

## 3550 DBM Upgrade Feature Number 3550-F1-201 Installation Instructions Document Number 3550-A2-GZ51-10

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### Overview

This set of instructions tells you how to install the V.32bis 14.4 kbps dial backup module (DBM) onto a Model 3550 or 3551 data service unit (DSU), and how to verify operation of the unit once the installation is complete.

Refer to the *COMSPHERE 3550 Series Data Service Units, Models 3550 and 3551, User's Guide* (3550-A2-GB20) for additional information.

### Prior to Installing the DBM Upgrade






The V.32 DBM field upgrade consists of the following:

- Two childboards (the DBM and the DBM line-interface childboards).
- Three 1/2" long snaplock posts (small diameter) for the DBM childboard. Three snaplock posts are supplied with the V.32 DBM upgrade.
- Four 9/16" long snaplock posts (large-diameter) for the DBM line-interface childboard.

If any of the above components are not present, contact your service representative.

It is always a good idea to document the DSU's current configuration prior to installing any upgrade.

#### Procedure

1. Make a copy of the Configuration Worksheet (Full Menu Mode: Enabled) from Appendix B of the user's guide.
2. Change the DSU's *Menu* mode to **Enab**.  
Select the  key → Local → Config → the  key → Menu → Enab → Save.  
*If Menu mode is already enabled, Enab appears on the first line of the display.*
3. Press the  key, then the  key to display *Opts* (Configuration Options subbranch).
4. Load the **Activ** configuration currently being used by the DSU.
5. Select each option set (i.e., DSU, Diag – DSU and Gen, and Gen) and record the DSU's setting for each configuration option within the option set on the Configuration Worksheet (circle each setting).
6. When all settings have been recorded, press the  key to return to the top-level menu.

- Record the DSU's Identity information on the top of the Configuration Worksheet.

Select the  $\triangle$  key  $\rightarrow$  Local  $\rightarrow$  Stat  $\rightarrow$  the  $\triangleright$  key  $\rightarrow$  ID.

Press the  $\triangleright$  key to scroll through and record the following fields: Model, S#, DSU SW ver, Netwrk Addr, and DSU Rate.

*Select the set of instructions that are appropriate to the unit being upgraded with the DBM option, either the Model 3550 (standalone) or Model 3551 (carrier-mounted) DSU.*

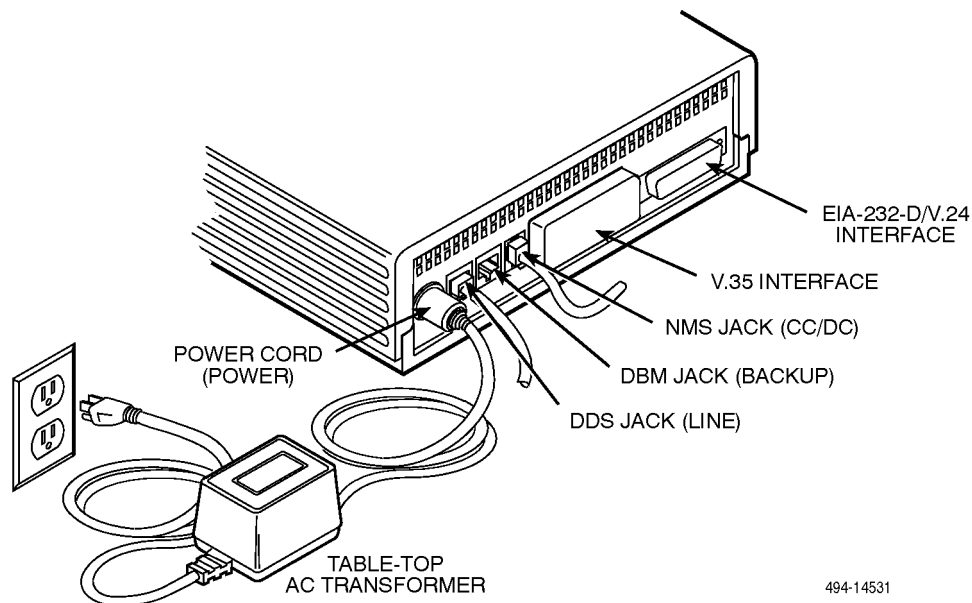
## Installing the DBM Upgrade on a Model 3550 DSU

### Getting Started

Refer to **Figure 1** as you follow these steps.

#### Procedure

- Unplug the table-top ac transformer from the ac outlet, then disconnect the power cord from the DSU's rear panel (labeled POWER).
- Disconnect the DDS interface cable (labeled LINE) from the DSU.
- Disconnect the NMS interface cables (labeled CC/DC), if installed.
- Disconnect the EIA-232-D/V.24 or V.35 interface cable from the DSU. If a TDM/Flex is installed, disconnect the Port 2 interface cable, as well.



**Figure 1. Disconnecting the DSU**

## Opening the Unit

### HANDLING PRECAUTIONS FOR STATIC SENSITIVE DEVICES

This product is designed to protect sensitive components from damage due to electrostatic discharge (ESD) during normal operation. When performing installation procedures, however, take proper static control precautions to prevent damage to equipment. If you are not sure of the proper static control precautions, contact your nearest sales or service representative.

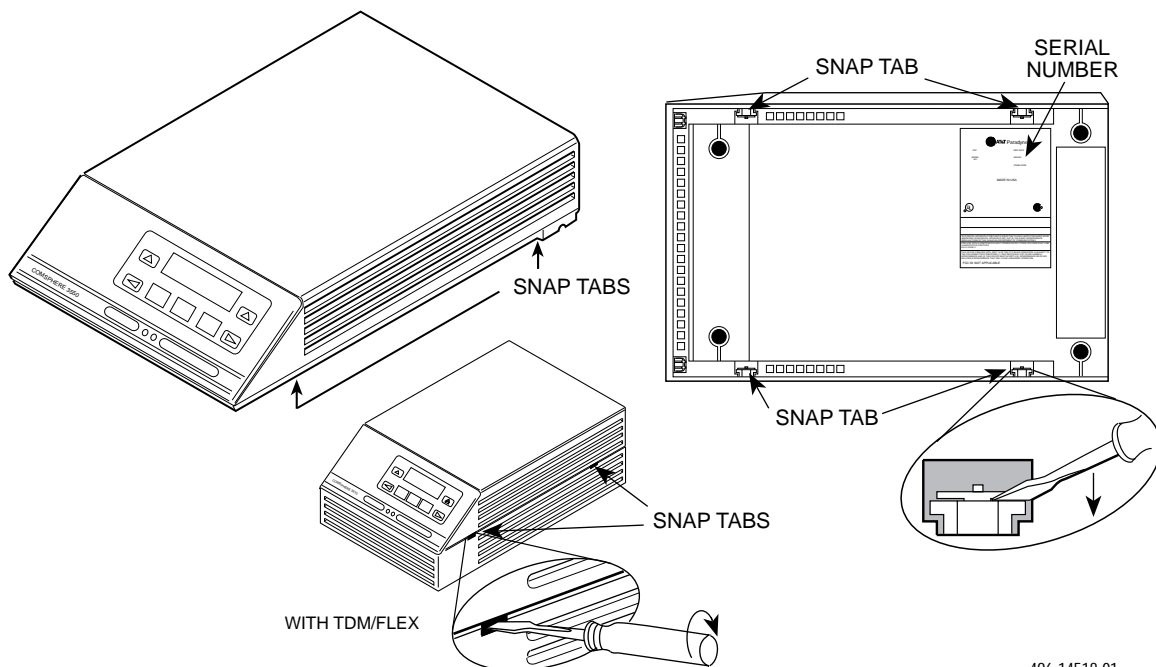
Refer to [Figure 2](#) as you open the DSU. If a TDM/Flex is installed, refer to [Figure 3](#) to disconnect the TDM/Flex flat cable.

#### Procedure

1. Turn the unit upside down.

If a TDM/Flex is installed, the unit does not have to be turned over in order to open the case.

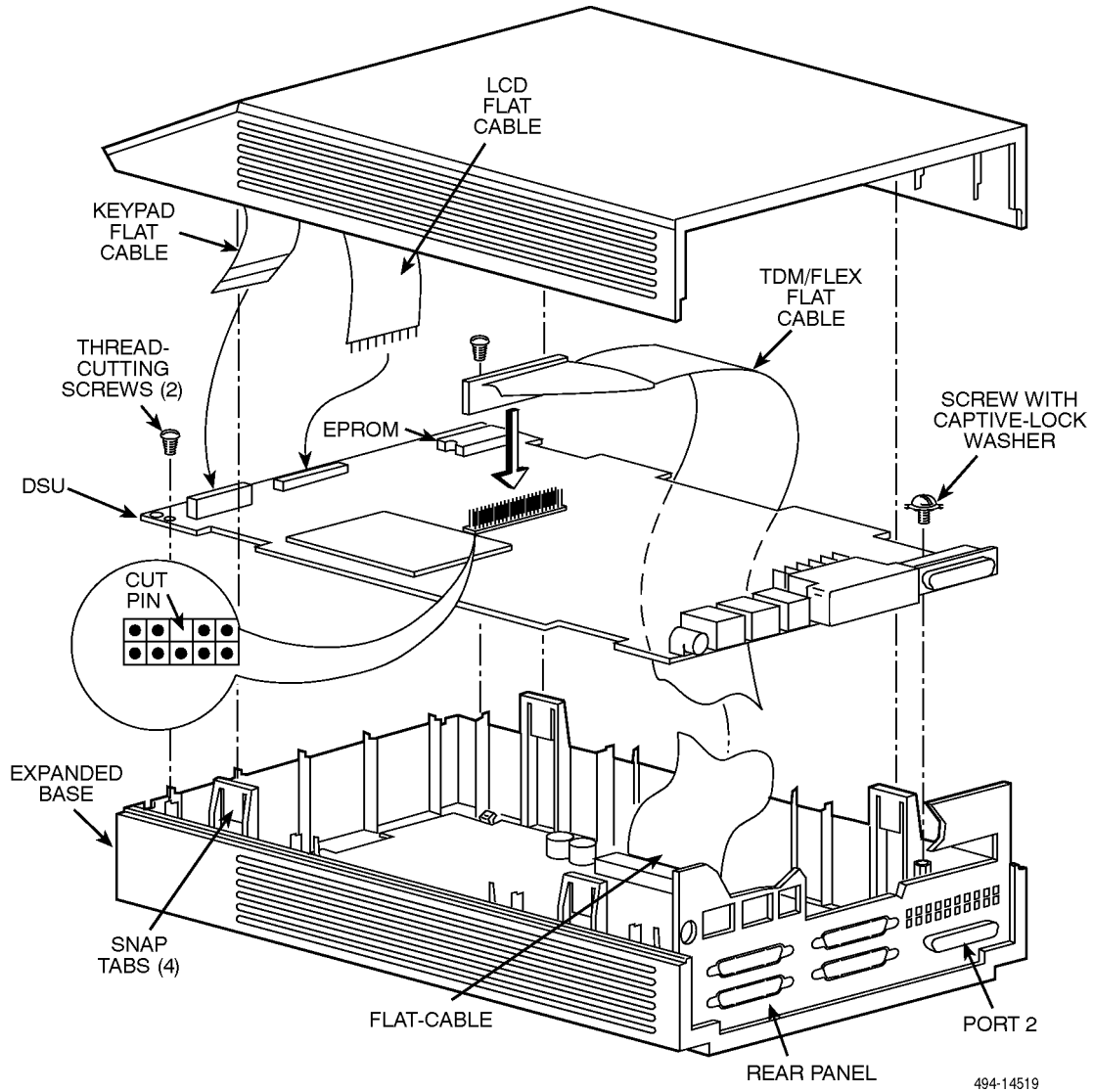
2. Using a small flat-head screwdriver, release the four snap tabs holding the base in place.
3. Carefully separate the cover from the base, and return the unit to an upright position.



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**Figure 2. Opening the DSU**

4. Fold the DSU's cover over (from the rear of the DSU toward the front).  
*Be careful not to pull the LCD and keypad flat cables from their connectors.*
5. Disconnect the keypad flat cable from the DSU. *Squeeze the small black latches on each side of the cable and gently pull up, carefully lifting the cable up and out of the connection.*
6. Disconnect the LCD flat cable from the DSU. Carefully and gently work the cable (*not the connector*) out from the connector. *Be careful not to bend any of the cable pins.*



**Figure 3. DSU with a TDM/Flex Installed**

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7. Remove the DSU from its base by carefully lifting up until the connectors come free of the rear panel. Lay the circuit card on a clean ESD (anti-static) workpad.

*When a TDM/Flex is installed, you do not have to remove the DSU from its expanded base to install the V.32 DBM option.*

8. If a TDM/Flex is installed, disconnect the TDM/Flex flat cable's pre-folded 40-position header from the DSU, and fold the TDM/Flex flat cable out over the side of the expanded base. (Figure 3 shows the TDM/Flex flat cable.)

## Installing the DBM

Refer to Figure 4 as you follow these steps.

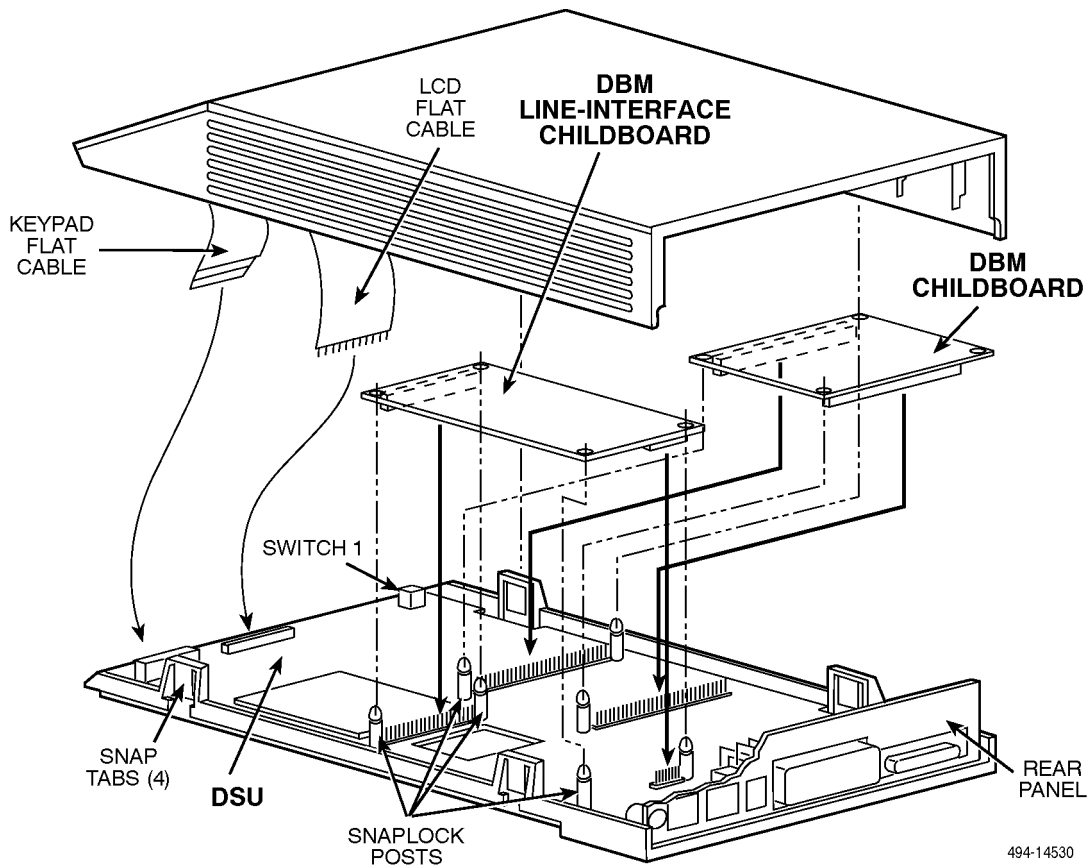
### Procedure

To install the DBM childboard:

1. Insert the three 1/2" *small-diameter* snaplock posts (for the DBM childboard) into the DSU.  
*Note that the V.32 DBM has 31 pins on the side toward the front of the DSU, and 30 pins on the rear.*
  2. Orient the DBM childboard as shown in Figure 4, with its 31-pin connector toward the front of the DSU and its 30-pin connector toward the rear. *Be careful not to bend the pins on the DSU.*
  3. Seat the DBM childboard connectors in the two DSU connectors while aligning the snaplock posts with the holes on the DBM childboard. *Be careful not to bend the pins on the DSU.*
- Snap the snaplock posts on the DSU onto the DBM childboard.

To install the DBM line-interface childboard:

1. Insert the four 9/16" *large-diameter* snaplock posts (for the DBM line-interface childboard) into the DSU as shown in Figure 4.
2. Orient the DBM line-interface childboard as shown in Figure 4, with its 20-pin connector toward the front of the DSU and its 8-pin connector toward the rear.
3. Seat the DBM line-interface childboard connectors into the two DSU connectors while aligning the snaplock posts with the holes on the DBM line-interface childboard.  
Snap the snaplock posts on the DSU onto the DBM line-interface childboard.
4. Set the DSU hardware straps on Switch 1:
  - For Permissive mode, set the Switch 1 strap to ON. (This is the default setting.)
  - For Programmable mode, set the Switch 1 strap to Off.



**Figure 4. Installing the DBM**

## Reassembling the Unit

Refer to [Figure 4](#) (and back to [Figure 3](#) if a TDM/Flex is installed) as you close the unit. Refer to [Figure 5](#) as you reconnect cables.

### Procedure

1. If the TDM/Flex is installed, fold the TDM/Flex flat-cable back over the DSU and reconnect the cable as shown in [Figure 3](#).
2. Reconnect the keypad flat cable by inserting the cable into its connector as far as it will go, then push down on the latching mechanism.  
Reconnect the LCD flat cable by aligning and gently pushing the cable pins back into the connector.
3. Align the cover over the base and rear panel. Make sure the four snap tabs are over their corresponding slots (two in front and two in back).
4. Apply pressure at the four snap tab connecting points, pressing together until all four tabs snap securely into their slots.

5. Reconnect the power cord to the DSU (labeled POWER), as shown in **Figure 5**.
6. Plug the table-top ac transformer into the ac outlet.

On power-up, the DSU determines the options (DBM, and MUX – TDM/Flex if installed) that are installed.

A Device Test is automatically initiated on the DSU and each option. During the tests, all indicators on the diagnostic control panel (DCP) light briefly, and the LCD displays the message **Power-up Tests**.

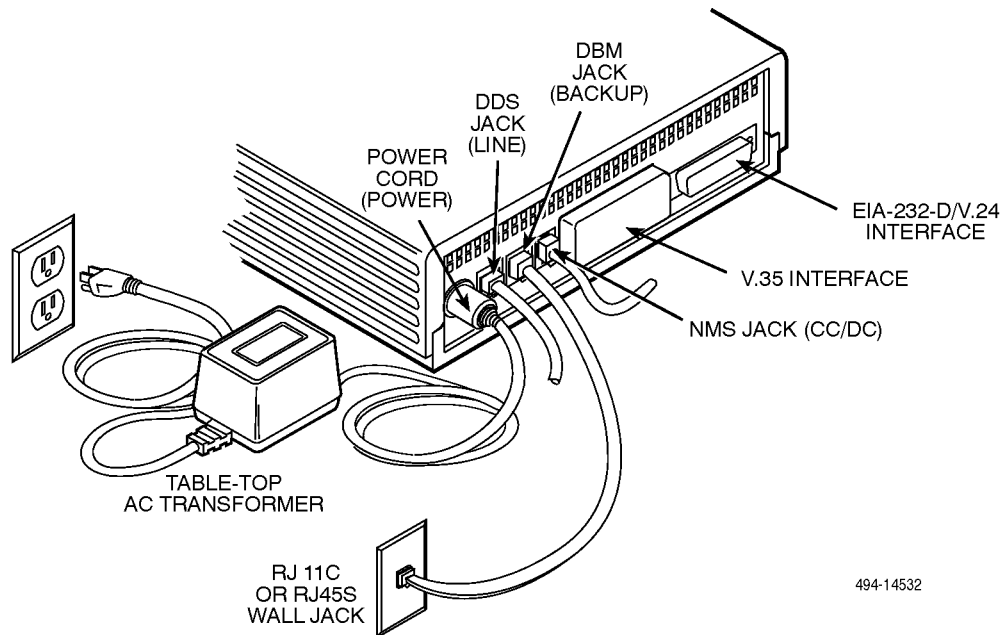
When the Device Tests are complete, the LCD momentarily displays messages indicating that each device (DSU and DBM, and MUX if installed) has passed the power-up test. *This test takes approximately 20 seconds to complete.*

*Note that the red Alarm LED on the DSU lights, indicating that there is no DDS signal.*

7. If the Device Test fails, confirm the installation of the DBM, then reexecute the test. (Press the  $\triangle$  key to return to the top-level menu, then select Local → Test → DBM → Devic.) If the test fails again, call your service representative for assistance. If the test passes, continue with this procedure.

If the keypad and/or LCD functions fail, check that the Keypad and LCD flat cables are installed properly. Perform the Device Test again.

*If a network loopback was in progress when the Device Test was run, the test will be aborted and the second line will display **Abrt**. Rerun the Device Test.*



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**Figure 5. Dial Network Connections**

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## Reconfiguring the Unit

First load a factory-set configuration, then customize the loaded configuration based upon the completed Configuration Worksheet and site requirements.

### Procedure

1. Load the appropriate factory-loaded configuration: PTPC (point-to-point control), MPTC (multipoint control), PTPT (point-to-point tributary), or MPTT (multipoint tributary).

Select the  $\hat{=}$  key → Local → the  $\triangleright$  key → Config → Opts → *Load from* → (e.g.) PTPC → *Save to* → *Activ*.

2. Based upon the DSU's configuration prior to the installation, and as recorded on the Configuration Worksheet, make changes to the unit's configuration options.

Refer to the Configuration Option Tables in Chapter 5 of the user's guide to determine whether the DSU's previous settings are still appropriate.

3. Press the  $\triangle$  key to return to the *Edit/Save* menu when finished customizing the unit's configuration and entering telephone numbers.
4. Press the F1 key below **SAVE**.
5. Select **area** (*Activ*, *Remt*, or *Usr1*) on the *Save to* screen.

- If **Activ** is selected, your changes take effect immediately.
- If **Usr1** is selected, your changes are stored for future use.
- If the unit is a control and **Remt** is selected, the complete set of configurations (all option sets available to the unit) are sent to the tributary and saved to its *Activ* area.

Remember that you cannot save to the factory-loaded configurations.

*Command Complete* appears when the configuration has been saved.

6. Enter telephone numbers for remote DBMs and for the unit.

Refer to the *Backup Branch* section of Chapter 4 to configure the unit for dial backup (DBM and Backup option sets).

Refer to the *Directory* section of Chapter 4 to enter remote DBM telephone numbers into the unit's Backup Directory, and the *Phone* section to enter the unit's local telephone number.

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7. Reconnect the DDS interface cable to the DSU (labeled LINE), as shown in [Figure 5](#).
  8. Reconnect the NMS interface cable to the DSU (labeled CC/DC) if installed.
  9. Plug either end of the dial interface cable into the DSU jack labeled BACKUP.
    - *Permissive service* – telephone cord with 6-pin modular RJ11C plug
    - *Programmable service* – telephone cord with 8-pin RJ45S plug
  10. Plug the other end of the cable into the modular jack provided by the telephone company, USOC RJ11C (permissive) or USOC RJ45S (programmable).
  11. Perform a Digital Test on the unit (on each port if a TDM/Flex is installed).

Select the  $\hat{=}$  key → Local → Test → DSU → the  $\triangleright$  key → DT → Start → (e.g.) Prt1 → enter *Address* → RunTim (hh:mm:ss).

*Command Complete* appears at the conclusion of the test.
  12. Press the  $\triangle$  key, then select **Displ** to see the results of the test.
  13. Press the  $\triangleright$  key to scroll the results.

Refer to the *Digital Test* section in Chapter 4 of the user's guide for the results you should expect.  
Refer to Chapter 2 of the user's guide to verify network and DBM operation.
  14. Reconnect the EIA-232-D/V.24 or V.35 interface cable to the DSU. If a TDM/Flex is installed, reconnect the Port 2 interface cable, as well.
  15. Test operation of the DBM by manually setting up a call to another DBM listed in the DBM's Backup Directory as described in Chapter 4, the *Manual Backup* section, of the user's guide.

## Installing the DBM Upgrade on a Model 3551 DSU

### HANDLING PRECAUTIONS FOR STATIC SENSITIVE DEVICES

This product is designed to protect sensitive components from damage due to electrostatic discharge (ESD) during normal operation. When performing installation procedures, however, take proper static control precautions to prevent damage to equipment. If you are not sure of the proper static control precautions, contact your nearest sales or service representative.

### Removing the DSU

Refer to [Figure 6](#) as you follow these steps.

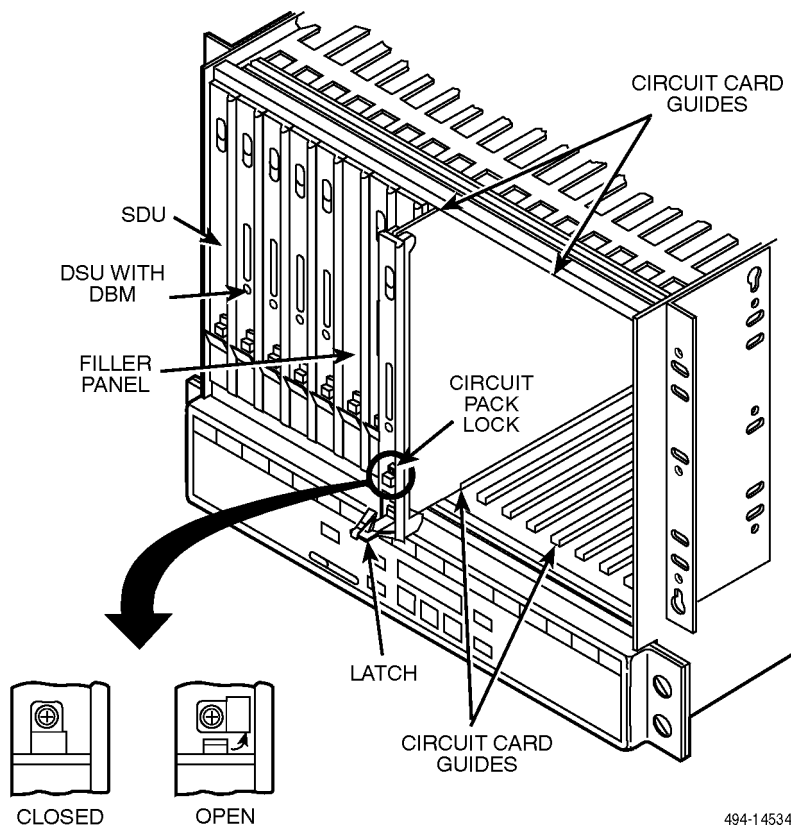


Figure 6. Circuit Pack Lock

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## Procedure

1. At the rear of the carrier, disconnect the DDS modular cable for the DSU being upgraded (the cable is labeled).

Return to the front of the carrier.

2. Use a Phillips screwdriver to loosen the screw holding the circuit pack lock, and rotate the lock to the open position.
3. Pull out and down on the latch at the bottom of the DSU's faceplate, until the circuit card starts to come out of its slot in the carrier. Pull the circuit card free of the carrier and lay the circuit card on a clean ESD (anti-static) workpad.

## Installing the DBM

Refer to [Figure 7](#) as you follow these steps.

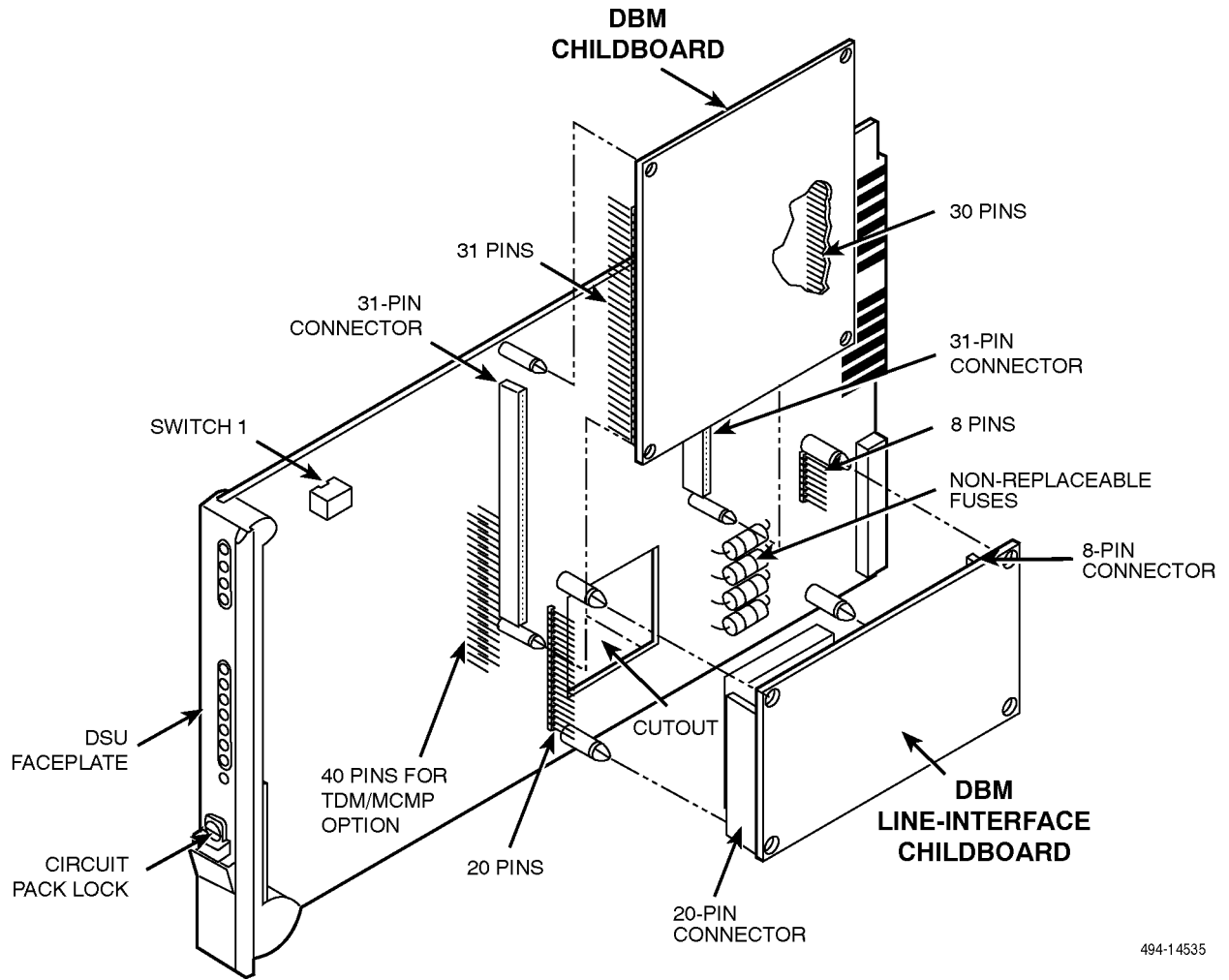
### Procedure

To install the DBM childboard:

1. Insert the three 1/2" *small-diameter* snaplock posts (for the DBM childboard) into the DSU.  
*Note that the V.32 DBM has 31 pins on the side toward the front of the DSU, and 30 pins on the rear.*
  2. Orient the DBM childboard as shown in [Figure 7](#), with its 31-pin connector toward the front of the DSU and its 30-pin connector toward the rear.
  3. Seat the DBM childboard connectors in the two DSU connectors while aligning the snaplock posts with the holes on the DBM childboard. *Be careful not to bend the pins on the DSU.*
- Snap the snaplock posts on the DSU onto the DBM childboard.

To install the DBM line-interface childboard:

1. Insert the four 9/16" *large-diameter* snaplock posts (for the DBM line-interface childboard) into the DSU as shown in [Figure 7](#).
  2. Orient the DBM line-interface childboard as shown in [Figure 7](#), with its 20-pin connector toward the front of the DSU and its 8-pin connector toward the rear.
  3. Seat the DBM line-interface childboard connectors into the two DSU connectors while aligning the snaplock posts with the holes on the DBM line-interface childboard.
- Snap the snaplock posts on the DSU onto the DBM line-interface childboard.
4. Set the DSU hardware straps on Switch 1:
    - For Permissive mode, set the Switch 1 strap to ON. (This is the default setting.)
    - For Programmable mode, set the Switch 1 strap to Off.



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Figure 7. Installing the DBM

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## Reinstalling the Unit

Refer back to [Figure 6](#) as you reinstall the DSU.

### Procedure


1. Make sure that both the top and bottom edges of the DSU are correctly aligned with their respective circuit card guides.
2. Slide the unit into the carrier and secure the latch.
3. Rotate the circuit pack lock back into the closed position and tighten the screw.

On power-up, the DSU determines the options (the DBM) that are installed.

A Device Test is automatically initiated on the DSU and each option. If the shared diagnostic control panel (SDCP) is installed and the DSU's slot is selected, all indicators on the SDCP light briefly and the LCD displays the message **Power-up Tests**.

When the Device Tests are complete, the LCD momentarily displays messages indicating that each device (DSU and DBM, and MUX if installed) has passed the power-up test. *This test takes approximately 20 seconds to complete.*

*Note that the red Alarm LED lights on the DSU, indicating that there is no DDS signal.*

4. If the Device Test fails, confirm the installation of the DBM, then reexecute the test. (Press the  key to return to the top-level menu, then select Local → Test → DBM → Devic.) If the test fails again, call your service representative for assistance. If the test passes, continue with this procedure.

*If a network loopback was in progress when the Device Test was run, the test will be aborted and the second line will display **Abrt**. Rerun the Device Test.*



If no DBMs were previously installed in the half of the carrier where the DSU-DBM is installed, you must install a network interface module (NIM) before testing the operation of the DBM. For instructions on how to install a NIM, see the *COMSPHERE 3000 Series Carrier, Installation Manual*.

## Reconfiguring the Unit

First load a factory-set configuration, then customize the loaded configuration based upon the completed Configuration Worksheet and site requirements.

### Procedure

1. Load the appropriate factory-loaded configuration: PTPC (point-to-point control), MPTC (multipoint control), PTPT (point-to-point tributary), or MPTT (multipoint tributary).

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3. Press the  $\triangle$  key to return to the *Edit/Save* menu when finished customizing the unit's configuration and entering telephone numbers.
  4. Press the F1 key below **SAVE**.
  5. Select **area** (Activ, Remt, or Usr1) on the *Save to* screen.
    - If **Activ** is selected, your changes take effect immediately.
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    - If the unit is a control and **Remt** is selected, the complete set of configurations (all option sets available to the unit) are sent to the tributary and saved to its *Activ* area.

Remember that you cannot save to the factory-loaded configurations.

*Command Complete* appears when the configuration has been saved.

6. Enter telephone numbers for remote DBMs and for the unit.

Refer to the *Backup Branch* section of Chapter 4 to configure the unit for dial backup (DBM and Backup option sets).

Refer to the *Directory* section of Chapter 4 to enter remote DBM telephone numbers into the unit's Backup Directory, and the *Phone* section to enter the unit's local telephone number.

7. Return to the rear of the carrier and reconnect the DDS modular cable.
8. Perform a Digital Test on the unit.

Select the  $\hat{\triangle}$  key  $\rightarrow$  Local  $\rightarrow$  Test  $\rightarrow$  DSU  $\rightarrow$  the  $\triangleright$  key  $\rightarrow$  DT  $\rightarrow$  Start  $\rightarrow$  (e.g.) Prt1  $\rightarrow$  enter *Address*  $\rightarrow$  RunTim (hh:mm:ss).

*Command Complete* appears at the conclusion of the test.

9. Press the  $\triangle$  key, then select **Displ** to see the results of the test.
10. Press the  $\triangleright$  key to scroll the results.

Refer to the *Digital Test* section in Chapter 4 of the user's guide for the results you should expect.  
Refer to Chapter 2 of the user's guide to verify network and DBM operation.
11. Test operation of the DBM by manually setting up a call to another DBM listed in the DBM's Backup Directory as described in Chapter 4, the *Manual Backup* section, of the user's guide.