**AT&T**

# MultiPoint Control Unit
# R3.0 Installation and Test
# Quick Reference

Graphics ©

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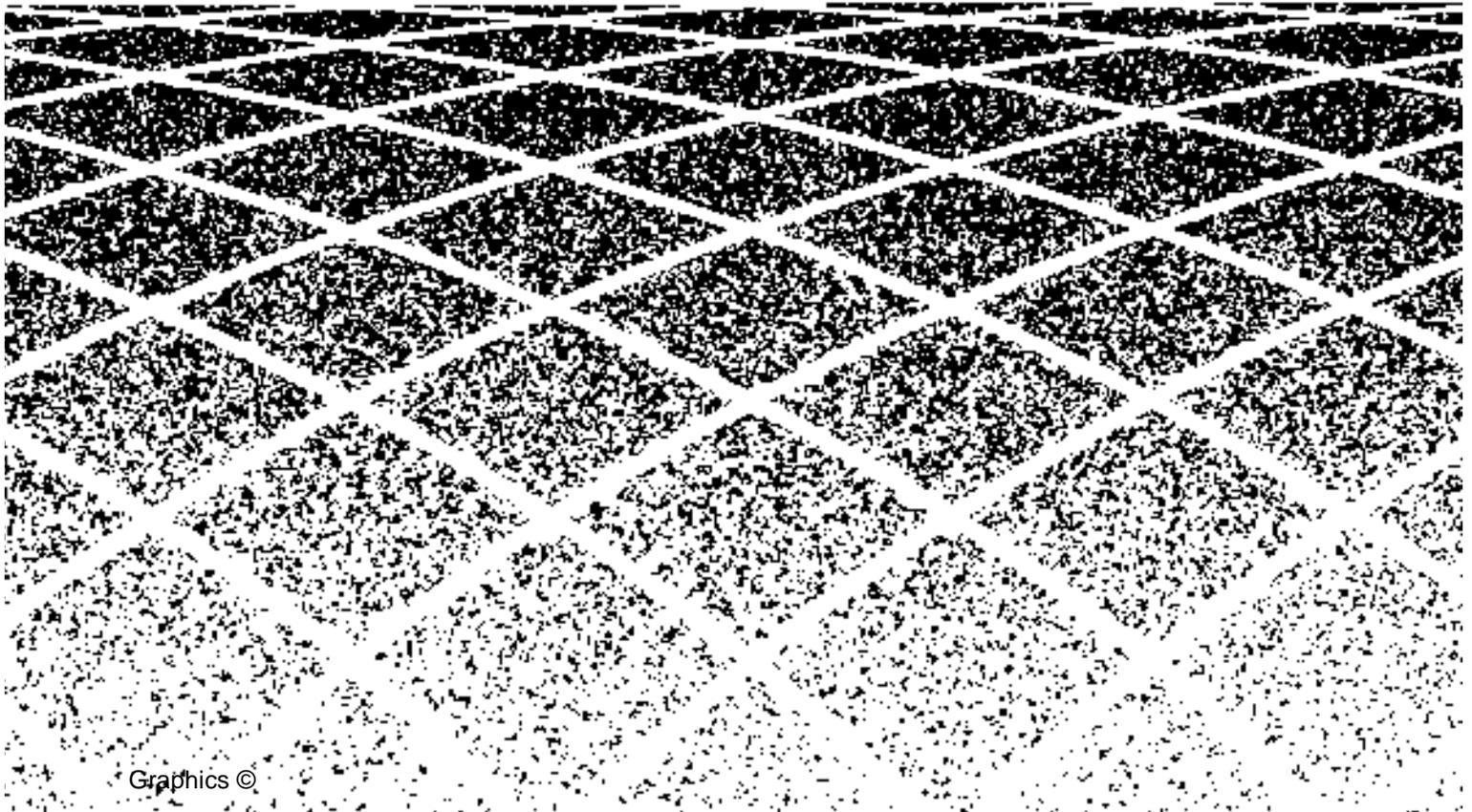
# MultiPoint Control Unit (MCU) Installation and Test Quick Reference (R3.0)

## STEP 1: Installing the MSM Components

The following instructions describe how to install the physical hardware of the AT&T Multimedia Server Module (MSM) and its components.

### Step 1A: MSM Installation

⚠️ **DANGER:**
*Any MSM weighs at least 130 pounds when fully loaded and requires two handlers.*

1. Place the MSM in position at the designated location.

2. Be sure the AC power receptacle is within 10 feet of the MSM.

3. If earthquake protection is not required, install hole plugs (provided with the MSM) in the holes previously occupied by the two carriage bolts at the bottom rear of the MSM. Skip to .
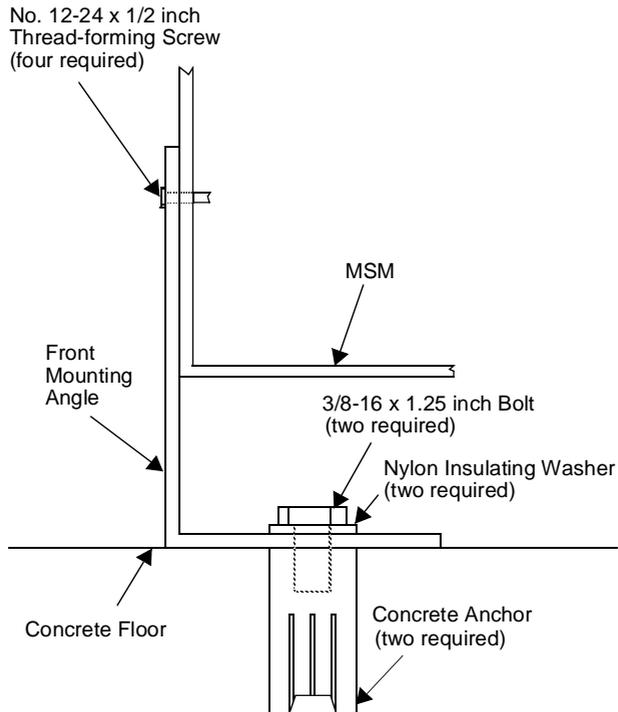
## Step 1B:  Earthquake Protection

➡ **NOTE:**
> This procedure is only for MCUs that require earthquake protection. Skip
> to "*Step 1C: Connecting Battery Leads*" on page 8  if you are not
> installing earthquake protection.

To install earthquake protection for an MCU equipped with a Single-Carrier
Cabinet (SCC) MSM, follow these procedures:

1. Place the front mounting angle at the location selected for the front of the
   MCU MSM (see  Figure 10 on page 5).

2. Using the angle as the template, mark the location of the mounting bolts.

3. Drill two holes a 1/2 inch in diameter and 1-1/2 inches deep at the spot
   marked in Step 2.

4. Insert the concrete anchors.

5. Mount the front mounting angle to the floor using the 3/8-16 x 1.25 inch
   bolt with a nylon insulating washer.

6. Move the SCC-MSM back into place.

7. Attach the SCC-MSM to the angle with two No. 12-24 x 1/2 inch thread-
   forming screws.

8. Insert a pencil or marker through the holes previously occupied with the
   packaging carriage bolts in the bottom rear of the SCC-MSM and mark
   the floor directly beneath each hole.

No. 12-24 x 1/2 inch
Thread-forming Screw
(four required)

MSM

Front
Mounting
Angle

3/8-16 x 1.25 inch Bolt
(two required)

Nylon Insulating Washer
(two required)

Concrete Floor

Concrete Anchor
(two required)

**Figure 10.  Front Mounting Angle Installation**

9. Remove the screws installed in Step 7 and move the SCC-MSM out of
the way.

10. Drill two holes a 1/2 inch in diameter and 1-1/2 inches deep at the spot
marked in Step 8.

11. Move the SCC-MSM back into place.

12. Attach the SCC-MSM to the front mounting angle using four No. 12-24 x 1/2 inch thread-forming screw (see Figure 11 on page 7).

13. In the rear of the SCC-MSM, lay the stiffener on the bottom of the SCC-MSM, aligning the stiffener with the holes in the bottom of the SCC-MSM.

14. Fasten the SCC-MSM to the floor using the 3/8-16 x 3.25 inch hex bolt and nylon insulating washer.
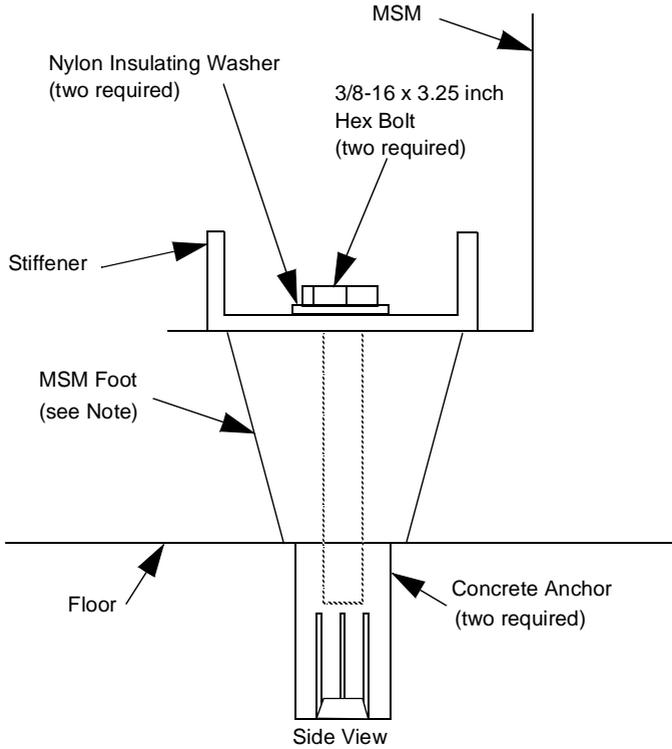
⇒ **NOTE:**
   Instructions for adding the earthquake front plate and ground plate are given at the appropriate point in the installation sequence.

To install earthquake protection for an MCU equipped with a Multicarrier Cabinet (MCC) MSM, follow these procedures:

1. Insert a pencil or marker through the holes previously occupied by the carriage bolts (front and rear) in the bottom of the MCC-MSM, and mark the floor directly beneath each hole.

2. Roll the MCC-MSM out of the way and drill four 1/2-inch diameter holes (about 1-1/2 inches deep) at the spots marked in the previous step.

3. Insert anchors in the holes.

4. Roll the MCC-MSM back into place, and align the MCC-MSM holes over the holes in the floor.

5. Repeat this procedure from the beginning for each MCC-MSM to be installed.

6. When all MCC-MSMs are in place, adjust the leveling legs until the MCC-MSMs are level.

7. Secure the MCC-MSM(s) to the floor with a 3/8-16 x 4.5 inch bolt and flat washer.

MSM

Nylon Insulating Washer
(two required)

3/8-16 x 3.25 inch
Hex Bolt
(two required)

Stiffener

MSM Foot
(see Note)

Floor

Concrete Anchor
(two required)

Side View

NOTE: Bolt runs behind cabinet foot, not through it.

**Figure 11.  Rear Bolt Installation**

## Step 1C: Connecting Battery Leads

➡ **NOTE:**
This procedure is for Alternating Current- (AC-) powered MCUs.To confirm that an MCU is AC-powered, look at the front tab on the power supply (the hinge on the circuit board). The number WP91153 L3 identifies the power supply as AC. If you are installing a two-MSM, Direct Current- (DC-) powered MCU, skip to "*Step 1D: Installing the Second MSM*" on page 9. For single MSM, DC-powered MCUs, proceed to "*Step 1K: Connecting DC Power*" on page 19.

The battery for the AC-powered MCU is located inside the MCU control MSM on the top of the carrier. The battery lead is disconnected to prevent the battery from discharging during shipment.

To connect the battery, follow these steps:

1.  Ensure that the circuit breaker is in the OFF position.

2.  Remove the front panel. The battery lead is to the left of the battery. You may need to reach inside to get to it.

3.  Connect the battery lead and push the slack back into the MSM.

4.  If you are not installing a second MSM, skip to *"Step 1I: Connecting AC Power*" on page 15.

Battery        Connector

(Side View)
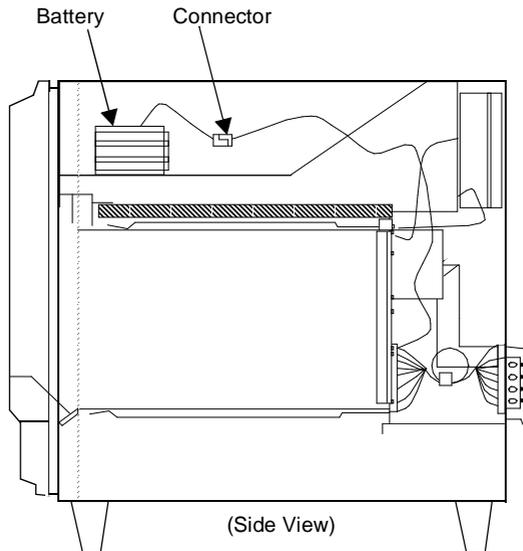
**Figure 12. Connecting the Battery Lead**
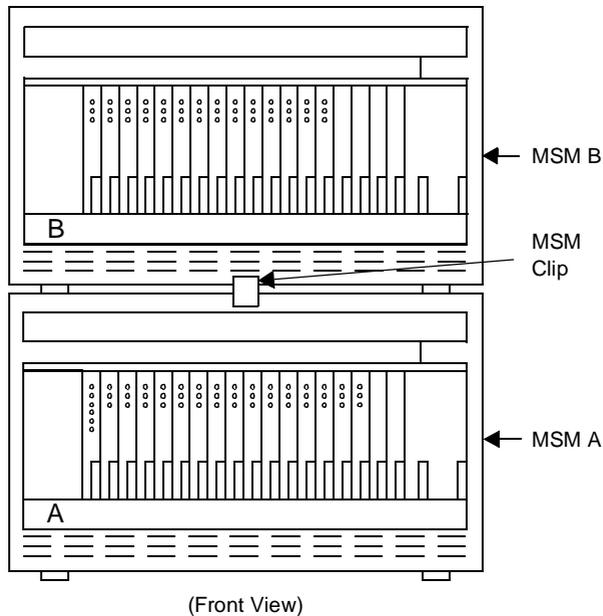
## Step 1D:  Installing the Second MSM

**⇒ NOTE:**
This procedure is for adding a second MSM. If you are installing a single MSM MCU, skip to *"Step 1I: Connecting AC Power*" on page 15 or "*Step 1K: Connecting DC Power*" on page 19.

1. Stack MCU port MSM B on top of MCU control MSM A as shown in Figure 13 on page 10. (The MSMs are labeled A and B on the front and back on the left side of the MSM carrier labels.)

2. Remove the Time-Division Multiplexing (TDM) bus terminator in slot 18 of MSM A and move it to slot 17 of MSM B (see Figure 14 on page 11).

3. Connect TDM bus cables as shown in Figure 14 on page 11. The TDM bus cable is located behind the lower panel.

4. On the backplane of MSM B, to the right of slot 00, six pins are marked for the MSM address plug connections. Verify that the address plug for MSM B is in the correct position, as shown in the bottom of Figure 14 on page 11.
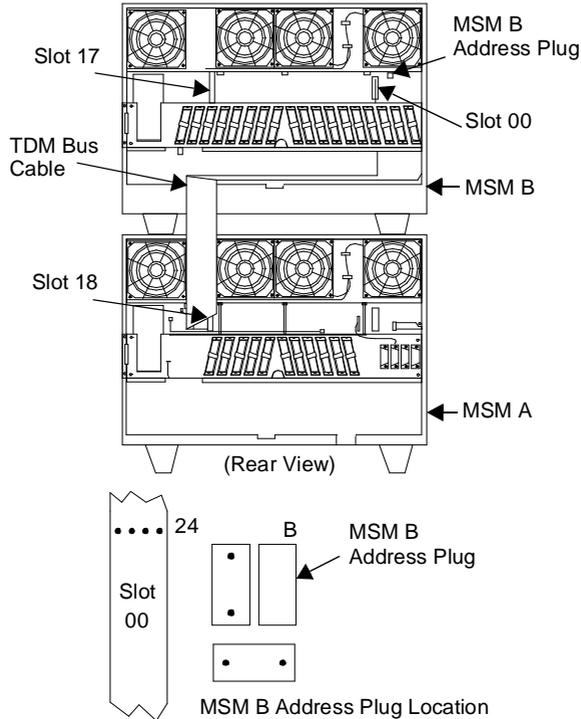


(Front View)

MSM B

MSM Clip

MSM A

B

A

**Figure 13. Installing a Second MSM**

**Figure 14. TDM Bus Cables and Slot 00**

## Step 1E:  Installing Ground Plates

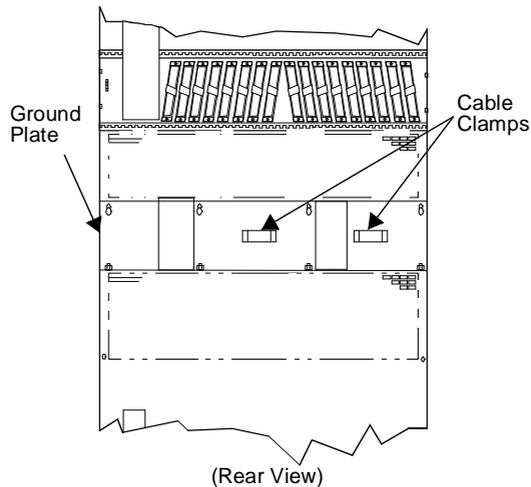⟹ **NOTE:**
   This procedure is only for MCUs with two MSMs.

A ground plate is required between the two MSMs. It provides the ground connection between MSMs A and B and stabilizes them.

1. At the rear of the MSMs, loosen the screws on the upper and lower panels (see Figure 15 on page 13).

2. On MSM B, place the top of the ground plate over the bottom of the lower rear panel so the four No. 8-32 x 3/8 inch screws at the bottom of the lower rear panel go through the four ground plate keyhole slots.

3. Slide the ground plate down over the top of the upper rear panel of MSM A so the four No. 8-32 x 3/8 inch screws that attach the upper rear panel go through the four lower ground plate slots.

4. Ensure that the exposed portion of the TDM bus cable between the MSMs does not get pinched.

5. Tighten the screws.

(Rear View)

**Figure 15.  Ground Plate and Cable Clamps**

## Step 1F:  Installing Cable Clamps

⇒ **NOTE:**
This procedure is only for MCUs with two MSMs *without* earthquake protection.

1. At the rear of the MSMs, on each ground plate, install two cable clamps using the screws provided. These clamps hold the 25-pair Input/Output (I/O) or wallfield cables in place.

2. These clamps hold the 25-pair I/O or wallfield cables in place.

## Step 1G:  Installing Cable Clips

1. At the front of the MSMs, install an MSM clip between the MSMs (refer back to Figure 13 on page 10).

2. Hook the clip into the slot on MSM B and snap the straight leg of the clip into the slot on MSM A.

## Step 1H:  Installing Earthquake Plates

### ➡ NOTE:
This procedure is only for MCUs with two MSMs *with* earthquake protection.

The earthquake front plate replaces the MSM clip for systems with earthquake protection.

1. At the front of the MSMs, line up the holes in the top of the earthquake front plate with the holes at the bottom of MSM B and insert the four No. 8-32 x 3/8 inch screws. Do *not* tighten them yet.

2. At the front of the MSMs, line up the holes in the bottom of the earthquake front plate with the holes at the top of MSM A and insert the four No. 12-24 x 1/2 inch thread-forming screws.

3. Tighten the earthquake plate screws.

Front
Earthquake
Plate

Ground
Plate

(Side View)
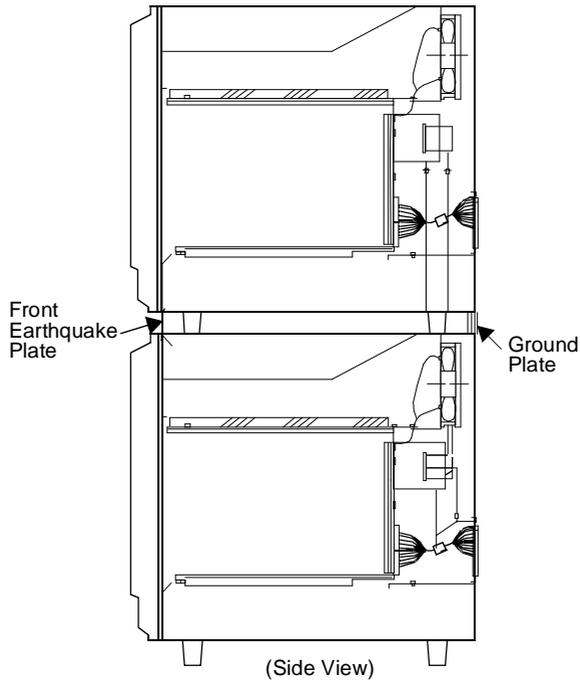
**Figure 16.  Earthquake Ground Plate**

## Step 1I:  Connecting AC Power

### ➡ NOTE:

For DC-powered MSMs, skip to  "*Step 1K: Connecting DC Power*" on
page 19.  To confirm that an MSM is AC-powered, look at the front tab on

the power
supply (the hinge on the circuit board). The number WP91153 L3
identifies the power supply as AC.

Grounding is relatively simple for the AC-powered MSM; a single ground wire is
connected from the MSM to an approved ground. Grounding must comply with
the general rules contained in Article 250 of the National Electrical Code, NFPA
70.

⚠ **WARNING:**
  *Risk of electric shock. Equipment must be properly grounded.*

Be sure to follow these simple rules:

1. Never install telephone wiring during a lightning storm.

2. Never install jacks in wet locations unless the jack is specifically
   designed for that environment.

3. Never touch uninsulated telephone wires or terminals unless the
   telephone line is disconnected at the network interface.

4. Use caution when installing or modifying telephone lines.

The MSM requires a properly grounded 3-prong AC power receptacle for safe
operation. Do not cut or remove the third ground prong from the AT&T power
cord. Do not use 2-wire extension cords or adapters because this defeats the
safety features of the equipment. If the customer only has a 2-prong receptacle,
have it replaced by a qualified electrician.

1. Before the equipment installation, use an outlet tester or voltmeter (VM)
   to check the AC receptacle for the presence of ground as shown in the
   following figure.
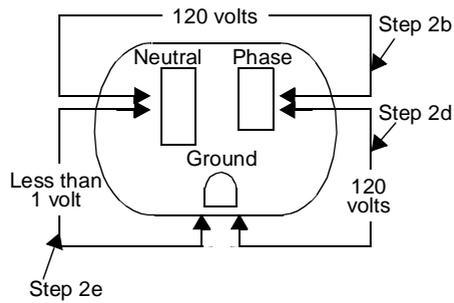
**Figure 17.  AC Power Receptacle**

2.  See Figure 17 on page 17 and check the AC power as follows:

⚠ **DANGER:**
*High voltage present.*

f.  Using the KS-20599, list four digital VM, or equivalent, set the AC voltage range scale to greater than 250 volt AC.

g.  Measure voltage between hot side and neutral side of receptacle.

h.  (SCC-MSM) Verify the voltage measured from Phase to Neutral is 110- to 125-volts AC. If it is not, correct the power problem before proceeding.

i.  (MCC-MSM) If the MSM is being powered by a 120-volt source, verify that the meter reads 104 to 129 VAC. If the source is 208 or 220/240 VAC, verify that the meter reads 104 to 129 VAC between neutral and either hot line. If the power source is not within tolerance, correct the problem. Then recheck the power levels.

j.  (SCC-MSM) Measure the voltage between the Phase to Ground. It should read 110- to 125-volts AC. If it does not, correct the power problem before proceeding.

k.  (SCC-MSM) Verify the voltage measured from Neutral to Ground is less than 1 volt AC. If it is not, correct the grounding problem before proceeding.

## Step 1J:  Circuit Breakers

Each MSM has its own power supply, and the circuit breaker is located on the rear of each power supply.

1.  Verify that the circuit breakers are in the OFF position.

2.  (SCC-MSM) Connect the MSM AC line cords first to the MSMs and then to the AC power receptacles.

    (MCC-MSM) Connect the cabinet AC line cords to the AC power receptacles.

### ➡ NOTE:
An external, commercial Uninterruptible Power Supply (UPS) or a battery backup arrangement may be used. Standby power is engineered to customer needs depending on the MCU size and configuration.

3.  At the lower left rear of MSM A, connect a 6-AWG ground wire to the MSM ground bar. Use a screwdriver to loosen and tighten the bolts that secure the ground wire to the ground bar.

### ➡ NOTE:
All approved grounds must be bonded together to form a single grounding electrode system.

4.  Run the ground wire to an approved ground. The approved ground must be identified with an AT&T grounding tag (FORM15657NR or equivalent).

5.  Connect a 10-AWG wire to the MSM ground bar. This ground wire (coupled bonding conductor) will later be tie-wrapped to the trunk cables and terminated at the coupled-bonding conductor-terminal bar at the MCU's cross-connect field.

## Step 1K:  Connecting DC Power

⇒ **NOTE:**

> To confirm that an MSM is DC-powered, look at the front tab on the power supply (the hinge on the circuit pack). The number 676B identifies the power supply as DC.

To ground the MSM and connect DC power (see Figure 18 on page 20), follow these procedures:

1.  At the DC power cabinet, connect a 1-AWG ground wire to the Discharge Ground (DISCH GRD) bar.

2.  Route the ground wire out of the cabinet and terminate it on the approved ground. The approved ground must be identified with an AT&T grounding tag (FORM 15657NR or equivalent).

3.  Measure and cut a piece of 1-AWG cable long enough to reach between the GROUND CONNECTION terminal in the DC battery cabinet and the DISCH GRD bar in the DC power cabinet.
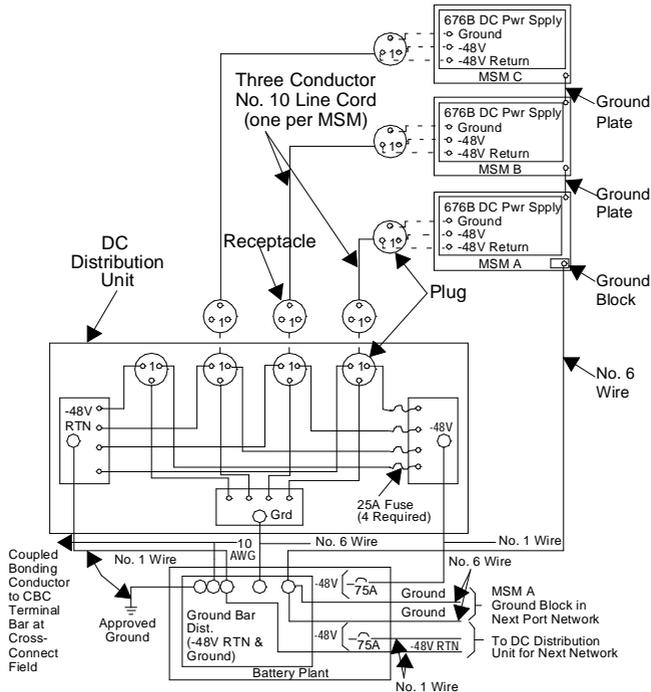
**Figure 18. DC Power Installation**

4. Crimp terminal lugs on each end of the 1-AWG wire.

5. At the DC power cabinet, connect the 1-AWG wire to the DISCH GRD bar.

6. Route the 1-AWG wire through one of the holes in the side of the cabinets and connect it to the GROUND CONNECTION terminal in the DC battery cabinet.

7. At the DC power cabinet, connect a 6-AWG cable to the DISCH GRD bar.

8. Route the 6-AWG cable to the DC Power Distribution Unit.

9. Connect the 6-AWG cable to the GRD Terminal Block in the DC Power Distribution Unit.

10. At the DC power cabinet, connect a second 6-AWG cable to the DISCH GRD bar.

11. Route the 6-AWG cable to the lower left rear of MSM A.

12. Connect the 6-AWG cable to the single-point ground block in MSM A.

13. At the DC power cabinet DISCH GRD bar, connect a 10-AWG wire to the ground bar. This ground wire (coupled bonding conductor) will later be tie-wrapped to the trunk cables and terminated at the coupled-bonding conductor-terminal bar.

14. At the DC Power Distribution Unit, connect the power cable to an available receptacle.

15. Repeat Step 14 for MSM B.

16. Have an electrician connect AC power leads to the rectifiers using instructions with the provided rectifiers in the DC power cabinet. Each rectifier should have its own branch circuit. Terminate leads on the AC INPUT terminal block of each rectifier.

17. Ensure the associated circuit breakers at the AC power panel are in the OFF position.

## Step 1L:  Installing the MCU-MT

The MCU Management Terminal (MCU-MT) and the Scheduling Terminal (MCU-ST), also known as the remote MT, are used to administer the MCU and to schedule conferences using the built-in 24-hour conference scheduling system. The MCU-MT should be located in the same equipment room as the MCU (connected directly to the MSM). The MCU-ST is installed remotely

through a data module so it can be located on the reservation agent's desk. See *"Step 1M: Installing the MCU-ST or System Printer*" on page 23 for details.

⮕ **NOTE:**
   The MCU-MT and MCU-ST can be used interchangeably; that is, the MCU-MT can be used to schedule conferences and the MCU-ST can be used for administration and maintenance commands.

1. Unpack the 715 Business Communications Terminal (BCT) and inspect for damage.

2. Connect the MAIN PORT or P2 (DTE) to the TERM connector or the rear control carrier with an M25B (EIA) cable (included). The TERM connector interfaces with the TN786B Processor Interface circuit pack.

3. On the MCU-MT, connect the keyboard cord to the KBD jack on the rear of the terminal.

4. Plug in the AC power and turn on the terminal (power switch is at the rear of the terminal).

5. Using the keyboard, hold down **CTRL** and press **F1** to view the default values.

6. Move the cursor to the *User Preference* field and press **RETURN**.

7. Move to the *Font Size* field and press **F4** to select **large**.

8. Press **F1** to return to the SETUP menu.

9. Advance the cursor to the *Display Options (per Window)* field and press **RETURN.**

10. Move to the *Autowrap* field and press **F4** to select **off** for both the *PRIMARY/WINDOW 1* and *WINDOW 2* fields.

11. Press **F1** to return to the SETUP menu.

12. Go to the *Keyboard Options (per window)* field and press **RETURN**.

13. Move to the *Enter Key* field. In the *Primary/Window 1* field, press **ESC** and type **SB.**

14. Press **F5** to save the changes.

15. Press **F1** to return to the SETUP menu and exit.

## Step 1M:  Installing the MCU-ST or System Printer

### ➡ NOTE:

If the customer purchased the optional Conference Reservation System (CRS), it is a plug replacement for the MCU Scheduling Terminal (MCU-ST). CRS allows the reservations agent to schedule and reserve multipoint video conferences. It replaces the MCU-ST for conference scheduling and 24-hour reservations. If you are installing CRS, refer to the *AT&T Conference Reservation System User's Manual, 555-027-726,* for installation instructions.

The MCU-ST used by the reservations agent may be located some distance from the MSM. If the distance between the MSM and the MCU-ST is greater than 50 feet, the terminal is considered remote. Also, any terminal not connected to the Data Terminal Equipment (DTE) connector on the back of the control carrier is considered remote.

The MCU-ST can perform system administration in addition to conference scheduling tasks. If more than one terminal is being used for administration and conference scheduling, connect one directly to the MCU backplane and the other to the 7400B data module (included).

To set the 7400B data module before connecting it to the MCU-ST, follow these instructions:

1. Connect a dumb terminal to the 7400B data module using a DSF cable (25-pin RS232 cable).

2. Enter the following command: **at**. The screen displays OK.

3. If OK does not display, press **RETURN** and then enter **at&s0&c0**.

4. Enter **at&v** to view the options. Look at the top line of the active profile.

5.  Enter **at&c1&d2&s1&s0=1&w0&w1&y0**.

These settings produce the following results:

**&c1** sets the data carrier detect (DCD) circuit to operate according to the Electronic Industries Association (EIA) standard.

**&d2** sets the data module to go on hook when an on-to-off transition is detected on the data terminal ready (DTR) input, disconnecting the call.

**&s1** sets the data module to respond to the data set ready (DSR) signal.

**&s0=1** turns on the automatic answer feature and causes the data module to answer on the first ring.

**&w0** causes the current configuration to be stored in data profile storage location 0.

**&w1** causes the current configuration to be stored in data profile storage location 1.

**&y0** selects the configuration stored in data profile storage location 0 to become the current configuration every time the data module is powered on.

To install the MCU-ST, follow these steps:

1.  Unpack the device (715 BCT) and then connect it to the 7400B data module via a M25B cable (included).

2.  Connect the data module to the wall jack using a D8W-87 cord.

3.  At the cross-connect field, use a B25A cable to connect to the designated port on the TN754B circuit pack.
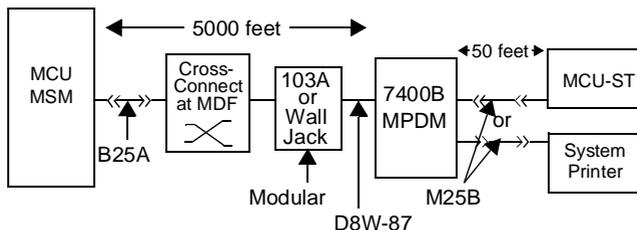
**Figure 19. Installing the MCU-ST and System Printer**

4.  Follow the setup procedures (Steps 3 through 15) from the preceding section.

To set the 7400B data module before connecting it to the system printer, follow these instructions.

1.  Connect a dumb terminal to the 7400B data module using a DSF cable (25-pin RS232 cable).

2.  Enter the following command: **at.** The screen displays OK.

⇒ **NOTE:**

    If OK does not display, press **RETURN** and then enter **at&s0&c0**.

3.  Enter **at&v** to view the options. Look at the top line of the active profile.

4.  Enter **at&f&c1&d2e0q1s0=1&w0&y0**.

These settings produce the following results:

    **&f** resets the options to the factory defaults.

    **&c1** sets the data carrier detect (DCD) circuit to operate according to the EIA standard.

**&d2** sets the data module to go on hook when an on-to-off transition is detected on the data terminal ready (DTR) input, disconnecting the call.

**e0** turns off the echo.

**q1** turns off the result codes which would be the normal response of the data module to commands it receives.

**s0=1** turns on the automatic answer feature and causes the data module to answer on the first ring.

**&w0** causes the current configuration to be stored in data profile storage location 0.

**&y0** selects the configuration stored in data profile storage location 0 to become the current configuration every time the data module is powered on.

To install the system printer, follow these steps:

1. Unpack the system printer and then connect it to the 7400B data module via a M25B cable (included).

2. Connect the data module to the wall jack using a D8W-87 cord.

3. At the cross-connect field, use a B25A cable to connect to the designated port on the TN754B circuit pack.

4. Unpack and inspect the system printer.

5. Connect the MAIN PORT or P2 (DTE) to the 7400B data module with an M25B (EIA) cord or equivalent. The data module connects with a D8W-87 cable to the wall jack.

6. On the MCU side, connect the B25A cable to the TN754B Digital Line circuit pack.

## Step 1N:  Installing the Maintenance Alarm Terminal

➡ **NOTE:**
> When the MSM and the maintenance alarm terminal are located in
> separate buildings, a line current protector must be installed at the entry/
> exit points of *all* buildings through which the line passes. Verify that only
> the AT&T 4-type protectors or ITW LINX LP-type protectors are used.

One maintenance alarm terminal for alarm status (Model 7444D) is provided
with the MCU; up to two more are optional. Run the wiring as shown in Figure
20 on page 27.
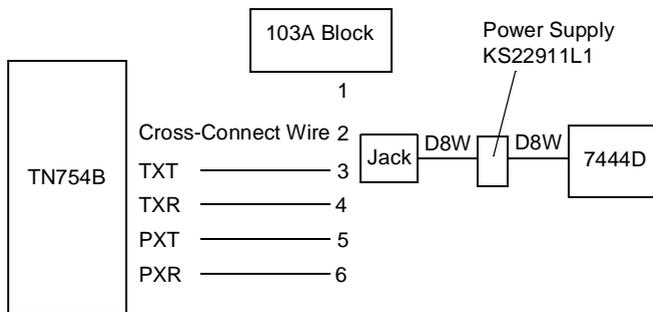


**Figure 20.  Maintenance Alarm Terminal Wiring**

The following table provides the lead designations for connecting the
maintenance alarm terminal to the TN754B. Also provided are the lead
designations for terminating 25-pair cable on the DS1 (TN767D) circuit pack.
The Aux Jack TN786B column provides the location of battery and ground leads

for the Initialization and Administration System (INADS) line or for a customer-provided external alarm.

**Table 1.   Lead Designations**

| 110 Pin | Color | Dig. Line TN754B | DS1 Tie Trunk TN767D | Aux Jack TN786B |
|---------|-------|------------------|----------------------|-----------------|
| 01 | W-BL | | | Major |
| 02 | BL-W | | | Major |
| 03 | W-O | TXT1 | | Minor |
| 04 | O-W | TXR1 | | Minor |
| 05 | W-G | PXT1 | | |
| 06 | G-W | PXR1 | | |
| 07 | W-BR | | | |
| 08 | BR-W | | | |
| 09 | W-S | TXT2 | | |
| 10 | S-W | TXR2 | | |
| 11 | R-BL | PXT2 | | |
| 12 | BL-R | PXR2 | | |
| 13 | R-O | | | |
| 14 | O-R | | | |
| 15 | R-G | TXT3 | | |
| 16 | G-R | TXR3 | | |
| 17 | R-BR | PXT3 | | |
| 18 | BR-R | PXR3 | | |
| 19 | R-S | | | |
| 20 | S-R | | | |
| 21 | BK-BL | TXT4 | | E. GND |

**Table 1.   Lead Designations  —** *(continued)*

| 110 Pin | Color | Dig. Line TN754B | DS1 Tie Trunk TN767D | Aux Jack TN786B |
|---------|-------|------------------|----------------------|-----------------|
| 22 | BL-BK | TXR4 | | M. -48 |
| 23 | BK-O | PXT4 | | E. GN |
| 24 | O-BK | PXR4 | | R. -48 |
| 25 | BK-G | | | G.GND |
| 26 | G-BK | | | - -48 |
| 27 | BK-BR | TXT5 | | X. GND |
| 28 | BR-BK | TXR5 | | T. -48 |
| 29 | BK-S | PXT5 | | R. GND |
| 30 | S-BK | PXR5 | | P. -48 |
| 31 | Y-BL | | | O. GND |
| 32 | BL-Y | | | W. -48 |
| 33 | Y-O | TXT6 | | E. GND |
| 34 | O-Y | TXR6 | | R. -48 |
| 35 | Y-G | PXT6 | | |
| 36 | G-Y | PXR6 | | |
| 37 | Y-BR | | | A. GRN |
| 38 | BR-Y | | | C. -48 |
| 39 | Y-S | TXT7 | | C. GND |
| 40 | S-Y | TXR7 | | P. -48 |
| 41 | V-BL | PXT7 | | W. GND |
| 42 | BL-V | PXR7 | | R. -48 |
| 43 | V-O | | L1[*] | |
| 44 | O-V | | L1 | |
| 45 | V-G | TXT8 | L0 | EXT. |

**Table 1.   Lead Designations — *(continued)***

| 110 Pin | Color | Dig. Line TN754B | DS1 Tie Trunk TN767D | Aux Jack TN786B |
|---------|-------|------------------|----------------------|-----------------|
| 46 | G-V | TXR8 | L0* | |
| 47 | V-BR | PXT8 | LBACK2 | |
| 48 | BR-V | PXR8 | LBACK1 | |
| 49 | V-S | | | T (INADS) |
| 50 | S-V | | | R (INADS) |

    \*   Denotes ring side or high side of pair.

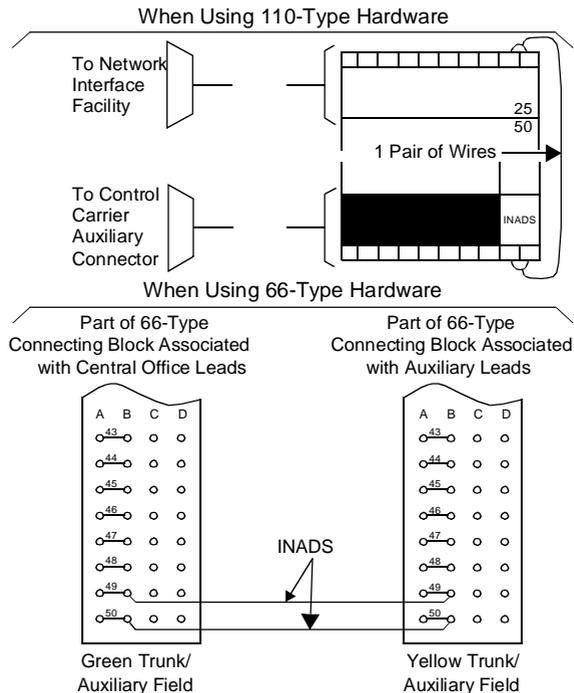## STEP 2:  Installing the INADS Interface

The INADS trunk is a two-way, rotary dial, loop start trunk that connects to the Aux Jack on the TN786B Processor circuit pack through the INADS terminals at the trunk/auxiliary cross-connect field.

To install the INADS interface, follow these steps:

1. Determine the INADS trunk appearance at the green trunk/auxiliary cross-connect field.

2. Label terminals for INADS trunk appearance (IN).

3. Install jumpers between INADS trunk appearance (IN) and INADS terminals.

When Using 110-Type Hardware

To Network
Interface
Facility

25
50

1 Pair of Wires

To Control
Carrier
Auxiliary
Connector

INADS

When Using 66-Type Hardware

Part of 66-Type
Connecting Block Associated
with Central Office Leads

Part of 66-Type
Connecting Block Associated
with Auxiliary Leads

A   B   C   D
43
44
45
46
47
48
49
50

INADS

A   B   C   D
43
44
45
46
47
48
49
50

Green Trunk/
Auxiliary Field

Yellow Trunk/
Auxiliary Field

**Figure 12.  Connecting the INADS Interface**

# STEP 3:  Installing DS1 Tie Trunks

DS1 tie trunks provide a 1.544 Mb digital data service between an MCU MSM
and a PBX or between the MCU and a data network using T1 carrier facilities
through a Channel Service Unit (CSU). The TN767D DS1 tie trunk circuit pack
provides connection capability to the DS1 facility for 24 independent trunks.

The following table shows the lead designations for the DS1 circuit pack.

**Table 3.  Connector Cable Lead Identification**

| Wire Color | Lead Desig. | 110 HW | 25-Pair Cable | Conn. Pin # |
|---|---|---|---|---|
| W-G | LI | 43 | V-O | 47 |
| G | LI | 44 | O-V | 22 |
| W-BR | LO | 45 | V-G | 48 |
| BR | LO | 46 | G-V | 23 |
| W-S | LBACK2 | 47 | V-BR | 49 |
| S | LBACK1 | 48 | BR-V | 24 |

# STEP 4:  Activating the MCU

⚠ **CAUTION:**
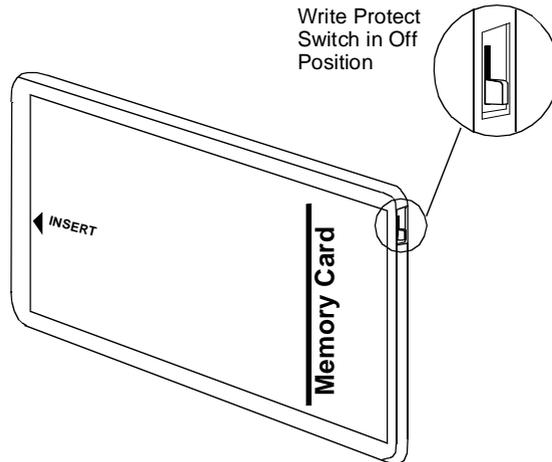*When handling circuit packs or other MCU components, always wear an EMC wrist strap (comcode 900 698 226).*

## Step 4A:  Installing the Memory Card

1. Verify that the memory card write protect switch is in the OFF position as shown.

2. Install the memory card.

**Figure 13.  Memory Card Switch Setting**

## Step 4B:  Powering Up

1. Verify that all MSM power modules are OFF.

2. Plug the MSM power cables into the appropriate receptacles. For AC-powered MCUs, skip to  "*STEP 5: Testing the Hardware*" on page 37.

3. For DC-powered systems, at the DC battery cabinet, set the circuit breaker to ON.

4. At the DC power cabinet, set the circuit breaker on associated rectifiers to ON.

5. In the back of each MSM on the left side, set the MAIN power switch to ON.

6.  This action starts the system initialization test. All red LEDs on the circuit packs go on and then off. Some LEDs remain on until translations are performed (such as the DS1 TN767D circuit pack).
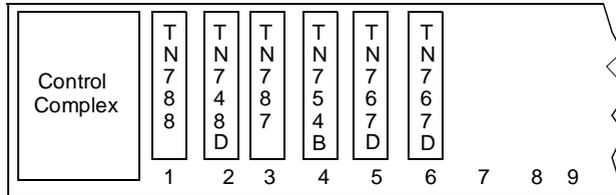


**Figure 14. Location of DS1 Circuit Packs in a 4-Port MCU**

7.  Verify that the screen displays: *KEYBOARD LOCKED, WAIT FOR LOGIN.*

8.  After several minutes, verify that all tests pass. If any message indicates a test failed or displays "*spe down mode,*" call either the VTC at **800 242-2121** or the GTAC at **303 538-4666.**

9.  About two minutes after "*REBOOT PERFORMED*" appears, verify that the screen displays: *Login:*

## ⚠ WARNING:
*White-labeled control circuit packs must not be reseated without powering down first.*

10. If all the red lights do not go off, reseat the purple-labeled circuit packs with the red LEDs lit. The TN767D activates an alarm on board until it is translated.

11. If the red lights remain on, call either the VTC at **800 242-2121** or the GTAC at **303 538-4666** to help identify and clear the problem.

⮕ **NOTE:**
Alarms appear in the Alarm Log (displayed on the MCU-MT) when power is applied to the MCU before all equipment connecting to the port circuit packs is installed. Normally, some alarms are logged when power is applied, but they should be resolved quickly. If no equipment is connected to the port circuit packs, alarms associated with these ports can take up to four hours to appear, but clear automatically after all equipment is installed and operating correctly.

## Step 4C: Logging In

⮕ **NOTE:**
The MCU system passwords, except craft, are changed by INADS after the installation is completed.

1. From the MCU-MT, verify that the screen displays: *Login:*

2. Enter **craft** and press **RETURN**.

3. Verify that the screen displays: *password:*

4. Enter **crftpw** and press **RETURN**.

5. Verify that the software version is current.

6. Verify that the screen displays: *Terminal Type (Enter 715, 513, 4410, or 4425): [715].*

7. Press **RETURN**. This accepts the 715 BCT.

8. The screen should now display: *command:*

9. Enter **change password craft** to change the default password for the craft login.

## Step 4D:  Setting the Date and Time

The built-in 24-hour conference scheduling system uses the MCU system clock to know when to begin and end conferences. It is vital that the clock is correctly set to ensure conference functionality.

The system clock is only affected when power is interrupted for more than two minutes. An Uninterrupted Power Supply (UPS) may be used to protect against power outages to the MCU.

### ➡ NOTE:
Be sure to obtain the accurate time by calling the National Bureau of Standard Time at 202 844-1234.

The date and time are set using the Set Date and Time Form. To set the date and time, follow these procedures:

1. From the MCU-MT, at the *command:* prompt, type **set time** and then press **RETURN**.

2. At the *Day of the Week* field, enter the day of the week.

3. At the Month field, enter the current month.

4. In the *Day of the Month* field, enter the current day (1 through 31).

5. In the *Year* field, enter the current year.

6. In the *Hour* field, enter the current hour in military time. (0000 is midnight, 1200 is noon, p.m. time is hour plus 12.)

7. In the *Minute* field, enter the current minute (0 through 59).

### ➡ NOTE:
Seconds are reset to 00 for the minute selected.

8. Press **ENTER**.

9. When the screen displays: *command successfully completed* followed by *command*, enter **display time** to verify the setting.

# STEP 5:  Testing the Hardware

To test the MCU after installation and activation, follow these procedures:

1. Log in to the MCU-MT.

2. Enter **list configuration all** to verify which physical boards are present in the system. Check the customer's order to make sure it matches the actual configuration.

# STEP 6:  Contacting the VTC or GTAC

Call either the VTC at **800 242-2121** or the GTAC at **303 538-4666** to perform the appropriate administration procedures.
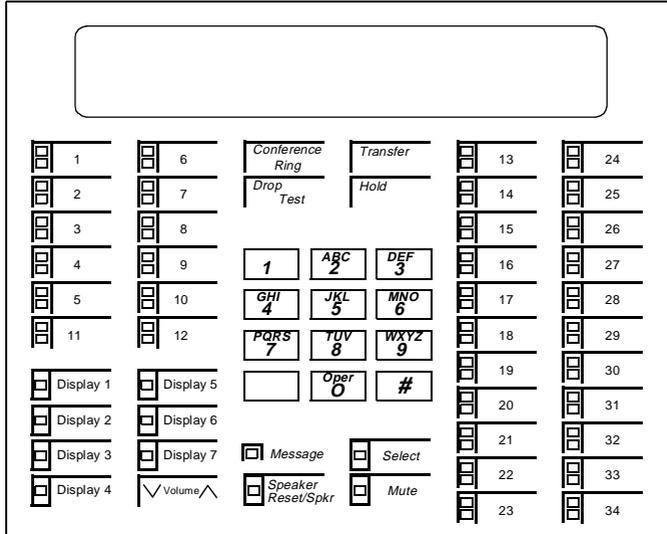
# STEP 7:  Completing the Installation

After the VTC or GTAC completes the tasks performed in Step 7, you are notified so you can complete the installation.

### Step 7A:  Labeling the Maintenance Alarm Terminal

Create the following labels described in Tables 3, 4 and 5 for each of the maintenance alarm terminals administered by the VTC or GTAC.

**Figure 15. Model 7444D Maintenance Alarm Terminal**

**Table 4.   7444D Display Buttons 1 through 7**

| Button | Label |
|--------|-------|
| 1 | normal |
| 2 | inspect |
| 3 | trk-id |
| 4 | trunk-names |
| 5 | date-time |
| 6 | timer |
| 7 | |

**Table 5.   7444D Buttons 1 through 10**

| Button | Label | Button | Label |
|--------|-------|--------|-------|
| 1 | call-appr | 6 | ac-alarm |
| 2 | call-appr | 7 | smdr 1-alrm |
| 3 | call-appr | 8 | pr-sys-alm |
| 4 | | 9 | trk-ac-alm |
| 5 | aca-call | 10 | verify |

**Table 6.   7444D Buttons 11 through 34**

| Button | Label | Button | Label |
|--------|-------|--------|-------|
| 11 | | 23 | |
| 12 | | 24 | link-alarm Lnk #: 1 |
| 13 | major-alrm | 25 | link-alarm Lnk #: 2 |
| 14 | minor-alrm | 26 | link-alarm Lnk #: 3 |
| 15 | warn-alrm | 27 | link-alarm Lnk #: 4 |
| 16 | mmi-cp-alm | 28 | |
| 17 | vc-cp-alm | 29 | |
| 18 | ds1-alarms | 30 | |
| 19 | | 31 | |
| 20 | | 32 | |
| 21 | | 33 | |
| 22 | | 34 | |

## Step 7B:  Testing the Maintenance Alarm Terminal

To test the maintenance alarm terminal, follow these procedures:

1. Go off hook on a maintenance alarm terminal.

2. Verify that dial tone is received.

3. Verify that the *normal* button is lit. If not, press it and the LED should come on.

4. Press the *date-time* button. The date and time displays for a few seconds and then the display clears.

5. If any alarm button is lit, enter **display alarm** from the MCU-MT to verify that the corresponding alarm is active.

## Step 7C: Saving Translations

The save translation command copies the current system translations onto the memory card located on the network control circuit pack. To save translations on the original system memory card and to make a backup memory card (not included), follow these procedures:

1. At the *command:* prompt, enter **save translation**.

2. Check for a **0** in the *Error Code* column; it indicates the save translation was successfully completed.

⇒ **NOTE:**
 If a number other than **0** appears, the save translation process did not complete. Record the number in the *Error Code* field along with any *Error Message* and notify maintenance support.

3. If the save translation procedure was successful and the customer has a backup memory card, remove the system memory card and insert the backup memory card.

4. Repeat Steps 2 and 3 and then swap the memory cards.

5. Place the backup memory card in a safe place.

## Step 7D: Testing the Network

Test each DS1 circuit pack for connectivity to the network using the following procedure:

1. At the *command* prompt on the MCU-MT, enter **test ds1 *location* long** where ***location*** is the MSM and slot address of the DS1 circuit pack (for example, **1a05**).

2. Verify that all board level tests pass. If not, check the network connections. If you need assistance, call either the VTC at **800 242-2121** or the GTAC at **303 538-4666**.

⟹ **NOTE:**
If the board level tests pass but the port level tests either abort or fail, network service is not turned on.

## Step 7E: Logging Off

After initializing the MCU, log off the system to prevent unauthorized changes to the data entered and to save the changes that were made.

1. From the MCU-MT, type **logoff** and press **RETURN**.

2. The screen displays: *Login:*

# STEP 8: Calling INADS

Activate the MCU INADS record and test the INADS interface as follows:

1. Call INADS and report a new system installation. Ask them to call the MCU.

2. INADS displays the System Parameters Maintenance form to confirm the product identification.

3. INADS enters **test inads-link**.

4. INADS terminates the login and disconnects.

5. INADS checks the trouble ticket generated by the test. It should show `INADS,n,MINOR` to indicate a minor off-board alarm was reported.

6. INADS calls back and checks the error log to verify there are no problems.

7. INADS changes the appropriate MCU passwords from their default settings and establishes alarm thresholds and contact numbers.