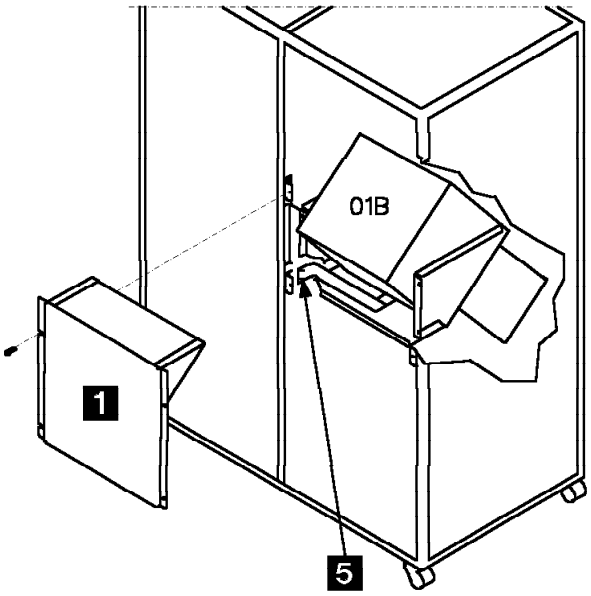
__ 3. From the top of PSTY1, unplug the power control bus cable from connector J2 and the Power On Reset cable from J1 .3..

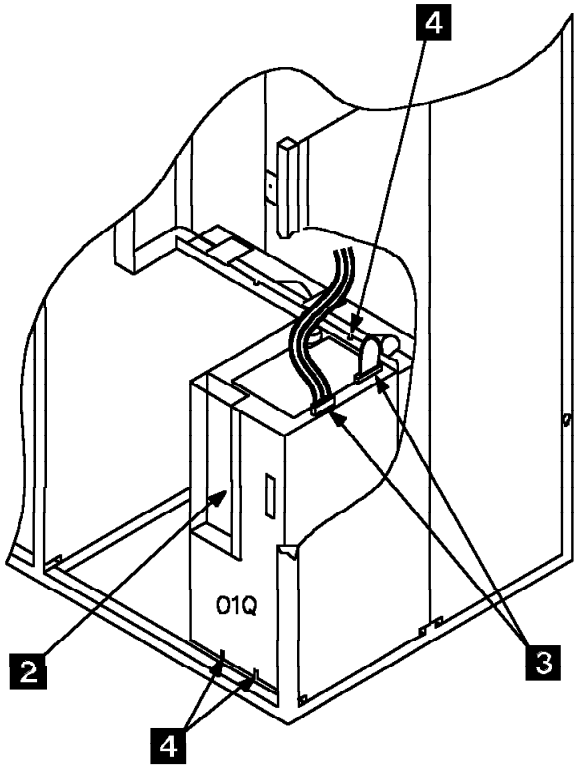
Warning

Secure the power bus cable in its raceway to prevent damage during CCU enclosure exchange.

__ 4. Remove the 3 screws .4.. Then, remove the PSTY1 from the 3745 (the power cord has been routed back by CE 'B').

__ 5. Disconnect the FDS ground cable attached to the frame .5..
Save screws.

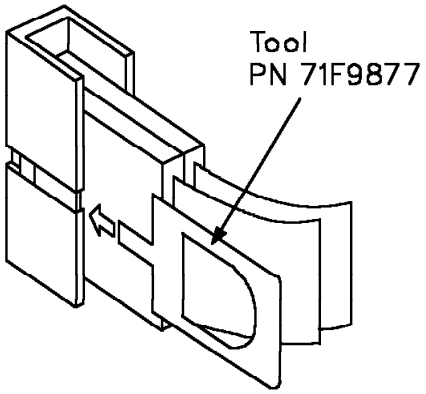




10.6.2 Tri Lead Cables, MAC Card Exchange

__ 1. Locate the MOSS board in 01A, and the tri lead cables connected in 01A-Y0D4/D5 and E4/E5 .1..

> **Note**
>
> To Prevent damages to cables and board, use the tool (PN 71F9877) to unlock the connector as shown on the figure below.
> Insert gently the blade, then pull on the cable housing to remove the cable.



__ 2. Unplug the cables and route them back to the CCU enclosure.
Secure the tri lead cables in the right side of the CCU cage .2..

Note: If you DID NOT perform a checking procedure after the MOSS board exchange, route the MAC cable back to the CCU enclosure, and secure it in the right side of CCU cage .2.. Then, go to Step 10.8, “CCU Enclosure Exchange” on page 20.
If you exchanged the MAC card for the checking procedure after the MOSS installation, proceed.

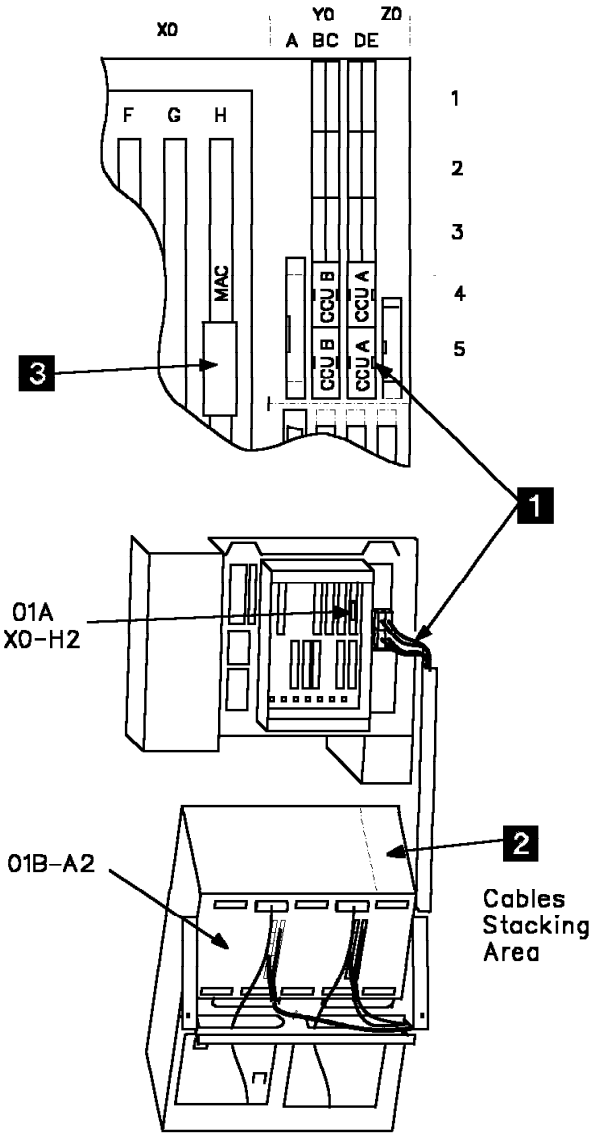
__ 3. In the MOSS board, locate the MAC card in 01A-X0H2, and remove the cable connected to the MAC card .3..
Route the cable back to the CCU enclosure, and secure it in the right side of the CCU cage .2..

__ 4. Remove the spring clips securing the locks of the MAC card.

__ 5. Remove the MAC card.

__ 6. Install the new MAC card provided by the FFBM in the same position.

__ 7. Reinstall the spring clips on the MAC card.



10.7 CE 'B' Tasks

Warning: Follow the existing ESD procedures when handling logic parts.

10.7.1 AMD, Power Cords

__ 1. From the front of the 3745, remove the shield .1. (four screws) over the AMD (Air Moving Device). It will not be re-used.

__ 2. Unplug the AMD power cable from the primary power box connector J1 .2..

__ 3. Remove the AMD (four screws) .4..

Note: Swing out the bottom of the AMD to disengage the top leg.

__ 4. Unplug the PSTY1 power cable from the connector J4, and route it to the rear of the 3745 .3..

__ 5. Remove the dummy AMD bracket placed over the empty CCUB TCM location.

10.7.2 Flat Cables

__ 1. Open the control panel gate.

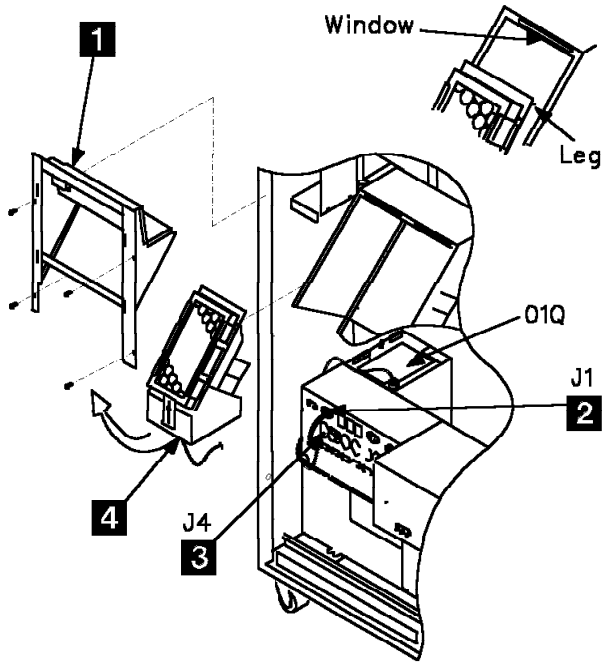
> **Note**
>
> To Prevent damages to cables and board, use the tool (PN 71F9877) to unlock the connector as shown on the figure on previous page.
> Gently, insert the blade, then pull on the cable.

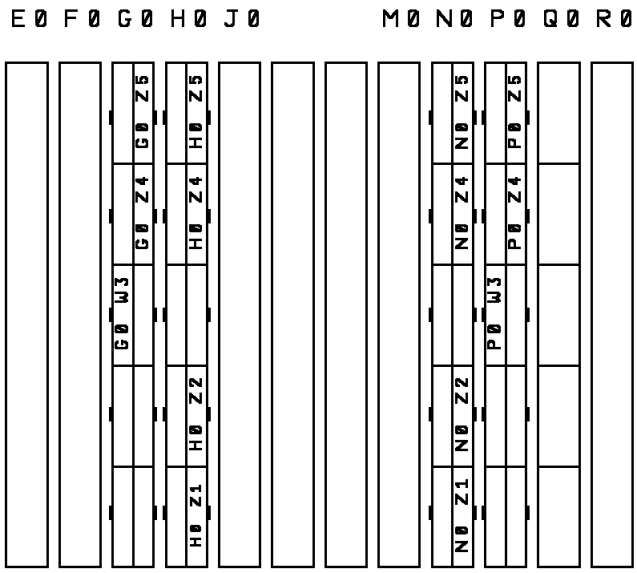
__ 2. Check that all cables connected to the SACU board are correctly labelled. Rewrite the plug location on the cables if not readable.

__ 3. Unplug the flat cables from the SACU board.

> **Warning**
>
> Secure the cables in the raceway to prevent damage during the CCU enclosure exchange.

__ 4. Attach the handhold (PN 76F9077) .2. with 2 screws as shown on figure on the next page (view A), on the 2 top holes of the AMD asm.





10.8 CCU Enclosure Exchange

CAUTION:
CCU enclosure can weight up to 37 kg (81.5 lb).

When installing a Model conversion MES, an additional person may be needed because of the weight of the enclosure unit.

The first person is placed on the right side of the enclosure, the second on the left side, and the third, if needed, at the front of the enclosure using the provided handhold.

Note: Ensure that all flat cables are protected from damage during the CCU enclosure exchange.

10.8.1 TCM Enclosure Removal

__ 1. Remove the 4 screws .1. securing the CCU enclosure.

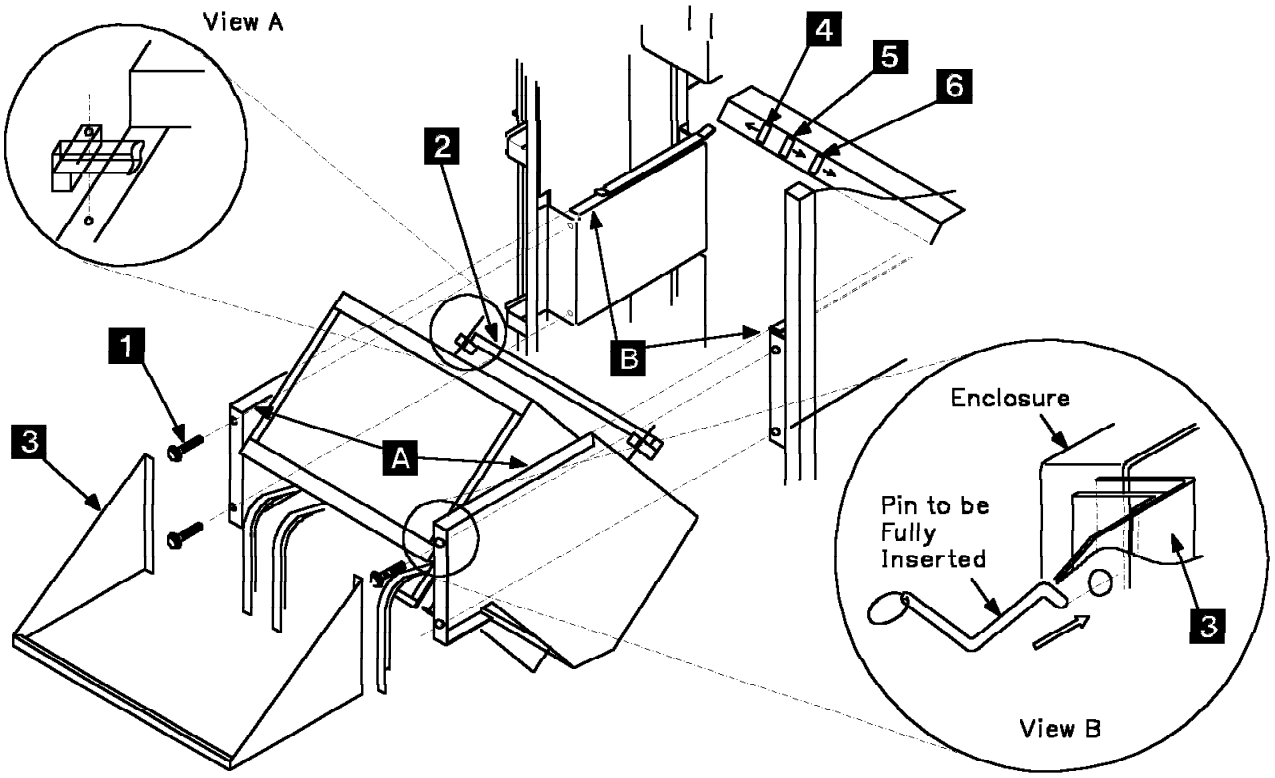
__ 2. Pull the complete enclosure, approximately 15 cm, out of the 3745.

__ 3. From the rear of the 3745, attach the handhold (PN 76F9076) .3. to the enclosure as shown on the figure below. This will allow the third person involvement. The handhold is clipped to the right and left sides of the CCU enclosure (see view B). Secure the handhold with the attached pins.

__ 4. 2 CEs grasp the enclosure asm by the handhold .2., and at SACL board, the third one, if needed, grasps the front handhold .3..
Slide the asm out of the 3745.

__ 5. Put the enclosure in a safe place.

__ 6. Install 3 clamps (PN 34F1295) as follows:
Remove the clamp .4., and stick a clamp 9 cm (3.5 in.) to the left.
Remove the clamp .5. and stick a clamp 3 cm (1.1 in.) to the right.
Remove the clamp .6. and stick a clamp 1 cm (0.4 in.) to the right.



10.8.2 New CCU Enclosure Installation

__ 1. Move the new CCU enclosure, still sitting on its shipping pallet assembly, close to the machine.

__ 2. If a third person is needed, remove the handhold (PN 76F9076) from the TCM CCU enclosure and attach it to the new CCU enclosure (need to tilt the enclosure on the shipping pallet).

__ 3. Lift the enclosure from the shipping pallet using the enclosure top bar, and put the part of the enclosure marked .A. on the slides .B. in 3745 (refer to figure on previous page).
Slide the enclosure partially in the 3745.

> **Note**
>
> Check, from the front of the 3745 there is no risk of damaging flat cables, FDS cables, and FAN power cords.

__ 4. Remove the handhold and slide the enclosure in place.

10.8.3 Card Locking

__ 1. Remove the red bracket .3. (four screws) and place it on a table.

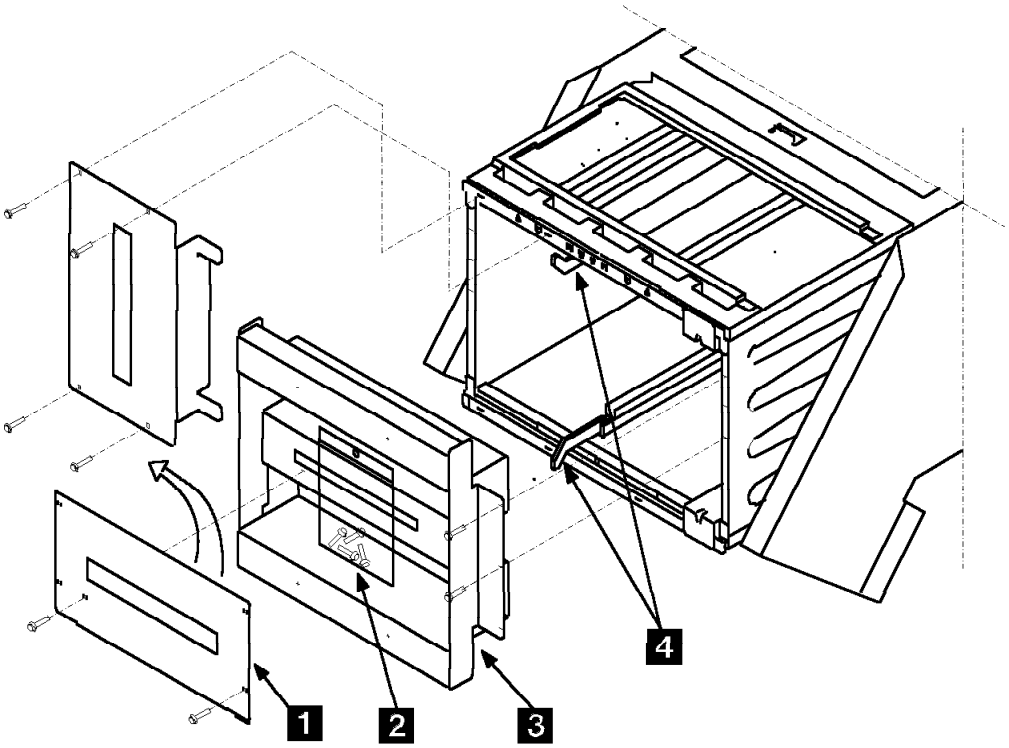
__ 2. Remove the plate .1. which is shipped attached to the Red Bracket.
Save screws and plate for re-use.

__ 3. Secure the enclosure with the screws provided in the bag attached to the red bracket .2..
Save the red bracket for the reinstallation.

__ 4. On each card, move levers .4. inwards simultaneously.

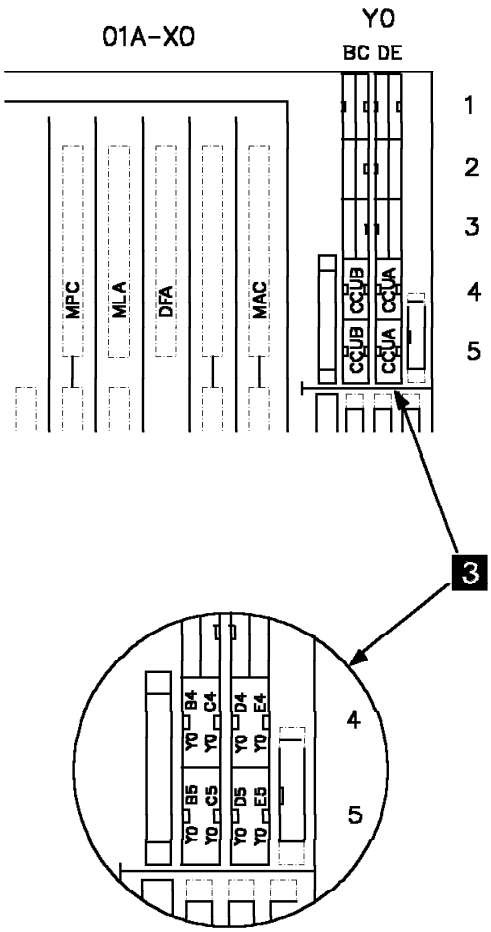
Note: To improve contact, operate the levers 3 times.

__ 5. Position the plate .1. to lock **STER** cards and block card locations which are used for CCU B cards.
Secure with 4 screws saved in previous Steps 1 and/or 2.



10.9 CE 'A' Tasks

10.9.1 Flat Cables



__ 1. Place the template (PN 76F8595) .1. as shown on figure. Template should be positioned as far up and left as permitted by the frame.

Note: Remove existing cable clamps which interfere with the correct placement of the template.

__ 2. Attach 4 clamps (PN 34F1295) in the windows of the template .2..

Note: Place the clamps as shown on the template.

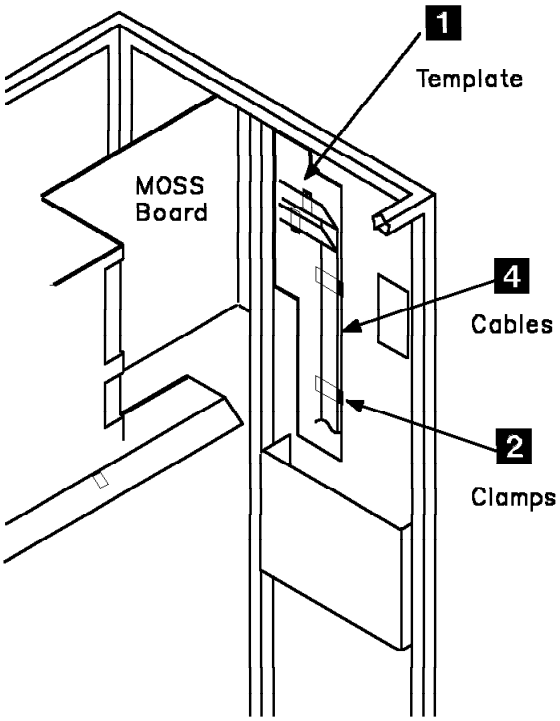
__ 3. Remove the template.

__ 4. Install the pre-folded flat cables (PN 76F8591) in the clamps.

__ 5. Plug the flat cables, one at a time, on the MOSS board .3. in the following sequence:

- Y0E4, Y0D4, Y0E5, and Y0D5.

__ 6. Route the flat cables through the machine to CE 'B' .4..

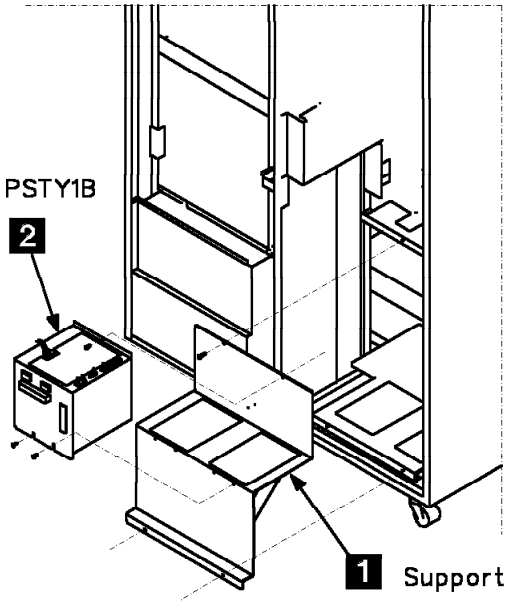


10.9.2 PSTY1B installation

__ 1. Install the PSTY1B support asm (PN 71F9950) .1. and **secure it at the bottom and at the top left** with 3 screws provided in the bag attached to it.
Do not tighten the screws.

__ 2. Install the PSTY1B (PN 26F1733) .2. with 3 screws (PN 2665528) provided in the bag attached to the support bracket.

__ 3. Tighten the bottom screws of the power supply bracket.
Feed the PSTY1B power cable to the front of the machine.



__ 4. Loosen the screw securing the bracket .3. that secures the air filter and install the air filter (PN 58X9295) under the CCU enclosure.
Note the arrow direction for the air flow.
Tighten the screw.

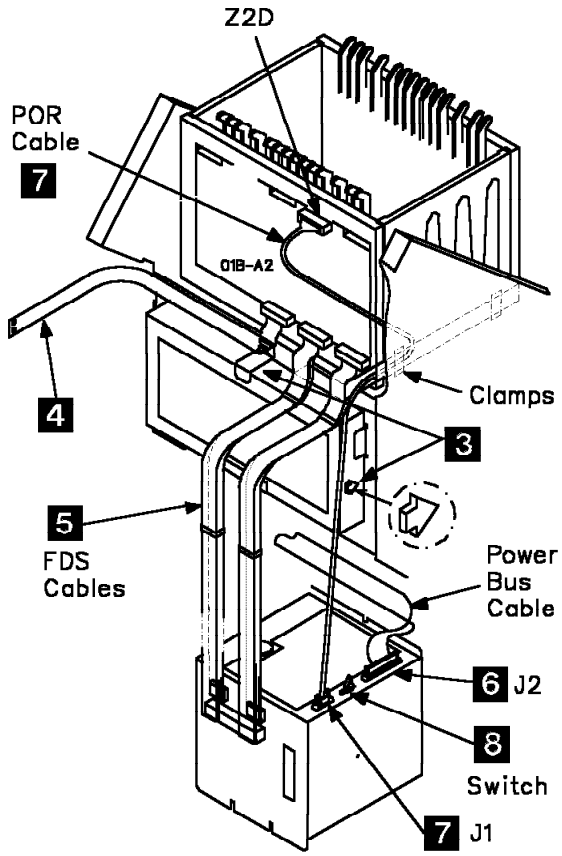
__ 5. Connect the FDS ground cable .4. to the frame. Secure it with the screws saved in Step 10.2.1.

__ 6. Connect the FDS cables .5. to the PSTY1B with screws (PN 61F4511) provided in a bag attached to the power supply.
(Connect the cables on TB1/TB2 first).

__ 7. Connect the power control bus cable to the connector J2 of the power supply .6..

__ 8. Locate the Power On Reset cable (PN 61F4448) connected in the SACL 01B-A1Z2-D. Route the cable to PSTY1B and connect it to connector J1 .7..

__ 9. On PSTY1B, check that the switch 1 is set to A (CCUA) .8..



10.9.3 Mechanical

__ 1. Re-install the shield over the CCU board (if used).

__ 2. Re-install the rear door removed in Step 10.6.1, “Power Supplies” on page 17

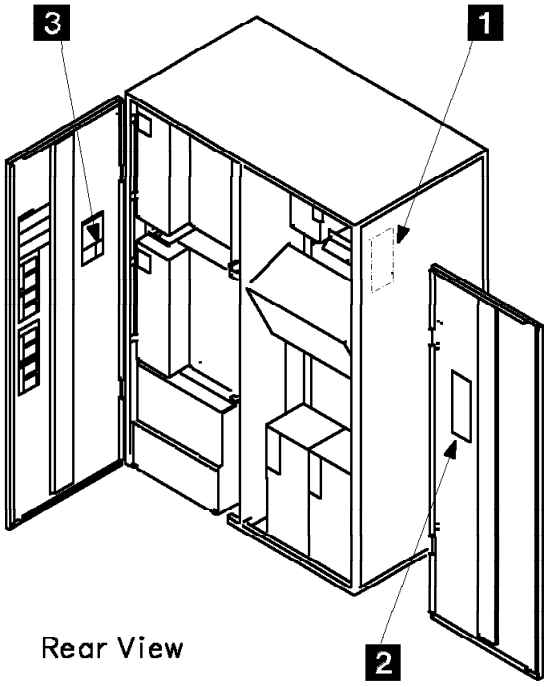
Note: Tighten end cover screws if they were loosened.

__ 3. Re-connect the ground wires, if present.

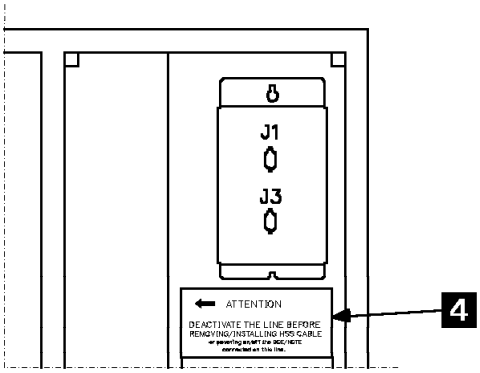
__ 4. Affix label PN 17G5564 .1. on the right side of the frame, close to the MOSS board, over the existing label.

__ 5. Inside the right rear cover, affix label PN 71F9997 .2. over the existing label.

__ 6. Inside the left rear cover, affix label PN 43G3202 over the existing one .3. (console tailgate label).



__ 7. If there is no HSS/ELA installed in your 3745, a DTER card has been shipped (FFBM 43G3171). Affix label (PN 11F6521) provided with DTER card FFBM as shown, under the console tailgate .4..

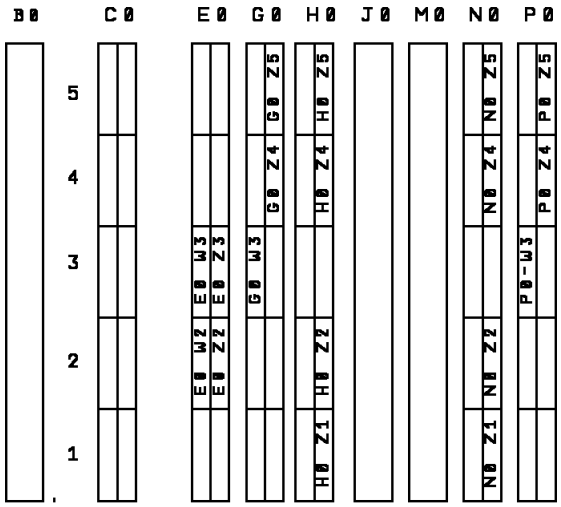


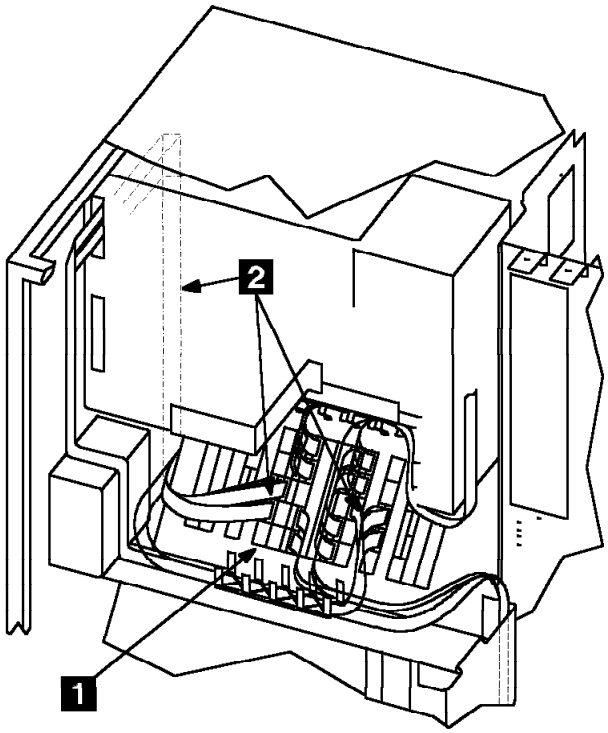
10.10 CE 'B' Tasks

10.10.1 Flat Cables

__ 1. Reconnect the flat cables to the SACU board .1.. Refer to the template on the SACU board.

__ 2. Route and connect to the SACU board the flat cable group (PN 76F8591) which was prepared by CE 'A' .2..





10.10.2 DTER Card Installation

The DMA bus is required on Model 31A. If there was neither HSS nor ELA installed on the Model 210 you are converting, you must install a DTER card. Parts are provided by FFBM 43G4171. If an HSS or ELA is already installed, skip to Step 10.10.3, “Mechanical Changes” on page 26

__ 1. Open the right front system cover of 3745 and the internal shield if present.

__ 2. Locate the TSS board in 01G-A1, and remove the dummy card from position 01G-A1W2.

__ 3. Install the holder (PN 1953244) on the DTER card and plug the card in 01G-A1W2.

__ 4. Close the internal shield (if present) and the cover.

10.10.3 Mechanical Changes

__ 1. Install the air filter (PN 58X9296) .1. on the CCU enclosure. Note the arrow direction for the air flow. Secure it with the bottom bracket.

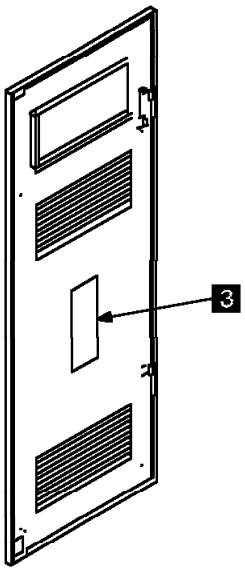
__ 2. Plug the power cords in the primary power box as follows:.2.

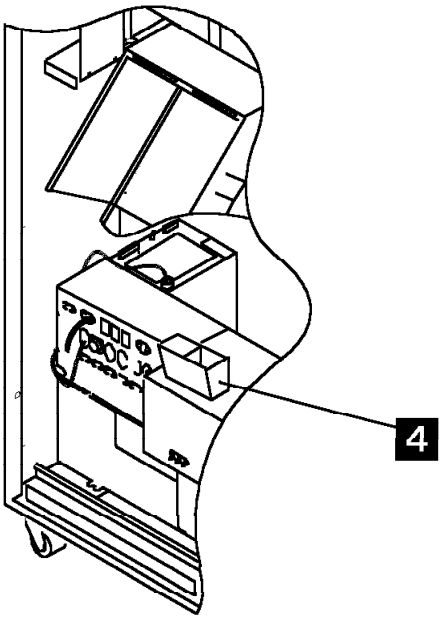
   a. PSTY1B 01Q Connector J4.
   b. FAN CCU Connector J1.

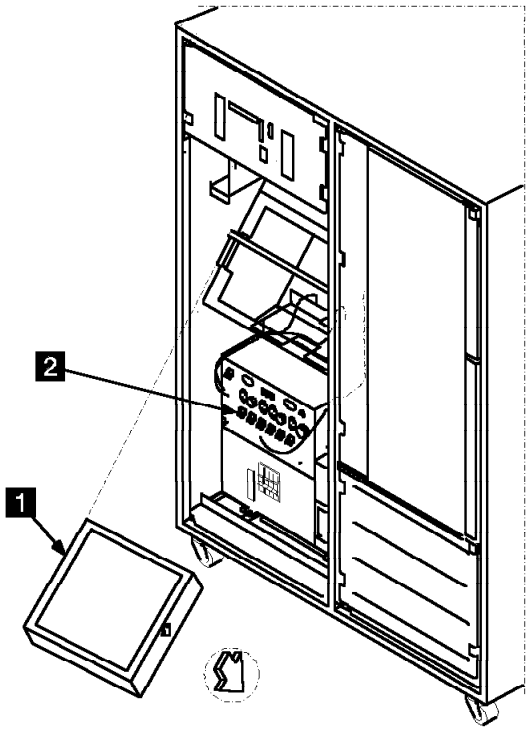
__ 3. Affix the label (PN 71F9996) over existing labels in the front door. .3. and install the **Diskette Storage Box** .4. on the top of the PS6.

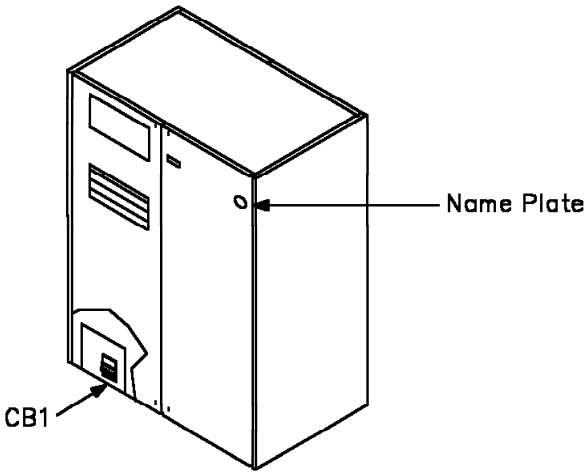
__ 4. Remove the name plate from the front system cover(s). Clean any adhesive residue from the recessed area with Isopropyl alcohol.
Remove the paper from the back of the new name plate (PN 17G5603) and affix the plate.

__ 5. Strike out the model number on the S/N label, only the nameplate will identify the model type from now on.









10.11 Power ON

Note: After CCU enclosure replacement, ensure that each CE has verified the other's work before powering on the 3745.

__ 1. From the primary power box, switch CB1 ON.

__ 2. Close all system covers.

__ 3. If you have completed the MOSS installation, and CCU enclosure replacement in one stage, without a checkpoint after the MOSS installation, go to Step 10.12, “MOSS/MOSS-E Connection.”

__ 4. If you have completed the MOSS board installation as the first stage of a two-stage installation, go to Step 10.12, “MOSS/MOSS-E Connection.”

__ 5. If you have completed the CCU enclosure replacement as the second stage of a two-stage installation, and Steps 10.12 through 11.1.6 were completed after the MOSS installation, proceed.
From the 3745 control panel:

   __ a. Set the **Function** indicator to **1**. Press the **Validate** key.

   __ b. Press the **Power On Reset** key. The MOSS IML starts.

   __ c. Wait until 3745 Icon is purple, then on **3745 Menu**, double click on **MOSS Console.**

   Wait for **Function Selection Rules** screen. Go to Step11.1.3, “Verify the CDF” on page 30 .

10.12 MOSS/MOSS-E Connection

From the Service Processor:

__ 1. When the **MOSS-E Logon** window is displayed, enter the maintenance password (the default password is IBM3745).

__ 2. Click on **OK**.

__ 3. On the **MOSS-E View** window, double click on the **Service Processor** Icon (green).

__ 4. On the **Service Processor Menu** window, click on **Configuration Management**. Then, double click on **Manage 3745/3746-900 Installation/Removal** (scroll in the window or set the window in full screen).

__ 5. On the **Controller Installation** window, if not already selected (black line), click on the first 3745 flagged not installed.

__ 6. Click on **ADD**.

Note: During the following procedure, ALARM panels can be displayed. Click on **OK** to remove them.

10.12.1 IML From Diskette

Take the two sets (NORMAL and BACKUP) of diskettes shipped with this MES. If not already done, label one set NORMAL and one set BACKUP.

Note: From now on, use **only the new set of six diskettes** shipped with the MES. The old set of five diskettes can only be used if you have to remove the model A and return to the previous model XX0.

__ 1. Insert the new **NORMAL PRIMARY** diskette, into the 3745 diskette drive.

__ 2. From the control panel, check that **Service Mode** indicator displays **1**.
If it does not, set the **Service Mode** indicator to **1**.
Press the **Validate** key.

__ 3. Set the **Function** indicator to **9** (Load from diskette).
Press the **Validate** key.

__ 4. Press the **Power ON Reset** key.

A MOSS IML will be complete with **F0E** or **FE9** displayed on the control panel.

Note: The code **B9F** can be displayed indicating a timeout. This does not affect the proper operation. Continue with next Step.

10.12.2 3745 Installation

From the Service Processor:

__ 1. Click on **OK**.
Window **ADD a 3745** is displayed.

__ 2. Enter the 3745 Serial Number in the following format: **YY-XXXXX** (do not forget the dash (-)).

Note: **YY** is the plant ID. If the plant ID = **00**, you must enter **23**.
Click on **OK**.

__ 3. When requested, insert the *Installation Parameters* diskette PN 43G3225 (received with the MES) in the SP diskette reader.
Click on **OK**.

__ 4. When a panel saying **Controller Parameters successfully loaded** , click on **OK**.

__ 5. When a controller installation message saying that **the controller information has been succesfully added** is displayed, remove the **Installation Parameters** diskette from the diskette drive of the SP.
Click on **OK**.

__ 6. Enter the new system name (provided by the customer), click on **OK** twice.

__ 7. On the **Controller Installation** window, click on **Cancel**.

__ 8. On **MOSS-E View** window, double click on the 3745 icon.

__ 9. On the **3745 Menu** window, double click on **MOSS Console**.

The 3745 **Disk Function Selection** screen will be displayed after a short interval.

10.12.3 Microcode EC Installation

Warning: For this installation, use only the set of diskettes (NORMAL) received with the MES. The same set must be used for the checking pass and for the pass which installs on the hard disk. Use of a different set can lead to lost CDF data.

From the Service Processor:

__ 1. Enter **1** (EC Microcode Installation), press **Enter**.

__ 2. Use the **NORMAL** set of diskettes, and follow the prompts on the console until the function is completed.

Note: While reading the PRIMARY diskette, you will get the following message:
- **Increasing in disk size (Up to 80MB) - Please wait several minutes.**

Note: If you have an error while increasing the disk, run "diskette checking" to validate the set of six diskettes received and save the customer data.
From the Service Processor:

__ a. Enter **8** (diskettes checking), press **Enter**.

__ b. Use the **NORMAL** set of the six diskettes received, and follow the prompts on the console until the function is completed.

__ c. Press **F6** to continue with diskette checking. Follow the prompts on Service Processor screen.

If the hard disk reqiures replacement, see the *Service Function* manual, Chapter 11, hard disk trouble analysis and replacement, Procedure 1.
- **Read checking in progress. Please wait several minutes.**
- **Copy load module in progress** will appear if NCP load modules are on Hard Disk.
(Alternate Track Assignment screen will now be displayed)
- Press **F6** to continue with EC Installation. Follow prompts on SP screen.

If Microcode installation fails on 'diskette checking', try again with BACKUP diskettes.
If installation fails during 'diskette loading', see the *Service Function* manual, Chapter 11, hard disk trouble analysis and replacement, Procedure 1.

__ 3. When message **EC DXXXXX correctly installed** is displayed, remove the sixth diskette from the diskette drive.

10.12.4 MOSS IML

From the control panel:

__ 1. Press the **Power OFF** key.

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

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

__ 4. Press the **Power ON Reset** key.

- The **MOSS IML** is completed when **F0E** is displayed on the control panel.
- If another code is displayed, see the *MIP*, Chapter 2, and follow the appropriate procedure.

10.13 3745 MCLs

- If the diskette *3745 MCL Backup* received with this microcode contains MCLs continue with the following procedure.
- Otherwise, go to Step 10.13.4, “Access to MOSS 3745” on page 30.

10.13.1 Retrieve 3745 MCLs from Diskette

From the Service Processor:

__ 1. Remove the *3745 Installation parameters diskette* from the SP. It will be re-used later on.

__ 2. Double click on the **Service Processor Icon**,
Click on **Change Management**. Then, double click on **Manage Microcode Changes**.

__ 3. On the **Change Microcode** screen, click on **Retrieve microcode changes**. Then, click on **OK**.

__ 4. Click on **Retrieve from diskette**. Then, click on **OK**.
When requested, insert the *3745 MCL Backup* diskette in the SP diskette reader.

__ 5. Click on **ALL changes**. Then, click on **OK**.
Confirm your choice, click on **OK**. Then, follow the prompts.

__ 6. When **Retrieve completion** is displayed, click on **OK**.

__ 7. On the **Change Microcode screen**, click on **Display cover letter**. Then, click on **OK**.
Read the cover letter information to determine if there are any prerequisites or corequisites before applying the MCLs.
Click on **Cancel** to Exit.

10.13.2 Transfer MCLs to MOSS Disk

Establish the MOSS session:

__ 1. When the 3745 icon is PURPLE on the **3745 Menu** window, double click on **MOSS Console**.
Wait for **Function Selection Rules** screen.

__ 2. Enter **MCF**, press **Enter**.

__ 3. Select option **2** (copy the MCL file), press **Enter**.
Follow the prompts until the function is completed, press **F6**.

10.13.3 Applying MCLs on 3745

__ 1. On the **Microcode fixes** screen, select option **1**, press **Enter**.

__ 2. Select option **2**, press **Enter**.
When the function is completed, press **Enter**.

__ 3. On the 3745 control panel, press the **Power on Reset** key to perform a MOSS IML and to validate the MCLs.

10.13.4 Access to MOSS 3745

__ 1. On the **MOSS-E View** window, wait until the 3745 icon becomes PURPLE.

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

Wait for **Function Selection Rules** screen.

11.0 Test Procedures

11.1 Diagnostics

11.1.1 Power Configuration Table

__ 1. Enter **POS**, press **Enter**.
__ 2. Enter **C**, press **Enter**.
__ 3. Compare the displayed **Created Power information table** with the one recorded in Step 10.1.6, “Power Configuration Table” on page 8.
- The data should be the same. Enter **Y** to confirm and press **Enter.**.
- If there is a discrepancy, check the Power bus cable connection on MOSS Board, retry, and if there is still a discrepancy see the *MIP*, Chapter 2, and follow the appropriate procedure.

__ 4. Press **F6**.
__ 5. Enter **A**, press **Enter**.
__ 6. Enter **B** (acknowledge battery change), press **Enter**.
__ 7. Enter **Y** to confirm battery change, press **Enter**.
__ 8. Press **F1**.

11.1.2 Update Scheduled Power ON

__ 1. Enter **TIM**, press **Enter**.
__ 2. Update the screen according to the data recorded in Step 10.1.5, “Record Scheduled Power ON” on page 8.
Press **Enter**.
__ 3. Press **F1**.

11.1.3 Verify 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 CCU enclosure installed.
To update the **CDF data** with the machine values, enter **2**, press **Enter**.

Note: If there is a discrepancy on adapters, check the IOC bus cables setting on MOSS or CCU boards.
When **CDF VERIFY COMPLETED** is displayed, press **F1**.

Note: If you have replaced the MOSS board, only as a first stage of a two-stage MES installation, go to Step 11.1.5, “Diagnostics” on page 31. Otherwise, continue.

11.1.4 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.

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.

11.1.5 Diagnostics

Notes:

1. After the MOSS board replacement only, run IOCB diags.
2. After the MOSS AND CCU enclosure replacement, run CCU, IOCB , and HSS/ELA diags if installed.
3. After the CCU enclosure replacement (as a second stage): run CCU, IOCB and HSS/ELA diags if installed.

__ 1. Enter **ODG**, press **Enter**.

__ 2. Enter **2** (CCU) in diag field, press **Enter**.

- If **NO ERROR FOUND** is displayed, press **F1**.
- Otherwise, see the *MIP*, Chapter 1.

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

- If **NO ERROR FOUND** is displayed, press **F1**.
- Otherwise, see the *MIP*, Chapter 1.

__ 4. If no HSS/ELA, press **F1**, and go to the information box below.
If HSS/ELA feature is installed in your 3745, run HSS/ELA diags on at least one HSS/ELA on each DMA bus (Adp 1-4 and 5-8) with HSS or ELA adapter.

- If **NO ERROR FOUND** is displayed, press **F1**.
- Otherwise, see the *MIP*, Chapter 1.

Information

- If you have staged this installation with a checkpoint before replacing the CCU enclosure, and have run diags successfully, the 3745 can be returned to the customer as a Model 21A. Go to Step 11.1.7, “Install Latest MLCs,” and complete remaining Steps.
- If you are continuing with the CCU enclosure replacement, go to Step 10.5, “CCU Enclosure Replacement” on page 16.
- If you have replaced the CCU enclosure, proceed.

11.1.6 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**.

11.1.7 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 11.1.8, “Close MOSS/MOSS-E Session” on page 32.

__ 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 11.1.8, “Close MOSS/MOSS-E Session” on page 32.

__ 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 11.1.8, “Close MOSS/MOSS-E Session.”

11.1.8 Close MOSS/MOSS-E Session

__ 1. Enter **CID**, press **Enter**.

__ 2. Re-enable the channel adapters disabled in Step 10.1.3, “Disable CA(s)” on page 7.

__ 3. When all 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.

11.2 General IPL

From the 3745 control panel:

__ 1. Set the Power control indicator to its original value recorded in Step 10.1.1, “MOSS IML” on page 7.

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

__ 3. Set the **Function** indicator to **0**. Press the **Validate** key.

The general IPL starts.

- If FF4 code is displayed on the control panel, ask the customer to load the control program.
- If the control program is loaded from the hard disk, **000** will be displayed when **IPL** successful.

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

11.3 Disk Save

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

11.3.1 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. Wait for the 3745 **Function selection rules** screen.

11.3.2 Save Disk Contents onto Diskettes

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

__ 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 function is completed, press **F1**.

11.4 Close MOSS/MOSS-E Session

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

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

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

11.5 Logging Off from SP

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

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

11.6 Re-Packing

11.6.1 TCM Removal

- TCM will be sent back to IBM in the TCM BOX provided by the FFBM.
- Tools to be used in this section are provided by TCM tool kit.

__ 1. Use the torque tool (PN 2360092) to loosen the 9 captives screws securing the TCM heat sink .1.. Carefully remove the heat-sink.

__ 2. Install the handle provided by FFBM. Tighten the 2 thumbscrews .2..

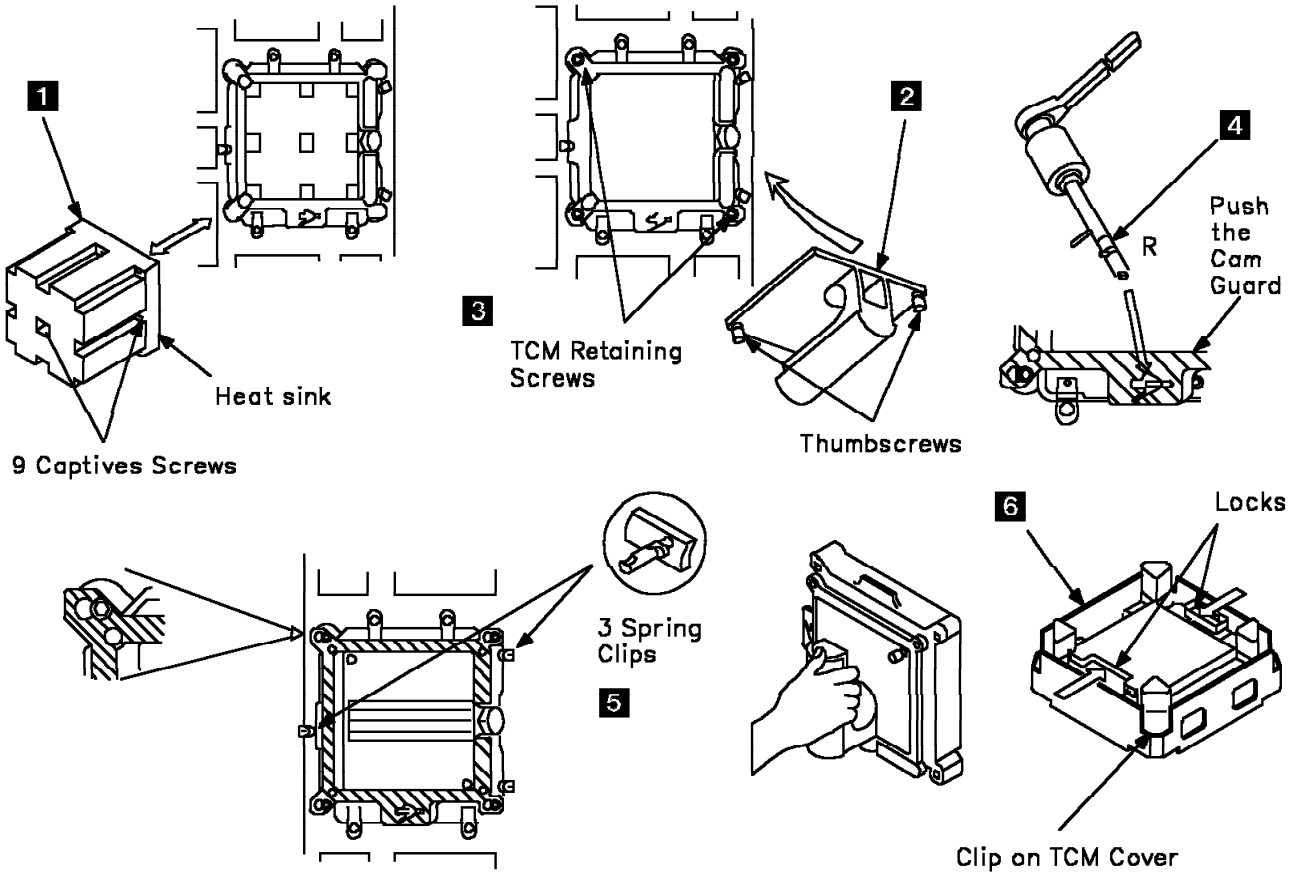
__ 3. Use the torque tool (PN 2360092) to loosen completely the four TCM retaining screws (captives screws) .3..

__ 4. Use the TCM actuating tool (PN 5665909) .4. to remove the TCM as follows:

   a. Check that the detent pin in the tool is in the **Removal Position (R)**.
   b. Set the lever on the handle to drive in a counter clockwise direction. On the TCM, slide the cam guard to its left side limit.
   c. Insert the actuating tool into the module with indicator pin pointing to cammed position (9 o'clock). Be sure that the TCM actuation tool is fully inserted (red line not visible).
   d. Turn the actuating tool counter clockwise, to deactivate the latch. Remove the actuating tool.

__ 5. Unlatch the 3 spring clip retainers .5., hold the TCM handle, and carefully remove the TCM from the enclosure.

__ 6. Install the clip on TCM cover .6. (PN 7331541), then put the TCM in the TCM shipping container.



11.6.2 TCM Enclosure

__ 1. Place the TCM enclosure on the shipping pallet assembly provided with the new enclosure.

__ 2. Secure it with the screws and nuts.

__ 3. Remove the bracket locking the **STER** cards in the TCM enclosure by removing 2 screws.

__ 4. Open carefully the **ZIF connectors** on all cards.

Notes:

a. In US, remove all cards from the TCM enclosure and insert them ESD envelopes and containers provided by the MES.

b. In EMEA, remove the storage cards and insert them in ESD envelopes and containers provided by the MES.

__ 5. Install the red bracket over the CCU cage and secure it with 4 screws.

__ 6. Follow the re-packing instructions to send parts back to IBM.

11.6.3 3745 Local Console

Disconnect the previous 3745 local console and return it to the customer.

11.6.4 RSF Modem

__ 1. If a service processor has been provided with the MES and if a new RSF modem has been provided, disconnect the previous 3745 RSF modem, remove the RSF cable and put them in the MES packing.

__ 2. If a new RSF modem has not been provided, remove the previous RSF cable from the 3745 and put it in the MES packing for return.

Note: In US and Canada, the modem is integrated in the Service Processor.

After Installation (steps 12-15)

12.0 Field Updating

None.

13.0 Publications Update

Replace with received documentation.

14.0 Parts Disposition

- **For parts listed in the RMER**

  All these parts become the property of IBM. You MUST RETURN these parts following the instructions given on the Returned Material Equipment Report (RMER) provided with this FFBM.

- **For parts not listed in the RMER**

  All these parts should be returned according to your local procedure.

15.0 Machine Records

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

End of instructions.