NEC

1. Installing Cabinets

2. PCB Installation and Startup

3. Installing Extensions and Trunks

4. Telephones and Optional Equipment

5. Data and SMDR

6. LAN Connection

7. Specifications and Parts

Aspire

M / L / XL
Hardware Manual

04.06

Technical Support Web Site:
http://ws1.necii.com (registration is required)

This manual has been developed by NEC Unified Solutions, Inc. It is intended for the use of its customers and service personnel, and should be read in its entirety before attempting to install or program the system. Any comments or suggestions for improving this manual would be appreciated. Forward your remarks to:

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Section 1: Installing the Main and Expansion Cabinets

GENERAL PRECAUTIONS

- To avoid shock or equipment damage, do not plug in or turn the system power on before completing the installation process.
- Avoid working with the equipment during electrical storms.
- Use only commercial AC power to prevent shock or fire.
- Use the power cord supplied for the cabinet.
- Do not bundle AC power cords together to prevent the cords from overheating.
- Make sure the cabinet has a proper earth ground.
- Install batteries with the correct polarity to prevent damaging equipment.
- The cabinet should not be placed on unstable surfaces to avoid damage.

INSTALLING THE MAIN CABINET (ASPIRE M/L) AND POWER SUPPLY CABINET (ASPIRE XL)

Unpacking

Unpack the equipment and check it against your equipment lists. The cabinet does not initially contain any power supplies or PCBs. Inspect for physical damage. If you are not sure about a component's function, review the information for the component within this manual. Contact your Sales Representative if you have additional questions.

Make sure you have appropriate tools for the job, including: a test set, a punch down tool, and a digital voltmeter.

Before Installing

Make sure you have a building plan showing common equipment, extensions, the telco demarcation, and earth ground location. The installation site must meet NEC Unified Solutions specifications in the Standard Practices Manual (P/N N2710STD**).

Site Requirements

The Aspire M/L system can be floor-mounted, wall-mounted, or rack-mounted. ***With the 3-cabinet Aspire XL system, it is strongly recommended that the system be floor-mounted.*** **If you wall-mount the system, make sure the wall can support the weight of the cabinet(s)** (55 lbs per system cabinet - 45 lbs per Aspire XL power supply cabinet). It is recommended that plywood first be installed on the wall where the cabinets will be positioned, allowing for secure anchoring. It is equipped with a bracket which can be used to secure each cabinet in any of these installations. Ensure that enough space is available to allow the installation of the additional cabinet(s) above and below the Main Cabinet.

The system requires a three-prong dedicated 110 VAC 60 Hz circuit (NEMA 5-15 receptacle) located within 7 feet of the AC receptacle. Telco should install the RJ21X to the right of the Main Cabinet. Extension blocks should be installed to the left of the Main Cabinet.

The cabinet is shipped fully assembled. The following is enclosed with the cabinet:

- 1 green 14AWG ground wire (installed to the backplane)
- 1 black three-prong power cord (packed outside the cabinet)
- 1 19" mounting bracket for floor or wall mounting packed outside the cabinet

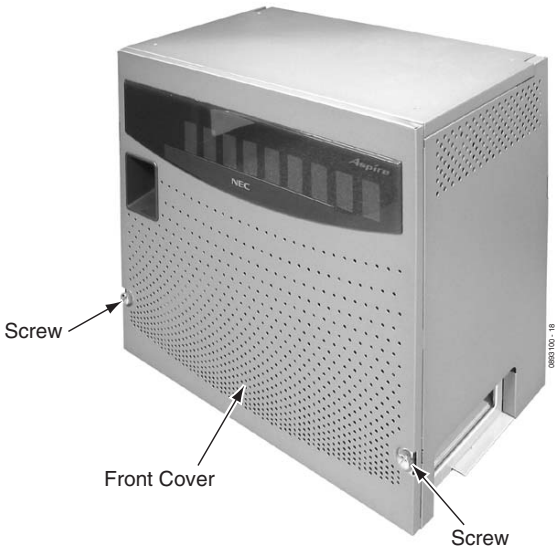
Environmental Requirements

Meeting and maintaining established environmental standards maximizes the life of the system. Be sure that the site selected for the cabinet is not:

1. In direct sunlight or in hot, cold, or humid places.
2. In dusty areas or in areas where sulfuric gases are produced.
3. In places where shocks or vibrations are frequent or strong.
4. In places where water or oil comes in contact with the unit.
5. In areas near high-frequency machines or electric welders.
6. Near computers, telexes, microwaves, air conditioners, etc.
7. Near radio antennas (including shortwave).

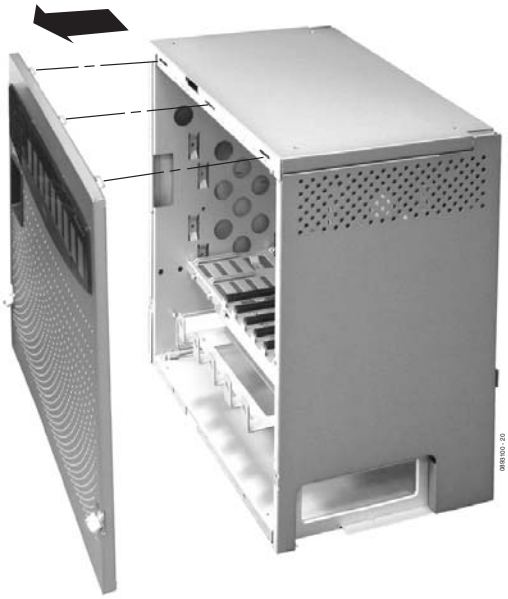
Removing the Front Cover (Figure 1-1)

1. Position the cabinet on the floor near the MDF within 7 feet of the dedicated AC outlet. (Do not secure the cabinet to the wall at this time).
2. Loosen two front panel retaining screws.
3. Slide the front cover to the right then pull straight out.



Step 1

Step 2



Step 3

Figure 1-1: REMOVING THE FRONT COVER

Removing the Side Panels (Figure 1-2)

1. Loosen the side panel retaining screws located on the front of the cabinet. Remove the side panel covers of the Main Cabinet by pulling out slightly then moving it towards the back of the cabinet to unhook the panel.

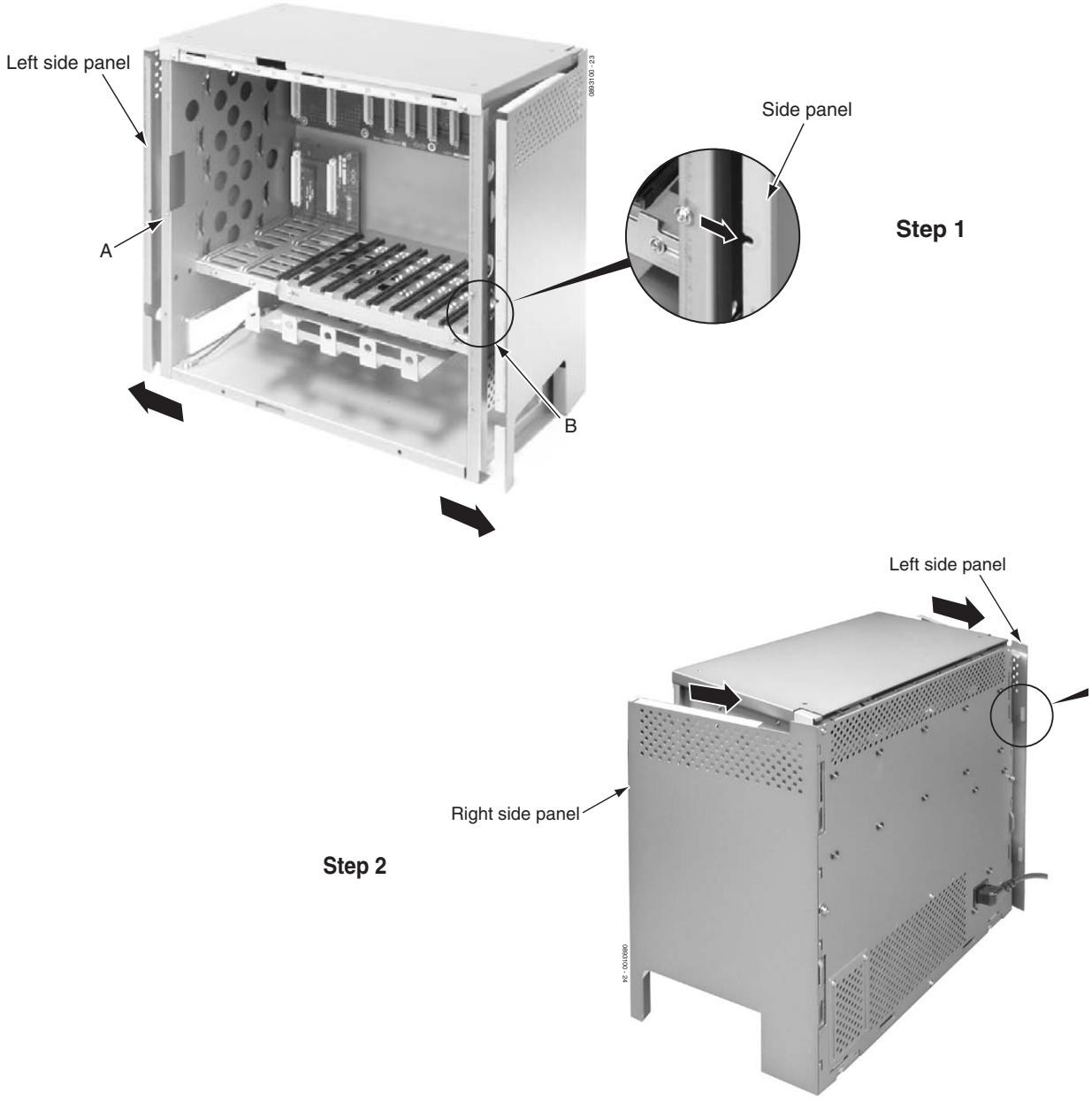


Figure 1-2: REMOVING THE SIDE PANELS

Securing Main or Power Supply Cabinet to the Floor (Figure 1-3 - Figure 1-7)

It is **strongly** recommend that the Aspire XL system be floor-mounted. The power supply cabinet (P/N 0890068) must be the bottom cabinet, with the PCB cabinet(s) mounted above.

1. Install the wall bracket on the floor providing the appropriate spacing as shown below.

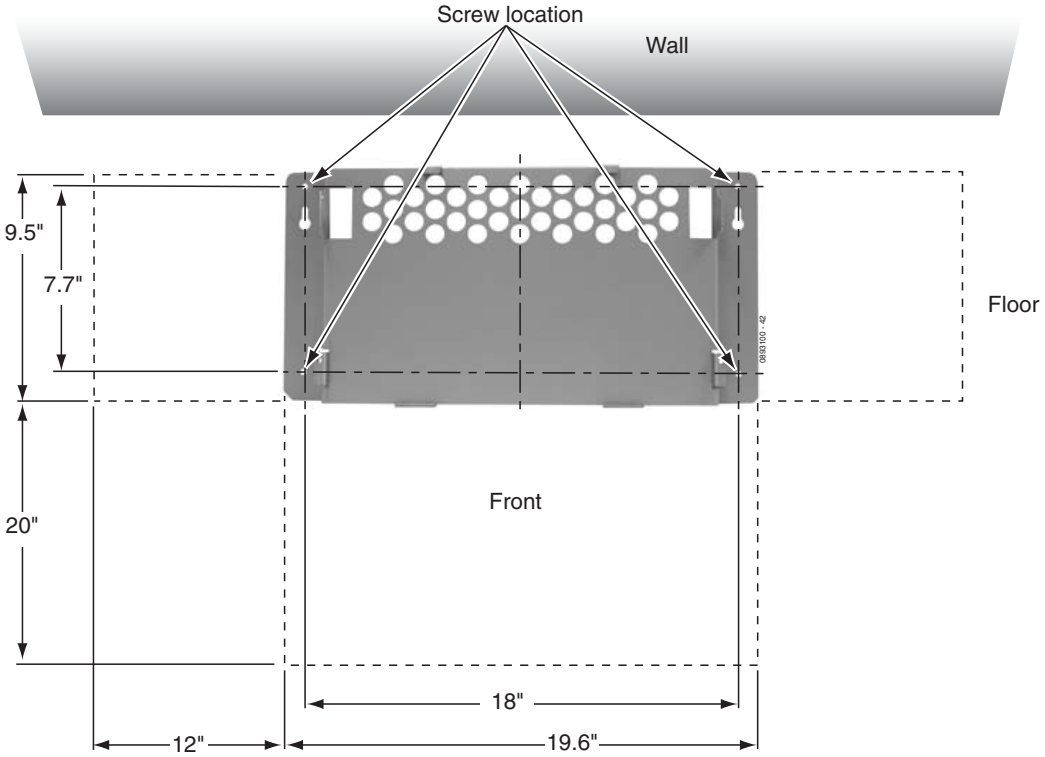


Figure 1-3: INSTALLING THE MOUNTING BRACKET

2. Secure the mounting bracket to the floor using 4 6mm anchor bolts.

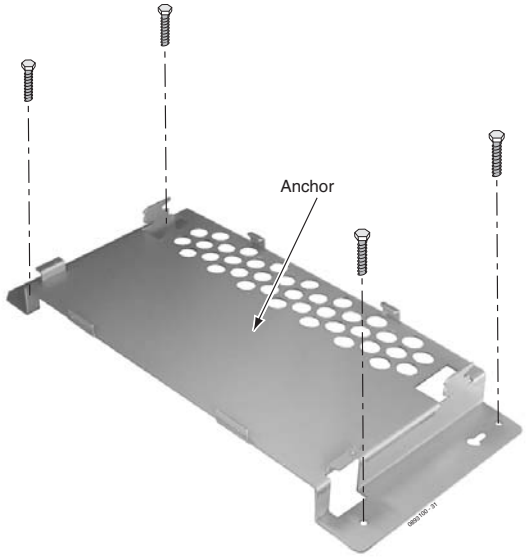


Figure 1-4: SECURE THE MOUNTING BRACKET WITH THE SCREWS

3. Remove the 2 screws from the front of the mounting bracket.

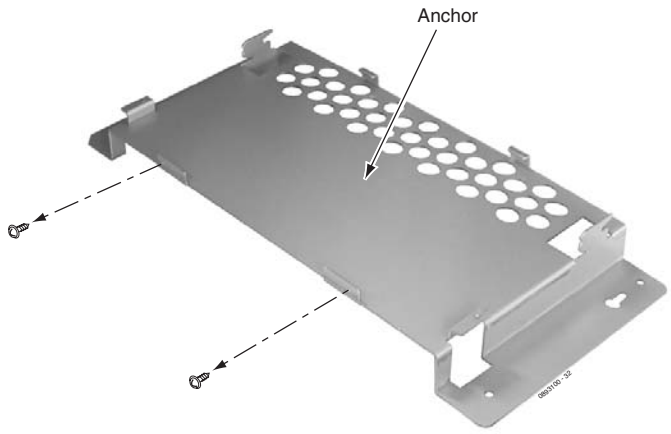


Figure 1-5: REMOVE THE SCREWS FROM THE MOUNTING BRACKET

4. Place the cabinet on the secured mounting bracket and slide backwards.

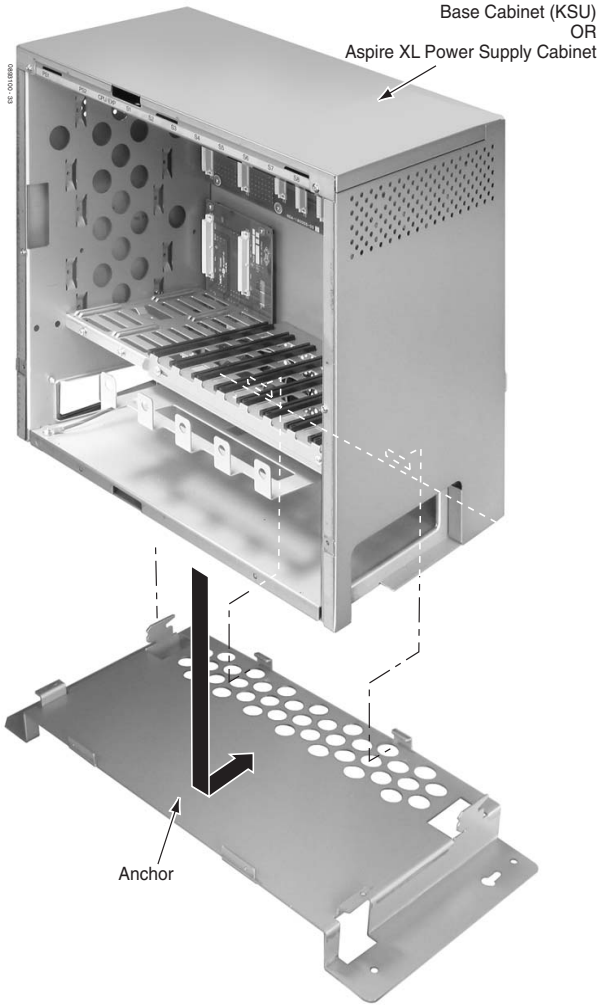


Figure 1-6: ATTACHING THE CABINET TO THE MOUNTING BRACKET

5. Secure the cabinet to the mounting bracket by reinstalling the two screws removed from the mounting bracket in step 3.

Figure 1-7: REINSTALL SCREWS

Securing the Cabinet to the Wall (Figure 1-8 - Figure 1-12)

If you choose to wall-mount the system, make sure the wall can support the weight of the cabinet(s) (55 lbs per system cabinet - 45 lbs per Aspire XL power supply cabinet). It is equipped with a bracket which can be used to secure each cabinet to the wall. Ensure that enough space is available to allow the installation of the additional cabinet(s) above and below the Main Cabinet.

1. Install the wall bracket to the wall providing the appropriate spacing as shown below. The two top key-hole screws should protrude from the wall about 1/8" to allow the bracket to slide over the screw heads.

   It is suggested that plywood first be installed on the wall where the cabinet will be positioned. This allows for secure anchoring of the screws which will be supporting the weight of the cabinet(s).

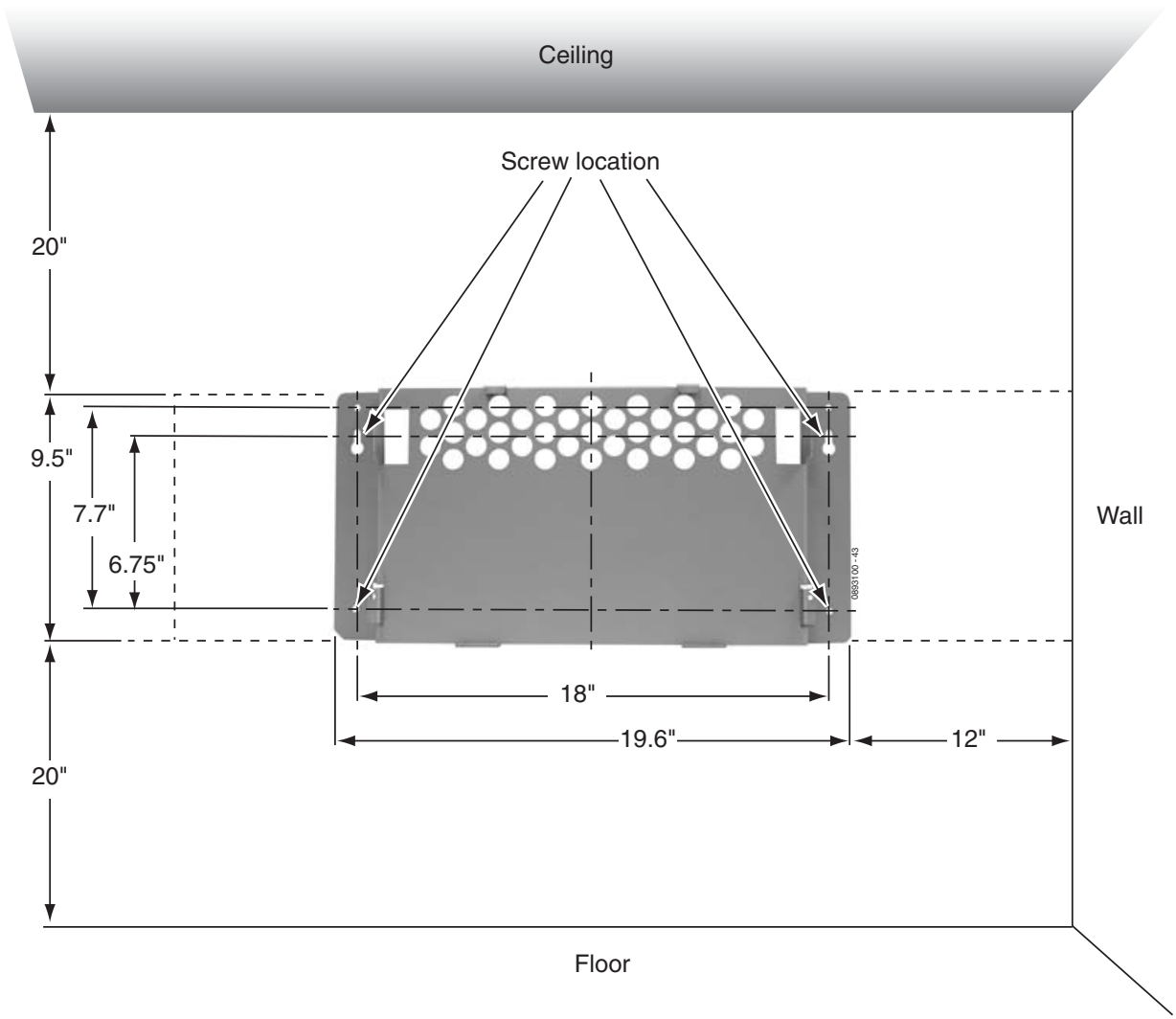


Figure 1-8: INSTALLING THE MOUNTING BRACKET

2. Remove the 2 screws from the back of the cabinet.

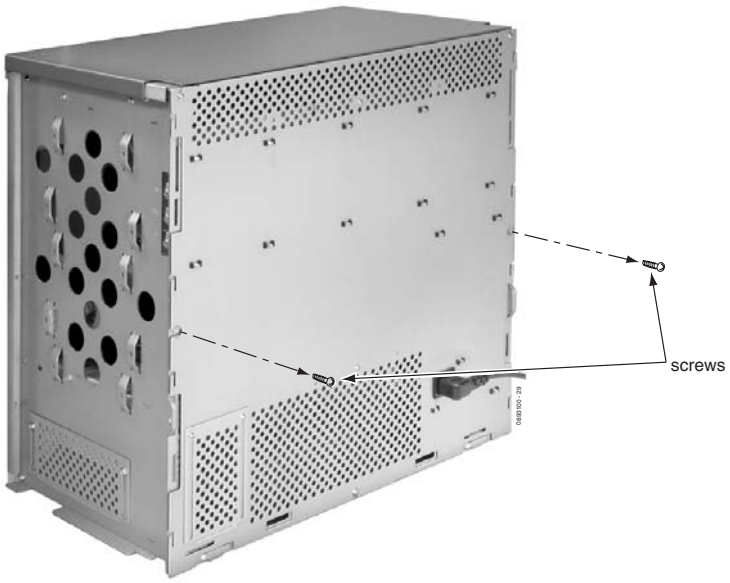


Figure 1-9: REMOVE THE SCREWS FROM THE CABINET

3. Hook the mounting bracket onto the back of the cabinet.

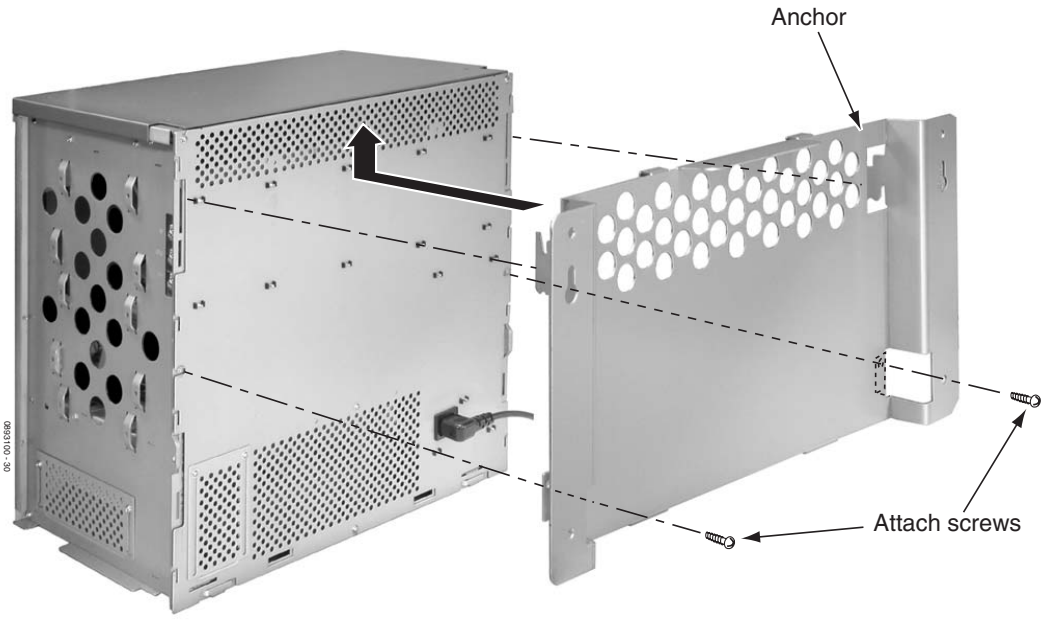


Figure 1-10: ATTACH BRACKET TO THE CABINET

4. With the Aspire M/L system, plug the power cord into the back of the cabinet.
   Due to the spacing between the cabinet and the wall, this cannot be done once the cabinet is hung.
   With the Aspire XL system, the power cord is plugged into the AC/DC power supplies instead.

5. Replace the two screws removed in step 2 to secure the bracket to the cabinet.
6. Lift the cabinet into position and slide the mounting bracket over the screws attached to the wall.

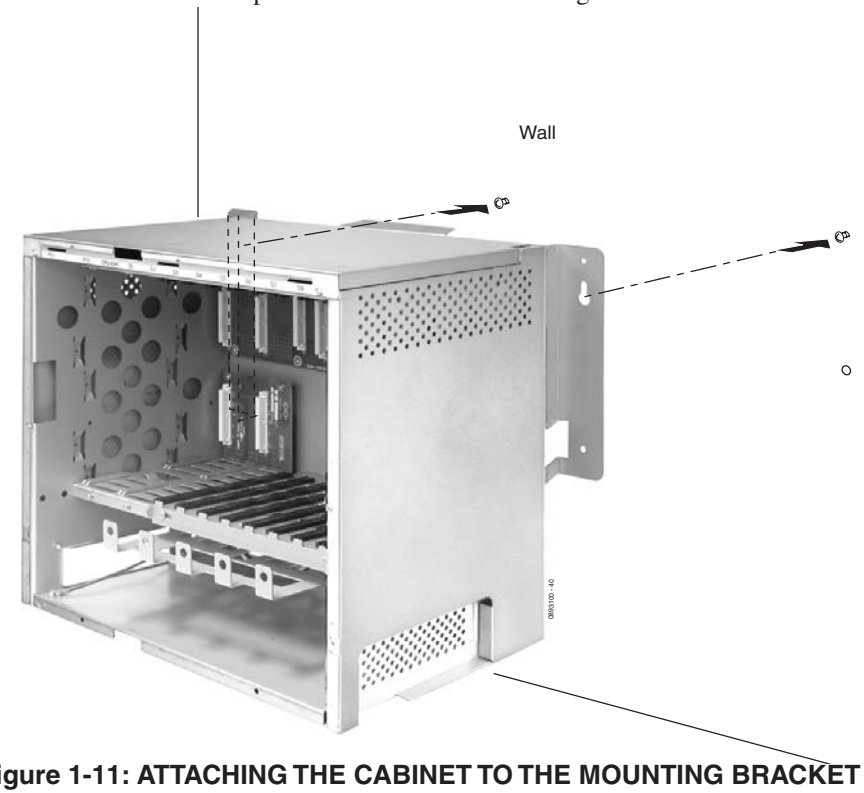


Figure 1-11: ATTACHING THE CABINET TO THE MOUNTING BRACKET

7. Secure the cabinet to the wall by inserting the two screws into the bottom half of the mounting bracket.

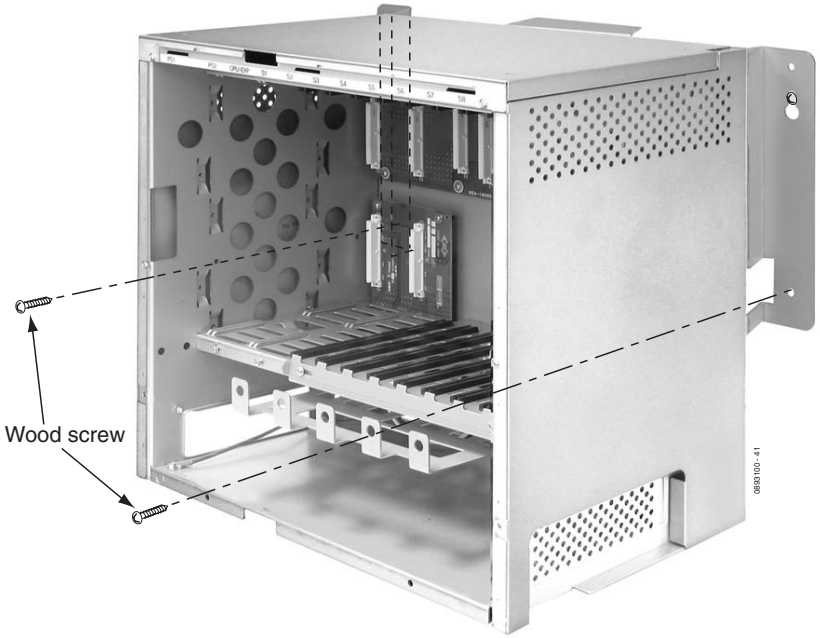


Figure 1-12: FASTEN BRACKET TO WALL

1

Securing the Main Cabinet to a Rack (Figure 1-13 - Figure 1-17)

In order to prevent EMI noise on the Aspire XL system, the power and signal cable must be wired inside the system cabinet. Due to this fact, the Aspire XL system can not be rack mounted.

1. Install the 19" rack mount bracket.
   The cabinet will require approximately 16" of height within the rack.

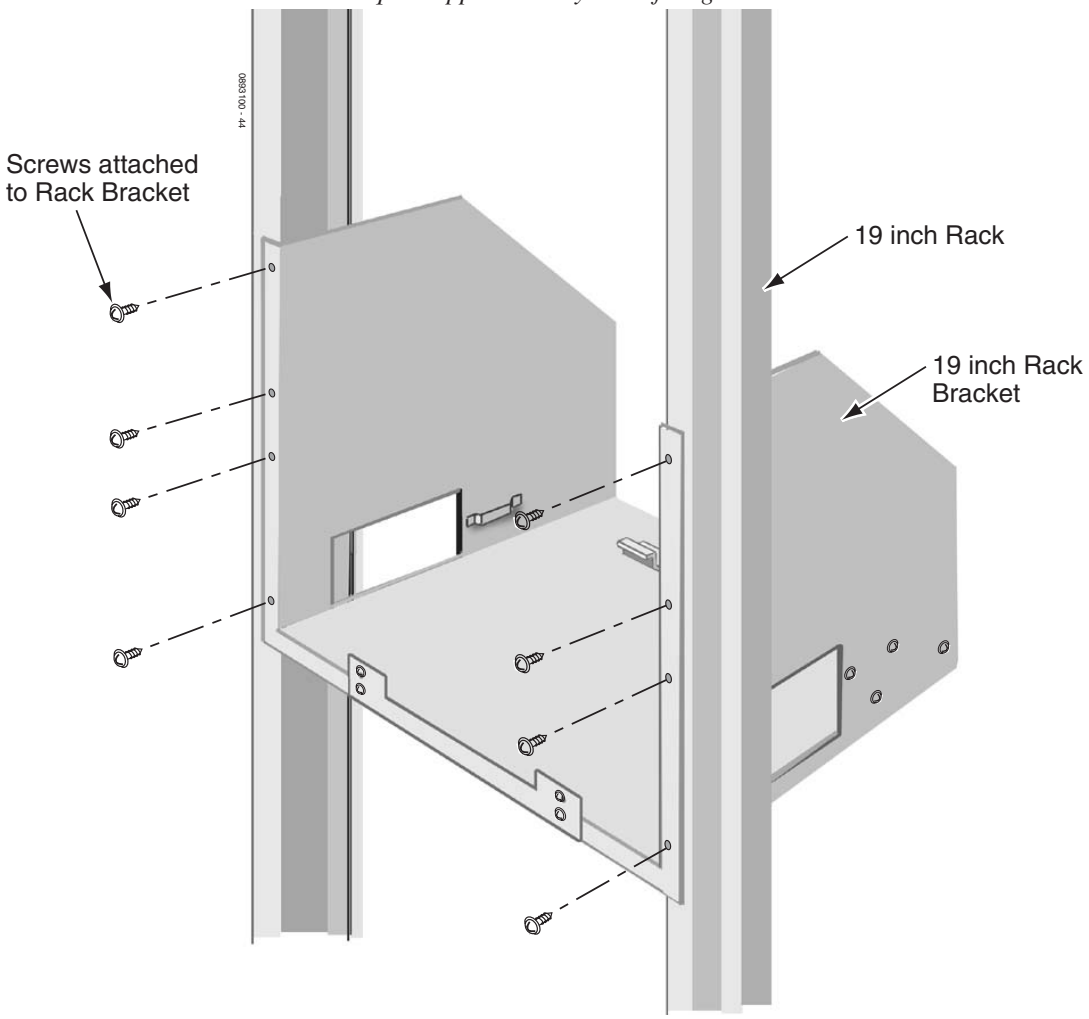


Figure 1-13: INSTALLING THE MOUNTING BRACKET ON THE RACK

2. Remove the 2 screws from the front of the rack mount bracket.

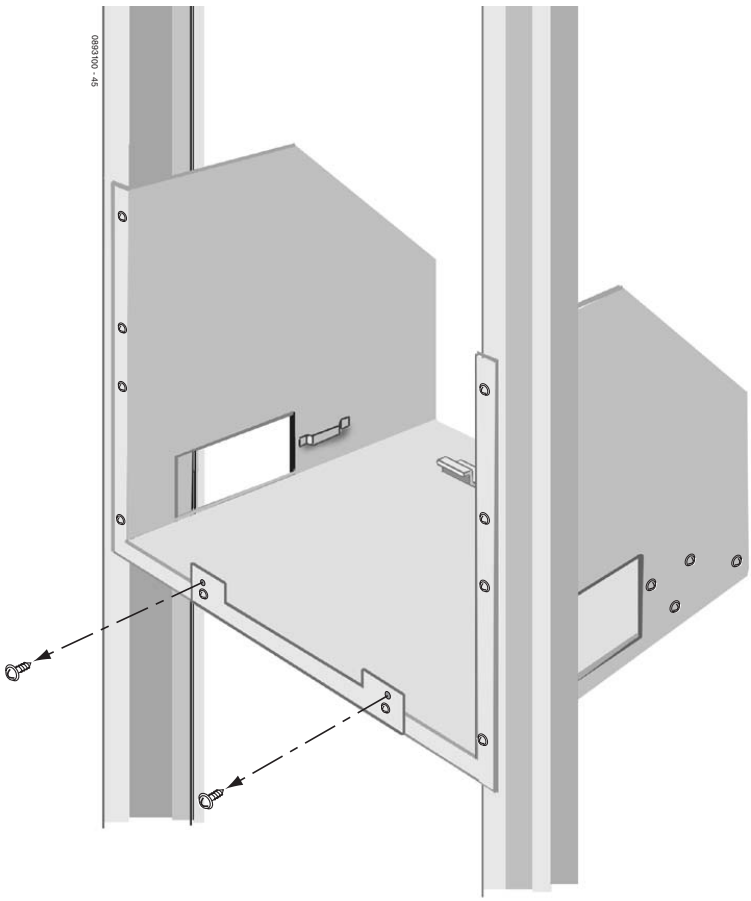


Figure 1-14: REMOVE THE SCREWS FROM THE RACK

3. Connect the earth ground wire to the cabinet. See *GROUNDING THE CABINETS* on page 1-38 for complete details on grounding the system.

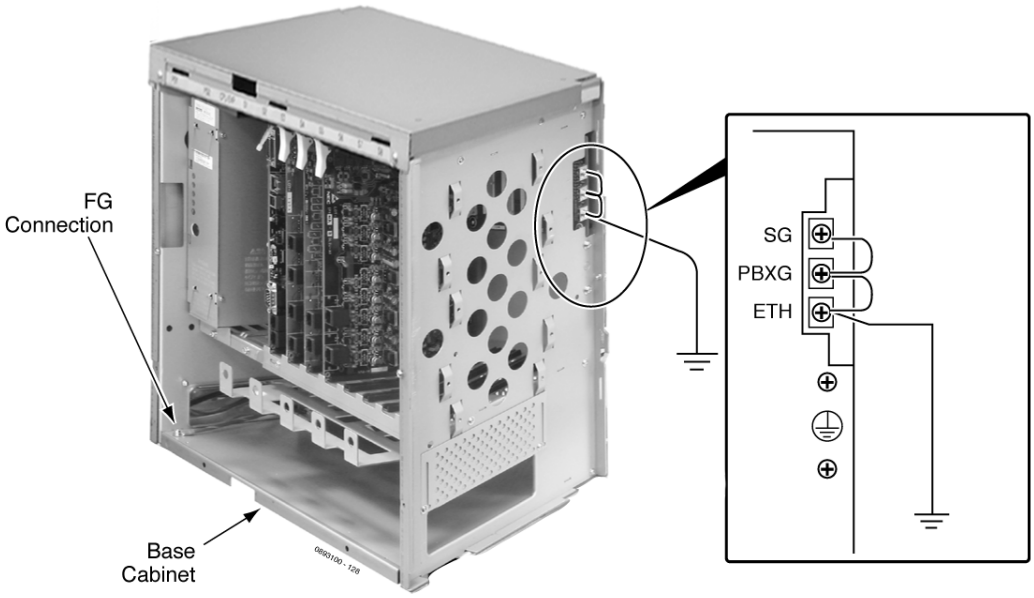


Figure 1-15: CONNECTING THE EARTH GROUND

4. Replace the side panels of the cabinet.
   This must be done at this point as the panels cannot be accessed once the cabinet is mounted in the rack.
5. Place the cabinet in the rack, making sure the hooks on the mounting bracket are inserted into the back of the cabinet, securing it in place.

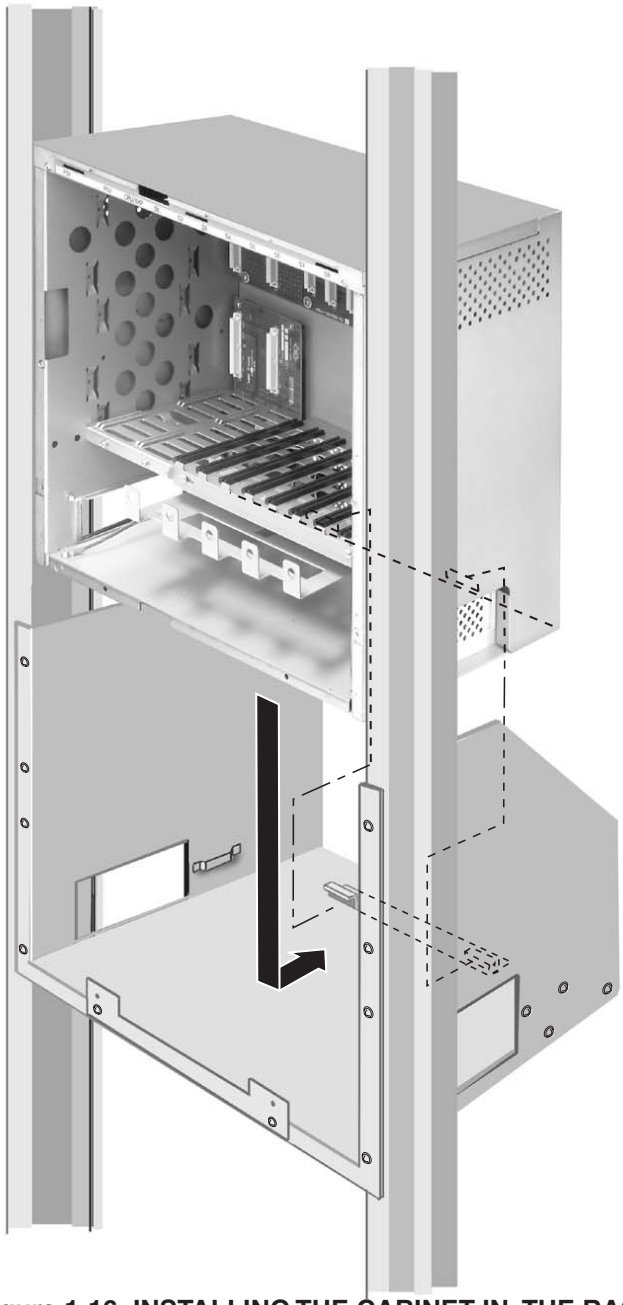


Figure 1-16: INSTALLING THE CABINET IN THE RACK

6. Replace the screws in the front of the rack which were removed in step 2.

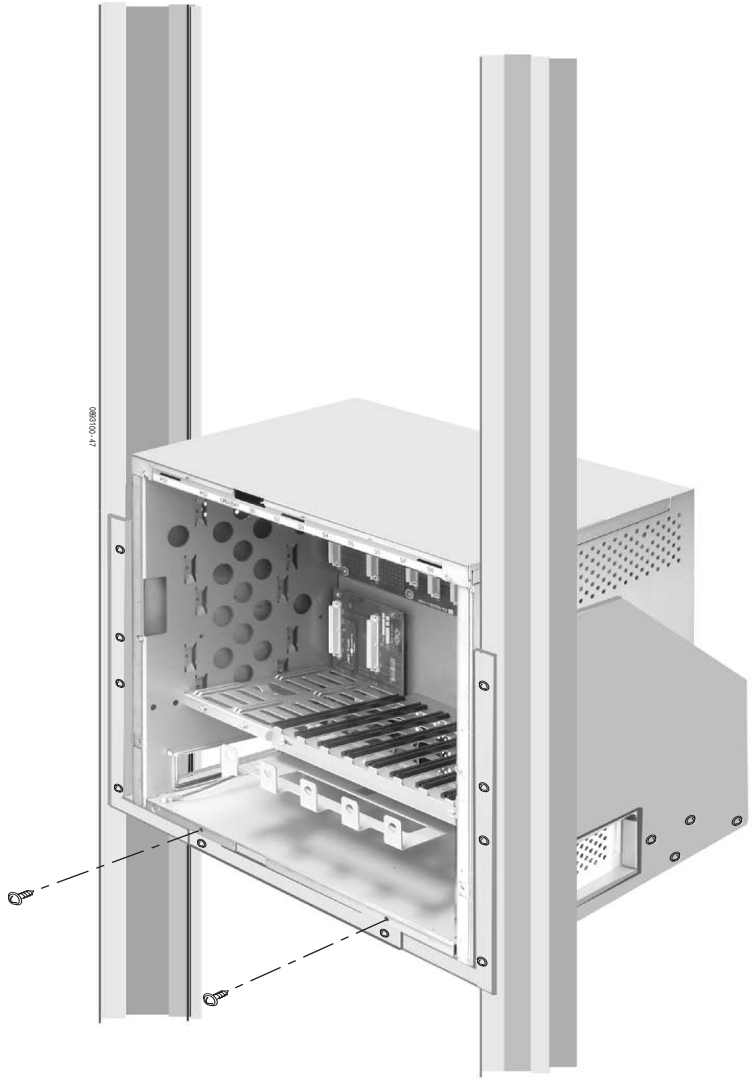


Figure 1-17: SECURING THE CABINET TO THE RACK

INSTALLING AN EXPANSION CABINET

Expansion Cabinet

The Expansion Cabinet requires at least one Aspire M/L power supply (P/N 0891000) or one Aspire XL DC-to-DC Converter (P/N 0892012. Two Aspire M/L power supplies may be required, depending on the load factor for the system. Refer to the **Load Factor - Aspire M/L Only** (page 2-2) for more. The Expansion Cabinet uses an expansion bracket which attaches to the top cover of the Main Cabinet. With the Aspire XL system, an expansion bracket is also used between the Power Supply Cabinet and the Main Cabinet.

An Expansion Cabinet kit is also required to connect the Main Cabinet NTCPU to the EXIFU PCB in the Expansion Cabinet.

Note: ***When wall-mounting an Aspire system, make sure the wall can support the weight of the cabinets*** *(55 lbs per system PCB cabinet, 45 lbs for the Aspire XL power supply cabinet). It is recommended that plywood first be installed on the wall where the cabinets will be positioned, allowing for secure anchoring.*

Before Installing an Expansion Cabinet

1. Power down the Main Cabinet.
2. Remove the Main Cabinet from the wall (if necessary).
3. Remove the front and side covers from the Main Cabinet. Refer back to Figure 1-1 and Figure 1-2 if necessary.
4. Remove the front and side covers of the Expansion Cabinet.

Expanding a Floor System (Figure 1-18 - Figure 1-27)

The expansion cabinet must be secured to the wall in order to secure the system properly.

1. Remove the two screws from the expansion bracket.

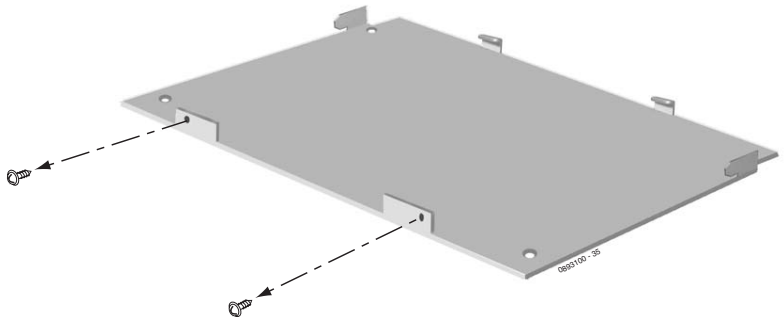


Figure 1-18: REMOVING THE SCREWS FROM THE BRACKET

2. *With the Aspire XL system only (With Aspire M/L, skip to step 4):*
Place the expansion bracket on the top of the Power Supply Cabinet. Using the screws provided with the expansion bracket, secure the bracket to the top of the cabinet.

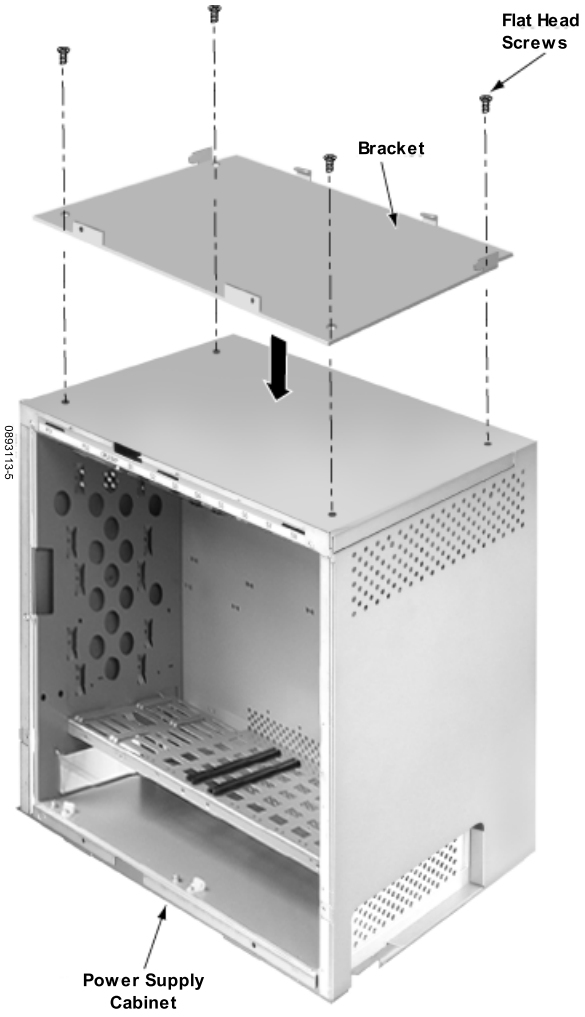


Figure 1-19: SECURE THE EXPANSION BRACKET TO THE POWER SUPPLY CABINET

3. *With the Aspire XL system only (With Aspire M/L, skip to step 4):*
   Place the main cabinet on the secured mounting bracket and slide backwards.
   If the Aspire XL will only have the Main Cabinet installed, install the wall-mount bracket to the Main Cabinet, prior to securing the Power Supply Cabinet (steps 5-7).

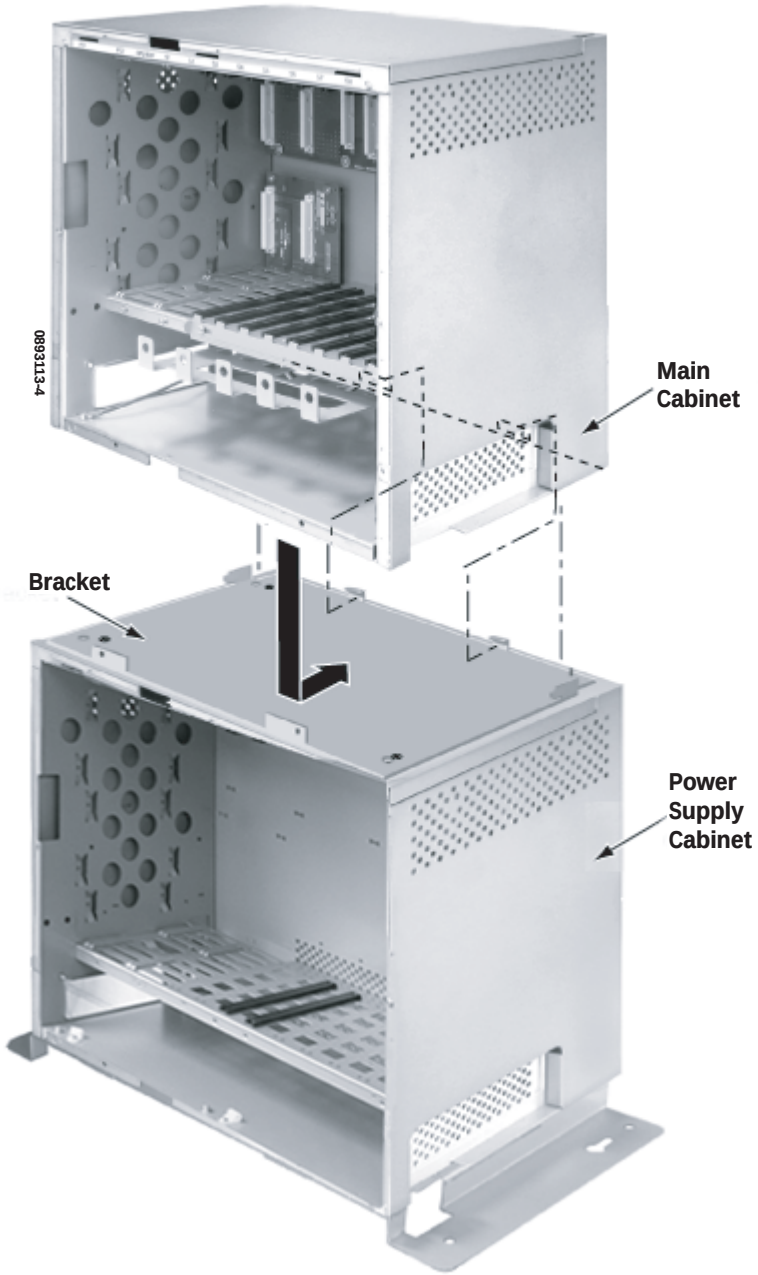


Figure 1-20: ATTACHING THE MAIN CABINET TO THE MOUNTING BRACKET

4. Place the expansion bracket on the top of the main cabinet. Using the screws provided with the expansion bracket, secure the bracket to the top of the cabinet.

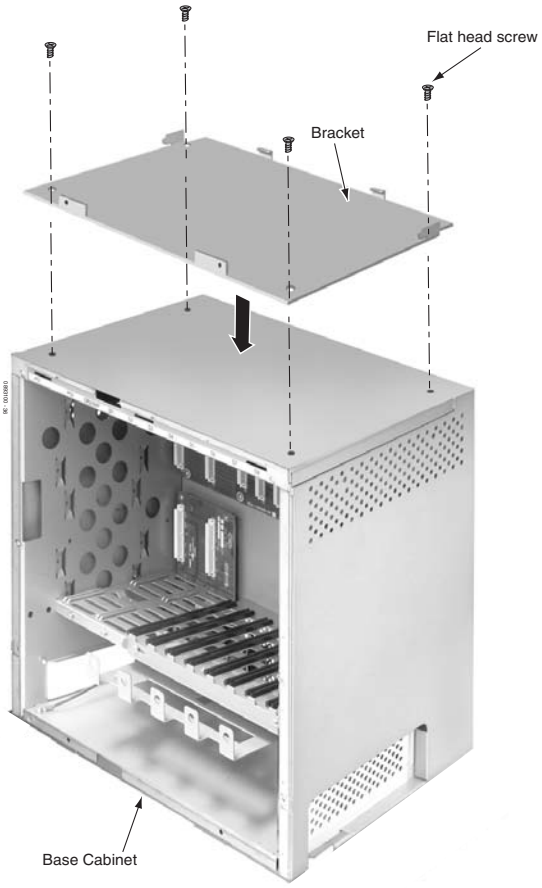


Figure 1-21: SECURE THE EXPANSION BRACKET TO THE MAIN CABINET

5. Remove the 2 screws from the back of the expansion cabinet.

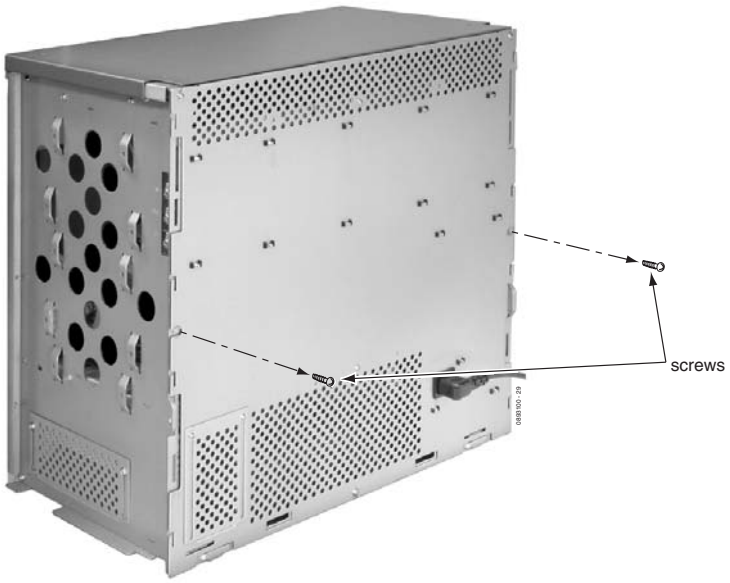


Figure 1-22: REMOVE THE SCREWS FROM THE CABINET

6. Hook the mounting bracket onto the back of the expansion cabinet.

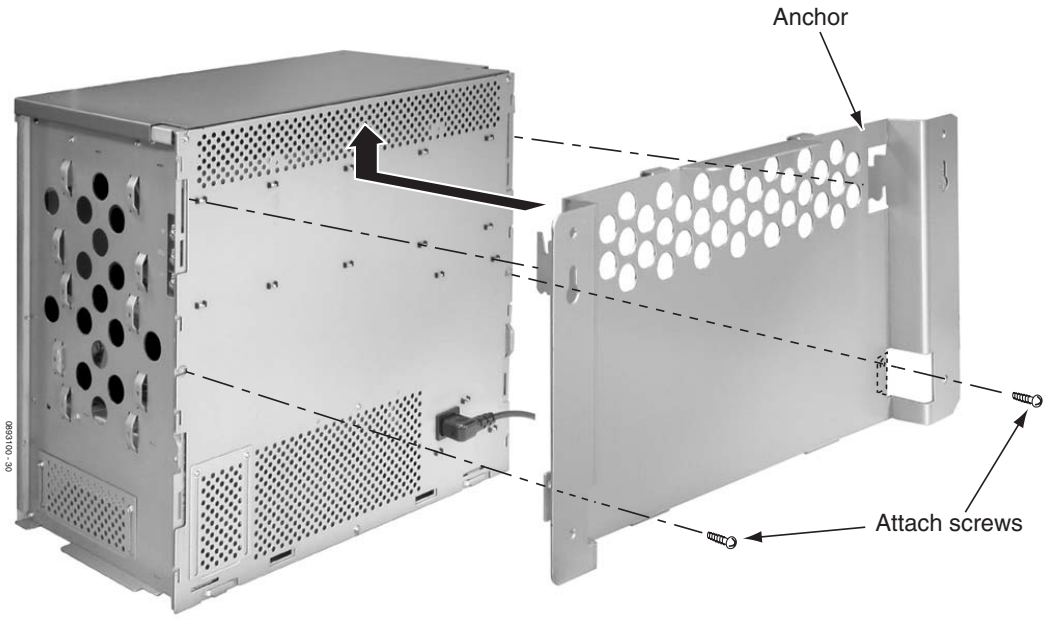
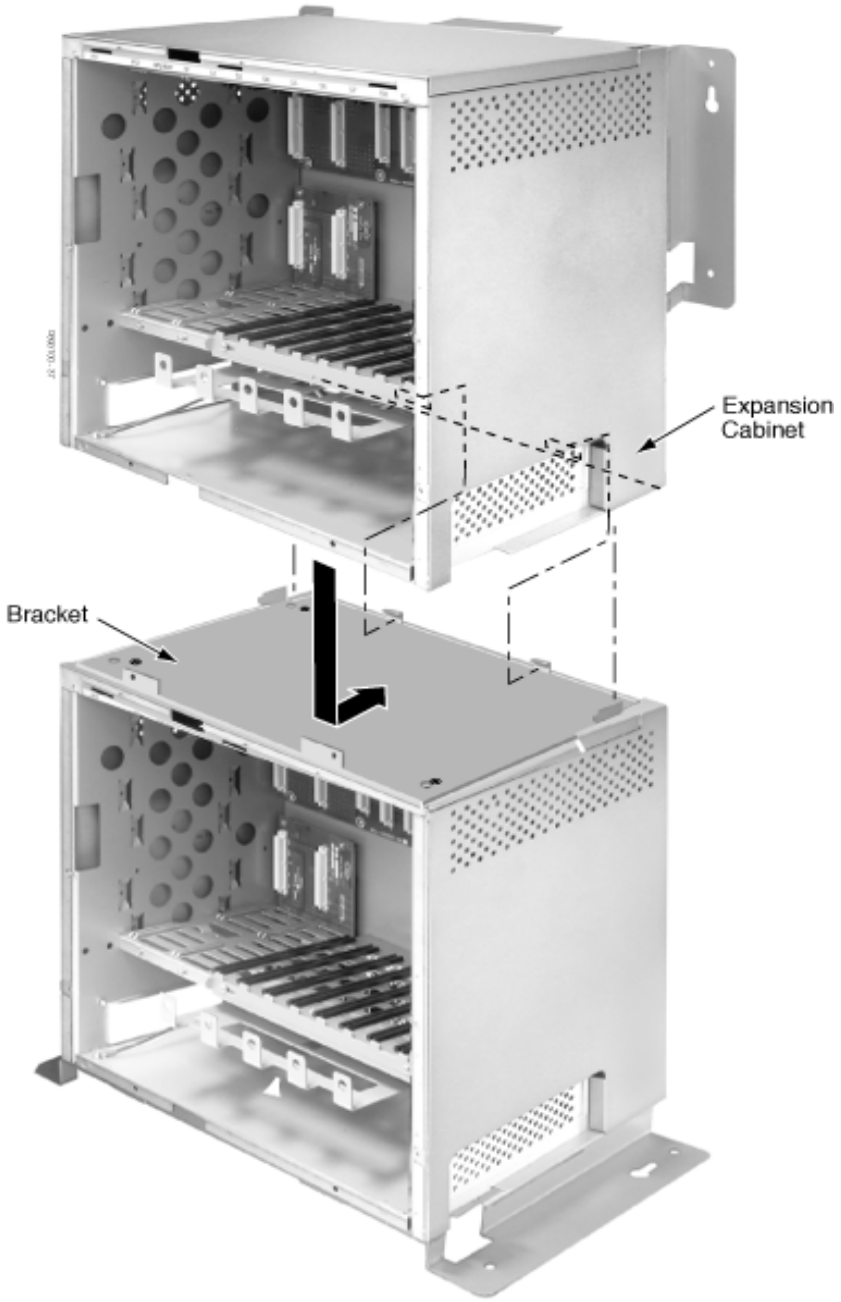


Figure 1-23: ATTACH BRACKET TO THE CABINET

7. Replace the two screws removed in step 5 to secure the bracket to the expansion cabinet.

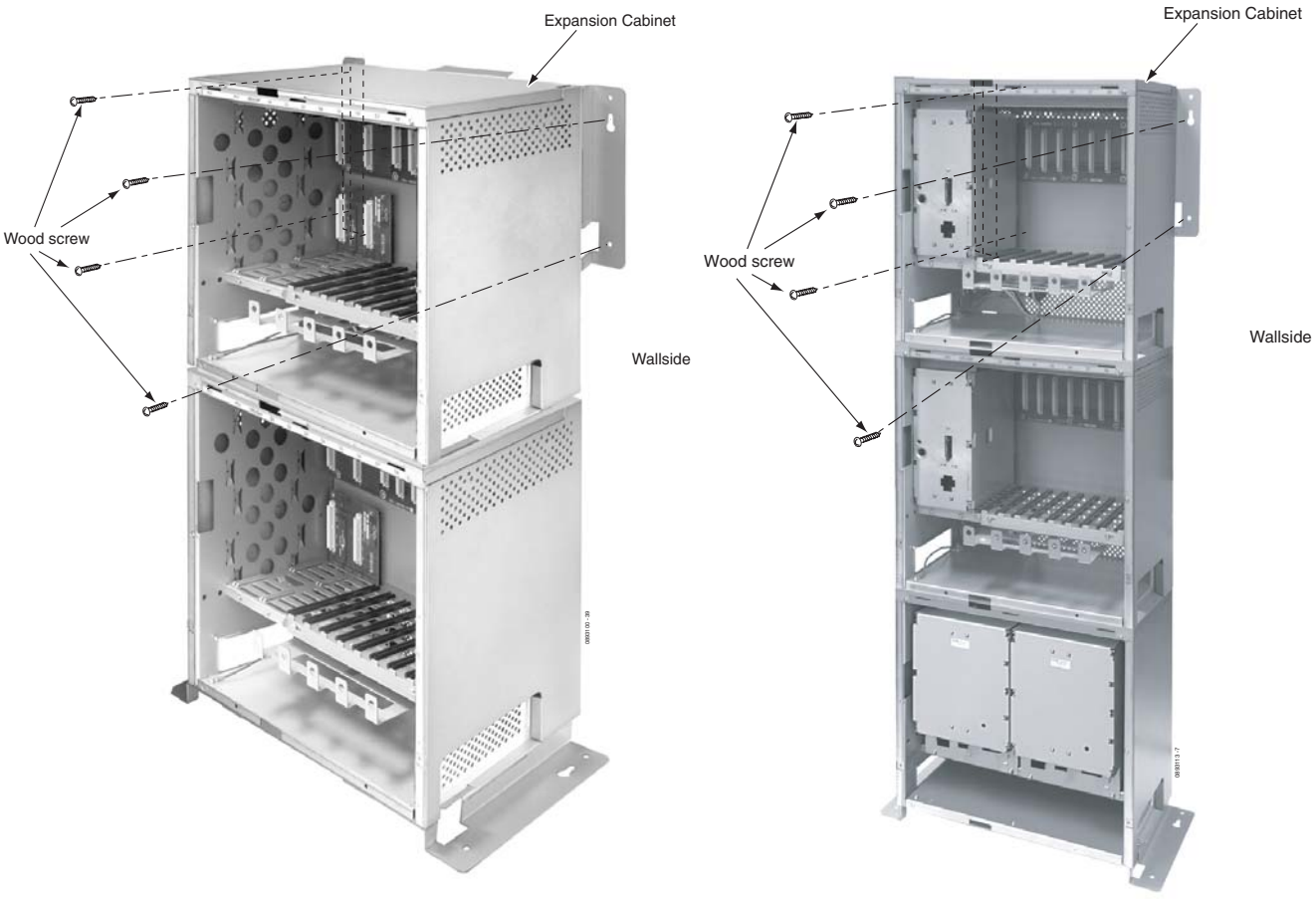
8. Place the expansion cabinet on the secured mounting bracket and slide backwards.



Aspire M/L System Shown

Figure 1-24: ATTACHING THE EXPANSION CABINET TO THE MOUNTING BRACKET

9. Secure the expansion cabinet to the wall using four wood screws.



Aspire M/L System **Aspire XL System**

Figure 1-25: SECURE MOUNTING BRACKET TO THE WALL

10. Secure the expansion cabinet to the main cabinet by reinstalling the two screws removed from the expansion bracket in step 1.

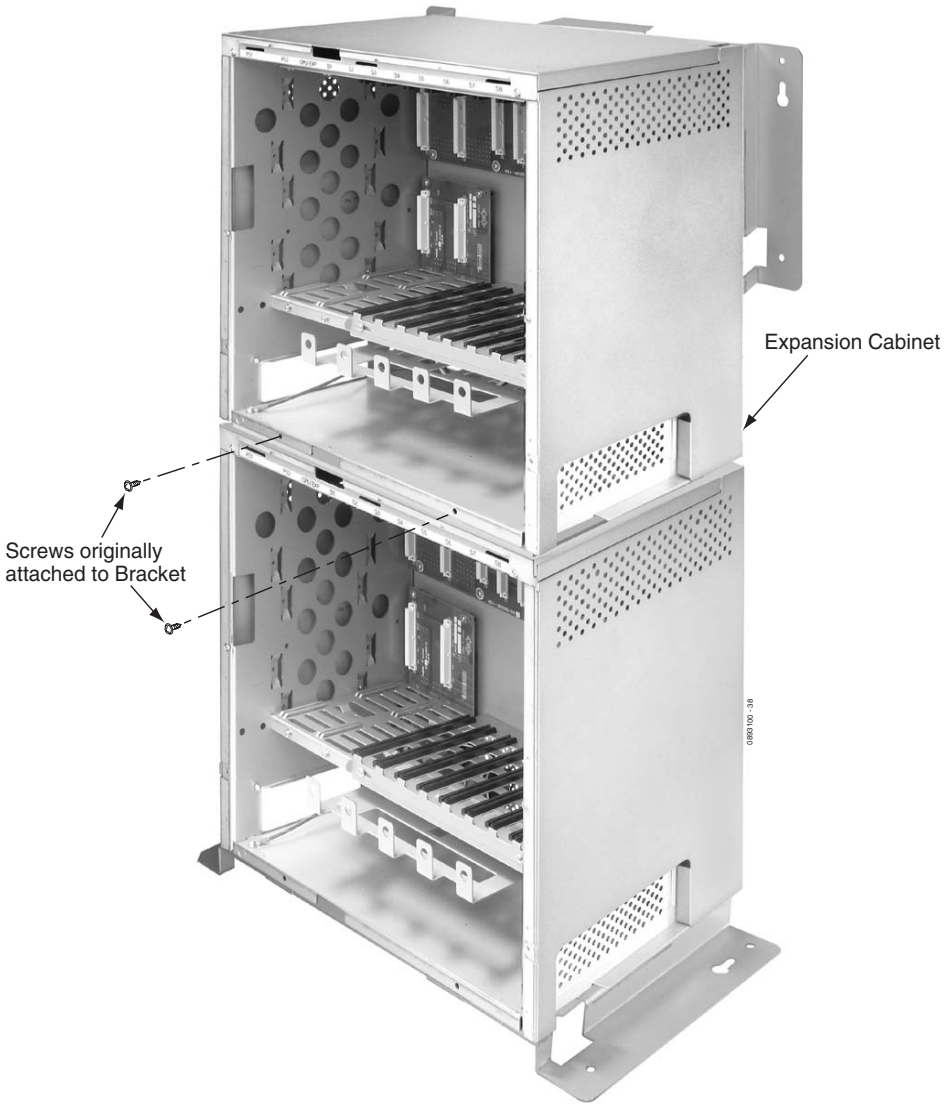


Figure 1-26: REINSTALL SCREWS

11. On the inside of the front covers, loosen the screws for the top or bottom shutters (the top shutter for the main cabinet cover, bottom for expansion cabinet cover).
12. Slide the shutters to the left to allow a pass-through for the EXIFU cables. Retighten these screws.

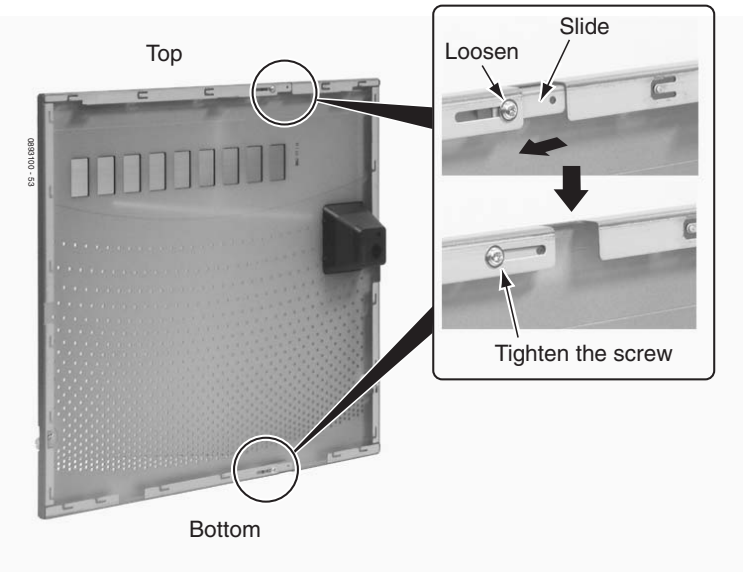


Figure 1-27: MOVING THE FRONT PANEL SHUTTERS

Expanding a Rack Mounted System (Figure 1-28 - Figure 1-37)

1. Remove the two screws from the expansion bracket.

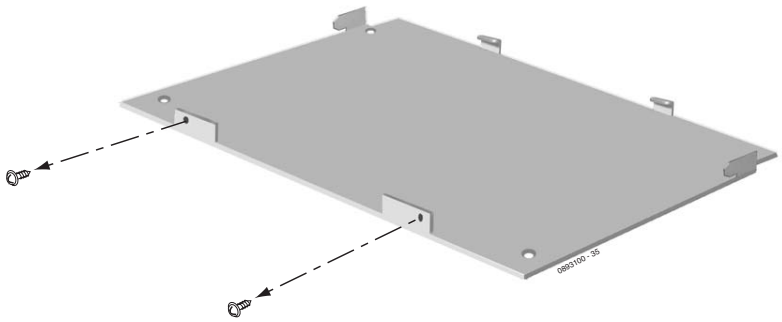


Figure 1-28: REMOVING THE SCREWS FROM THE BRACKET

2. Place the expansion bracket on the top of the base cabinet. Using the screws provided with the expansion bracket, secure the bracket to the top of the main cabinet.

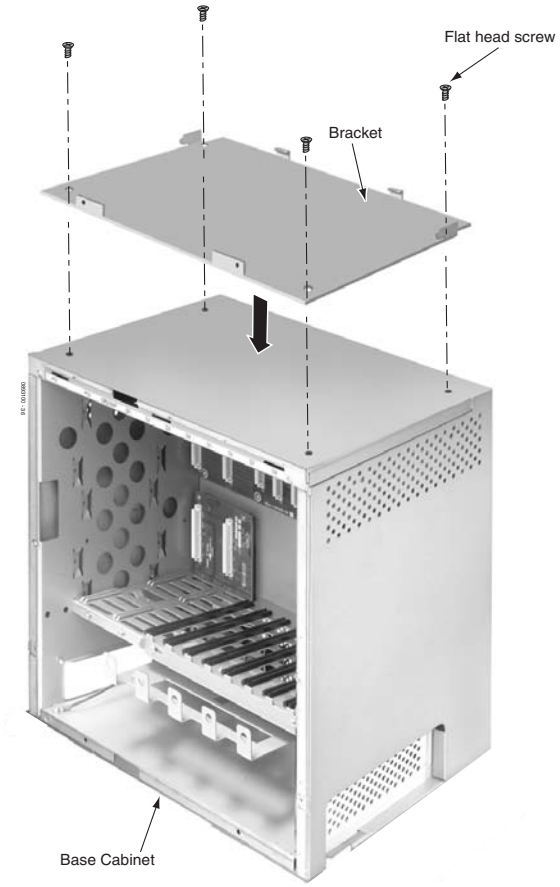


Figure 1-29: SECURE THE EXPANSION BRACKET TO THE MAIN CABINET

3. Connect the earth ground wire to the cabinets. See *GROUNDING THE CABINETS* on page 1-38 for complete details on grounding the system.

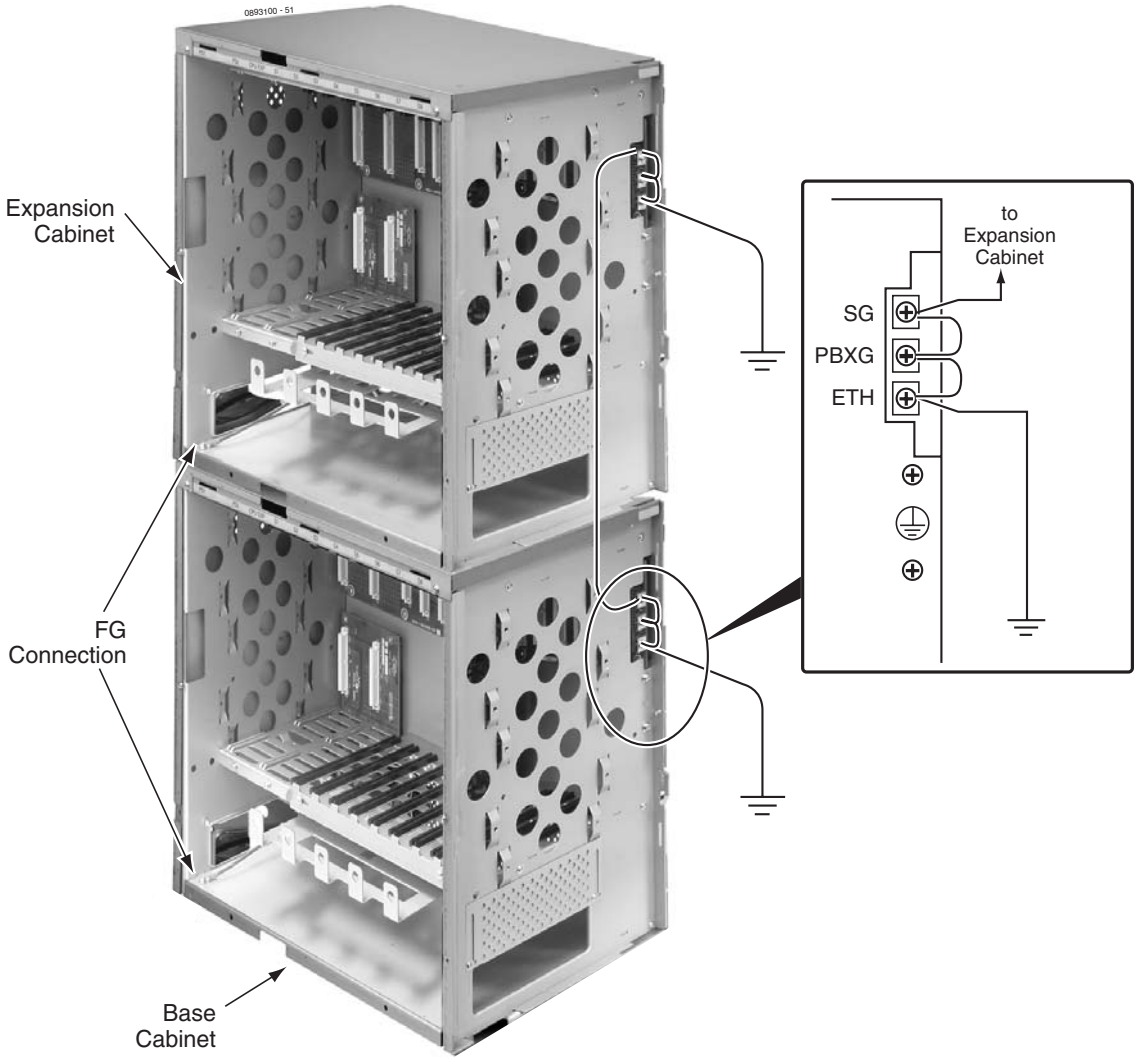


Figure 1-30: CONNECTING THE EARTH GROUND

4. Replace the side panels of the cabinets.
   This must be done at this point as the panels cannot be accessed once the cabinets are mounted in the rack.

5. Install the 19” rack mount bracket.
   The cabinet will require approximately 32” of height within the rack.

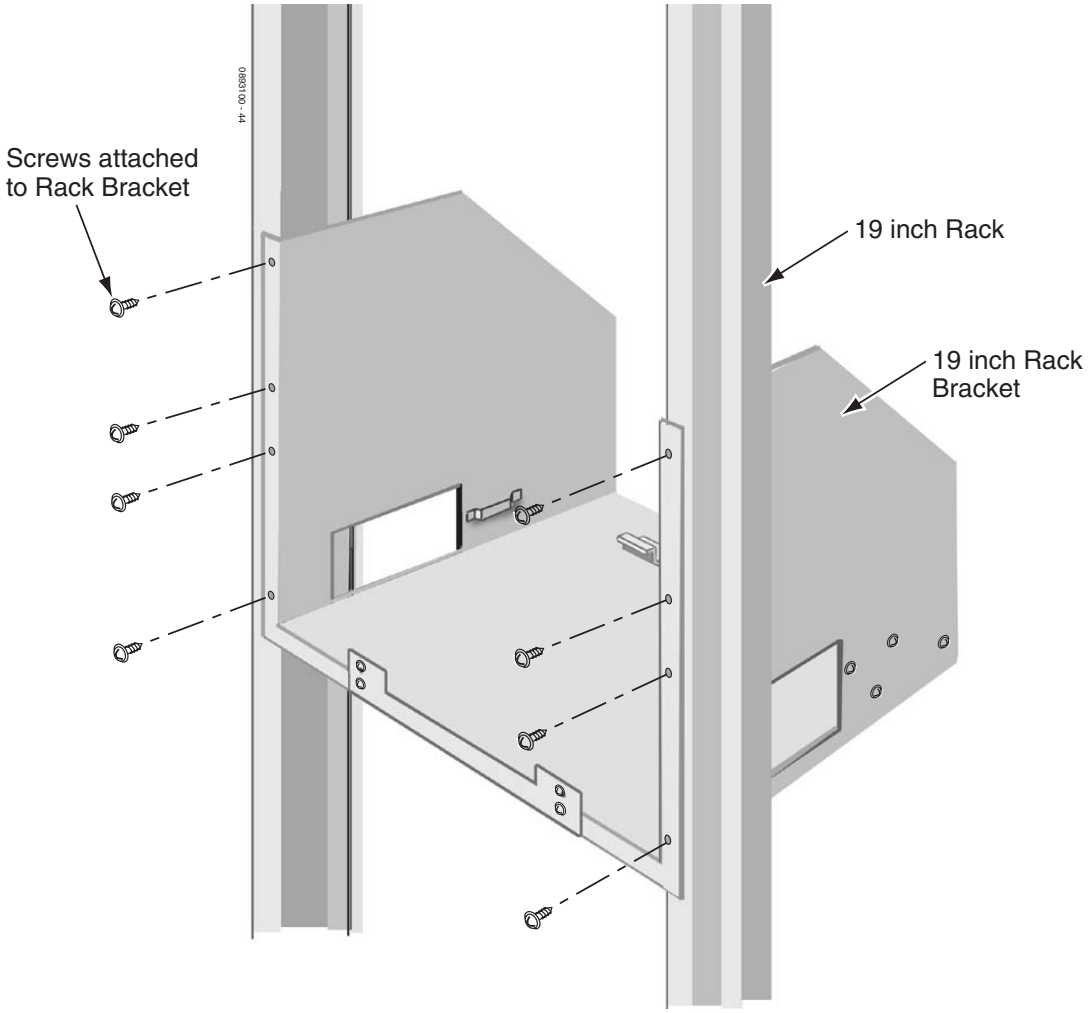


Figure 1-31: INSTALLING THE MOUNTING BRACKET ON THE RACK

6. Using the belt provided by the rack mount system, connect the belt to the rack bracket.

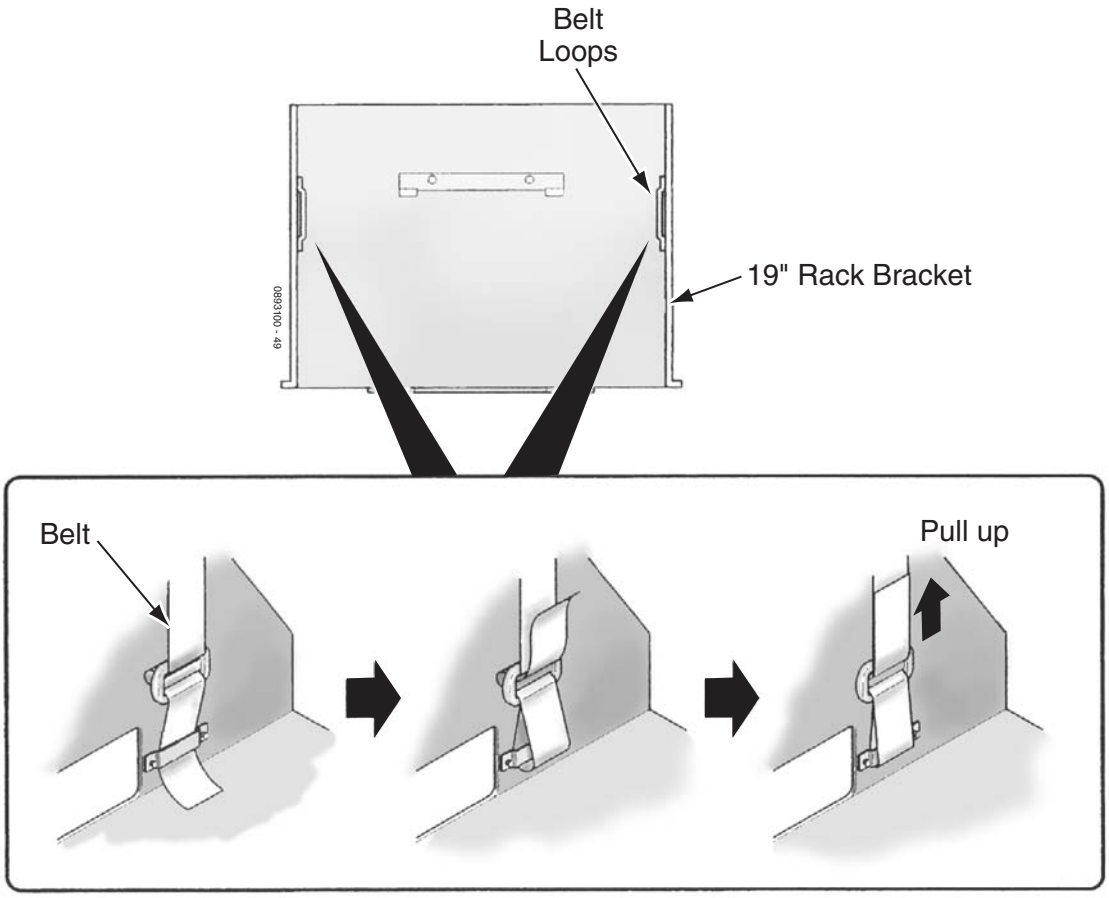


Figure 1-32: CONNECTING THE BELT TO THE RACK BRACKET

7. Remove the 2 screws from the front of the rack mount bracket.

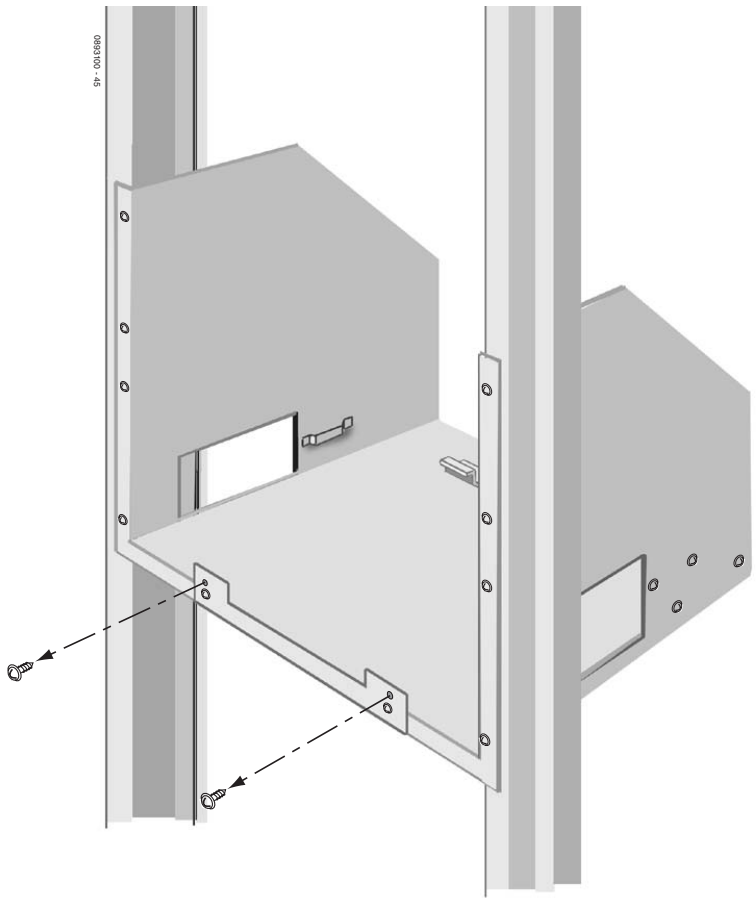


Figure 1-33: REMOVE THE SCREWS FROM THE RACK

8. Place the cabinets in the rack, making sure the hooks on the mounting bracket are inserted into the back of the cabinet, securing it in place.

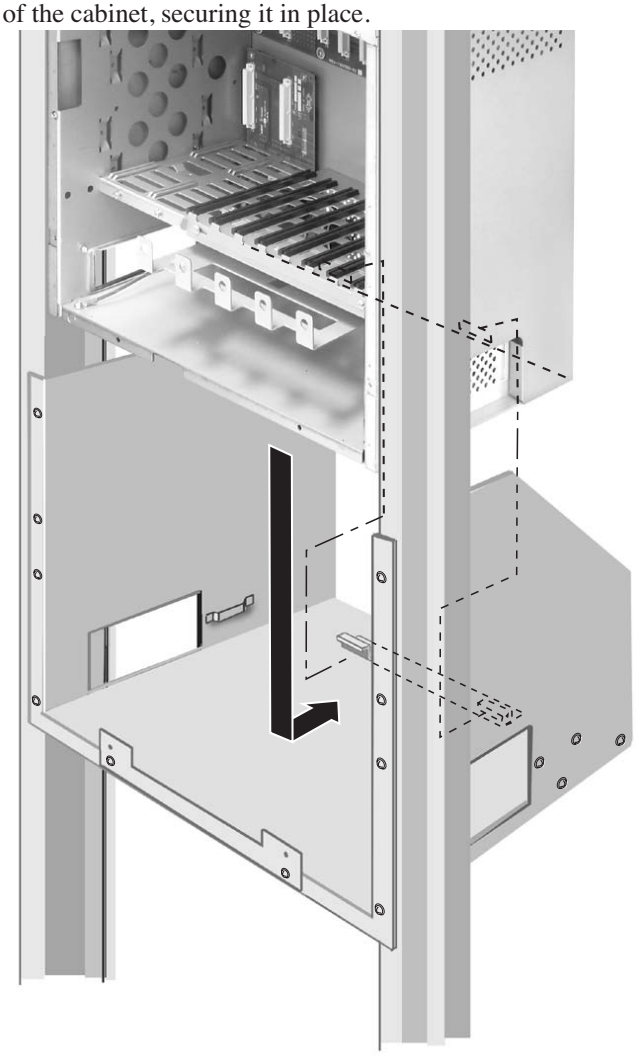


Figure 1-34: INSTALLING THE CABINETS IN THE RACK

9. Secure the two cabinets together by tightening the belt around both cabinets.

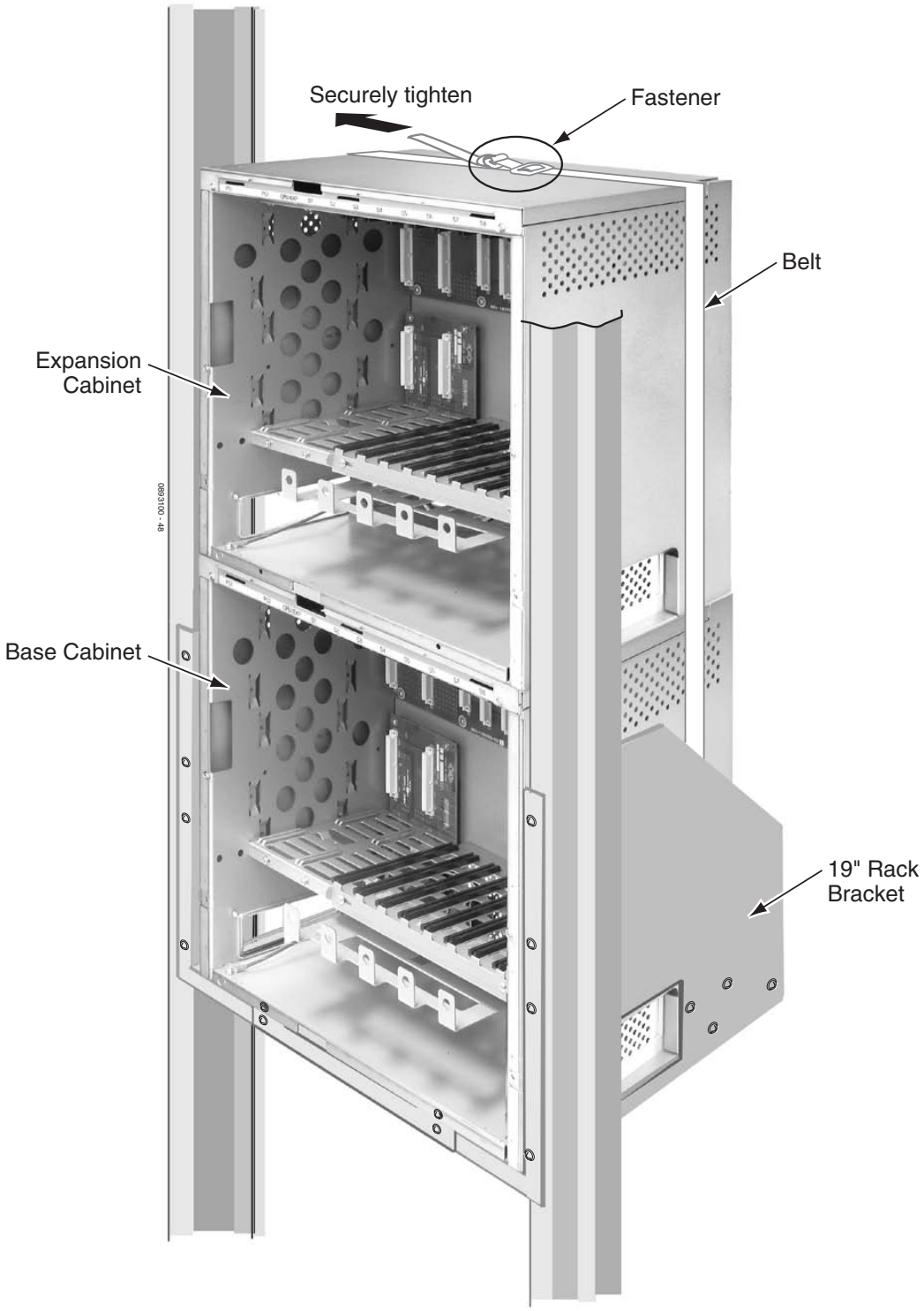


Figure 1-35: SECURING THE CABINETS TOGETHER

10. Replace the screws in the front of the rack which were removed in step 7.

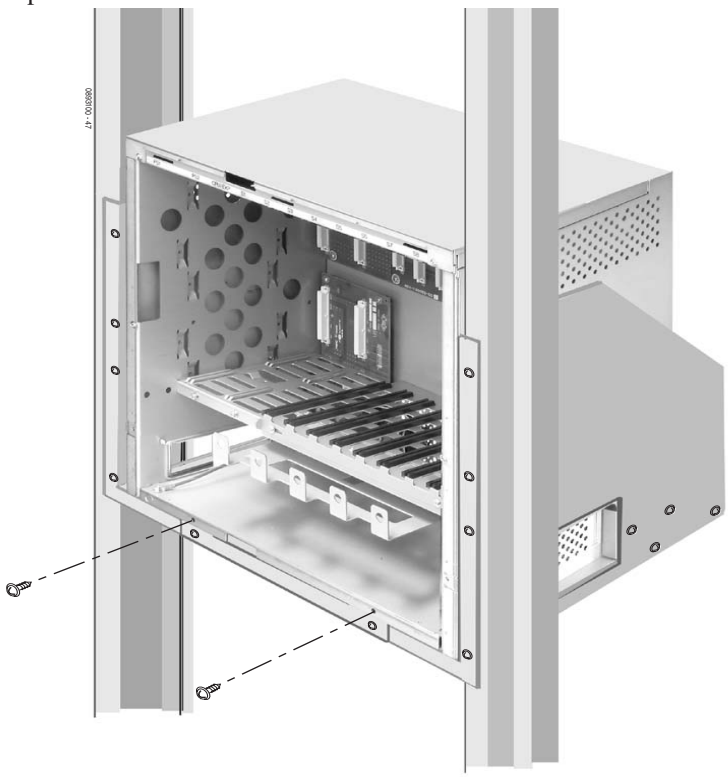


Figure 1-36: SECURING THE CABINETS TO THE RACK

11. On the inside of the front cover, loosen the screws for the top and bottom shutters.
12. Slide the shutters to the left to allow a pass-through for the EXIFU cables. Retighten these screws.

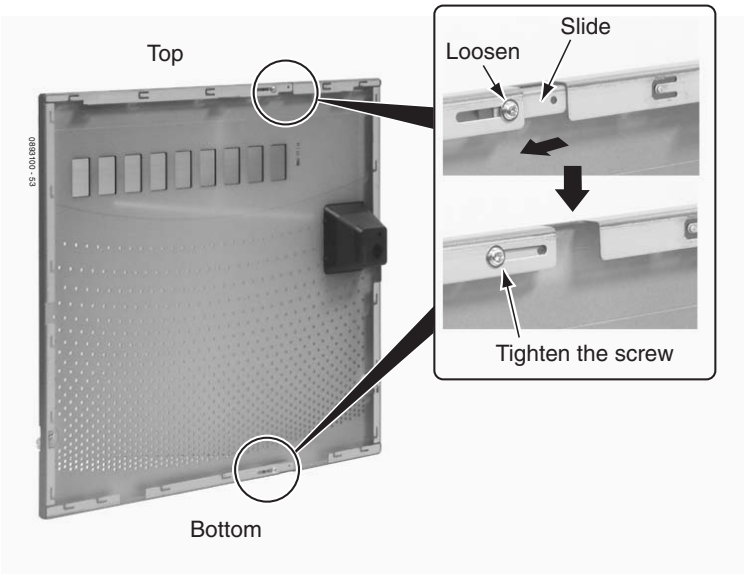


Figure 1-37: MOVING THE FRONT PANEL SHUTTERS

INSTALLING THE ASPIRE M/L POWER SUPPLIES

Installing Power Supplies in the Main and Expansion Cabinets (Figure 1-38 - Figure 1-40)

Caution
Double Pole/Neutral Fusing
(power supply fuses located at both the L and N side)

Each system cabinet requires at least one power supply. In order to determine if a second power supply is required, the Aspire load factor charts should be followed. Refer to *Load Factor - Aspire M/L Only* on page 2-2 for complete information. **In addition to the system load factor, note that one power supply can provide power to 64 analog or digital telephones. If more than 64 telephones are connected to a cabinet, a second power supply must be used.** No power supplies or PCBs are installed in the cabinet by the manufacturer.

The first power supply is installed in the PS1 slot on the right side of the cabinet. The second power supply is installed in the PS2 slot. The two screws used to secure the power supply are factory-installed on the cabinet.

If power is turned off on the expansion cabinet's power supply, it only affects that particular cabinet. The main cabinet continues to operate normally. To turn off power with two cabinets, only the power switch on the main cabinet needs to be turned off.

To Install/Replace the Power Supply:

Note: Remove the Main Cabinet's AC power cord from the AC receptacle.

1. Remove the two power supply mounting screws from the PSx slot in the cabinet.

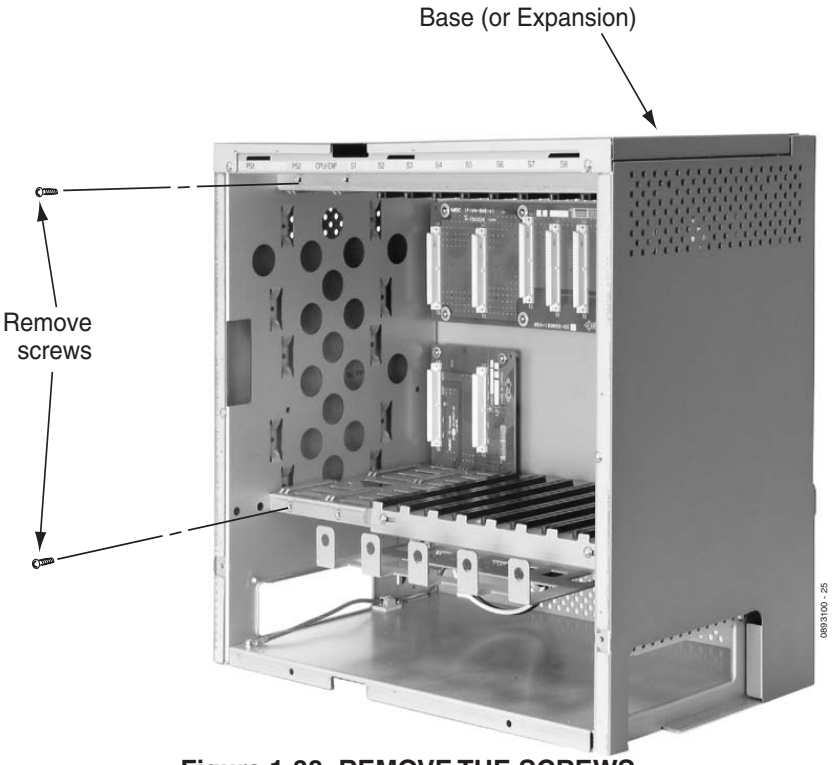


Figure 1-38: REMOVE THE SCREWS

2. Insert the power supply into the cabinet.

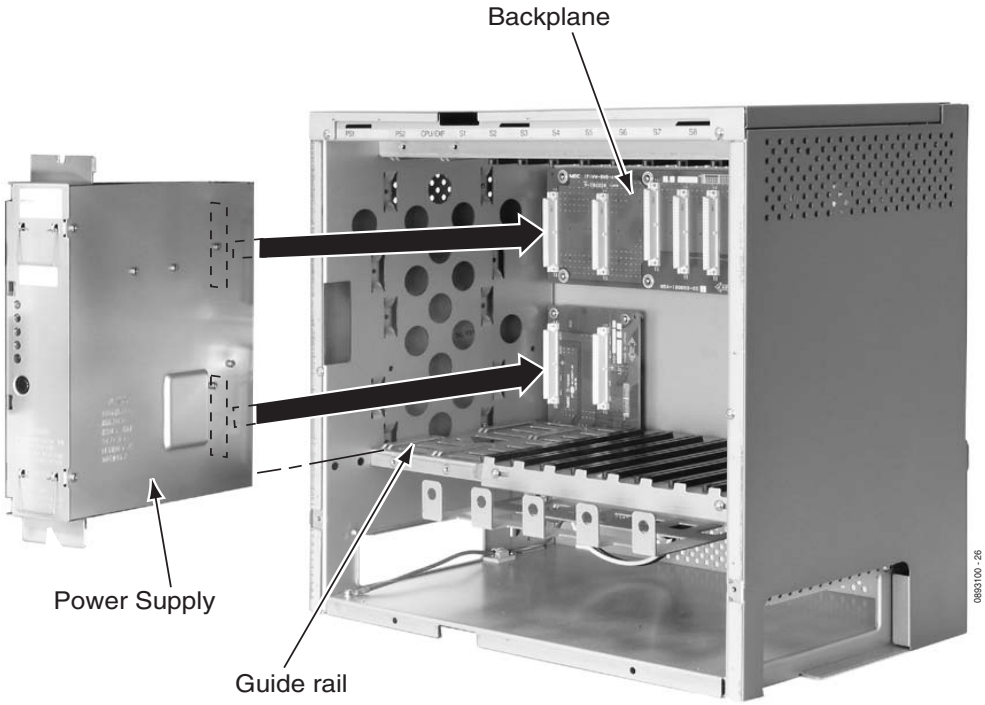


Figure 1-39: INSTALLING THE POWER SUPPLY

3. Secure the power supply to the cabinet by re-inserting and tightening the two screws.

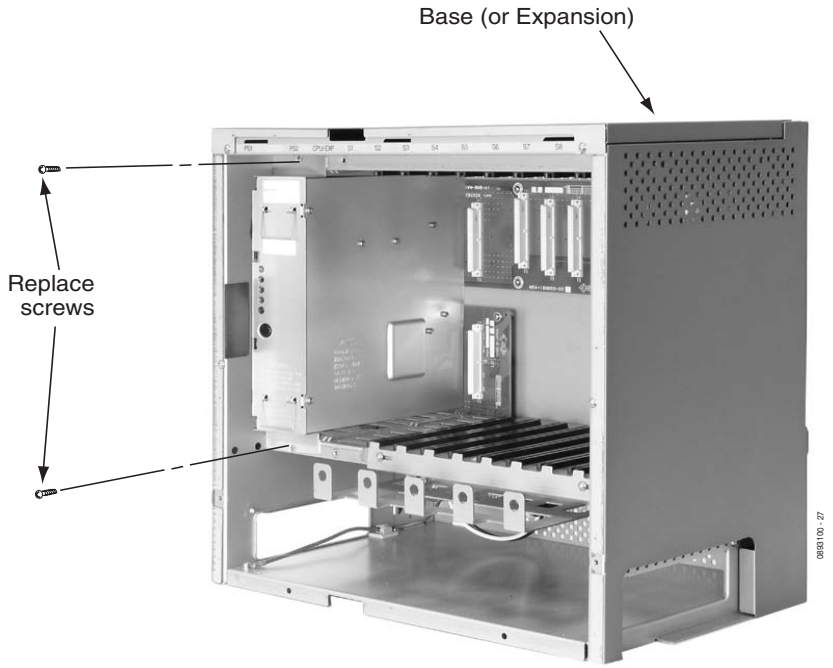


Figure 1-40: SECURING THE POWER SUPPLY

4. Install the second power supply if required.

INSTALLING THE ASPIRE XL POWER SUPPLIES

Installing Power Supplies in the Aspire XL Cabinets (Figure 1-41 - Figure 1-42)

Caution
Double Pole/Neutral Fusing
(power supply fuses located at both the L and N side)

The Aspire XL system can support mixed hardware configurations. With an Aspire XL AC/DC power supply cabinet and DC/DC Converter, the second cabinet can contain up to two Aspire M/L power supplies (P/N 0891000), however some port restrictions apply as detailed in the 32ESIU PCB information (page 2-24). Refer to page 1-33 for details on installing the Aspire M/L power supplies.

In addition to the AC/DC power supply cabinet, each system PCB cabinet requires at least one Aspire XL DC-to-DC converter or Aspire M/L power supply. No power supplies or PCBs are installed in the cabinet by the manufacturer.

If power is turned off on the expansion cabinet's DC-to-DC Converter, it only affects that particular cabinet. The main cabinet continues to operate normally. To turn off the power for the two cabinets, first press the power switch on the expansion cabinet's DC-to-DC Converter, then press the power switch on the main cabinet's DC-to-DC Converter.

Power Supply Cabinet (IP1WW-XLPS Cabinet for the IP1WW-PSADU-A1) - P/N 0890068

The IP1WW-XLPSU cabinet can contain a maximum of two AC/DC power supplies (IP1WW-PSADU-A1). This cabinet is to be installed as the bottom cabinet of a 3-cabinet system (the top two cabinets containing the NTCPU, DC/DC Converters, and PCBs). Each AC/DC power supply is connected to a DC-to-DC Converter installed in the PCB cabinet.

The 3-cabinet Aspire XL system should be floor-mounted - wall-mounting is not recommended due to the weight of the cabinets and the possible wall-support issues! Rack-mounting is not recommended as the wiring required to prevent EMI noise does not allow it.

Aspire XL Power Supply Kit - P/N 0890069

This kit includes the following.

- IP1WW-PSADU-A1 (AC/DC Unit for the XL Power Supply) - P/N 0892011
  Two AC/DC Power Supplies maximum per Power Supply Cabinet.

  When two AC/DC Power Supplies are installed, two separate AC cords will each require an AC outlet connection from the bottom Power Supply Cabinet. Use the power cords included with the Aspire system cabinet(s) for connecting the power supplies to the AC outlet. The Aspire system cabinet is no longer directly connected to an AC outlet with the AC/DC Power Supplies installed.
- IP1WW-PSDDU-A1 (DC/DC Unit for the XL Power Supply) - P/N 0892012
  Two DC/DC Converters maximum per system - one in each system cabinet.

  A DC/DC Converter replaces the two power supplies used in the cabinet of the Aspire M/L system (P/N 0891000).

  If an Aspire M/L system is upgraded to an Aspire XL, the existing power supplies will no longer be required as they are replaced by the DC/DC Converter.
- IP1WW-XLPS Cable for Power (connects the AC/DC Unit and DC/DC Unit) - P/N 0892013
  This cable allows for a power connection from one AC/DC Supply in the bottom cabinet to one DC/DC Converter in the system cabinet.

  Note: The power cord for the system cabinet (located on the back of the cabinet) is no longer required with this cable connection.
- IP1WW-XLPS Cable for Signal (connects the AC/DC Unit and DC/DC Unit) - P/N 0892010
  This cable allows for a signal connection from one AC/DC Supply in the bottom cabinet to one DC/DC Converter in the system cabinet.

To Install/Replace the DC-to-DC Converter and Power Supply:

Note: If replacing a power supply, power down the system and then remove the Power Supply Cabinet's AC power cord from the AC receptacle.

Note: The power connection for the Aspire XL system is made from the AC/DC power supply to the DC/DC Converter - the system cabinet(s) connector is no longer used and no cords should be connected directly to the cabinet. Included wih the Aspire XL power supply cabinet is a warning label which should be placed on the back of the system cabinet, just above the AC connector.

1. Remove the four screws attached to the left-hand side of the power supply cabinet.
2. Insert the first AC/DC power supply into the slot on the left-hand side of the power supply cabinet. Make sure the top and bottom rails on the power supply slide into the guides in the cabinet allowing for proper positioning of the power supply.
   Arrows on the back of the power supply indicate where the rails and guide should be aligned.
3. Secure the power supply to the cabinet with four screws removed in step 1.

Figure 1-41: INSTALLING THE AC/DC POWER SUPPLY

4. If required, remove the four screws on the right-hand side of the power supply cabinet and insert the second AC/DC power supply.
5. Secure the second power supply to the cabinet with four screws removed in step 4.
6. Install the DC/DC Converter into the PSx slot in the first Aspire PCB cabinet. The DC/DC Converter will use both power supply slots in the Aspire PCB cabinet. Make sure the top and bottom rails on the power supply slide into the guides in the cabinet allowing for proper positioning of the power supply.
   Arrows on the back of the power supply indicate where the rails and guide should be aligned.

   If upgrading an existing Aspire M/L system:
   a. Back up the customer database onto a PC-ATA Flash Card.
   b. Power down the system.
   c. Remove the existing power supplies.
   d. Install the DC/DC Converter.
   e. Remove the AC power cord from the back of the cabinet.

   Prior to updating system software to 4.xx, due to capacity differences, a database file must be made in order to revert to any older version of software. The expanded database file from a 4.xx software cannot be used in older software once the new ports are recognized and used by the system.
7. Connect the power cable (P/N 0892013) to the first AC/DC power supply. Run the cable through the small opening to the left of the side cable pass-through.
   The side panel must first be removed. Slide the metal plate up and remove it. This allows you to easily slip the cord through the slot. Replace the metal plate.
8. Run the opposite end of the power cable through the small opening to the left of the side cable pass-through in the first Aspire PCB cabinet to the DC/DC Converter. Make sure that each end is locked into the connector.

The side panel must first be removed. Slide the metal plate up and remove it. This allows you to easily slip the cord through the slot. Replace the metal plate.

9. Using the plastic clamp in the front of the power supply cabinet to secure the power cord to the cabinet.
10. Connect the signal cable (P/N 0892010) to the first AC/DC power supply. The cable is routed on the front of the cabinet, through the shutter of the front panel.
11. Connect the opposite end of the signal cable to the DC/DC Converter in the first Aspire PCB cabinet. Make sure that each end is locked into the connector.
12. Repeat Steps 6-10 and connect the second AC/DC power supply to the second DC/DC Converter, if installed.
13. Install the power cords to each installed AC/DC power supply (use the power cords from the Aspire PCB cabinet removed in Step 6E) and plug the opposite ends into an AC outlet.
14. To prevent the cables from being caught between the cabinet and cover, make sure any excess cable is placed in the space underneath the power supplies or PCBs (depending on the cabinet).

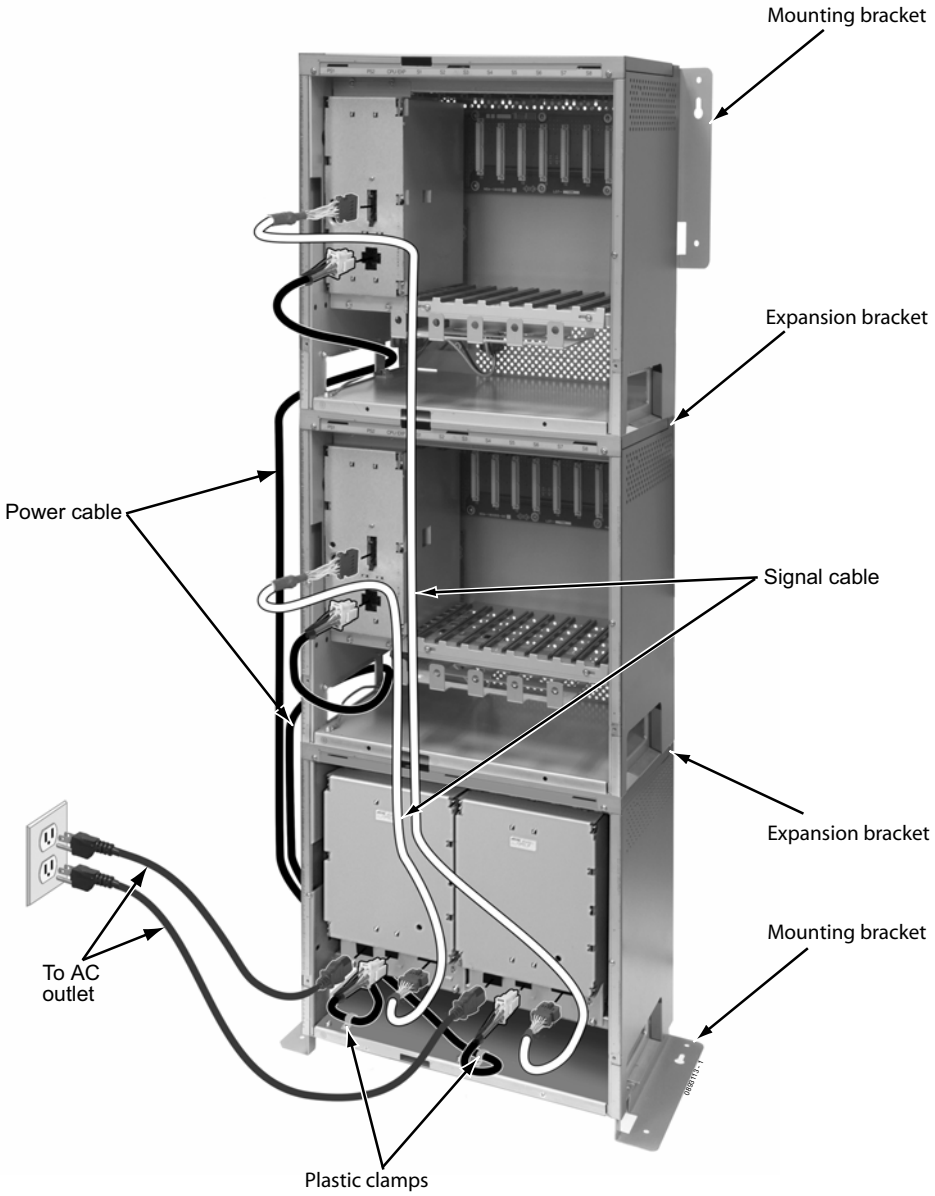


Figure 1-42: ASPIRE XL POWER SUPPLY CONNECTIONS

GROUNDING THE CABINETS

Connecting the System Ground (Figure 1-43)

The SG, PBXG, and ETH ground lugs are located on the right side of the cabinet. The side panel must be removed in order to access them. The FG lug is on the inside of the cabinet, on the lower left.

1. *In each cabinet*, strap the SG (signal ground) lug to the PBXG (CO/PBX ground start trunk ground) lug using 14 AWG.
2. *In each cabinet*, strap the PBXG (CO/PBX ground) lug to the ETH (earth ground) lug using 14 AWG.
3. Ground *each cabinet* by connecting a 14 AWG wire from the ETH lug on the right side of the cabinet to a known earth ground (such as a cold water pipe).
4. When using an expansion cabinet, connect a 14 AWG wire from the expansion cabinet SG ground lug to the SG ground lug in the main cabinet.
5. From the factory, the FG is already connected to the AC power source.

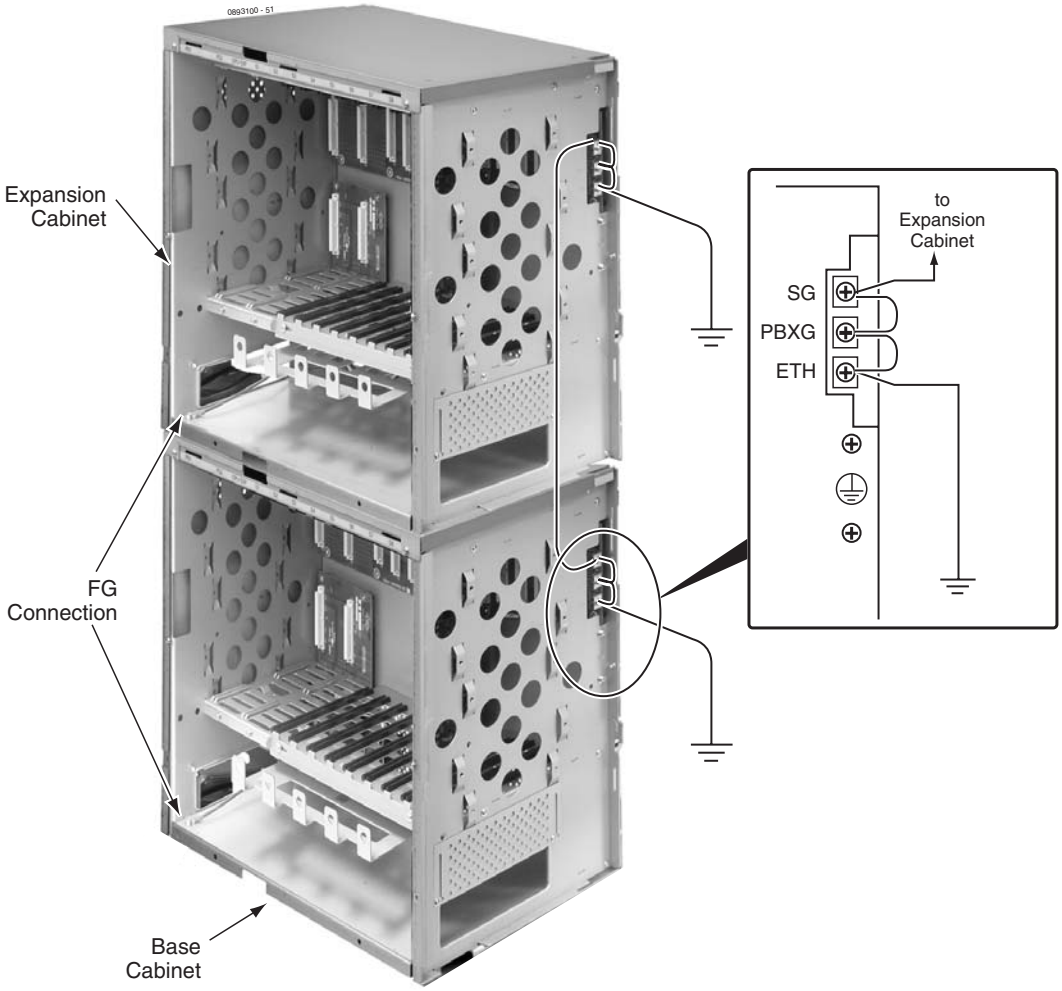


Figure 1-43: GROUNDING THE CABINET

The ground lug descriptions are as follows:

- SG (Signal Ground)
  The plus side of the supplied voltage to single line telephones in the PBX requires a connection to the earth. The SG ground lug should be connected to the PBXG lug. This ground lug is also used with any multi-cabinet system. The SG lugs on both cabinets should be connected.

- PBXG (CO/PBX Ground Start Trunk Ground)
  The PBXG line on the backplane is connected to this ground lug. This ground lug should be connected to the earth when using DID, E&M or ground start trunk cards in the system.

- ETH (Earth Ground)
  This ground lug is used for lightning protection. It should always be connected to the earth.

- FG (Frame Ground)
  This ground lug is connected to the earth wire of the power supply cable and also connected to the metal frame of the main equipment. This ground lug should be connected to the earth if the earth cable of power supply cable is not connected to the earth.

COMPLETING THE INSTALLATION

Reinstalling the Front Cover (Figure 1-44)

When working with a multi-cabinet system, it is easier to first attach the cover for the bottom cabinet and work your up.

1. Line up the brackets on the front cover with the slots in the cabinet and insert the cover.

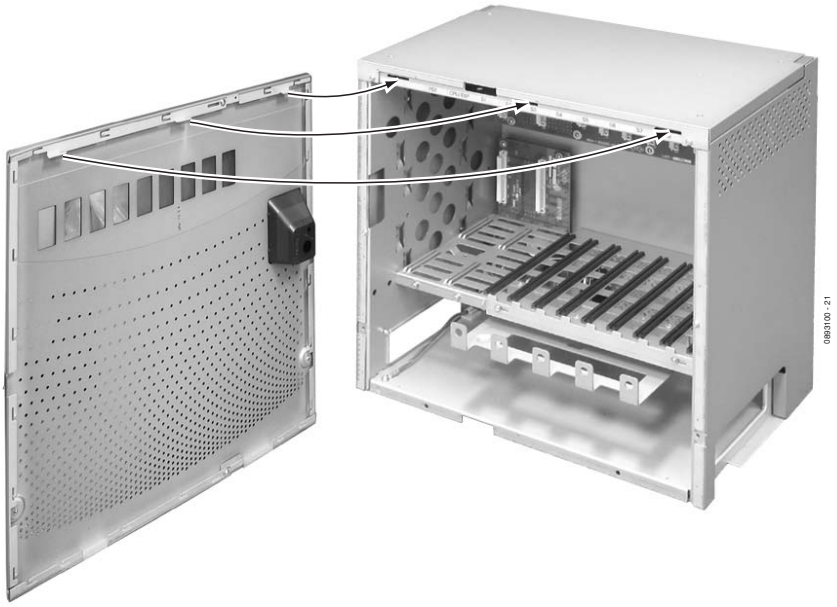


Figure 1-44: RE-INSTALLING THE FRONT COVER

2. Slide the cover to the left.

Figure 1-45: RE-INSTALLING THE FRONT COVER

3. Tighten the two cover retaining screws.

The each cabinet has three cable pass-throughs - one on the left panel, right panel, and rear panel. The shutters on the unused pass-throughs should be closed in order to help keep dust out of the cabinet.

1. Loosen the two screws holding the shutter open.
2. Slide the shutter to the left or right and let the shutter drop closed.
3. Tighten the screws.

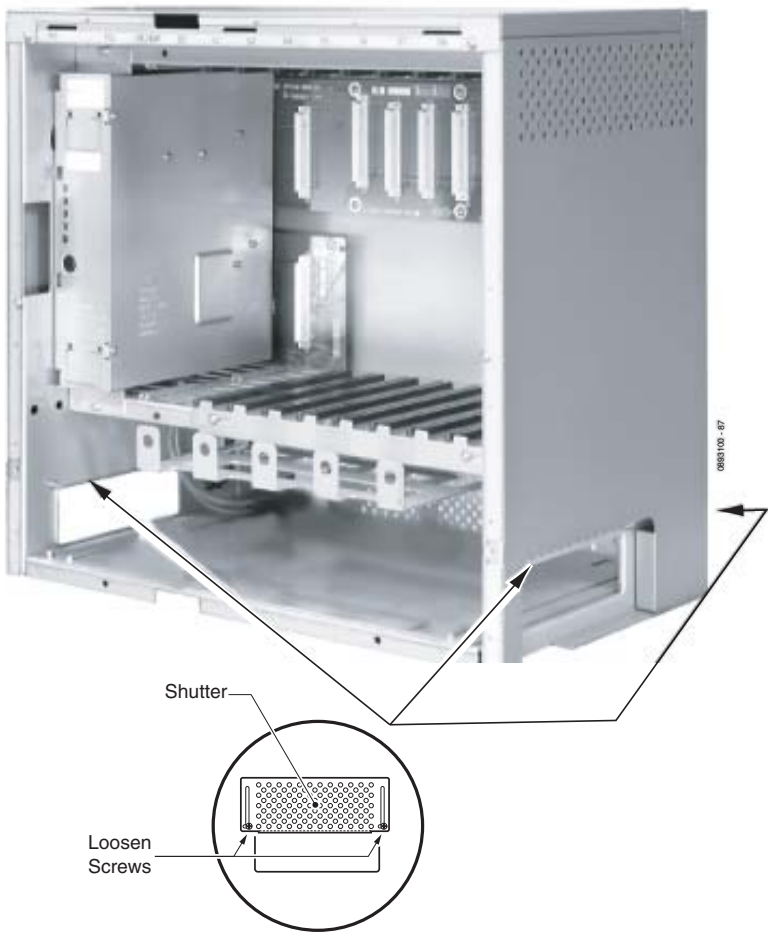


Figure 1-46: CLOSING THE CABINET SHUTTERS

- For Your Notes -

Section 2: PCB Installation and Startup

2

PCB LAYOUT

PCB Location

Determine the slot position for each PCB. In the Main Cabinet:

- CPU/EXP slot - dedicated for the NTCPU
- Slot 1 - should be dedicated for a ESIU PCB

In the Expansion Cabinet:

- CPU/EXP slot - dedicated for the Expansion PCB

The Main and Expansion Cabinets:

- Slots 2-16 are universal (any type of PCB can be installed)

Use the table below to determine the PCB for each slot.

EXIFU	9	10	11	12	13	14	15	16
NTCPU	ESIU	2	3	4	5	6	7	8

Important Notes
• Make sure to follow the steps indicated in **Powering Up the System/Initial PCB Installation** (page 2-66) for an initial system install. This will ensure that you start the system with the default system settings.
• To delete a PCB from the system, *the PCB must first be removed from the system cabinet*, then Program 90-05-01 can be used to delete the slot definition.

Load Factor - Aspire M/L Only

*Refer to **Load Factor - Aspire XL Only*** (page 2-6) *for details on load factor issues with the Aspire XL.*

Each Aspire M/L system cabinet must have at least one power supply installed. In order to determine if a second power supply is required, the following load factor charts should be followed. Both charts should be completed for each cabinet. If either the PCB *or* module chart exceeds their limit (60 for PCBs or 150 for modules), then a second power supply is required. Each chart is listed twice for your convenience - one to be used for cabinet 1, the second for cabinet 2. **In addition to the system load factor, note that one power supply can provide power to 64 analog or digital telephones. If more than 64 telephones are connected to a cabinet, a second power supply must be used.**

Cabinet 1

Each PCB	Load Factor	Number Installed	Total for Cabinet 1
NTCPU	10		
DSPDB-A1/B1	5		
8COIU-LS1/LG1	3		
4COIU-LS1/LG1	3		
2BRIU	6		
4BRIU	6		
8BRIU	6		
1PRIU	3		
4TLIU	2		
4/8DIOPU	4		
8ESIU	3		
16ESIU	3		
32ESIU	7		
16DSTU	3		
8SLIU	3		
8SLIDB	3		
4/8/12DSIU	10		
8SHUBU	13		
4VOIPU	8		
4VOIPDB	1		
16VOIPU	15		
16VOIPDB	5		
2/4/8VMSU	20		
2/4/8VMDB	5		
FMSU	15		
FMDB	5		
If the total number exceeds 60, a second power supply is required (120 maximum per cabinet). ***The Module Load Factor must also be considered when determining the number of power supplies.***			

Each Station Equipment Item	Load Factor	Number Installed	Total for Cabinet 1
ADA Adapter	1		
APR Adapter	0	-	-
APA Adapter	1		
CTA Adapter	3		
CTU Adapter	0	-	-
IP Adapter - if locally powered	0	-	-
IP Adapter - if powered by 8SHUBU PCB	7		-
Speakerphone Adapter	0	-	-
PGDAD	2		
SLT Adapter	5		
Aspire Wireless (DECT) Base Station (RFP)	2		
Keyset - non-IP (64 max. with one power supply)	1		
Keyset - IP - if powered by 8SHUBU PCB (10 max. with one power supply and no other non-IP keysets)	7		
Keyset - IP - if locally powered (10 max. with one power supply and no other non-IP keysets)	0	-	-
Super Display Keyset (64 max. with one power supply)	2		
i-Series Keyset	3		
24-Button DLS	1		
110-Button DSS	1		
Analog Telephone	1		
If the total number exceeds 150, a second power supply is required (300 maximum per cabinet). ***The PCB Load Factor must also be considered when determining the number of power supplies.***			

Cabinet 2

Each PCB	Load Factor	Number Installed	Total for Cabinet 2
8COIU-LS1/LG1	3		
4COIU-LS1/LG1	3		
2BRIU	6		
4BRIU	6		
8BRIU	6		
1PRIU	3		
4TLIU	2		
4/8DIOPU	4		
8ESIU	3		
16ESIU	3		
32ESIU	7		
16DSTU	3		
8SLIU	3		
8SLIDB	3		
4/8/12DSIU	10		
8SHUBU	13		
4VOIPU	8		
4VOIPDB	1		
16VOIPU	15		
16VOIPDB	5		
2/4/8VMSU	20		
2/4/8VMDB	5		
FMSU	15		
FMDB	5		
If the total number exceeds 60, a second power supply is required (120 maximum per cabinet). ***The Module Load Factor must also be considered when determining the number of power supplies.***			

Each Station Equipment Item	Load Factor	Number Installed	Total for Cabinet 2
ADA Adapter	1		
APR Adapter	0	-	-
APA Adapter	1		
CTA Adapter	3		
CTU Adapter	0	-	-
IP Adapter - if locally powered	0	-	-
IP Adapter - if powered by 8SHUBU PCB	7		-
Speakerphone Adapter	0	-	-
PGDAD	2		
SLT Adapter	5		
Aspire Wireless (DECT) Base Station (RFP)	2		
Keyset - non-IP (64 max. with one power supply)	1		
Keyset - IP - if powered by 8SHUBU PCB (10 max. with one power supply and no other non-IP keysets)	7		
Keyset - IP - if locally powered (10 max. with one power supply and no other non-IP keysets)	0	-	-
Super Display Keyset (64 max. with one power supply)	2		
i-Series Keyset	3		
24-Button DLS	1		
110-Button DSS	1		
Analog Telephone	1		
If the total number exceeds 150, a second power supply is required (300 maximum per cabinet). ***The PCB Load Factor must also be considered when determining the number of power supplies.***			

Load Factor - Aspire XL Only

Aspire XL systems can accommodate a maximum of 384 TDM station ports for -48V with two power supply sets (P/N 0890069) installed (the set includes an AC/DC power supply and a DC/DC Converter, as well as cables for each unit). The PCBs which require -48V are: ESIU, DSTU, SLIU, DSIU, BRIU, DIOPU, TLIU.

With an Aspire XL AC/DC power supply cabinet and DC/DC Converter, the second cabinet can contain up to two Aspire M/L power supplies (P/N 0891000), with the following restriction:
If the system has more than 256 ports, and both cabinets have more than 128 -48V ports each, each cabinet must have a DC/DC Converter installed and connected to an AC/DC power supply in the power supply cabinet - the Aspire M/L power supply (P/N 0891000) cannot be used.

The Aspire XL Power Supply Set (P/N 0890069) can accommodate 256 ports maximum for -48V in one cabinet. If two AC/DC power supplies and two DC/DC Converters are installed, then a maximum of 384 digital/analog ports (-48V output) are supported.

Using the Aspire XL power supplies (P/N 0892011), the station equipment can not exceed a load factor of 600 per power supply. Use the following table to determine the load factor for your cabinet.

Each Station Equipment Item	Load Factor	Number Installed	Total for Cabinet
ADA Adapter	1		
APR Adapter	0	-	-
APA Adapter	1		
CTA Adapter	3		
CTU Adapter	0	-	-
IP Adapter (if powered by the 8SHUBU PCB)	7		
IP Adapter (if locally powered)	0	-	-
2PGDAD	2		
SLT Adapter	5		
Aspire Wireless (DECT) Base Station (RFP)	2		
Keyset - Non-IP	1		
Keyset - IP (if powered by the 8SHUBU PCB)	7		
Keyset - IP (if locally powered)	0		
Super Display Keyset	2		
i-Series Keyset	3		
24-Button DLS	1		
110-Button DSS	1		
Analog Telephone	1		
If the total number exceeds 600, the additional adapters should be connected to the second cabinet.			

Order of Installing Extension PCBs

The order that the station PCBs (ESIU and SLIU) are physically inserted determines the numbering plan.

To avoid unexpected extension/trunk numbering if the VoIP or Voice Mail PCBs register with the system first, install these PCBs after the other types of extension and trunk PCBs have been installed.

For example, with a digital station card (16ESIU) in slot #1 (ext. 301-316), when 3 additional digital station cards are installed ***in the following order,*** the numbering plan below applies:

Order of Install	PCB Slot #	Ext Numbers
1	1	301-316
2	2	317-332
3	4	333-348
4	3	349-364

After the initial powering up of the system, subsequent powering up or resets will not change the slot identification. System programming (Program 90-05) must be performed to change the slot identification.

Order of Installing Trunk PCBs

Installing COIU-LS1/LG1, 4TLIU, DIOPU, or BRI PCB's:

The order in which trunk PCBs are physically inserted determines the numbering plan.

To avoid unexpected extension/trunk numbering if the VoIP or Voice Mail PCBs register with the system first, install these PCBs after the other types of extension and trunk PCBs have been installed.

For example, if four PCBs are installed *in the following order,* the numbering plan below would apply:

Order of Install	PCB Slot #	PCB	Line Circuits
1	4	8COIU	1-8
2	5	4COIU	9-12
3	7	4TLIU	13-16
4	6	4TLIU	17-20

Installing T1/PRI PCBs

The T1/PRI Interface PCB uses the first block of 24 consecutive trunks.

For example, if you have an 8COIU PCB installed for trunks 1-8, the T1/PRI PCB will automatically use trunks 9-32. If you have 8COIU PCBs installed for trunks 1-8 and 17-24, the T1/PRI PCB will use trunks 25-48. The T1/PRI PCB cannot use trunks 9-16 (even if available) since they are not part of a consecutive block of 24 trunks.

PCB INSTALLATION

Handling the PCBs

The PCBs are sensitive to static discharge. To minimize static discharge, keep PCBs in static free bags when not installed. Observe the following when installing or removing a PCB:

- Ground Main Cabinet and Expansion Cabinets
- Wear a grounded wrist strap to install/remove any PCBs
- Do not touch PCB components. Handle with white pulls.
- Although it is recommended to installed the PCBs with the system power off, all PCBs can be installed hot ***(except the CPRU, 4/8VMSU, AND 2/4FMSU PCBs).***
- The power supply units must only be installed with the system power OFF.

"Busying Out" Extension/Line PCBs

The run/block switch on extension/trunk PCBs "busies out" idle circuits. Extensions/lines cannot make a call or be called. Calls in progress before the PCB is "made-busy" are not affected. The PCB can be pulled out without interrupting a call in progress.

An extension/line PCB Status LED:

- Normally flashes
- Lights steady when "made-busy" with an extension/line in use
- Goes out when the all extensions/lines are "made-busy" (idle)

Installing an Extension or Trunk PCB (Figure 2-1, Figure 2-2)

To install an extension/trunk PCB with the system running:

- Set the run/block switch **DOWN.**
- Loosen the two screws holding the PCB retaining bar in place and slide the bar to the right.

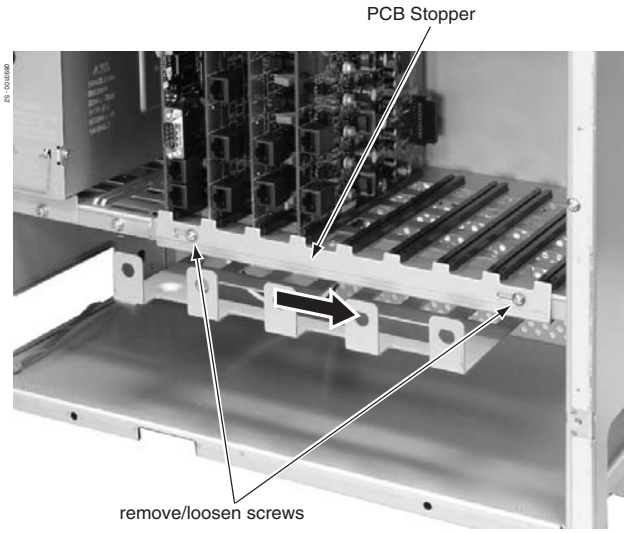


Figure 2-1: MOVING RETAINING BAR

- Insert the PCB within the guide rail and push the PCB securely into position. After installing all the PCBs, the PCB retaining bar should be moved back into position and the screws should be tightened.

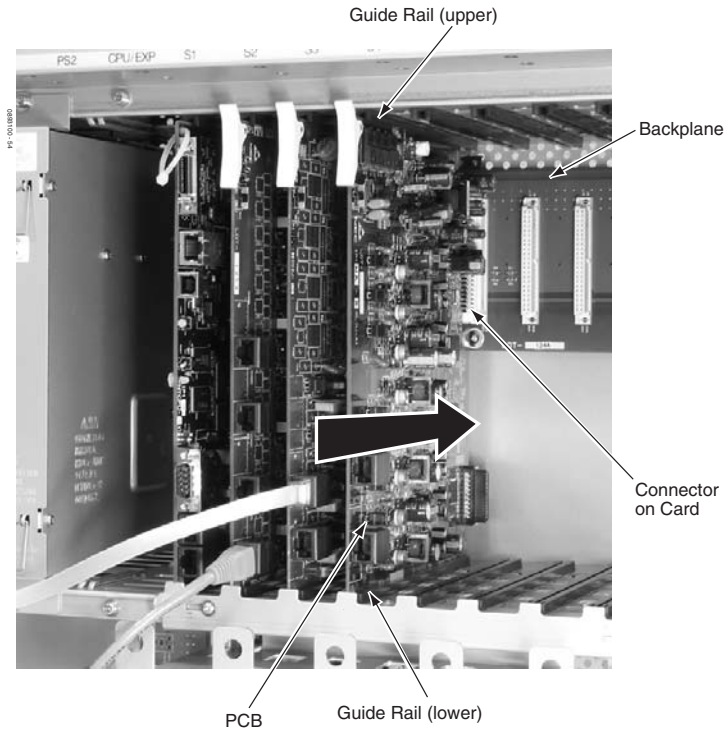


Figure 2-2: INSERTING PCBS

- Set the run/block switch UP. The Status LED starts flashing when the PCB starts processing (15 seconds).

Removing an Extension or Trunk PCB

To remove an extension/trunk PCB with the system running:

- Set the run/block switch **DOWN.**
- When the STATUS LED stops flashing, all extensions/trunks are idle.
- Remove the PCB by lifting the white pull clip on the top of the PCB and pull the PCB out.

Uninstalling a PCB Slot Through Software

The installer can turn off (busy out) and delete (remove from software) PCB slots in the Main and Expansion Cabinets in programming for port re-numbering purposes or to replace it with a different type of PCB. Deleting a PCB may affect PCB slot programming capability. Refer to Program 90-05 in the Software Manual for further details.

Where to Install the PCBs

Maximum Configuration: **200 Trunks**
512 Extensions Including IP and Wireless
(Aspire M/L = 256 maximum digital/analog extensions)
(Aspire XL = 384 maximum digital/analog extensions)

The system's universal architecture gives you great flexibility when installing PCBs. You can install a PCB in any slot, provided you follow the guidelines in the chart below.

Aspire M/L/XL PCB Capacities

	NTCPU-A with Basic PAL Chip	NTCPU-A with Feature Upgrade PAL Chip (Software 1.00-3.07)	NTCPU-A with Feature Upgrade PAL Chip (Software 4.00+)	NTCPU-B
NTCPU Central Processing Unit	1	1	1	1
EXIFU Expansion PCB	-	1	1	1
DSPDB Resource/VRS Daughter Board (installs on NTCPU)	-	1	1	1
8ESIU 8 Digital Stations	8	8	16	16
16ESIU16 Digital Stations	4	4	8	16
32ESIU 32 Digital Stations	2	4	4	***With P/N 0891000 power supplies (Aspire M/L) :*** 4 ***Software 4.xx+ and P/N 0892011/0892012 power supplies (Aspire XL):*** 12 (8 max. per cabinet)
8SLIU 8 Analog Stations	7	7	15	15
8SLIDB 8 Analog Stations Daughter Board (installs on 8SLIU)	3	3	8	15
16DSTU 16 i-Series Keyset Interface	3	3	7	15
4COIU-LS1 4 Analog/Loop Start Trunks (no ground start)	7	14	15	15
8COIU-LS1 8 Analog/Loop Start Trunks (no ground start)	7	7	15	15
4COIU-LG1 4 Analog/Loop Start Trunks (with ground start)	7	14	15	15
8COIU-LG1 8 Analog/Loop Start Trunks (with ground start)	7	7	15	15
4DSIU Aspire Wireless Interface	1	1	1	1
8DSIU Aspire Wireless Interface	1	1	1	1

Aspire M/L/XL PCB Capacities				
	NTCPU-A with Basic PAL Chip	NTCPU-A with Feature Upgrade PAL Chip (Software 1.00-3.07)	NTCPU-A with Feature Upgrade PAL Chip (Software 4.00+)	NTCPU-B
12DSIU Aspire Wireless Interface	1	1	1	1
2BRIU 2 Two-Channel BRI Circuits	-	14	15	15
4BRIU 4 Two-Channel BRI Circuits	-	7	15	15
8BRIU 8 Two-Channel BRI Circuits	-	3	As T-Bus: 8 As S-Bus: 7	As T-Bus: 12 As S-Bus: 15
1PRIU 24 T1/PRI Trunks / Channels	-	2	5	8
4TLIU 4 E&M Tie Line Trunks	-	14	15	15
4DIOPU 4 DID/OPX Trunks	7	14	15	15
8DIOPU 8 DID/OPX Trunks	7	7	15	15
2FMSU 2 Flash Memory Voice Mail	1	1	1	1
4FMSU 4 Flash Memory Voice Mail	1	1	1	1
4VMSU 4 HDD Voice Mail	1	1	1	1
4VMDB 4 HDD Voice Mail - Daughter Board	1	1	1	1
8SHUBU 8 Switch Hub	4	8 (4 per cabinet)	8 (4 per cabinet)	8 (4 per cabinet)
4VOIPU 4 VoIP Media Gateway	8 *	16 *	16 *	16 *
4VOIPDB 4 VoIP Media Gateway Daughter Board (installs on 4VOIPU or 16VOIPU)	8 *	8 *	16 *	16 *
16VOIPU 16 VoIP Media Gateway	-	4 *	8 *	16 *
16VOIPDB 16 VoIP Media Gateway Daughter Board (installs on 4VOIPU or 16VOIPU)	-	3 *	6 *	16 *

* In addition to the load factor, additional factors may limit these quantities further (such as available bandwidth, VIF and compression).

Central Processing Unit (NTCPU) PCB (Figure 2-3)

The NTCPU controls all the functions and operations of the Aspire system using the system software loaded into the NTCPU memory. One 32-bit NTCPU PCB must be installed in the CPU slot in the Main Cabinet. There are two versions of NTCPUs. The first version, P/N 0891002, is a 64-port basic CPU. The second version, P/N 0891038, is a feature-enhanced, 256 extension port CPU.

To upgrade from the basic 64-port NTCPU, a Feature Upgrade chip (P/N 0891039) is available. The NTCPU provides a connector (CN14) for the upgrade PAL EPROM chip. Make sure when installing this upgrade chip on the NTCPU that you wear a grounded wrist strap. Using software 4.0E and higher, the Feature Upgrade PAL chip (P/N 0891039), supports 128 ports for trunks, extensions, and voice mail (internal and external). With prior software, only 64 ports are available.

The 64-port basic CPU (P/N 0891002), with the basic factory-installed PAL chip, provides:

- 64 ports maximum for trunks, extensions, voice mail (internal or external), Aspire Wireless 2.4 GHz and IP Phones
- 256 virtual extensions
- Supports the 4VOIPU PCB and 4VOIPDB
- Supports TAPI 1.x
- VRS (***Requires DSPDB Daughter Board and software 2.00+*** - prior to this software version, the VRS is not supported by the basic factory-installed PAL chip)
- T1 Trunks (***Requires software 4.0E+*** - prior to this software version, this was not supported)
- PRI Trunks (Requires ***software 4.0E+*** - prior to this software version, this was not supported)
- DSPDB Daughter Board (providing 32 channels for the DTMF Receiver, Call Progress Tone Detection and Caller ID Receivers) (***Requires software 4.0E+*** - prior to this software version, the DSPDB did not support the additional channels)
- Supports the 32ESIU PCB

NOT SUPPORTED by the 64-port basic CPU, with the basic factory-installed PAL chip:

- Expansion Cabinet
- Third-Party CTI/TAPI 2
- 16VOIPU PCB and 16VOIPDB
- ACD
- BRI S-Bus/T-Bus
- E&M Trunks
- Networking

The 64-port basic CPU (P/N 0891002), with the Feature Upgrade PAL chip, provides:

- 128 ports maximum for trunks, extensions, voice mail (internal or external), Aspire Wireless 2.4 GHz and IP Phones
  (***Requires software 4.0E+*** - prior to this software version, only 64 ports are supported)
- 256 virtual extensions
- Supports the 4VOIPU PCB and 4VOIPDB
- Supports TAPI 1.x
- VRS (Requires DSPDB Daughter Board)

The 64-port basic CPU, with the Feature Upgrade PAL chip, supports:

- Expansion Cabinet
- DSPDB Daughter Board (providing 32 channels for the DTMF Receiver, Call Progress Tone Detection and Caller ID Receivers)
- Third-Party CTI/TAPI 2
- 16VOIPU PCB and 16VOIPDB
- T1 Trunks
- ACD
- PRI Trunks
- BRI S-Bus/T-Bus
- E&M Trunks
- Networking
- 32ESIU PCB

The enhanced CPU (P/N 0891038) provides:

- 200 trunk ports maximum
- 512 extension ports maximum
  - Aspire M/L: 256 analog/digital extensions,
  - Aspire XL: 384 analog/digital extensions
  - Aspire M/L or XL: NEC Wireless 2.4 GHz and IP Phones can have a maximum of 512 ports, however, more than 256 (Aspire M/L) or 128 (Aspire XL) Wireless and IP phones reduces the number of available extension ports.
- 256 virtual extensions
- Supports the 4VOIPU PCB and 4VOIPDB
- Supports TAPI 1.x
- VRS (Requires DSPDB Daughter Board)

The enhanced CPU supports:

- Expansion Cabinet
- DSPDB Daughter Board (providing 32 channels for the DTMF Receiver, Call Progress Tone Detection and Caller ID Receivers)
- Third-Party CTI/TAPI 2
- 16VOIPU PCB and 16VOIPDB
- T1 Trunks
- ACD
- PRI Trunks
- BRI S-Bus/T-Bus
- E&M Trunks
- Networking
- 32ESIU PCB

Each version of the NTCPU provides the following:

- Five diagnostic LEDs which indicate the status of various system functions
  During normal operation, the "RUN" LED will be flashing and the remaining LEDs will be off.
- 1019x1019 Time Division Multiplex Switch (TDM Switch)
- Digital Phase Locked Loop (DPLL)
- Tone Generator
- DTMF Tone Sender
- 32 Tone Resources (for DTMF Receiver, Caller ID Receiver, and Call Progress Tone Detection)
- System Tone Sender
- MFC Tone Sender
- MF Signal Sender (Sends caller information to CO for E911)
- Call Progress Tone Detector
- C-Channel Control
- Conference; 64 Channels
- Caller ID Receiver; 32 Channels
- Caller ID Sender; 4 or 10 Channels for Analog Stations
  This can be expanded up to 20 by disabling 32 channels of the Conference circuits and disabling the MFC Tone Sender.
- A reset switch (RES) which can be used to reset the system
- A load switch (LOAD) which is used for initial system startup or when upgrading system software
- One Serial Port (null modem/cross-over cable required)
- One USB Port (requires USB driver - download from NEC web site)
- One Ethernet Port (10 Base-T/100 Base-TX)
- One PCMCIA Slot
- One EXIFU Interface Connector
- Two Audio Input Terminals
- One Audio Output Terminal (external page circuit does not allow talkback paging)
- One Night Mode Terminal for External Switch
- One Music On Hold External Source

- HDLC Packet Processing
- Real Time Clock (tolerance 30 seconds/month)
- Internal MOH Generation
- One Connector for DSPDBU Daughter Board
- One Connector for PAL EPROM
- One lithium battery (Sony CR2032 or equivalent) which provides battery back-up of system data and RAM memory for approximately 30 months

! IMPORTANT!
After removing a previously installed NTCPU, handle the PCB, carefully, from the edges. If certain solder points/resistors are touched on the back of the PCB, some RAM/temporary memory may be lost (ex: time, date, user-defined settings, etc.)

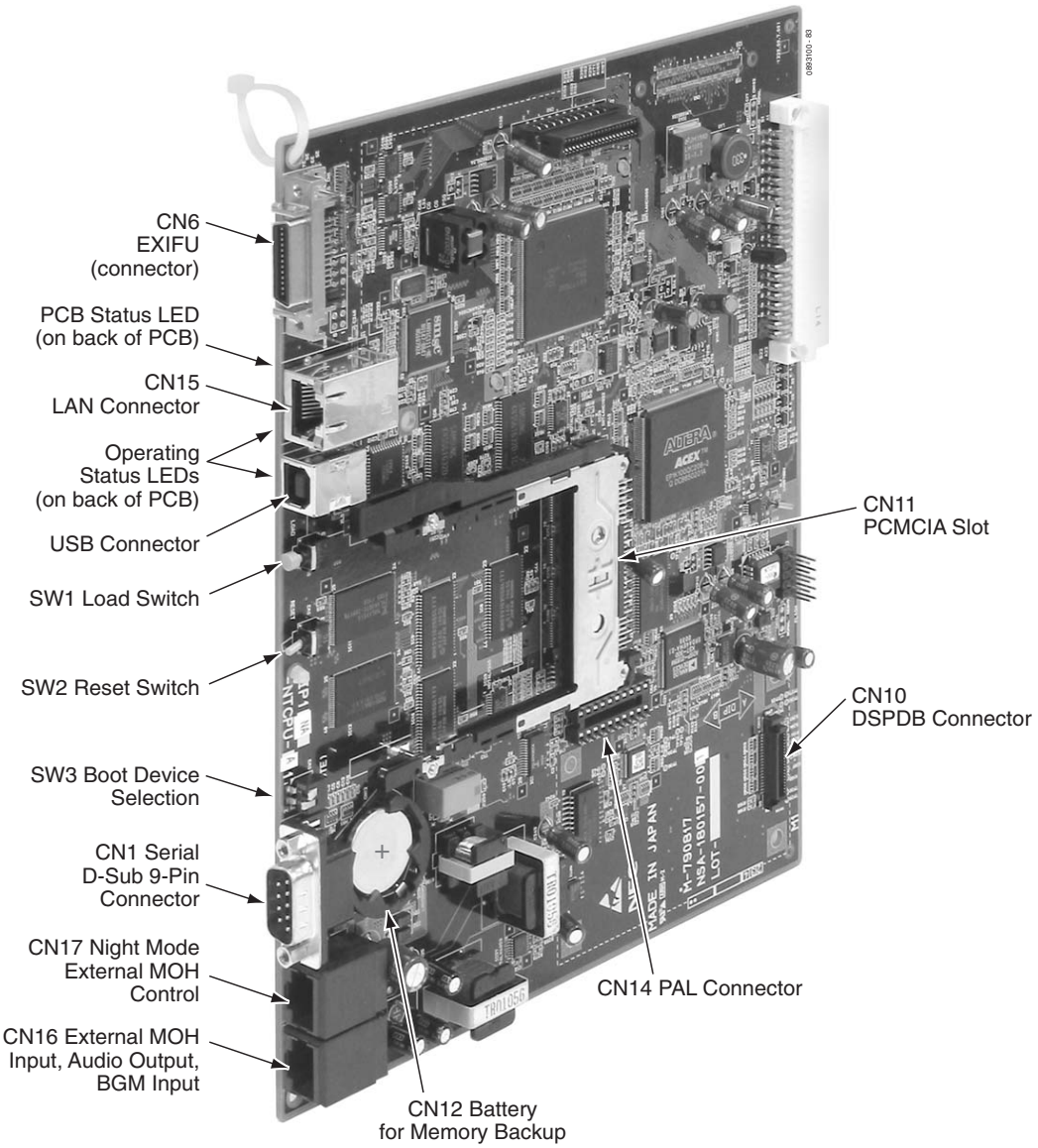


Figure 2-3: CPRU PCB

Switch Settings and LED Indications

Switch	Switch Setting	Operation
SW1 - Load Switch	-	**With a system restart or a system reset while holding the SW1 switch (SW3-2 switch set to off):** • With a PC-ATA: System software is updated. • Without a PC-ATA: System boots loading stored software. • With a Card Other Than a PC-ATA: The card is ignored and the system boots loading stored software.
		With a system restart or a system reset without holding the SW1 switch: • The system boots loading software stored in flash memory.
SW2 - Reset Toggle	-	The system resets when the toggle switch is lifted using the stored software and data (Hot Start).
SW3 - 1	On Off	Debugging Mode (CN1 connector used for debugging) Normal Mode (CN1 connector used for serial interface)
SW3 - 2	On Off	(Factory Use) Used to initially load system software Normal Mode

The LED indications on the NTCPU represent the following:

- RUN LED 1 = Indicates the NTCPU is operating
- LED 0, 2 and 3 = Indicate system alarms
- LED 4 = Indicates the status of the PCMCIA slot (off with no PC-ATA card installed)

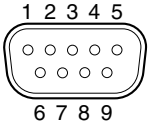
Refer to Program 90-10 : System Alarm Setup for details on assigning alarm LEDs.

LED Indication					Status
RUN (LED1)	LED0	LED2	LED3	LED4	
On	Off	Off	Off	On Steady	System starting up
Off	Off	Off	Off	On Steady	System initializing
Off	On	Off	Access Blink	On Steady	Initializing the disk or formatting
Off	Off	On	On	On Steady	Boot program is initializing in the flash memory
Off	On	On	Access Blink	On Steady	Reading system software
On	Blinking	Blinking	Blinking	On Steady	Upgrading system software
On	Blinking	Off	Off	On Steady	Upgrading boot software
On	Blinking	Blinking	Off	On Steady	Finish formatting (SRAM, Flash)
Blinking	Off	Off	Off	On Steady	DRAM error
Blinking	Off	Off	On	On Steady	FPGA version error
Blinking	Off	On	Off	On Steady	SRAM error
Blinking	Off	On	On	On Steady	Flash memory booting error
Blinking	On	On	On	On Steady	Flash memory data error

LED Indication					Status
RUN (LED1)	LED0	LED2	LED3	LED4	
Blinking	Blinking	Blinking	Blinking	On Steady	Reading error of system program
Blinking	Off	Off	Off	On Steady	System starting up

Connector Pin-Outs on NTCPU

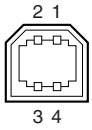
Serial Cable Connector - CN1 (D-Sub 9-Pin Male)



Pin No.	Signal
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	-

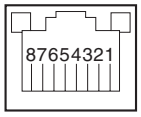
USB Cable Connector - CN13 (Standard)

Using the USB connector requires the Aspire USB driver, which can be downloaded from the NEC Technical Support web site (ws1.necii.com). Refer to the PCPro/WebPro Manual, P/N 0893201, for installation details.



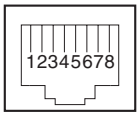
Pin No.	Signal
1	Vcc
2	-D
3	+D
4	GND

Ethernet Cable Connector - CN15 (RJ45) (10Base-T/100Base-TX Port)



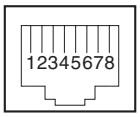
Pin No.	Signal
1	Tx+
2	Tx-
3	Rx+
4	
5	
6	Rx-
7	
8	

RJ61 Cable Connector - CN16
(External MOH Source/External Paging)

NTCPRU Connector	Modular Connector Pin No.	Signal
	1	-
	2	EXMOH
	3	BGM
	4	EXPAG
	5	EXPAG
	6	BGM
	7	EXMOH
	8	-

- Pins 3 and 6: BGM Input, Input Impedance = 47 kohm/1 kHz
- Pins 4 and 5: External Paging Input
- Pins 2 and 7: External Music on Hold Input, Input Impedance 47 kohm/1 kHz

RJ61 Cable Connector - CN17
(External Speaker and Night Mode Relay)

NTCPRU Connector	Modular Connector Pin No.	Signal
	1	-
	2	NTMOD [1]
	3	-
	4	EXCNT
	5	EXCNT
	6	-
	7	NTMOD [1]
	8	-

- Pins 4 and 5: External Music (BGM and External MOH), External Paging Speaker Control Relay
- Relay = DC 24 VDC, 0.5A (Max.) - AC 120VAC, 0.25A (Max.)
- Pins 2 and 7: Night Mode Relay Connection, Input Voltage: Break = 48 VDC, Make = 7 mA

[1] ***Note:*** If pins 2 and 7 are connected for Night Mode Relay and they have any voltage present, the Night Mode Programmable Function Key (PGM 15-07 or SC 851:09) cannot be used to change modes.

CPRU Installation (Figure 2-4)

1. Install the battery on the CPRU. The polarity "+" symbol must be on top.
2. Install the DSPDBU daughter board if required. Refer to **DSPDB Daughter Board (Figure 2-6, Figure 2-7)** (page 2-22).
3. Install the PAL EPROM as needed on a 64-port basic NTCPU (P/N 0891002).

   - When installing the chip, be careful not to bend the EPROM pins. Also note that the keyed end of the EPROM should be positioned closest to the '1' pin position. After lining up the pins with the connector, firmly push the EPROM into place.

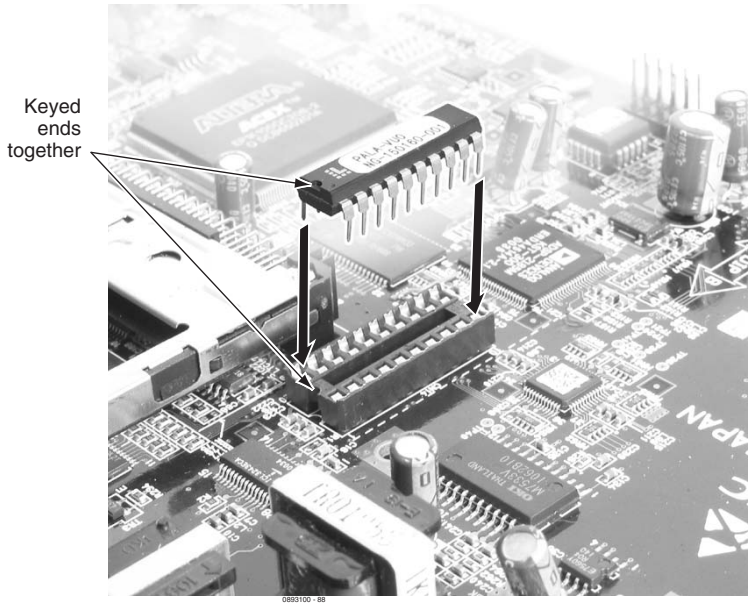


Figure 2-4: INSTALLING THE PAL EPROM

   - When removing the chip, use a flat-head screwdriver to gently pry each end of the EPROM up, being careful not to bend the EPROM pins.

4. After being certain that the power supply is shut off, slide the NTCPU into the CPU slot in the main cabinet.

   Note that the component side of the PCBs should always be facing to the right side of the cabinet (away from the power supplies).

5. If external BGM or MOH is being installed, plug an RJ61 connector into the CN16 connector on the NTCPU. The other end of the cable plugs into the music source.

   Refer to the PGDAD Module in the Telephones and Optional Equipment section for details on connecting to a music source.

- When the system software is upgraded, the flash memory is updated with the new software version. You can use the Hot or Cold start-up methods or upgrade your system software using the steps which follow.
- Customer information is stored in the RAM memory and, in case of a power failure, will be restored. The lithium battery in the system saves the RAM memory when power is lost.

Resetting the System:

! IMPORTANT !

While the system is powered up, data may be written to the S-RAM or flash memory at any time. If the Aspire requires a system reset, it is recommended that instead of using the reset lever on the NTCPU, that the power be turned off to the cabinet(s). Turn the system power off.

With the Aspire M/L: Press the power button on the power supply in the PS1 slot (this controls power to both power supplies if there are two installed in the cabinet).

With the Aspire XL: Press the power switch on the expansion cabinet's DC-to-DC Converter, then press the power switch on the main cabinet's DC-to-DC Converter.

With the Aspire XL, if power is turned off on the expansion cabinet's DC-to-DC Converter, it only affects that particular cabinet. The main cabinet continues to operate normally.

This procedure will allow the system to wait until any data-writing process is completed, avoiding the possibility of corrupting the data. If the reset lever is used while flash memory data is being written and it becomes corrupted, the system may not come up. If the S-RAM data is corrupted, the telephones may have erratic operation.

To Perform a Cold Start:

System software loaded from flash memory and the customer data is erased from RAM memory.

To avoid extension and trunk renumbering if certain PCBs are recognized first, set the RUN/BLOCK switches to the BLOCK position until the system has reset. Then, move the switches to the RUN position in the correct order to retain the proper system numbering (Use Programs 10-03 or 90-13-03 prior to performing a cold start to record the current slot definitions.).

1. Without the flash card installed in the NTCPU, trun the system power off.
   With the Aspire M/L: Press the power button on the power supply in the PS1 slot (this controls power to both power supplies if there are two installed in the cabinet).
   With the Aspire XL: Press the power switch on the expansion cabinet's DC-to-DC Converter, then press the power switch on the main cabinet's DC-to-DC Converter.
   With the Aspire XL, if power is turned off on the expansion cabinet's DC-to-DC Converter, it only affects that particular cabinet. The main cabinet continues to operate normally.
2. Once the system has powered down, push in and hold the Load button.
3. Press the power button to power the system back up.
   With a 2-cabinet system, turn on the expansion cabinet's power supply, then the main cabinet's power supply.
4. Continue holding the Load button for approximately 3 seconds.
5. Release the Load button.
6. When the system has completed reloading the software (2 minutes), the Status LED will be flashing on the NTCPU.

To Perform a Hot Start:

System software loaded from flash memory and the customer data is loaded from RAM memory.

1. Turn the system power off.
   With the Aspire M/L: Press the power button on the power supply in the PS1 slot (this controls power to both power supplies if there are two installed in the cabinet).
   With the Aspire XL: Press the power switch on the expansion cabinet's DC-to-DC Converter, then press the power switch on the main cabinet's DC-to-DC Converter.
   With the Aspire XL, if power is turned off on the expansion cabinet's DC-to-DC Converter, it only affects that particular cabinet. The main cabinet continues to operate normally.
2. Once it has powered down, press the button again to power the system back up. Wait approximately 2 minutes.
3. When the system has completed reloading the software, the Status LED will be flashing on the NTCPU.

To Perform a Software Upgrade:

! Important !

To save customer data prior to updating, a blank PC-ATA flash card (P/N 0891061) is required. Insert the card into the NTCPU and, using Program 90-03, save the software to the PC-ATA card. Note that a PC-ATA card can only hold one customer database. Each database to be saved will require its own separate card. Use Program 90-04, with the database to be restored installed in the NTCPU, to reload the customer data if necessary. If a CompactFlash card is used for software instead of a PC-ATA flash card, a CompactFlash Adapter (with PCMCIA compatbility) is required.

After uploading programming data to the system using Program 90-04, exit programming mode (this could take a minute or more to save the database), then reset the system by powering down and back up. Wait a few minutes for the programming to take affect before accessing any lines or special system features. Otherwise some unusual LED indications may be experienced. To prevent the PC-ATA card from possibly being over-written, remove the card after downloading the database.

When restoring a database file, as the slot definitions may be different, remove all PCBs from the system except the NTCPU and the ESIU in slot 1. After the system has been reset, you can reinstall the PCBs. You can use Program 10-03 or Program 90-13-03 prior to updating to record the current slot definitions.

1. Turn the system power off.
   With the Aspire M/L: Press the power button on the power supply in the PS1 slot (this controls power to both power supplies if there are two installed in the cabinet).
   With the Aspire XL: Press the power switch on the expansion cabinet's DC-to-DC Converter, then press the power switch on the main cabinet's DC-to-DC Converter.
   With the Aspire XL, if power is turned off on the expansion cabinet's DC-to-DC Converter, it only affects that particular cabinet. The main cabinet continues to operate normally.
2. Once the system has completed its powering down cycle (all LEDs are off), insert the PC-ATA card containing the software upgrade (P/N 0891060) into the PCMCIA card slot on the NTCPU.
3. Push in and hold the Load button.
4. Turn the system power on by pressing the power button(s) to power the system back up.
5. Continue holding the Load button for approximately 10 seconds.
6. Release the Load button.
7. Wait until the Status LED on the NTCPU have the following indications (approximately 2 minutes): LED 1: Steady Green, LED 0: Flashing Red, LED 2: Flashing Red, LED 3: Flashing Red, LED 4: Steady Red.
8. Turn the system power off.
   With the Aspire M/L: Press the power button on the power supply in the PS1 slot (this controls power to both power supplies if there are two installed in the cabinet).
   With the Aspire XL: Press the power switch on the expansion cabinet's DC-to-DC Converter, then press the power switch on the main cabinet's DC-to-DC Converter.
   With the Aspire XL, if power is turned off on the expansion cabinet's DC-to-DC Converter, it only affects that particular cabinet. The main cabinet continues to operate normally.
9. Once the system has completed its powering down cycle (all LEDS are off), remove the PC-ATA card.
10. Turn the system power back on.
11. When the system has completed reloading the software, the Status LED will begin flashing on the NTCPU. The remaining 4 LEDs will now be off.
    To confirm the new software version has been installed, the system version number can be viewed by pressing CHECK and then the HOLD key on any display keyset. This can also be confirmed in Program 90-16-01.

    The existing system software in the flash memory is replaced, but the customer data (stored in the RAM) is saved.

Expansion (EXIFU) PCB (Figure 2-5)

The EXIFU PCB provides a connection from the main cabinet to the expansion cabinet. This connection is required with any 2-PCB cabinet setup. Included with the EXIFU PCB is a proprietary cable which must be used to connect the main cabinet and expansion cabinets together.

To install an EXIFU PCB:

1. Install the EXIFU into the CPU/EXP slot in the expansion cabinet.
   Note that the white PCB Pull Tab should always be positioned closest to the top of the cabinet.
2. Install the EXIFU cable to the CN2 connector on the EXIFU PCB. Connect the opposite end to the CN6 connector on the NTCPU.

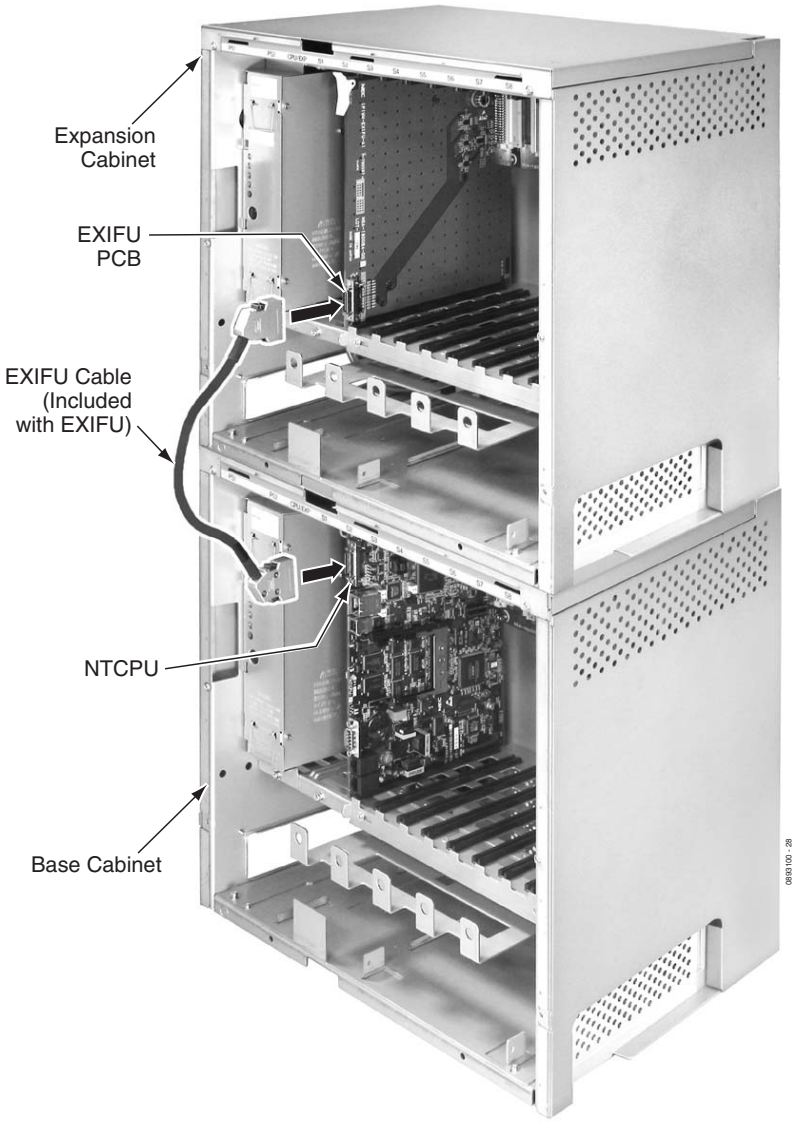


Figure 2-5: EXIFU PCB INSTALLATION

DSPDB Daughter Board (Figure 2-6, Figure 2-7)

The DSPDB provides additional DSP resources as well as the option for the VRS (Voice Response System) feature. This daughter board is mounted on the NTCPU and provides:

- 32 Tone Resources (for DTMF Receiver, Caller ID Receiver, and Call Progress Tone Detection)
- 16 VRS Circuits with a VRS Flash Card Installed (replays up to 16 circuits simultaneously, recording: up to 8 circuits simultaneously)
- Compact Flash Slot for VRS Feature

The receiver circuits are used for DTMF receivers, call progress tone detection, and Caller ID receivers.

To install a DSPDB Daughter Board:

1. Included with the DSPDB are four spacers. Install one spacer in each corner of the daughter board. Make sure to attach the spacers from the back of the daughter board so when installed, the compact flash slot is facing up.
2. Position the daughter board over the CN10 connector on the NTCPU. Push the board into the connector on the NTCPU. Gently push the corners of the daughter board down so the spacers lock into the NTCPU.

   To remove the daughter board, use pliers to squeeze the top of the spacers together, then gently pull the daughter board off.

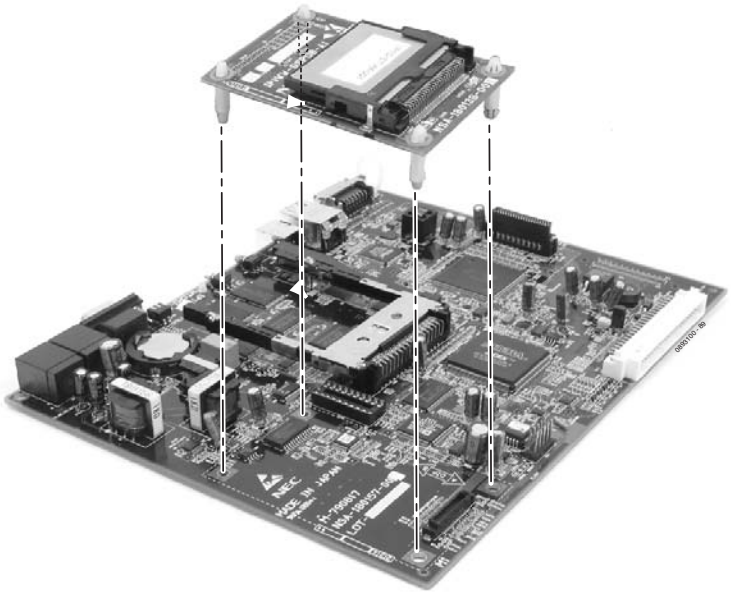


Figure 2-6: DSPDB DAUGHTER BOARD INSTALLATION

To Upgrade the DSPDB Compact Flash Card:

1. With the system power off, remove the NTCPU.
2. Remove the compact flash card from the DSPDB daughter board.
3. Insert the new compact flash card.
4. Reinstall the NTCPU.

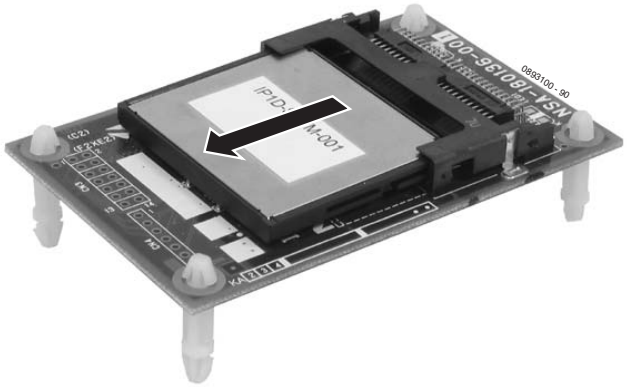


Figure 2-7: REMOVING THE COMPACT FLASH CARD

Digital Station (8/16/32ESIU) PCB (Figure 2-8)

The ESIU PCB provides:

- 8 (8ESIU), 16 (16ESIU), OR 32 (32ESIU) digital extension circuits (used for digital telephones, DSS consoles, 1SLTAD adapters, 2PGDAD adapters)
- 2 (8ESIU), 4 (16ESIU), OR 8 (32ESIU) extension status LEDs (each LED indicates status for 4 extensions - BL1 used for ports 1-4, BL2 for ports 5-8, BL3 for ports 9-12, BL4 for ports 13-16, etc.).
- 1 PCB status LED
- 1 run/block switch

Note: Any cabling to the ESIU PCB must be within the building - no outside cabling is permitted.

With the 8ESIU or 16ESIU PCB:
The CN102, CN103, CN202, and CN203 connectors each provide connection to 4 digital station ports. With the 8ESIU PCB the CN202 and CN203 connectors as well as the BL3 and BL4 LEDS are removed from the PCB.

With the 32ESIU PCB:
THE 32ESIU PCB has four connectors (CN2, CN3, CN4, and CN5). Each connector provides 2 modular jacks which are used to connect up to 4 digital station ports.

In order to program the system, an ESIU PCB should be installed in slot 1. However, system programming can be done using the PCPro or WebPro applications or through a VoIP telephone. The ESIU requires one universal slot.

The 8ESIU consumes 8 ports and the 16ESIU consumes 16 ports, both PCBs using ports ranging between 001-256. The 32ESIU consumes 32 ports ranging from ports 001-384.

Using the 32ESIU PCB

This card requires system software 4.00 or higher and will work with any version of NTCPU PAL chip - Basic NTCPU (P/N 0891002), Basic NTCPU with Feature Upgrade PAL (P/N 0891039), or the Enhanced NTCPU (P/N 0891038).

When installing the 32ESIU PCB, the system will assign the next 32 consecutive ports. Keep this in mind when replacing two 16ESIU PCBs with a 32ESIU PCB. Both 16ESIU slots should be deleted in Program 90-05, otherwise, the system will assign new station ports to the PCB.

32ESIU Specifications

- 16-Bit DSP
- 8 Mb/s PCM Highway Interface
- Programmable Timeslot Switch
- 4 Digital Station Port Interface ASICs
- CPLD
- 128M External SRAM
- SPI Boot EEPROM

When using the 32ESIU PCB with Aspire M/L hardware:

With the Aspire M/L and its power supplies (P/N 0891000):

- The system can have up to 4 32ESIU PCBs installed in one cabinet (8 per system).
- Only the first 4 ports on each 32ESIU PCB allows the use of the second B-channel. This means that the APR (B2 mode) adapter or PGDAD module must be installed on one of the first 4 ports.
- Systems can accommodate 128 ports maximum for -48V with two power supplies (P/N 0891000) in one cabinet.
  If 4 32ESIU's are used with two Aspire M/L power supplies, no other PCB which requires -48V (ESIU, DSTU, SLIU, DSIU, BRIU, TLIU) can be installed in that cabinet.
- Using the 32ESIU PCBs **does not** increase the number of digital/analog ports - the limit remains at 512 (256 analog/digital and 256 IP and Wireless).
- The load factor for the 32ESIU PCB is 7. The information regarding the **Load Factor - Aspire M/L Only** (page 2-2) applies when used with the Aspire M/L power supplies.

When using the 32ESIU PCB with Aspire XL hardware:

With the Aspire XL hardware and its power supply kit (P/N 0890069):

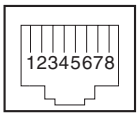
- The system can have up to 12 32ESIU PCBs installed per system (8 maximum per cabinet), providing up to 384 digital ports.
- Only the first 4 ports on each 32ESIU PCB allows the use of the second B-channel. This means that the APR (B2 mode) adapter or PGDAD module must be installed on one of the first 4 ports.
- The second B-channel starts at port 512 in Program 10-03 when the Aspire 4.00 software is used and is assigned in descending order.
- Aspire Wireless automatic port assignments, using Program 91-06-01, selects an available port starting with port 385. With software prior to 4.x, the first port started at 257.
- Systems can accommodate 384 TDM station ports maximum for -48V with two power supplies (P/N 0890069) installed.
  The PCBs which require -48V are: ESIU, DSTU, SLIU, DSIU, BRIU, DIOPU, TLIU
  A multi-cabinet system can use different power supplies (0891000 and 0892011, however, if a cabinet has more than 128 -48 volt ports, the AC/DC power supply and DC/DC converter is required - the Aspire M/L power supplies, P/N 0891000, can not be used.
- Follow the **Load Factor - Aspire XL Only** (page 2-6) information to configure the Aspire XL system.

Conditions with the 32ESIU PCB

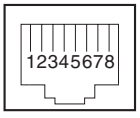
- When you revert the system software to version 3.xx or older, or you install a 16ESIU into a slot previously defined for a 32ESIU PCB, you have to delete the 32ESIU slot information using Program 90-05 menu 1.
  - When reverting software, if the 32ESIU PCB is not deleted, the system will not start up.
  - If you install a 16ESIU into a slot previously defined as a 32ESIU slot without deleting the slot assignment, the B2 channels will not be available.
- The busy LED on the board will not light, even if the B2 mode is used (this is the same function as with the 16ESIU).
- Wired extensions must be installed within the range of 1 to 384. If not, the port will not be assigned even if the total number of ports does not exceed 384.
- With the XL system, the APR port (B2 mode) is assigned from 512 in descending order.

PCB Maximum's				
	Basic NTCPU	Basic NTCPU with Upgrade PAL (Software 1.00-3.07)	Basic NTCPU with Upgrade PAL (Software 4.0E+)	Enhanced NTCPU
8ESIU	8	8	16	16
16ESIU	4	4	8	16
32ESIU	2	4	4	**With P/N 0891000 power supplies (Aspire M/L) :** 4 **With Software 4.xx+ and P/N 0892011//0892012 power supplies (Aspire XL) :** 12

Connector Pin-Outs on the 8/16ESIU

RJ61 Cable Connector - CN102, CN103, CN202, CN203		
	Pin No.	**Connection**
	1	Tip for port 4
	2	Tip for port 3
	3	Tip for port 2
	4	Ring for port 1
	5	Tip for port 1
	6	Ring for port 2
	7	Ring for port 3
	8	Ring for port 4

Connector Pin-Outs on the 32ESIU

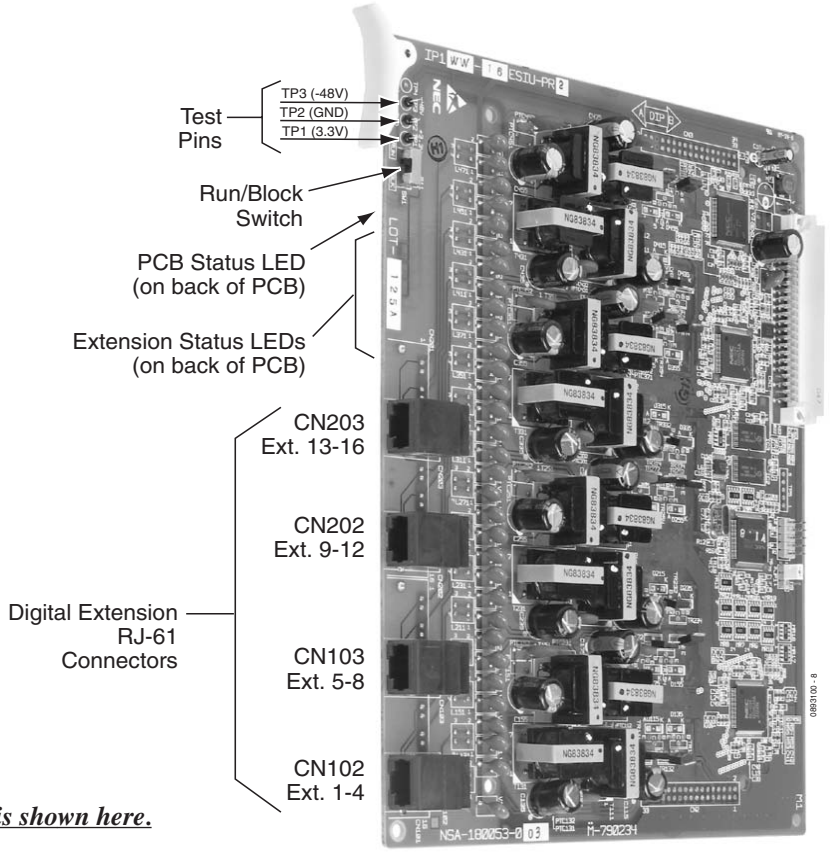
RJ61 Cable Connector - CN2, CN3, CN4, CN5 (each connector providing two jacks)		
	Pin No.	**Connection**
	1	Tip for port 4
	2	Tip for port 3
	3	Tip for port 2
	4	Ring for port 1
	5	Tip for port 1
	6	Ring for port 2
	7	Ring for port 3
	8	Ring for port 4

To install the ESIU PCB:

1. Set the run/block switch **DOWN**.
   The PCB Status LED is on when the PCB is blocked.
2. Install the ESIU into a slot.
   Note that the white PCB Pull Tab should always be positioned closest to the top of the cabinet.
3. Set the ESIU run/block switch **UP**.
   The sync LED will flash on the 32ESIU, but the phones will sync up slower than when using a 16ESIU PCB.

   On the 8/16ESIU PCBs, each connector (CN102, CN103, CN202, CN203) is used to connect up to four Aspire digital extensions.

   The 32ESIU PCB has four connectors (CN2, CN3, CN4, CN5). Each connector provides two modular jacks which are used to connect up to four Aspire digital extensions.



The 16ESIU PCB is shown here.

Figure 2-8: ESIU INSTALLATION

Analog Station (8SLIU) PCB (Figure 2-9)

The 8SLIU PCB provides:

- 8 analog extension ports (used for on-premise analog telephones, fax machines, and analog modems)
  The 8SLIU is not rated for OPX use. It is recommended that a 4/8DIOPU PCB be used instead (it supports the analog DID and single line telephone interface functions, such as Off-Premise Extensions).
- 8 extension status LEDs
- 1 PCB status LED
- 1 run/block switch
- 8 SW1 switches which provide constant current type battery feeding (set to either 20mA [default] or 35mA)
- Connector for 8SLIDB Daughter Board
- Ring Generator
- Message Wait Lamping Ability

Notes:

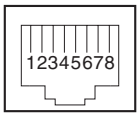
When connecting a fax machine or analog modem, make sure to set Program 15-03-03 to '1' (special terminal) to avoid communication problems.

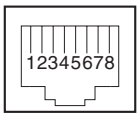
Any cabling to the ESIU PCB must be within the building - no outside cabling is permitted.

The 8SLIU consumes 8 ports ranging between ports 001-256. The CN3 and CN5 connectors each provide connection to 4 analog station ports and are not polarity sensitive.

PCB Maximum's			
Basic NTCPU	Basic NTCPU with Upgrade PAL (Software 1.00-3.07)	Basic NTCPU with Upgrade PAL (Software 4.0E+)	Enhanced NTCPU
7	7	15	15

Connector Pin-Outs on 8SLIU

RJ61 Cable Connector - CN3		
	**Pin No.**	**Connection**
	1	CH4 L1 (tip for port 4)
	2	CH3 L1 (tip for port 3)
	3	CH2 L1 (tip for port 2)
	4	CH1 L2 (ring for port 1)
	5	CH1 L1 (tip for port 1)
	6	CH2 L2 (ring for port 2)
	7	CH3 L2 (ring for port 3)
	8	CH4 L2 (ring for port 4)

RJ61 Cable Connector - CN5		
	**Pin No.**	**Connection**
	1	CH8 L1 (tip for port 8)
	2	CH7 L1 (tip for port 7)
	3	CH6 L1 (tip for port 6)
	4	CH5 L2 (ring for port 5)
	5	CH5 L1 (tip for port 5)
	6	CH6 L2 (ring for port 6)
	7	CH7 L2 (ring for port 7)
	8	CH8 L2 (ring for port 8)

Installing an 8SLIU PCB:

1. Set the run/block switch **DOWN.**
   If the 8SLIDB is to be used, install this prior to inserting the 8SLIU PCB into the cabinet.
2. Install the 8SLU into the slot.
   Note that the white PCB Pull Tab should always be positioned closest to the top of the cabinet.
3. Set the 8SLIU's run/block switch **UP.**

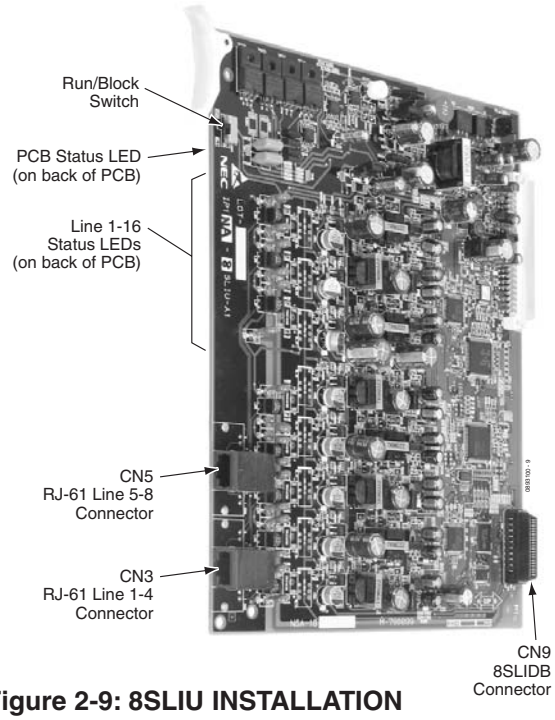


Figure 2-9: 8SLIU INSTALLATION

Analog Station (8SLIDB) Daughter Board (Figure 2-10 - Figure 2-11)

The 8SLIDB daughter board provides:

- 8 analog extension ports (used for on-premise analog telephones, fax machines, and analog modems)
  The 8SLIDB is not rated for OPX use. It is recommended that a 4/8DIOPU PCB be used instead (it supports the analog DID and single line telephone interface functions, such as Off-Premise Extensions).
- 8 SW1 switches which provide constant current type battery feeding (set to either 20mA [default] or 35mA)
- Connector for 8SLIU PCB
- Ring Generator
- Message Wait Lamping Ability

Notes:
When connecting a fax machine or analog modem, make sure to set Program 15-03-03 to '1' (special terminal) to avoid communication problems.

Any cabling to the ESIU PCB must be within the building - no outside cabling is permitted.

The CN3 and CN5 connectors each provide connection to 4 analog station ports and are not polarity sensitive. The 8SLIDB is installed on the 8SLIU PCB. The 8SLIDB consumes 8 ports ranging between ports 001-256 (remember that the 8SLIU PCB will also consume 8 ports).

PCB Maximum's			
Basic NTCPU	Basic NTCPU with Upgrade PAL (Software 1.00-3.07)	Basic NTCPU with Upgrade PAL (Software 4.0E+)	Enhanced NTCPU
3	3	8	15

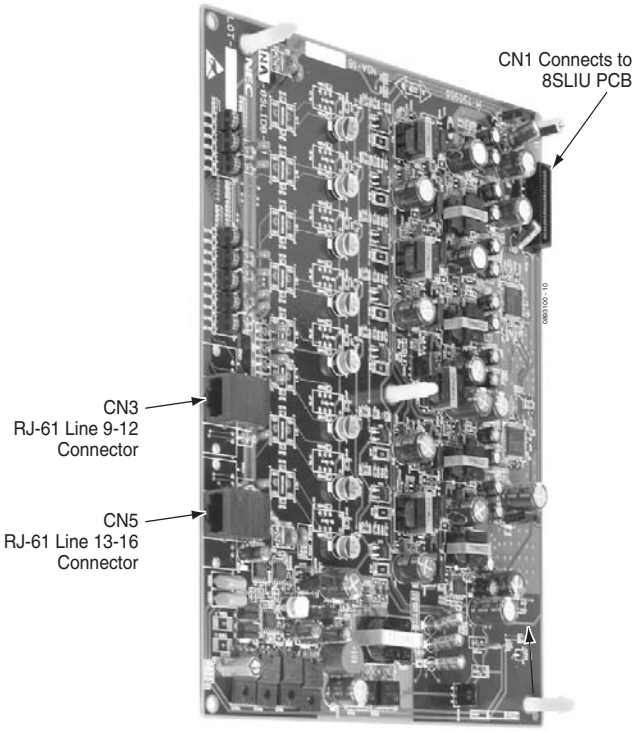
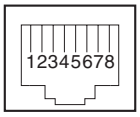
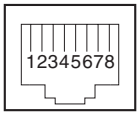


Figure 2-10: 8SLIDB PCB

Connector Pin-Outs on 8SLIDB

RJ61 Cable Connector - CN3		
	**Pin No.**	**Connection**
	1	CH12 L1 (tip for port 12)
	2	CH11 L1 (tip for port 11)
	3	CH10 L1 (tip for port 10)
	4	CH9 L2 (ring for port 9)
	5	CH9 L1 (tip for port 9)
	6	CH10 L2 (ring for port 10)
	7	CH11 L2 (ring for port 11)
	8	CH12 L2 (ring for port 12)

RJ61 Cable Connector - CN5		
	**Pin No.**	**Connection**
	1	CH16 L1 (tip for port 16)
	2	CH15 L1 (tip for port 15)
	3	CH14 L1 (tip for port 14)
	4	CH13 L2 (ring for port 13)
	5	CH13 L1 (tip for port 13)
	6	CH14 L2 (ring for port 14)
	7	CH15 L2 (ring for port 15)
	8	CH16 L2 (ring for port 16)

Installing an 8SLIDB Daughter Board:

1. Included with the 8SLIDB are three plastic spacers and two metal spacers. The plastic spacers are installed diagonally across the daughter board. The metal spacers are then installed in the remaining two corners. The metal spacers are each secured by a screw, securing the two boards together. Make sure to attach the spacers on the front of the daughter board so when installed, the components are facing the 8SLIU PCB.
2. Position the 8SLIDB's CN1 connector over the CN9 connector on the 8SLIU PCB. Press the boards together, ensuring the plastic spacers lock in place.
3. Install the screws for the metal spacers.
4. Install the 8SLIU PCB into the slot.
   Note that the white PCB Pull Tab should always be positioned closest to the top of the cabinet.
5. Set the 8SLIU's run/block switch **UP.**

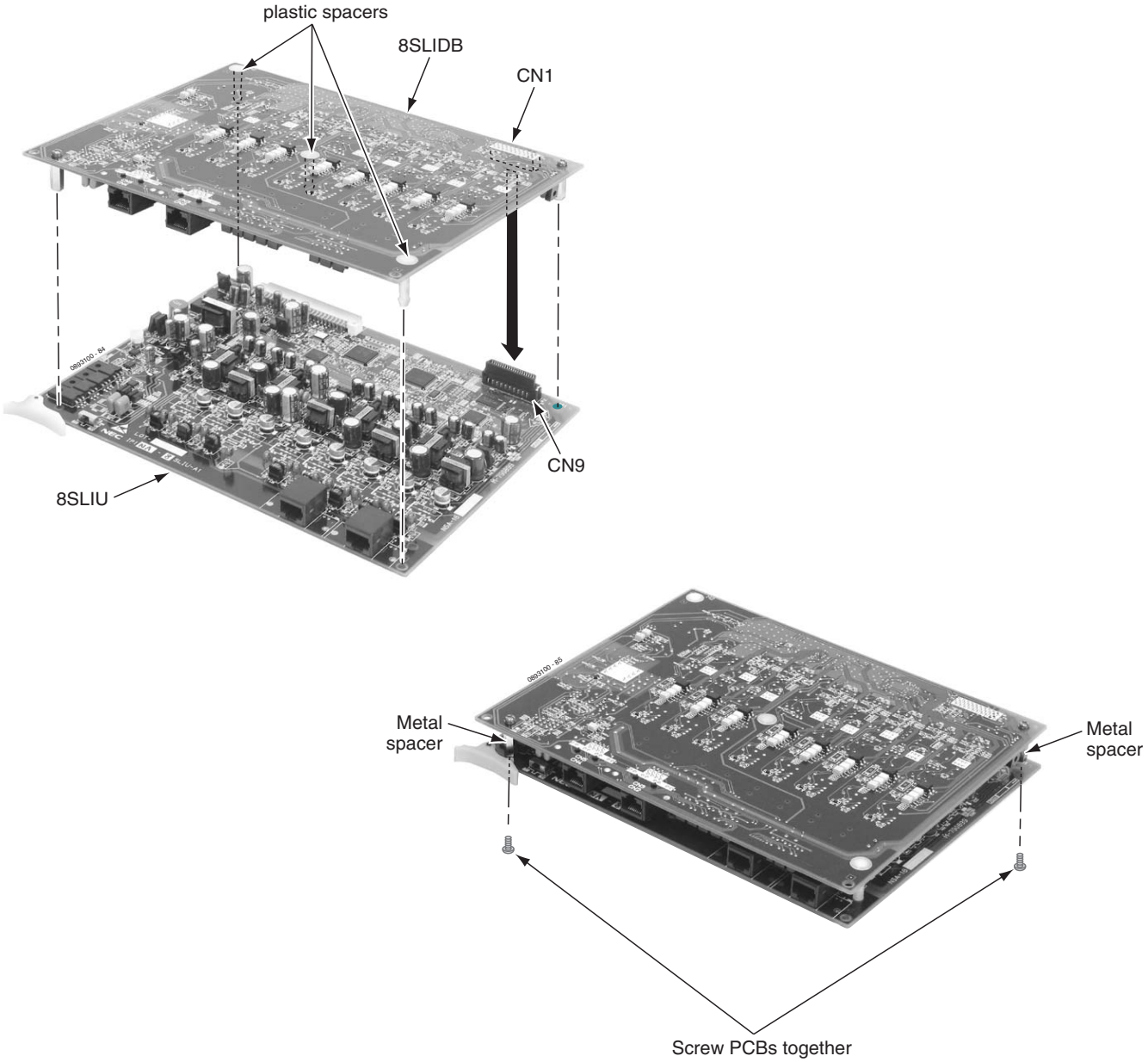


Figure 2-11: 8SLIDB INSTALLATION

i-Series Digital Station PCB (16DSTU) (Figure 2-12)

Each 16DSTU PCB, using system software 1.06 or higher, provides the Aspire system the ability to connect up to 16 i-Series telephones with each port supporting 1 B-channel. The PCB has a load factor or 3, while each phone also has a load factor of "3". The 16DSTU consumes 16 ports ranging between ports 001-256.

PCB Maximum's			
Basic NTCPU	Basic NTCPU with Upgrade PAL (Software 1.00-3.07)	Basic NTCPU with Upgrade PAL (Software 4.0E+)	Enhanced NTCPU
3	3	7	15

The following i-Series phones are compatible with the Aspire system:

Model 2 922xx/926xx Series Keysets
32-Button Display Phone, P/N 92293B / 92293W / 92673
32-Button Standard Phone, P/N 92290B / 92290W / 92670
16-Button Display Phone, P/N 92373C / 92373W / 92573 / 92563
16-Button Standard Phone, P/N 92370B / 92370W / 92570 / 92560

Model 3 i-Series Keysets *
34-Button Display Phone, P/N 92783
28-Button Display Phone, P/N 92763
28-Button Standard Phone, P/N 92760
22-Button Display Phone, P/N 92753A / 92750A

Notes:
i-Series keysets do not have a gain setting database and will use the phone's initial setting.

Any cabling to the ESIU PCB must be within the building - no outside cabling is permitted.

In addition, the Remote Extender is also supported using DSTU ports.

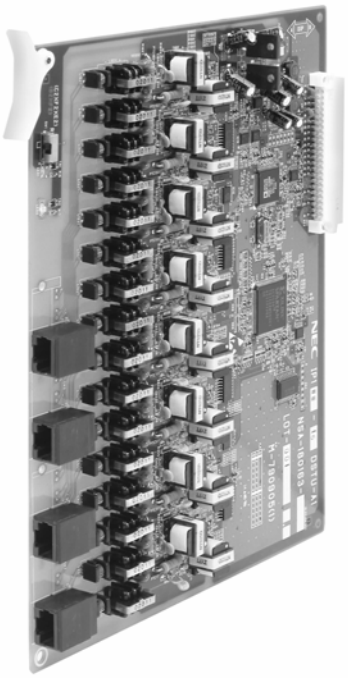


Figure 2-12: 16DSTU PCB

The following i-Series hardware is **NOT** supported on the Aspire system:

- 2OPX
- 900/900i/910i Cordless Phone
- DCI-L
- DSLT
- VAU
- Data Module
- Speakerphone Module
- 3ACI
- DCI-A/B
- Digital VANGARD Voice Mail
- DSS Consoles
- Analog Module
- Off-Hook Voice Announce Module
- Super Display Phones

When using i-Series phones on the Aspire system, the following features are **NOT** supported:

- Directory Dial
- Soft Keys
- Selectable Ring Tones/Changing Incoming CO and ICM Ring Tones (Program 11-11-20)
- Program 10-03 : PCB Setup (DSTU PCB has no programmable options)
- Program 90-07-01 : Extension Control
- Super Display Operation
- Headset Key
- Telephone System Programming (#*#*)
- Program 90-17-01 : Display Firmware Version

In addition to the above, the 92290x, 92670, 92370x, 92570, 92560, and 92760 phones do **NOT** support:

- Check Abandon Calls (CHECK + CALL2)
- Name Program (Service Code 800)
- Time and Date Display Modes (Program 20-02-07)
- Check Port/Name (CHECK + CALL1)
- Language Display (Program 15-02-01)

Conditions:

- As the Aspire keysets provide 24-character displays and the i-Series keysets provide 20-character displays, the i-Series phones will not indicate any characters over the 20-character limit.
- Some languages are not supported by the i-Series phones (such as Norwegian and Danish) due to the LCD controller differences between the i-Series and Aspire phones.
- The NSL is not supported with Aspire Mail.
- User the Caller ID Check List feature requires an Incoming Call Log Programmable Function Key (Program 15-07-01, code 08) in order to view the list.
- Using the Last Number Redial with the i-Series phones, if a line is seized and LND is press, the user must press the # key in order for the call to dial out. With Aspire keysets, the # is not required.

Installing the 16DSTU PCB:

1. Attach a grounded wrist strap to your wrist and a grounded metal object (such as CEU ground).
2. Remove the cover from the common equipment cabinet by unscrewing the two captive screws on the bottom of the cabinet cover. Slide the front cover to the right then pull straight out.
3. Before proceeding further, make sure the CPRU SW3 - 2 Switch is set to Off (down) in order to retain the current system programming.
4. Set the DSTU Run/Block switch **DOWN**.
5. Install the DSTU PCB into an available slot.
   Note that the white PCB Pull Tab should always be positioned closest to the top of the cabinet.
6. Set the DSTU Run/Block switch **UP**.
7. The DSTU PCB has four connectors (CN6, CN7, CN8, CN9). Each connector in used to connect up to four i-Series station ports.

DSIU PCB (4/8/12DSIU) (Figure 2-13 - Figure 2-14)

The 4DSIU, 8DSIU or 12DSIU PCB provides the ability to use Aspire Wireless (DECT) phones with the Aspire system. Each 4DSIU PCB allows up to 8 Base Stations to be connected, - the 8DSIU PCB allows up to 8 - the 12DSIU PCB allows up to 12. Each RFP connector on the PCB provides connection to 4 Base Stations. As the Base Stations are powered by the DSIU PCB, whenever a DSIU PCB is installed in an Aspire cabinet, ***two power supplies must be installed***. Only one DSIU PCB can be installed in a system with a maximum of 120 handsets and 12 Base Stations connected. No ports are consumed by this PCB, however, the extension ports will be assigned when the phone is connected (with ports 1-256 - the system reserves extension ports in groups of 4; with ports 257-512 - one extension port is consumed when the phone is connected).

The load factor for each version of PCB is 10. In addition, each Base Station on the card adds an additional load factor of 2. So the total load factor for the 4DSIU = 18; the 8DSIU = 26; the 12DSIU = 34. (For example, with a 4DSIU, the PCB's load factor is 10. There are a maximum of 4 Base Stations which can be connected, each with a load factor of 2. The total load factor for the PCB (10) with all possible Base Stations connected (4 x 2=8) would be 18.) For load factor restrictions, refer to **Load Factor - Aspire M/L Only** (page 2-2) and **Load Factor - Aspire XL Only** (page 2-6).

The maximum number of B-channels supported is 32, which means that the DSIU PCB (any version) can support a maximum of 32 conversations at one time.

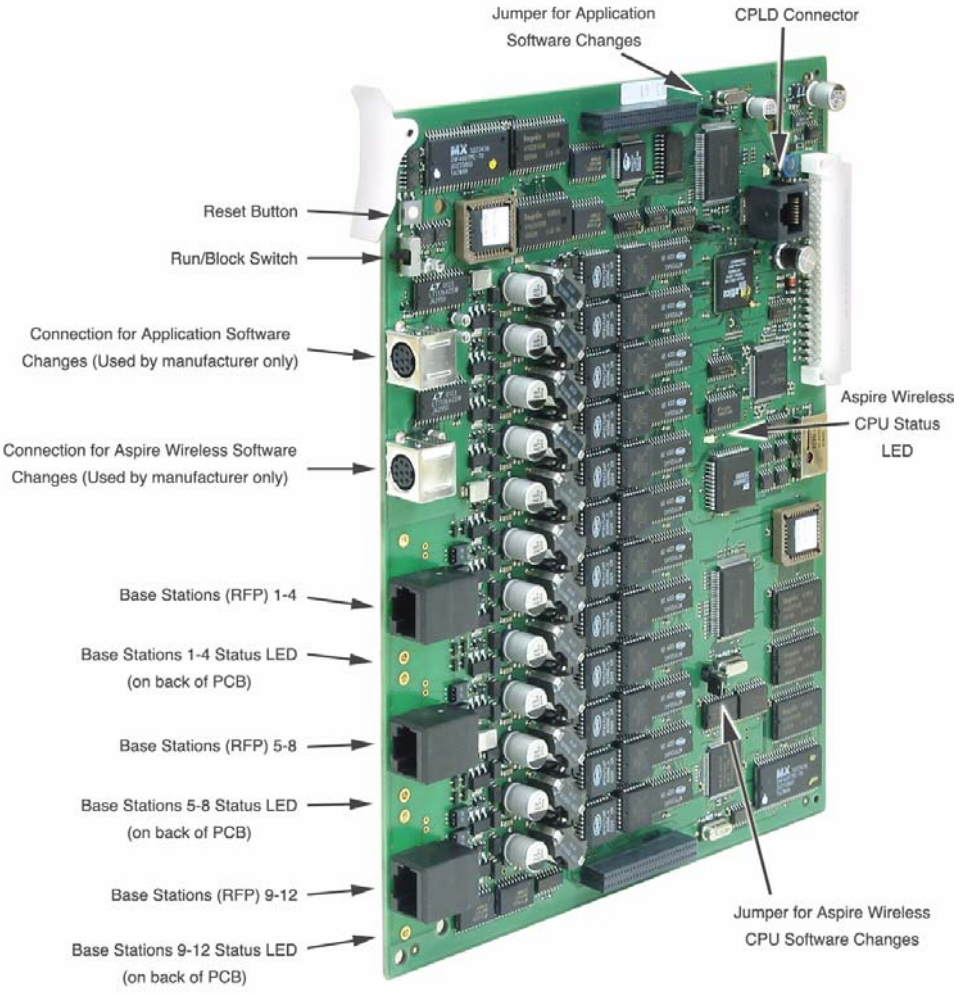
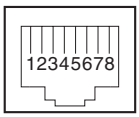


Figure 2-13: DSIU PCB

Cable Pin-Outs

Base Station Connector Pin-Out:



Pin No.	Connection
1	Base Station 4
2	Base Station 3
3	Base Station 2
4	Base Station 1
5	Base Station 1
6	Base Station 2
7	Base Station 3
8	Base Station 4

Mini 8-Pin DIN Connector Pin-Out:

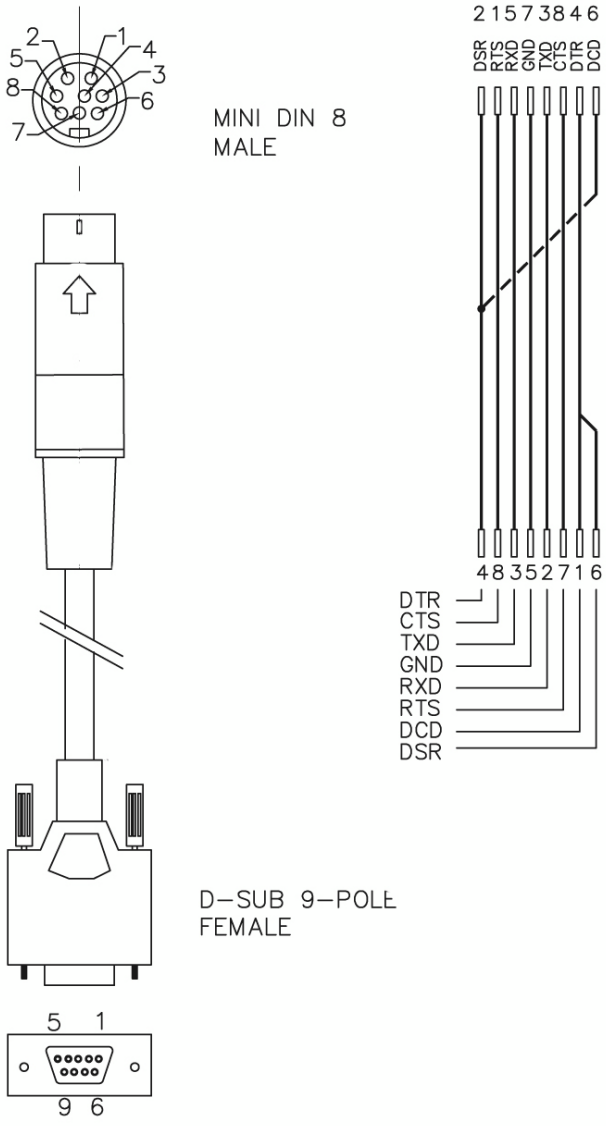
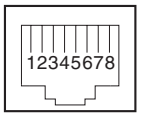


Figure 2-14: DSIU CONNECTOR PIN-OUT

Installing the Aspire Wireless PCB:

1. Set the run/block switch **DOWN**.
2. Insert the DSIU PCB into an available slot.
   The white PCB Pull Tab should always be positioned closet to the top of cabinet.
3. Set the DSIU run/block switch **UP.**
4. The Base Station requires one pair cable from the DSIU connection. A standard CAT 5 cable from the RFP connector to a 66 block can be used. From the 66 block, connect one pair of wires to each Base Station installed (each DSIU connector provides connection to 4 Base Stations and requires 4 available ports). Refer to the RJ61 pin-out information below.
   Use standard two wire (twisted pair) telephone cable to connect to the phone system. To prevent disturbances from other equipment, it is necessary to use twisted pair (e.g. Cat. 4 or Cat. 5).

   The two-wire cable has a maximum cable length of 6561 feet (0.5mm cable) from the DSIU PCB to the Base Station.



Pin No.	Connection
1	Base Station 4
2	Base Station 3
3	Base Station 2
4	Base Station 1
5	Base Station 1
6	Base Station 2
7	Base Station 3
8	Base Station 4

5. Check **Program 90-27 : DECT System ID** to be sure the PCB has been recognized before proceeding. When a PCB is recognized, the program displays an 11-digit ID number.
   This ID number is for viewing only - it cannot be edited.

   DSIU PCB Base Station LED Indications:
   Flashing=Idle, Off=Synchronized, On Steady=Channel in Use
6. Once the red light on the Base Station lights up (this could take a couple of minutes), continue with Phone Subscribing below to register the Aspire Wireless (DECT) phones with the PCB.
7. Connect additional Base Stations or Repeaters as required to provide adequate signal coverage. Refer to ***Determining Base Station/Repeat Locations*** in the ***Aspire Wireless Installation Manual*** to determine the best placement.
   The coverage of a Base Station is 164' to 492' (50m to 150m) depending on the building material and the building's layout. A clear line of site to the Base Station provides better coverage than if the signal has to pass through walls.
8. Wall mount the Base Stations and Repeaters (if used) at the top of the wall for best reception. Use the two wood screws included to attach the wall-mount bracket to the wall and slide the Base Station or Repeater onto the bracket and push until it clicks into place.
9. Refer to the ***Aspire Wireless Installation Manual***, P/N 0893103, for complete installation and program details for the Aspire Wireless phones and hardware.

Analog Trunk (4/8COIU) PCB (Figure 2-15)

There are two different types of the COIU PCB. One providing ground start trunks - the other is for loop start trunks only.

The COIU-LS1 PCB provides:

- 4 (4COIU-LS1) or 8 (8COIU-LS1) analog loop start line/trunk circuits - no ground start is provided
- 4 (4COIU-LS1) or 8 (8COIU-LS1) trunk status LEDs
- 4 (4COIU-LS1) or 8 (8COIU-LS1) Caller ID Circuits
- 2 (4/8COIU-LS1) Power Failure Transfer Circuits
- 1 PCB status LED
- 1 run/block switch

The COIU-LG1 PCB provides:

- 4 (4COIU-LG1) or 8 (8COIU-LG1) analog loop start/ground start line/trunk circuits
- 4 (4COIU-LG1) or 8 (8COIU-LG1) trunk status LEDs
- 4 (4COIU-LG1) or 8 (8COIU-LG1) Caller ID Circuits
- 2 (4/8COIU-LG1) Power Failure Transfer Circuits
- 1 PCB status LED
- 1 run/block switch

The 4COIU consumes 4 trunk ports and the 8CIOU consumes 8 trunk ports, both ranging between ports 001-200. The CN3 and CN5 connectors each provide connection to 4 analog trunk ports, ***which are polarity sensitive (tip to tip, ring to ring)***. The power failure circuits, however, are not polarity sensitive.

	PCB Maximum's			
	Basic NTCPU	Basic NTCPU with Upgrade PAL (Software 1.00-3.07)	Basic NTCPU with Upgrade PAL (Software 4.0E+)	Enhanced NTCPU
4COIU	7	14	15	15
8COIU	7	7	15	15

! Important !

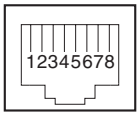
- When using the COIU-LG1 PCB for ground start trunks, the PBX ground ***must*** be connected as described on page 1-38 or the trunks will not function correctly.

- When connecting the RJ61 cables to the COIU PCB, note the position of the Power Failure connector. Do not confuse this connector as the trunk connector.

Connector Pin-Outs on COIU PCB

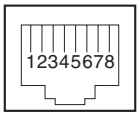
RJ61 Cable Connector - CN3, Trunks

The CN3 and CN5 connectors ***are polarity sensitive (tip to tip, ring to ring)***.



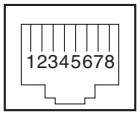
Pin No.	Connection
1	Circuit 4 - Tip
2	Circuit 3 - Tip
3	Circuit 2 - Tip
4	Circuit 1 - Ring
5	Circuit 1 - Tip
6	Circuit 2 - Ring
7	Circuit 3 - Ring
8	Circuit 4 - Ring

RJ61 Cable Connector - CN5, Trunks (8COIU Only)



Pin No.	Connection
1	Circuit 8 - Tip
2	Circuit 7 - Tip
3	Circuit 6 - Tip
4	Circuit 5 - Ring
5	Circuit 5 - Tip
6	Circuit 6 - Ring
7	Circuit 7 - Ring
8	Circuit 8 - Ring

RJ61 Cable Connector - CN13, SLT Interface for Power Failure



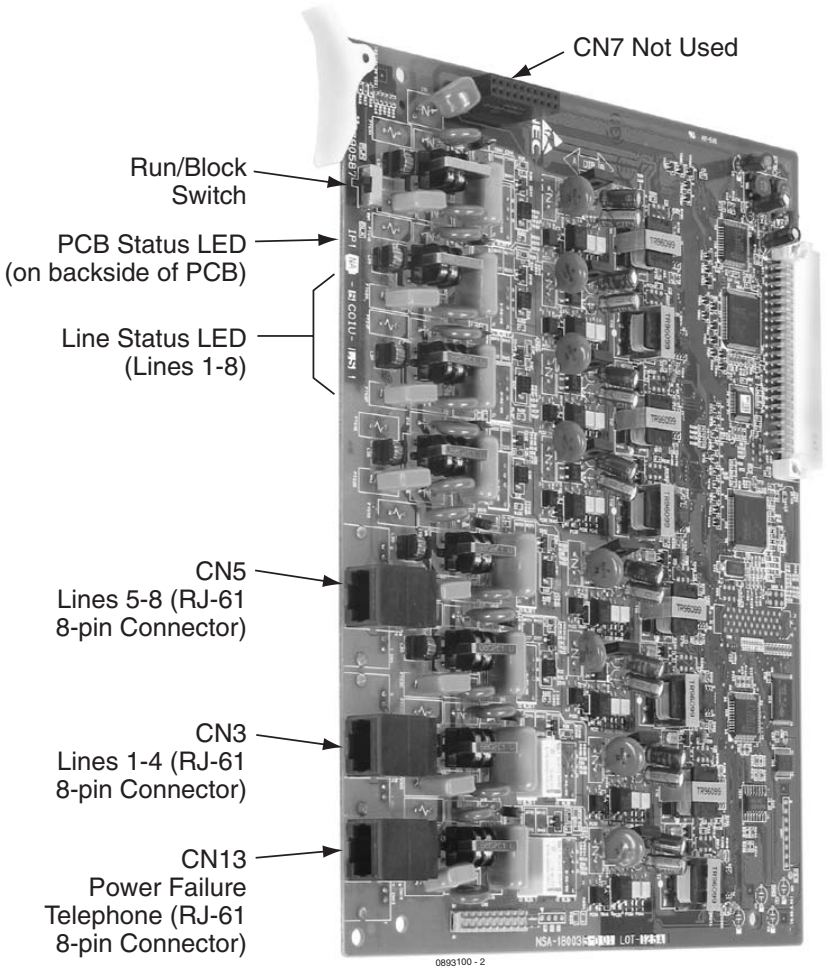
Pin No.	Connection
1	-
2	-
3	Circuit 2 - Tip
4	Circuit 1 - Ring
5	Circuit 1 - Tip
6	Circuit 2 - Ring
7	-
8	-

Installing the Analog Trunk PCB:

1. Set the run/block switch **DOWN**.
2. Install the COIU into a slot.
   Note that the white PCB Pull Tab should always be positioned closest to the top of the cabinet.
3. Set the COIU run/block switch **UP.**
   With normal operation, the status LED will flash fast. If trouble was found during the self diagnostics routine, the status LED will flash slowly.

   Use Program 14-02-14 to set the trunks as loop or ground start. Loop and ground starts can be combined on one PCB.

   .



The 8COIU PCB is shown here.

Figure 2-15: 4/8COIU INSTALLATION

Direct Inward Dial (DID) (4/8DIOPU) PCB (Figure 2-16)

The 4/8DIOPU PCB supports the analog DID and single line telephone interface functions (such as Off-Premise Extension). The function type is assigned in programming for each port. The circuit types, however, should be grouped together. For example, with 3 DID circuits and 1 OPX circuit, they should be grouped as DID, DID, DID and OPX and not DID, DID, OPX and DID.

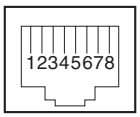
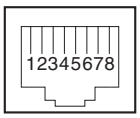
The DIOPU PCB provides:

- 4 (4DIOPU) or 8 (8DIOPU) DID trunk circuits
- 4 (4DIOPU) or 8 (8DIOPU) DID trunk status LEDs
- 1 PCB status LED
- 1 run/block switch

The CN3 and CN5 connectors each provide connection to 4 analog DID trunk ports, ***which are polarity sensitive (tip to tip, ring to ring)***. The OPX circuits, however, are not polarity sensitive. The DIOPU requires one universal slot. If Program 10-03-01 has OPX defined, note that the PCB will consume 4 (4DIOPU) or 8 (8DIOPU) trunk and extension ports when installed. If OPX is not defined, then only trunks ports will be consumed.

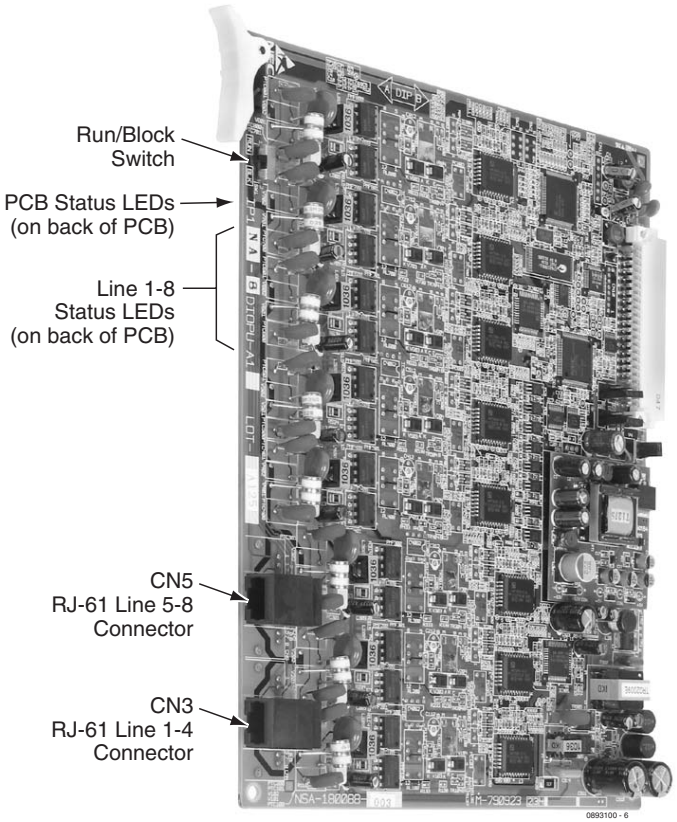
PCB Maximum's				
	Basic NTCPU	Basic NTCPU with Upgrade PAL (Software 1.00-3.07)	Basic NTCPU with Upgrade PAL (Software 4.0E+)	Enhanced NTCPU
4DIOPU	7	14	15	15
8DIOPU	7	7	15	15

Connector Pin-Outs on DIOPU PCB

RJ61 Cable Connector - CN3			
	**Line No.**	**Pin No.**	**Connection**
	1	5	Tip
		4	Ring
	2	3	Tip
		6	Ring
	3	2	Tip
		7	Ring
	4	1	Tip
		8	Ring
RJ61 Cable Connector - CN5 (8DIOPU Only)			
	**Line No.**	**Pin No.**	**Connection**
	5	5	Tip
		4	Ring
	6	3	Tip
		6	Ring
	7	2	Tip
		7	Ring
	8	1	Tip
		8	Ring

Installing the Direct Inward Dial PCB:

1. Set the run/block switch **DOWN.**
2. Install the DIOPU PCB into a slot.
   Note that the white PCB Pull Tab should always be positioned closest to the top of the cabinet.
3. Set the run/block switch **UP.**
   With normal operation, the status LED will flash fast. If trouble was found during the self diagnostics routine, the status LED will flash slowly.



The 8DIOPU PCB is shown here.

Figure 2-16: DIOPU PCB INSTALLATION

Tie Line (4TLIU) PCB (Figure 2-17)

The 4TLIU Tie Line PCB is an out band dial type analog tie line interface PCB. The PCB supports system connections to either 2-wire (four lead, tip/ring) or 4-wire (eight lead, tip/ring/tip 1/ring 1) E&M signalling tie lines (determined in Program 10-03). Using switches on the PCB, each circuit type can be set as Type I, II, III, IV, or V. The 4TLIU consumes 4 ports ranging between ports 001-200. Each PCB requires one universal slot and provides:

- 4 4-circuit tie line interfaces
- 4 tie line status LEDs
- 1 PCB status LED
- 1 run/block switch
- 2 straps and 1 switch per circuit to determine the circuit type

PCB Maximum's			
Basic NTCPU	Basic NTCPU with Upgrade PAL (Software 1.00-3.07)	Basic NTCPU with Upgrade PAL (Software 4.0E+)	Enhanced NTCPU
-	14	15	15

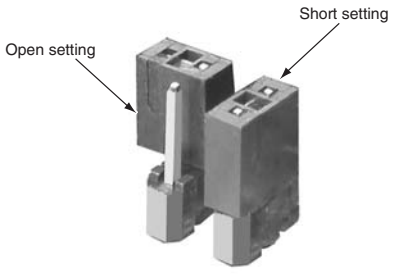
! Important !

When a router or multiplexer is connected instead of a trunk, the SG terminal of the router or multiplexer must be connected to the PBXG and FG grounding terminals on the Aspire cabinet. When a trunk is connected, the PBXG and FG terminals must be connected to the ground. If the PBXG terminal is not connected correctly, the signal may fail.

The PCB contains 2 straps and 1 switch. How these items are set determines the type of signaling the system uses. The type of lines the central office provides the customer determines how these switches should be set.

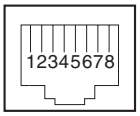
Circuit Type	Channel/Circuit Number 1-4 (CN100-CN400)		
	SWn01 Setting [1]	Sn01 Setting [1]	Sn02 Setting [1]
I	I	Short	Short
II	I	Open	Open
III	V	Open	Short
IV	I	Open	Open
V	V	Short	Short

[1] The "n" is the circuit number being set.



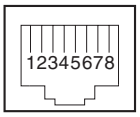
Connector Pin-Outs on 4TLIU PCB

RJ61 Cable Connector - 2-Wire E&M, CN100 - CN400



Pin No.	Connection	Description
1	SB	Ground wire for control
2	M	Control signal to trunk
3	-	
4	R	Voice signal both ways
5	T	Voice signal both ways
6	-	
7	E	Control signal from trunk
8	SG	Ground wire for control

RJ61 Cable Connector - 4-Wire E&M, CN100 - CN400



Pin No.	Connection	Description
1	SB	Ground wire for control
2	M	Control signal to trunk
3	R	Voice signal to trunk
4	R1	Voice signal from trunk
5	T1	Voice signal from trunk
6	T	Voice signal to trunk
7	E	Control signal from trunk
8	SG	Ground wire for control

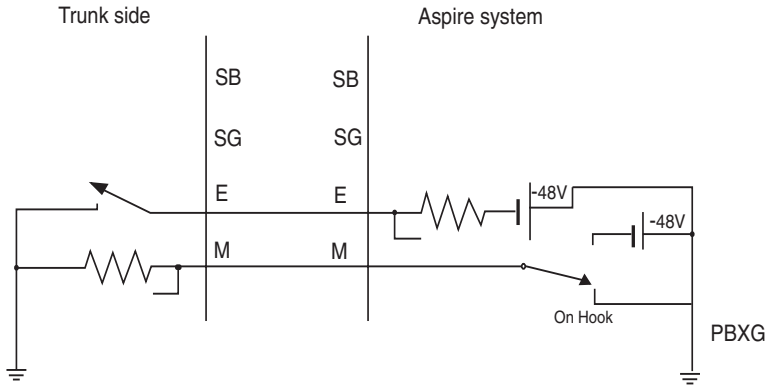
- Note: Using Type I or Type IV, a system loop back test can be performed by connecting CN100 to CN200.

CN100		CN200
E	→	M
M	→	E
R	→	R
T	→	T

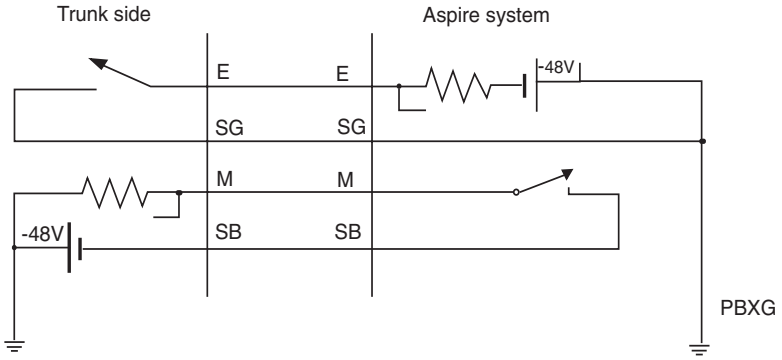
Signaling Method for Circuit Types

Control Signal Connection for Type 1

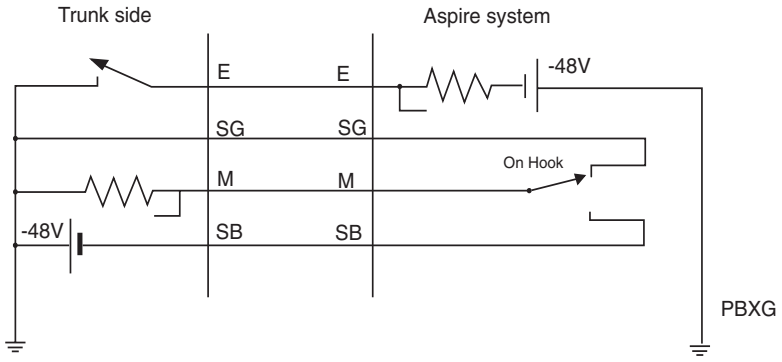
Type 1



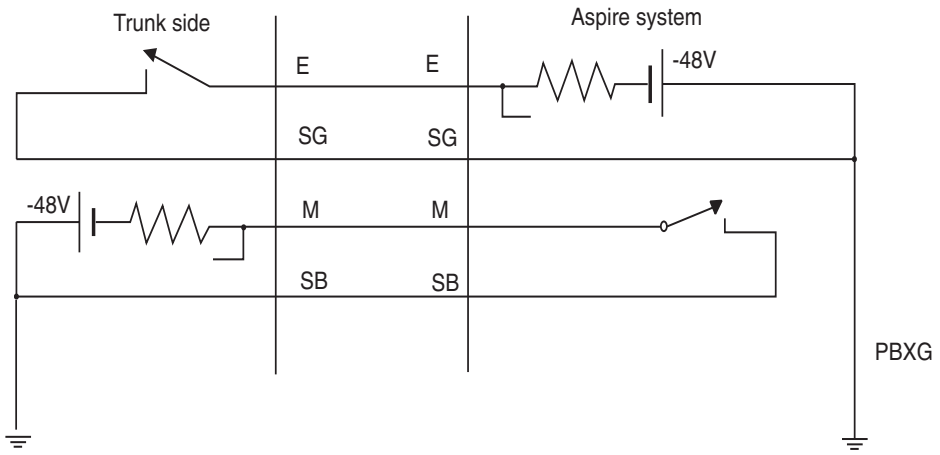
Type II



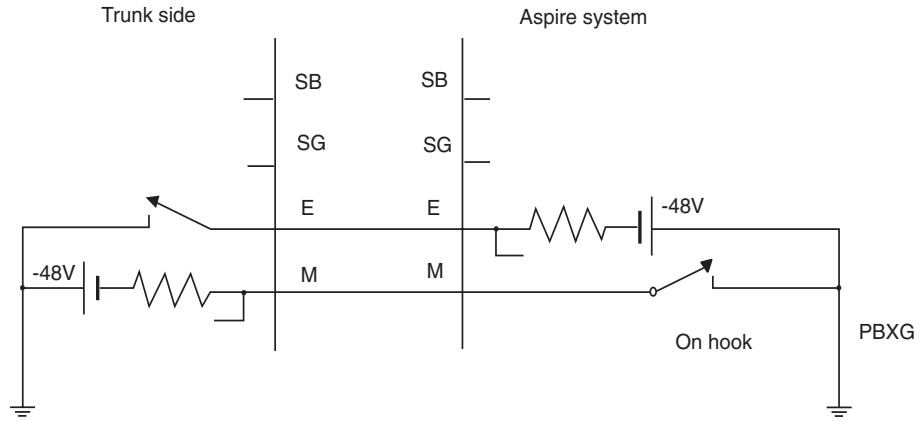
Type III



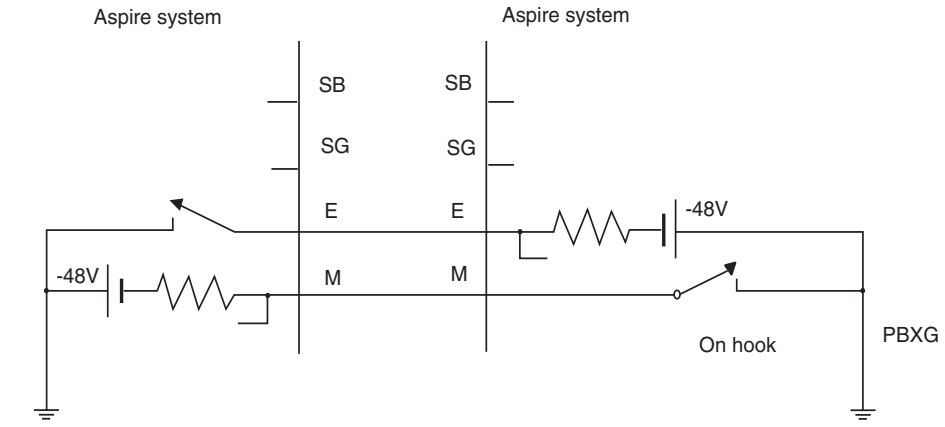
Type IV



Type V



Type V (Back to Back Connection)



Installing the 4TLIU PCB:

1. Set the run/block switch **DOWN.**
2. Set the straps for either the 2-wire or 4-wire (see Figure 2-17).
3. Set the straps for signaling type (1-5).
4. Install the 4TLIU into a slot.

   Note that the white PCB Pull Tab should always be positioned closest to the top of the cabinet.
5. Set the run/block switch **UP.**

   With normal operation, the status LED will flash fast. If trouble was found during the self diagnostics routine, the status LED will flash slow.

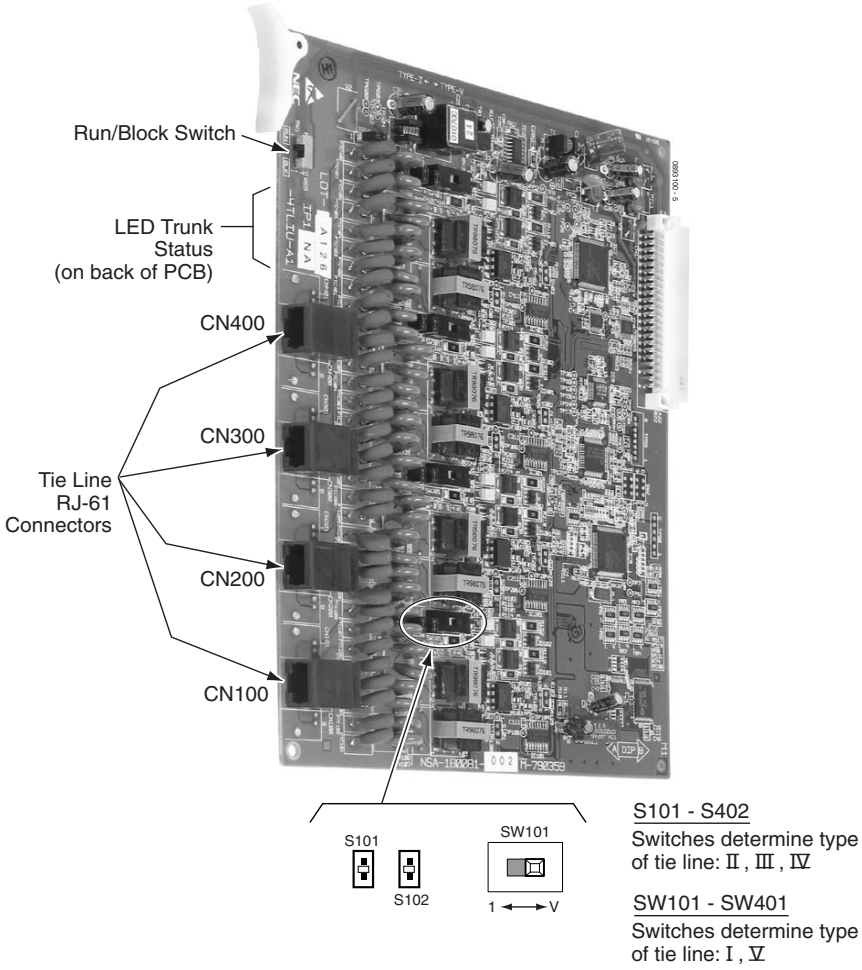


Figure 2-17: 4TLIU TIE LINE PCB INSTALLATION

BRI (2/4/8BRIU) Interface PCB (Figure 2-18)

The BRI PCB provides:

- 2 (2BRIU), 4 (4BRIU), or 8 (8BRIU) 2-Channel Circuits (2B + D) configured as T-Bus or S-Bus
- 64 Kb/s Clear B-Channel and 16 Kb/s D-Channel
- 2 (2BRIU), 4 (4BRIU) or 8 (8BRIU) trunk/extension status LEDs
- 1 PCB status LED
- 1 run/block switch

The BRI Interface PCB uses a single universal slot. Each PCB connects to the network via an NTI Network Termination. With the maximum number of PCBs installed, the following can be provided:

- The 2BRI provides 30 BRI circuits and 60 BRI channels.
  (Port Consumption: T-Bus=4 ports, S-Bus=4 ports, T/S-Bus=8 ports)
- The 4BRI provides 60 BRI circuits and 120 BRI channels.
  (Port Consumption: T-Bus=8 ports, S-Bus=8 ports, T/S-Bus=16 ports)
- The 8BRI, when used as T-Bus, provides 96 BRI circuits and 192 BRI channels. When used as S-Bus, 120 BRI circuits and 240 S-Bus station ports are provided.
  (Port Consumption: T-Bus=16 ports, S-Bus=16 ports, T/S-Bus=32 ports)

The trunk circuit can be connected to either an ISDN trunk or ISDN telephone set, depending on the SW102 through SW802 switch settings. When used for S-Bus, a maximum of 8 ISDN terminals can be connected to each circuit.

On the 8BRIU, the first 4 ISDN telephone circuits (1-4) are supplied with DC power from the Aspire system. If the last four circuits (5-8) are to be used for S-Bus, they must use ISDN telephone sets which provide their own local power supply as the system does not provide DC power to these circuits.

	PCB Maximum's			
	Basic NTCPU	Basic NTCPU with Upgrade PAL (Software 1.00-3.07)	Basic NTCPU with Upgrade PAL (Software 4.0E+)	Enhanced NTCPU
2BRIU	-	14	15	15
4BRIU	-	7	15	15
8BRIU	-	3	8: T-Bus 7: S-Bus	12: T-Bus 15: S-Bus

Setting the SW100-SW800 Switches

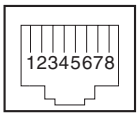
In the following cases, the SW100-SW800 switches should be set to the ON position:

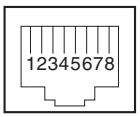
- When the channel is assigned as a T-Bus Point-to-Point.
- With T-Bus Point-to-Multipoint and if the system is connected at the end of the multipoint.
- If the channel is assigned as S-Bus.

Otherwise, the SW100-SW800 switches should be set to the OFF position.

Switch Name	Switch Position	Result	Comments
SW2	RUN	PCB Active	
	BLK	PCB Active	A new incoming call or new outgoing call will not be initiated on the ISDN line when the switch is set to "BLK".
SW102 SW202 SW302 SW402 SW502 SW602 SW702 SW802	T	T-Bus Connection	
	S	S-Bus Connection	
SW100 SW200 SW300 SW400 SW500 SW600 SW700 SW800	ON	Termination resistor is ON	This switch should be set to ON: 1. When T-Bus with Point-to-Point is selected. 2. When T-Bus with Point-to-Multipoint is selected and if the connection to the Aspire system at the last port of the Bus connection. 3. When S-Bus is selected.
	OFF	Termination resistor is OFF	When T-Bus with Point-to-Multipoint is selected and if the Aspire system is not connected to the last port of the Bus connection, this switch should be OFF.
CN102 CN202 CN302 CN402	ON	With S-Bus selected, the Feeding Power is supplied to the terminal.	If S-Bus is selected, this switch should be ON.
	OFF	With S-Bus selected, the Feeding Power is not supplied to the terminal.	If T-Bus is selected, this switch should be OFF.

Connector Pin-Outs on BRIU PCB

RJ45 Cable Connector - CN5, CN6, CN7, CN8 S-Bus Connection		
	**Pin No.**	**Connection**
	1	-
	2	-
	3	RA
	4	TA
	5	TB
	6	RB
	7	-
	8	-

RJ45 Cable Connector - CN5, CN6, CN7, CN8 T-Bus Connection		
	**Pin No.**	**Connection**
	1	-
	2	-
	3	TA
	4	RA
	5	RB
	6	TB
	7	-
	8	-

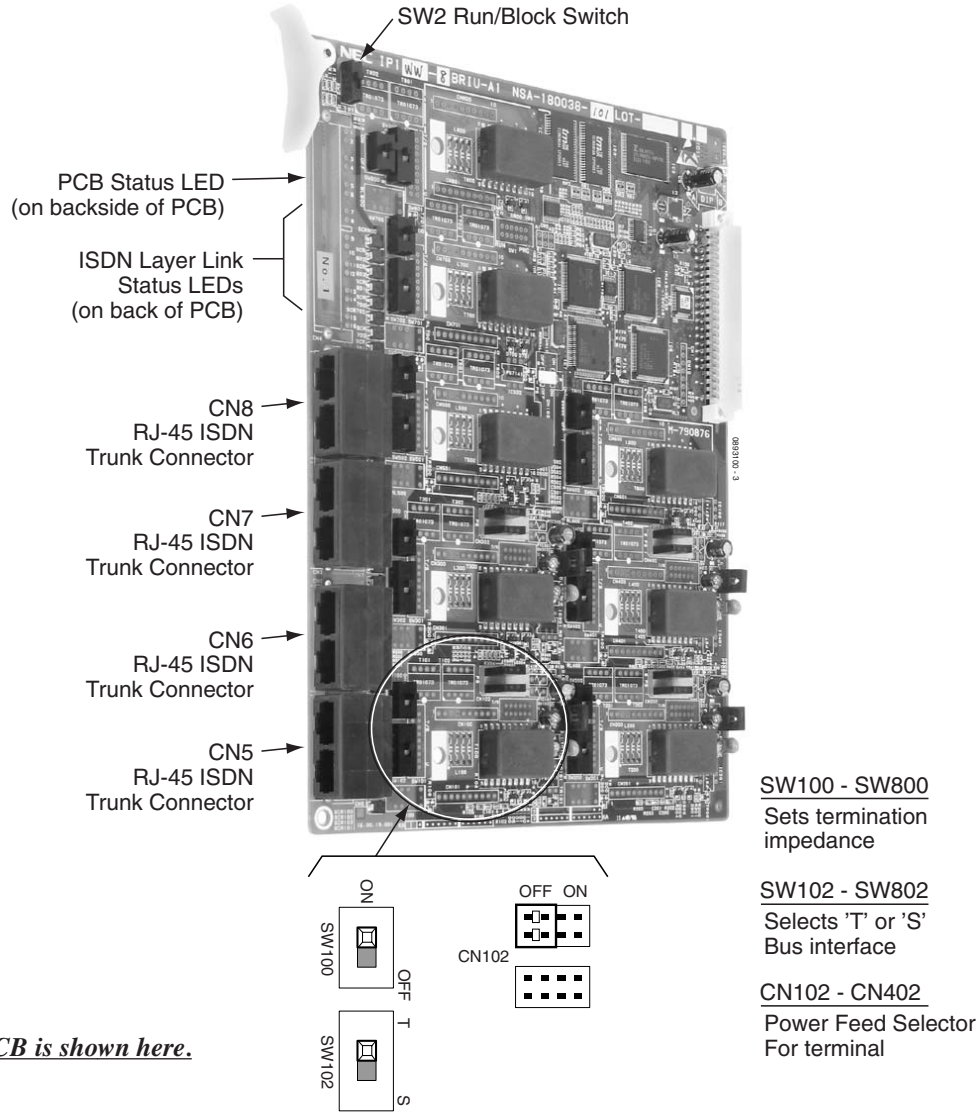
To install a BRI Interface PCB:

1. Set the run/block switch to DOWN.
2. Set the SWn02 jumpers on the BRI PCB for either T-Bus or S-Bus.
3. Set the SWn00 jumpers as either terminated or unterminated.
4. Set the CNn02 jumpers to either provide power (with S-Bus) or not to supply power (with T-Bus).
5. Plug the BRI PCB into the system cabinet.

   Note that the white PCB Pull Tab should always be positioned closest to the top of the cabinet.
6. Set the run/block switch to UP. Before proceeding to Step 7, wait to verify that the STATUS LED starts to flash.

   With normal operation, the status LED will flash fast. If trouble was found during the self diagnostics routine, the status LED will flash slow.

   Once connected, the ISDN Layer Link Status LEDs will be on steady when the Layer 1 link is established. If there is no link, the LED will be off.
7. Connect the cable from the NT1 Network Termination cable to the CN5, CN6, CN7, or CN8 connector on the BRI PCB.



The 8BRIU PCB is shown here.

Figure 2-18: BRI PCB INSTALLATION

T1/PRI (1PRIU) Interface PCB (Figure 2-19)

For T1 and ISDN Primary Rate Interface (PRI) applications, install a T1/PRI Interface PCB. This PCB has a single 24-channel 64Kb/s digital signal circuit which can be configured for either T1 trunks or PRI. Each PCB connects to the network via an NTI Network Termination.

If set for T1, the T1/PRI PCB gives the system 24 trunks in a single universal slot. These trunks can be one of the following:

- Loop Start
- Ground Start
- DID
- E&M Trunks
- ANI/DNIS E&M Trunks

T1 gives the system the advantages of advanced digital trunking as well as conserving universal slots. For example, a system with 12 loop start trunks, two tie lines and six DID trunks would use up five universal slots. With T1 all these trunks would be available in a single universal slot, freeing up four additional universal slots for other uses.

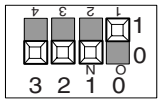
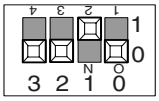
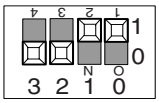
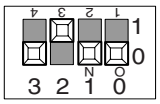
If set for PRI, each T1/PRI PCB provides 24 PRI (23 B& 1 D) channels running at 1.544Mbps with 64Kb/s clear channel. The PCB supports the following PRI services:

- Basic PRI Call Control (BCC)
- Display of incoming caller's name and number (when allowed by the telco)
- Speech and 3.1 KHz audio

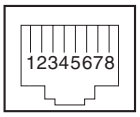
When installed, the T1/PRI Interface PCB uses the first block of 24 consecutive trunk ports. For example, if you have an COIU PCB installed for trunks 1-8, the T1/PRI Interface PCB will automatically use trunks 9-32. If you have COIU PCBs installed for trunks 1-8 and 17-24, the T1/PRI PCB will use trunks 25-48. The T1/PRI Interface PCB cannot use trunks 9-16 (even if available) since they are not part of a consecutive block of 24 trunks. Each T1/PRI PCB requires that 24 ports be available in the system, even if not all the ports will be used, otherwise the PCB will not function.

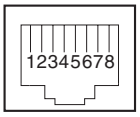
The T1/PRI PCB requires one universal slot and provides a Block switch to busy out the PCB.

PCB Maximum's			
Basic NTCPU	Basic NTCPU with Upgrade PAL (Software 1.00-3.07)	Basic NTCPU with Upgrade PAL (Software 4.0E+)	Enhanced NTCPU
-	2	5	8: T-Bus 10: S-Bus

Switch Name	Switch Position	Result
SW100	1.5M(PI/T1)	Connecting a PRI/T1 (1.544Mb/s) line.
	2M (PRI/E1)	Connecting a PRI/E1 (2.048Mb/s) line.
SW101	T	T-Bus Connection
	S	S-Bus Connection
SW3 (4 bit dip switch)		PRI (1.544Mb/s)
		T1 (1.544Mb/s)
SW3 (4 bit dip switch) (Cont'd)		PRI (2.048Mb/s)
		E1 (2.048Mb/s)
CN11	Normal	Idle
	Loop	Used with Loop Back testing only.

Connector Pin-Outs on 1PRIU PCB

RJ45 Cable Connector - CN3 S-Bus Connection		
	**Pin No.**	**Connection**
	1	TA
	2	TB
	3	-
	4	RA
	5	RB
	6	-
	7	-
	8	-

RJ45 Cable Connector - CN3 T-Bus Connection		
	**Pin No.**	**Connection**
	1	RA
	2	RB
	3	-
	4	TA
	5	TB
	6	-
	7	-
	8	-

Network Interface Pinout for the 8-Pin RJ48C Connector	
Pin No.	**Connection**
1	RxD (R1)
2	RxD (T1)
4	TxD (R)
5	TxD (T)
3, 6	No Connection
7, 8	No Connection

For connection to T1 network: Use AT&T Type ABAM cable or equivalent (individually-shielded twisted pair, rated at 100 ohms at 1 MHz).

Terminal Interface Pinout for the 8-Pin RJ48C Connector	
Pin No.	**Connection**
1	RxD (R)
2	RxD (T)
4	TxD (R1)
5	TxD (T1)
3, 6	No Connection
7, 8	No Connection

To install a T1/PRI Interface PCB:

1. Set the run/block switch DOWN.
2. Make sure the SW100 switch on the T1/PRI Interface PCB is set to 1.5M (PRI/T1).
3. Set the SW101 dip switches on the T1/PRI PCB for either T-Bus or S-Bus mode.
4. Set the SW3 dip switches on the T1/PRI PCB for either PRI Mode or T1 Mode.
5. Plug the T1/PRI Interface PCB into any universal slot.

   Note that the white PCB Pull Tab should always be positioned closest to the top of the cabinet.
6. Set the RUN/BLOCK switch UP.

   With normal operation, the status LED will flash fast. If trouble was found during the self diagnostics routine, the status LED will flash slowly.

   Once connected, the ISDN Layer Link Status LEDs will be on steady when the Layer link is established. If there is no link, the LED will be off.
7. Connect the cable from the NT1 Network Termination cable to the CN3 connector on the T1/PRI PCB.

   The CSU connects to the network through an 8-pin RJ45/RJ48 connector. Use either the RJ48C plug-to-RJ48C plug which ships with the CSU or an RJ45/48C plug-to-RJ45/48C plug straight through or CAT5 cable to connect the T1 to the CSU. See the table which follows for the Network and Terminal interface pinouts.

   With PRI Networking, a cross-over cable must be used on the master system's T1/PRI PCB or CSU to the telco demarcation. If the systems are networked side by side and not through telco, then a straight-through cable is used.

Installing an Aspire T1/PRI PCB May Require Firmware Update

When installing a T1/PRI PCB into an Aspire system, the system may need to update the PCB's firmware. While this update is taking place, it's possible the T1/PRI PCB may be look like it's defective or not active because there will be no LED indications on the PCB. Once the firmware update has completed, the LED status will be shown.

This can happen when updating a system's software version without the T1/PRI PCB installed or when using a T1/PRI PCB from another Aspire system which is using a lower software version.

When a PCB's firmware needs to be updated, after installing the PCB into the system, there will be no LED indications on the card for approximately 3 minutes. This is the period when the system is updating the PCB's firmware for the mode selected on the card (T1 or PRI). Once the update is complete, the status LEDs on the PCB will light normally. The same PCB will need to be updated again if the mode is switch from T1 to PRI or vice versa.

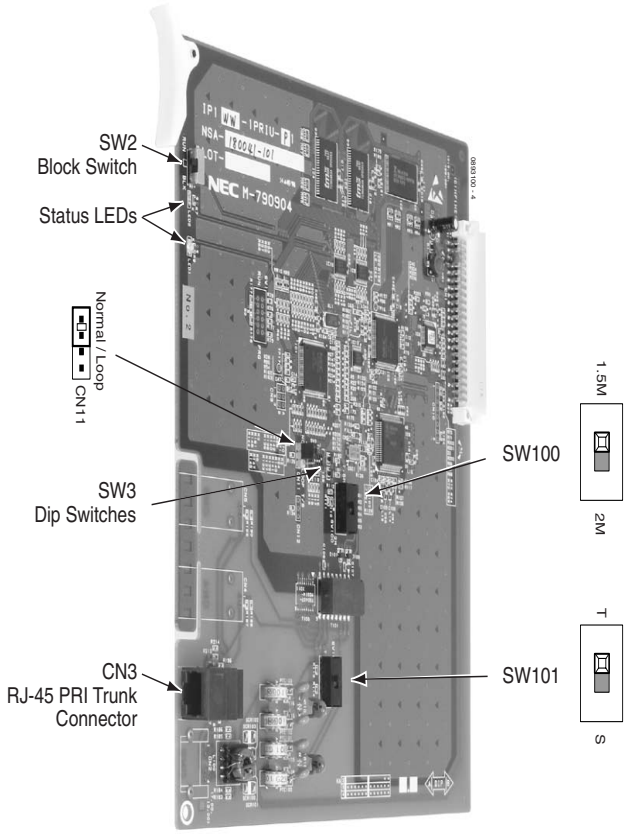


Figure 2-19: T1/PRI Interface (1PRIU) PCB

Voice Mail - Aspire Mail Plus (4/8VMSU)

Aspire Mail Plus is a fully integrated, PCB-based "in-skin" Voice Mail with Automated Attendant. Its robust feature set rivals the capabilities of stand-alone products on a single, plug-in PCB. Using an on-board hard disk, Aspire Mail Plus provides:

- **4VMSU:** 4 voice mail ports, 1000 mailboxes, and approximately 1400 hours/7000 messages maximum of message storage.
- **8VMSU:** 8 voice mail ports, 1000 mailboxes, and approximately 1400 hours/7000 messages maximum of message storage.

Aspire Mail is programmable from a PC running a Windows™-based Admin program. The Admin PC connects locally to the Aspire Mail Plus serial port or LAN connection. Remote programming and maintenance is available through either the LAN connection or the Aspire Mail built-in modem.

You can install 1 maximum Aspire Mail per system, with the 4VMSU PCB using 4 ports and the 8VMSU PCB using 8 ports.

Refer to the Aspire Mail System Guide (P/N 17710SWG05) for complete set-up information.

Voice Mail - Aspire Mail (2/4FMSU)

Aspire Mail is similar in most respects to Aspire Mail Plus, but uses compact flash memory technology instead of a hard disk. The Aspire Mail provides:

- **2FMSU:** 2 voice mail ports, 1200 mailboxes and 3 hours of message storage.
- **4FMSU:** 4 voice mail ports, 200 mailboxes and 3 hours of message storage.

Like Aspire Mail Plus, Aspire Mail is also programmable from a PC running a Windows™-based Admin program. Connection is done locally to the PCB's serial port or remotely through the Aspire Mail built-in modem. Aspire Mail does not provide a LAN connection.

You can install 1 maximum Aspire Mail per system, with either PCB using 4 ports.

Refer to the Aspire Mail System Guide (P/N 17710SWG05) for complete set-up information.

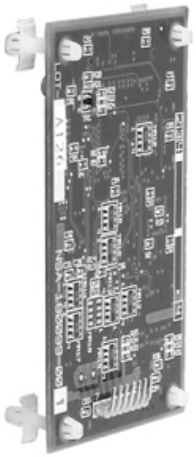
2-to-4 Port Aspire Mail Upgrade — P/N 0891044

The Aspire Mail 2-to-4 Port Aspire Mail Upgrade (P/N 0891044) is a software upgrade that allows you to expand your Aspire Mail system from 2 to 4 ports. This upgrade ***does not*** provide additional mailboxes or message storage.

Voice Mail - Expansion Daughter Board (4/8VMDB and 4FMDB)

4 Port Aspire Mail Plus Expansion Daughter Board (4VMDB) — P/N 0891034

The 4 Port Aspire Mail Plus Expansion Daughter Board (P/N 0891034) adds an additional 4 voice mail ports to Aspire Mail Plus (for a total of 8 ports). There is a maximum 1 daughter board per Aspire Mail PCB, with the daughter board using 4 ports.



8 Port Aspire Mail Plus Expansion Daughter Board (8VMDB) — P/N 0891057

The 8 Port Aspire Mail Plus Expansion Daughter Board (P/N 0891057) adds an additional 8 voice mail ports to Aspire Mail Plus (for a total of 16 ports). There is a maximum 1 daughter board per Aspire Mail PCB, with the daughter board using 8 ports.

4 Port Aspire Mail Expansion Daughter Board (4FMDB) — P/N 0891045

The 4 Port Aspire Mail Expansion Daughter Board (P/N 0891045) adds an additional 4 voice mail ports to Aspire Mail. There is a maximum 1 per Aspire Mail PCB, with the PCB using 4 ports.

LAN 8-Port Switching Hub (8SHUBU) PCB (Figure 2-20)

The LAN PCB is an 8-port switching hub which complies with the ethernet specification for both 100Base-TX and 10Base-T. This PCB is compatible in LAN applications using 10Mbps and 100Mbps. All ports will automatically identify and switch 100Base-TX, 10Base-T and Full/Half Duplex. The 8SHUBU PCB provides:

- Configurable on Each Port: Auto Negotiation/Full Duplex/Half Duplex
- MDI/MDI-X Auto Crossover
- Tag VLAN Based on IEEE802.1Q
- QoS Feature Based on IEEE802.1p
- Port Mirroring Feature
- Backpressure/Flow Control Feature
- Auto MAC Address Learning/Migrating/Aging
- Learn Maximum 8k MAC Addresses
- Store and Forward Switching Method
- Maximum 100m Transmission Distance by CAT-5 Cable

The 4VOIPU or 16VOIPU PCB, which is required in order for IP telephones to communicate with non-VoIP Aspire phones, as well as to place or receive outside calls, must be connected to either an external switching hub or to the 8SHUBU PCB.

The PCB plugs into a universal slot and does not consume any ports. Each PCB provides 8 RJ45 port connectors. These are used to connect to LAN terminals. Depending on the type of LAN terminal, the PCB may not be able to detect the difference between straight cable and cross-cable automatically. If auto-crossover is not functioning, use straight cable for that terminal connection.

PCB Maximum's			
Basic NTCPU	Basic NTCPU with Upgrade PAL (Software 1.00-3.07)	Basic NTCPU with Upgrade PAL (Software 4.0E+)	Enhanced NTCPU
4	8 (4 per cabinet)	8 (4 per cabinet)	8 (4 per cabinet)

The 8SHUBU PCB can also be used to provide power over category 5 network cables. This eliminates the need of installing separate power adapters for each IP phone and it allows for centralized power backup.

! CAUTION !

Only Aspire IP phones and Aspire IP Adapters and H.323 phones must be connected to the 8SHUBU. The provided DC voltage provided through the spare pairs (4/5, 7/8) may damage any other equipment.

If PoE (power over ethernet) is to be used to eliminate the separate power adapters, due to the power requirements, a separate power source is suggested. ***The Aspire IP phones are not IEEE 802.3af compliant.*** The NEC BlueFire 200/24 switch or Cisco Data Switch-CDP supported is recommended. The NEC BlueFire 200/24 unit provides layer 2 switch capability in addition to being able to supply ethernet power to 24 NEC IP terminals. For this unit, power feeding is through the signal pair (1/2, 3/6) or spare pair (4/5, 7/8).

Refer to **Section 6: LAN Connection** (page 6-1) for additional information on using PoE on the Aspire.

LED Indications

LED	Function	LED Status	Operation Status	Comments
CN2, CN3 LINK/ACT	LAN Operation Status	Green On	Link Established	Individually for Ports 1-8
		Green Flashing	Communicating Data	Individually for Ports 1-8
		Green Off	Not Activated	Individually for Ports 1-8
CN2, CN3 10/100	LAN Speed Status	Orange On	100Mbps	Individually for Ports 1-8
		Orange Off	10Mbps	Individually for Ports 1-8

Installing the 8SHUBU:

1. Set the run/block switch DOWN.
2. If PoE is to be used, set the JPx00 and JPx01 jumpers to the proper setting for the terminal. Refer to the graphic below the jumper settings.
3. Plug the LAN 8-Port Switching Hub PCB into any universal slot.
   Note that the white PCB Pull Tab should always be positioned closest to the top of the cabinet.
4. Set the RUN/BLOCK switch UP.
   With normal operation, the status LED will flash fast. If trouble was found during the self diagnostics routine, the status LED will flash slowly.
5. Refer to the **Aspire Software Manual (P/N 0893200)** for required programming.

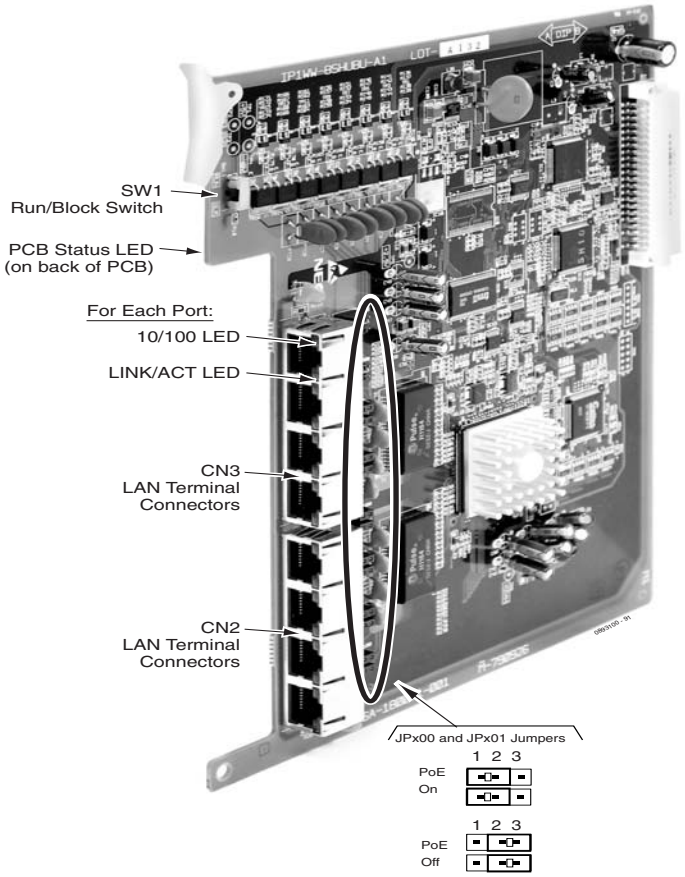


Figure 2-20: 8SHUBU INSTALLATION

VoIP (VOIPU) PCB (Figure 2-21)

The 4VOIPU and 16VOIPU PCBs are used for converting the RTP (Real Time Transfer Protocol) packets via the IP network and PCM highway. The IP telephones are connected directly to the IP bus. When IP phones need to be connected to a conventional PCM-based digital circuit, this PCB converts the IP packet signal into a PCM signal format and connects to the PCM time division switch.

The VOIPU PCB is required in order for IP telephones to communicate with non-VoIP Aspire phones, as well as to place or receive outside calls.

The 4VOIPU PCB provides:

This PCB can be used with either the Basic or Enhanced version of the NTCPU (P/N's 0891002 and 0891038).

- 4VOIPU PCB provides up to 4 channels
- Connector for the 4VOIPDB daughter board (providing an additional 4 channels)
- 1 PCB status LED
- 1 run/block switch

The 16VOIPU PCB provides:

This PCB requires the NTCPU with Feature Upgrade PAL (P/N 0891002 and 0891039) or the Enhanced NTCPU (P/N 0891038).

- 16VOIPU PCB provides up to 16 channels
- Connector for the 16VOIPDB daughter board (providing an additional 16 channels)
- 1 PCB status LED
- 1 run/block switch

PCB Maximum's				
	Basic NTCPU	Basic NTCPU with Upgrade PAL (Software 1.00-3.07)	Basic NTCPU with Upgrade PAL (Software 4.0E+)	Enhanced NTCPU
4VOIPU	8	16	16	16
16VOIPU	-	4	8	16

The VoIP PCBs can be plugged into any universal slot. When installing a VoIP PCB, the system allocates the maximum number of trunk ports for the PCB being installed. For instance, the 4VOIPU PCB requires 4 ports, while the 16VOIPU PCB requires 16 ports. If the PCB is not going to be used for trunks, the logical trunk ports can be set to '0' in **Program 10-03-01 : PCB Setup**, but the physical trunk ports are still assigned to the PCB and cannot be used for any other PCB. If the trunk ports will not be used and the trunk port usage is a concern, plug the VOIPU PCBs into the system last.

The system will allow extension ports to be assigned even if there are no trunk ports available. A maximum of 512 IP extensions or 200 IP trunks are possible with the Aspire. For extension ports 1-256 - the system reserves extension ports in groups of 4; with ports 257-512 - one extension port is consumed when the phone is connected.

If a separate software hub is used (and not the 8SHUBU PCB), it should be a 100Base/full duplex hub. To avoid network problems and to ensure good voice quality, do not use a Repeater Hub/10Base.

LED Indications

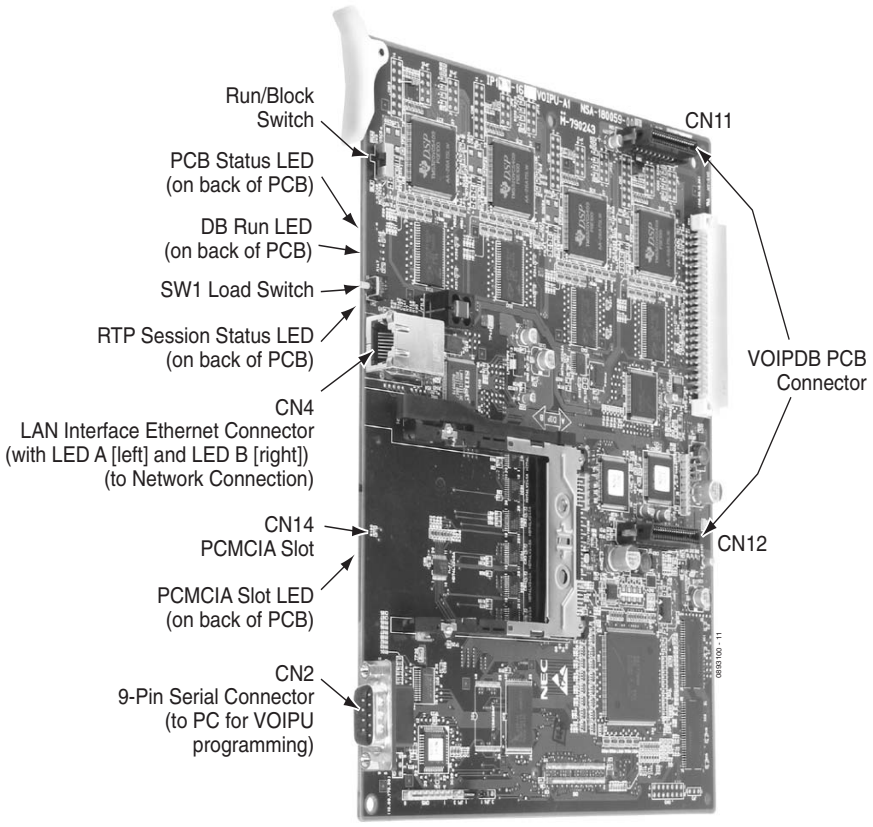
LED	Function	LED Status	Operation Status	Comments
DB Run	Status of VOIPDB	Red	VOIPDB is operating normally.	
		Off	VOIPDB is not functioning correctly.	
RTP Session Status	Status of RTP Session	Red	RTP session is established.	LED is on if one of the channels is established.
		Off	RTP session is not established.	
PCMCIA	Status of PCMCIA Slot	Red	PC-ATA card installed.	
		Off	PC-ATA card not installed.	
LED A (On CN4)	Data Transmission and Reception	On	Data is being transmitted or received.	
LED B (On CN4)	Status of Link	On	Link is established.	

Installing the VoIP PCB:

To avoid unexpected extension/trunk numbering if the VoIP PCB registers with the system first, install the VoIP PCB after the other types of extension/trunk PCBs have been installed. This is also recommended if trunk port availability is an issue as the VOIPU PCB is automatically assigned trunk ports if available.

Run a System Information Report (Program 90-13). This report displays all current PCB assignments and port allocations. Some ports you were planning on using may already be assigned. If this is the case, after removing the PCB(s) from the system, delete the slot(s) using Program 90-05-01. Install the PCBs, one at a time in the order required, checking for proper (expected) assignments using Program 90-13-01 after each PCB is installed.

1. Set the run/block switch **DOWN.**
   If the VOIPDB is to be used, install this prior to inserting the VOIPU PCB into the cabinet. Refer to ***VoIP (VOIPDB) Daughter Board (Figure 2-22 - Figure 2-23)*** (page 2-64) *for more details.*
2. Install the VOIPU PCB into a slot.
   Note that the white PCB Pull Tab should always be positioned closest to the top of the cabinet.
3. Set the run/block switch **UP.**
   With normal operation, the status LED will flash fast. If trouble was found during the self diagnostics routine, the status LED will flash slowly.
4. Connect the VOIPU PCB to the 8SHUBU PCB or to an external switching hub using an ethernet cable.
5. Refer to the **Aspire Software Manual (P/N 0893200)** for required programming.



The 16VOIPU PCB is shown here.

Figure 2-21: VOIPU PCB INSTALLATION

Upgrading Your VOIPU Firmware

1. Copy the updated firmware file (xxx.bin) to the compact flash card.
2. Remove the VOIPU PCB from the cabinet.
3. Insert the CF (compact flash) card into the VOIPU PCB.
4. Reinstall the VOIPU PCB into the system cabinet while holding the SW1 button down on the VOIPU PCB.
5. Continue holding the SW1 button for approximately 4 seconds.
6. Release the SW1 button.

   While updating, the status LED1 will be lit steady green.
7. Remove the CF card once the status LED1 starts flashing green.

VoIP (VOIPDB) Daughter Board (Figure 2-22 - Figure 2-23)

The 4VOIPDB daughter board provides:

- 4 channels
- Connector for the 4VOIPU PCB (combination provides a maximum of 8 channels per slot)

The 16VOIPDB daughter board provides:

- 16 channels
- Connector for the 16VOIPU PCB (combination provides a maximum of 32 channels per slot)

The VOIPDB daughter boards are interchangeable between the 4VOIPU and 16VOIPU PCBs - either daughter board can be installed on either VOIPU to provide additional channels.

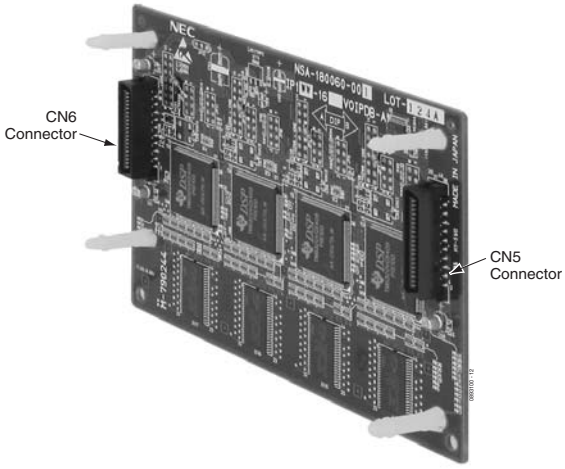


Figure 2-22: VOIPDB

When installing a VoIP daughter board, the system allocates the maximum number of trunk ports for the PCB being installed. For instance, the 4VOIPU daughter board requires 4 ports, while the 16VOIPU daughter board requires 16 ports. If the PCB is not going to be used for trunks, the logical trunk ports can be set to '0' in **Program 10-03-01 : PCB Setup**, but the physical trunk ports are still assigned to the PCB and cannot be used for any other PCB. If the trunk ports will not be used and the trunk port usage is a concern, plug the VOIPU PCBs into the system last. The system will allow extension ports to be assigned even if there are no trunk ports available.

PCB Maximum's				
	Basic NTCPU	Basic NTCPU with Upgrade PAL (Software 1.00-3.07)	Basic NTCPU with Upgrade PAL (Software 4.0E+)	Enhanced NTCPU
4VOIPDB	8	8	16	16
16VOIPDB	-	3	6	16

Installing an VOIPDB Daughter Board:

1. Included with the VOIPDB are four plastic spacers. These are installed in each of the four corners of the daughter board. Make sure to attach the spacers on the front of the daughter board so when installed, the components are facing the VOIPU PCB.
2. Position the VOIPDB'S CN6 connector over the CN12 connector on the VOIPU PCB. The CN5 connector on the VOIPDB should then be over the CN11 connector on the VOIPU PCB. Press the boards together, ensuring the plastic spacers lock in place.
3. Install the VOIPU PCB into the slot.

   Note that the white PCB Pull Tab should always be positioned closest to the top of the cabinet.

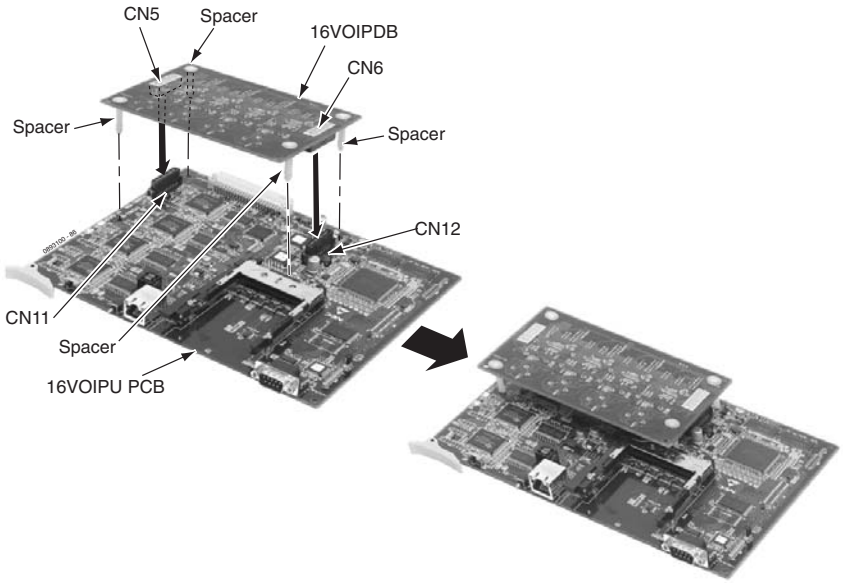


Figure 2-23: INSTALLING THE VOIPDB

4. Set the 16VOIPU's run/block switch **UP.**
5. Refer to **VoIP Feature Supplement (P/N 0893204)** for required programming.

SYSTEM STARTUP

System Startup

You can now power up the system and briefly check its operation. Before proceeding, be sure that:

- The common equipment is installed correctly.
- All extensions are cabled correctly.
- All earth ground and telco connections are installed correctly.
- PCBs are configured, equipped, and strapped correctly.

Powering Up the System/Initial PCB Installation

1. Insert the NTCPU PCB into the CPU slot.
2. Insert an ESIU PCB in slot 1 of the Main Cabinet.
   PCBs for slots 2-16 are not installed at this time.
3. Plug in all system telephones. A display telephone should be plugged into port 001 (extension 301).
4. **When starting the system for the first time,** hold the LOAD button on the NTCPU and turn the system power ON.
   With the Aspire M/L: Press the power button on the power supply in the PS1 slot.
   With the Aspire XL: Press the power switch on the expansion cabinet's DC-to-DC Converter, wait 5 seconds, then press the power switch on the main cabinet's DC-to-DC Converter.
   With the Aspire XL, if power is turned on or off on the expansion cabinet's DC-to-DC Converter, it only affects that particular cabinet.
5. After approximately 3 seconds, release the LOAD button.
   This performs a cold start on the Aspire system to make sure you're starting with a defaulted system.

   When powering up any other time, *simply press the power button on the PS1 power supply or DC-to-DC Converter.* ***With the Aspire M/L*** *and two power supplies in one cabinet, turn on the power supply in the PS2 slot, then the power supply in the PS1 slot. To power down (or back up) only the power supply in the PS1 slot needs to be pushed. With a 2-cabinet system, turn off the expansion cabinet's power supply, then the main cabinet's power supply.* ***With the Aspire XL,*** *if power is turned on or off on the expansion cabinet's DC-to-DC Converter, it only affects that particular cabinet.*

   Refer to *Switch Settings and LED Indications* on page 2-15 for NTCPU LED status.
6. Wait about three minutes for the system to boot. The telephone display at extension 301 will show the Time/Date and extension number when the boot sequence completes.
7. Set the run/block switch **UP** on the ESIU in slot 1.

Note: Refer to **Basic Troubleshooting** (page 3-24) if the system does not boot.

PCB STARTUP

Initial Extension PCB Installation

1. Set the run/block switch **DOWN** for all the extension PCBs to be installed (ESIU, SLIU, etc.).
2. Plug the PCBs into each cabinet slot in numerical order. **The order in which the station PCBs (SLIU, ESIU, DSIU, DSIU) are physically inserted determines the numbering plan.** *The installer must install extension PCBs in order (i.e.; slot 1 first, slot 2 next, slot 3 next, etc.) for a sequential numbering plan.*

   As the VoIP and voice mail PCBs are recognized very quickly by the system, install these PCBs after all other extension and trunk PCBs have been installed to avoid unexpected extension and trunk numbering.

   For example, with a 16ESIU in slot #1 (ext. 301-316), when 3 more 16ESIU PCBs are installed in the following order, the numbering plan below would apply:

Order of Install	PCB Slot #	PCB	Extension Numbers
1	1	16ESIU	301-316
2	2	16ESIU	317-332
3	4	8SLIU (no daughter board)	333-340
4	3	8ESIU	341-348

   Adding any daughter board to increase the available ports or going to a higher capacity PCB (ex: 16ESIU to a 32ESIU) may require that you delete the slot and reinstall the PCB. In the following example, to add a daughter board to slot 2, the PCB must be removed, deleted in Program 90-05-01, then reinstalled with the daughter board attached otherwise the additional ports would not be recognized. This however, will use new ports for the combined PCB - the initial ports (ports 17-24 using the example below) are not used.

Initial Setup		
PCB Slot #	**PCB**	**Extension Numbers**
1	16ESIU	301-316
2	8SLIU (no daughter board)	317-324
3	16ESIU	325-340

Updated Setup		
PCB Slot #	**PCB**	**Extension Numbers**
1	16ESIU	301-316
2	---	
3	16ESIU	325-340
4	8SLIU (with daughter board)	341-356

3. Set the run/block switch **UP** on each PCB.

The system will automatically recognize each PCB installed in the system. *If a PCB has previously been installed* in a slot and another type of PCB is to be installed in that same slot, the PCB must be first be removed from the cabinet and then the slot definition removed using Program 90-05 prior to installing the new PCB.

This same condition applies to extensions and other devices connected to the system. For example, if a port was previously used for a keyset and a DSS Console is to be installed in that same port, it must first be undefined in Program 10-03 before the console is connected.

For more information on Cold and Hot system starts, refer to **Central Processing Unit (NTCPU) PCB (Figure 2-3)** (page 2-12).

Initial Installation of Trunk PCBs

When first installing the system:

1. Set the run/block switch **DOWN** on all COIU-LS1, COIU-LG1, 4TLIU, DIOPU, 1PRIU or BRIU PCBs.
2. Insert all PCBs in sequential order. *The installer must install trunk PCBs in order (i.e.; slot 5 first, slot 6 next, slot 7 next, etc.) for a sequential numbering plan*. As the VoIP is recognized very quickly by the system, install any VoIP PCBs after all other PCBs have been installed to avoid unexpected extension and trunk numbering.

Installing COIU-LS1/LG1, 4TLIU, DIOPU, or BRI PCB's:

The order in which trunk PCBs are physically inserted determines the numbering plan. For example, if four PCBs are installed *in the following order,* the numbering plan below would apply:

Order of Install	PCB Slot #	PCB	Line Circuits
1	4	8COIU	1-8
2	5	4COIU	9-12
3	7	4TLIU	13-16
4	6	4TLIU	17-20

Installing T1/PRI PCBs

The T1/PRI Interface PCB uses the first block of 24 consecutive trunks.

For example, if you have an 8COIU PCB installed for trunks 1-8, the T1/PRI PCB will automatically use trunks 9-32. If you have 8COIU PCBs installed for trunks 1-8 and 17-24, the T1/PRI PCB will use trunks 25-48. The T1/PRI PCB cannot use trunks 9-16 (even if available) since they are not part of a consecutive block of 24 trunks.

3. Set the run/block switch **UP** on each PCB.

Initial Programming (Figure 2-24)

The system can be programmed using three methods:

- Programming through a digital keyset
- PC Programming
  Refer to the PCPro/WebPro Installation Manual, P/N 0893201, for complete installation details.
- Web Programming
  Refer to the PCPro/WebPro Installation Manual, P/N 0893201, for complete installation details.

Refer to the Aspire Software Manual (P/N 083200) for complete details on programming.

Entering the Programming Mode

Enter the system programming mode at extension 301:

1. Press CALL1. (You hear dial tone).
2. Dial # * # *.
3. Dial the system password.

Password	Level
12345678	2 (IN)
0000	3 (SA)
9999	4 (SB)

4. Press HOLD.

Port Defaults

With the default settings, the ports are assigned as follows:

Station Ports:	1-512 (extensions 301-499 and 5000-5312)
Virtual Station Ports:	1-256 (extensions not assigned)
Trunk Ports:	1-200

In the initial configuration:

- All Programmable Function keys are line keys (e.g., key 1 is line 1).
- All trunks are loop start DTMF.

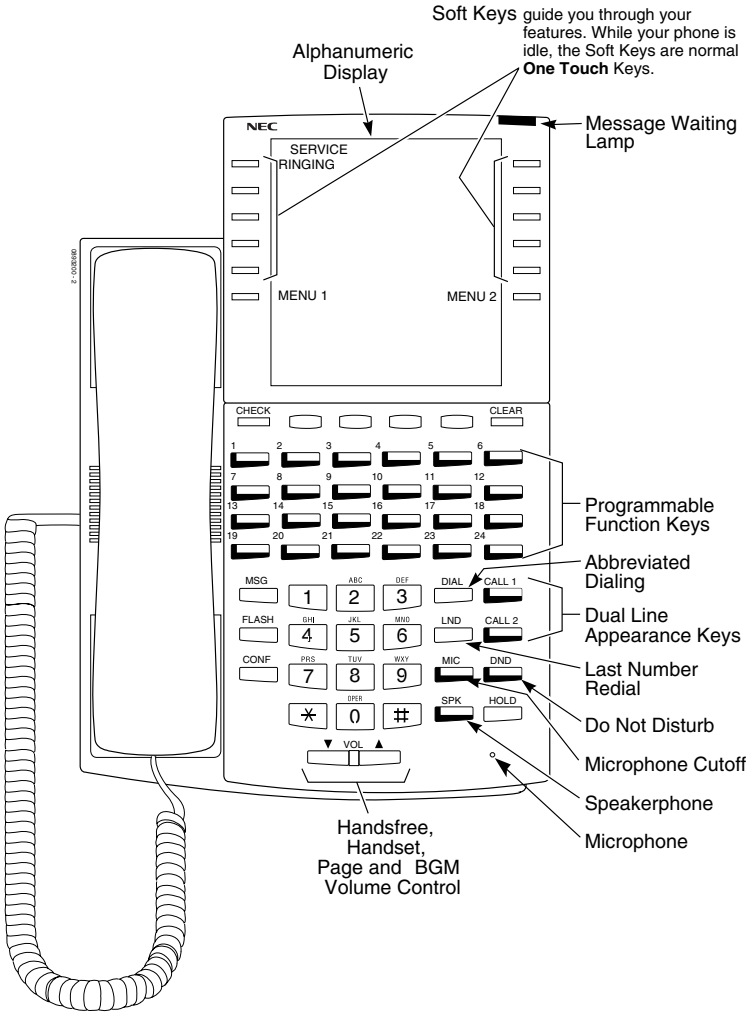


Figure 2-24: TELEPHONE KEY LAYOUT

Setting Up Extension Circuit Types

Run Program 10-03 to set up extension circuit types as required. The system will automatically detect and assign most circuit types when the device is connected. Refer to the Software Manual for programming information.

1. Dial 10-03-01.
2. Select the slot, port or channel (with ESIU PCBs) to be programmed by pressing FLASH.
3. Set the terminal type or option as needed.

   Refer to the Software Manual for this information.

   If the system has DSS Consoles, Program 30-02 must be used to define DSS extension assignments.

As the system recognizes the extension devices automatically, when replacing the type of device connected, the type must be undefined in Program 10-03 prior to connecting the new device. For example, if a port was previously used for a keyset and a DSS Console is to be installed in that same port, it must first be undefined in Program 10-03 before the console is connected.

Saving Your Configuration

When you are done programming, you must be out of a program's options to exit (pressing the MSG key will exit the program's option). Press the SPK key. Any changes made will be saved to the NTCPU.

1. Press MSG key to exit the program's options, if needed.
2. Press SPK. You see, "Saving System Data" if changes to were made to the system's programming.
3. The display shows "Complete Data Save" when completed and will exit the phone to an idle mode.

Backing Up/Restoring a Database

Due to database differences, saved customer databases are not interchangeable between the Aspire S and Aspire systems. The PCPro will prevent the upload of an incorrect database by disabling the Upload button when the system database does not match the system to which you are connected. However, when using ***Program 90-04 : Load Data****, the system will not be able to prevent an incorrect upload. It is important to make sure you only load data saved from an Aspire S to an Aspire S system and data saved from an Aspire to an Aspire system.*

As a precaution, it is recommended that the customer database be saved prior to updating the system software. There are two methods of saving the database - either using the PCPro application or saving directly to a PC-ATA flash card. Using PCPro, download the database and save the file on the PC's hard drive. To save the database using a blank PC-ATA flash card (P/N 0891061), insert the card into the NTCPU and, using Program 90-03, save the software. (If a CompactFlash card is used for software instead of a PC-ATA flash card, a CompactFlash Adapter (with PCMCIA compatbility) is required.) Due to the file's naming structure, note that a PC-ATA card can only hold one customer database (each database is saved to a directory called DATA - this directory would be overwritten if a second database were saved to the same card). Each database to be saved will require its own separate card (unless you choose to rename the directory after it is saved, then rename it back to DATA when you need to access the database).

If the customer data needs to be reloaded, the method for restoring the database is determined by how the database was saved. Using PCPro, the customer database is uploaded using the Upload option within the application. If the database is stored on a PC-ATA card, use Program 90-04, with the database to be restored installed in the NTCPU.

When restoring a database file, as the slot definitions may be different, remove all PCBs from the system except the NTCPU and the ESIU in slot 1. After the system has been reset, you can reinstall the PCBs. You can use Program 10-03 or Program 90-13-03 prior to updating to record the current slot definitions. If the PCBs are not removed, the trunk and extension port assignments may be reassigned, depending on which PCB syncs up with the system first.

After reloading the customer data to the system, exit programming mode (this could take a minute or more to save the database), **then reset the system by powering down and back up**. If the system is not reset, not all the uploaded programming changes will be in effect. Wait a few minutes for the programming to take affect before accessing any lines or special system features. Otherwise some unusual LED indications may be experienced. To prevent the PC-ATA card from possibly being over-written, remove the card after reloading the database.

Copying the System Software Files to the Flash Card

As the Aspire system uses a PC-ATA card for software upgrades, it is possible to receive or download a compressed file from NEC containing the system software. The following information details the steps required to update the system software when this type of file is used.

Requirements

- Customer Provided: PC-ATA Flash Card Reader OR a PCMCIA Slot in a Laptop
- Customer Provided: 32MB PC-ATA Flash Card
  If a CompactFlash card is used for software instead of a PC-ATA flash card, a CompactFlash Adapter (with PCMCIA compatbility) is required.
- Aspire System Software Zip File
- WinZip application
  This program can be downloaded from WinZip's web site: http://www.winzip.com

1. After receiving the compressed system software file, it must be unzipped using the WinZip application.
   If the file was received by EMail, detach the zip file to your computer.
2. Locate the zip file on your computer and double-click on the file.
   The file opens the WinZip application and displays a list of the compressed files.
3. Click ACTIONS - EXTRACT or click the EXTRACT button on the tool bar.
4. In the Extract window that appears, make sure the USE FOLDER NAMES options is checked. This is required to keep the proper paths for the files as they are extracted.
5. Select the location to which the files should be extracted and click the EXTRACT button.
   Suggestion: You may want to create a directory in which all Aspire software can be kept (with a sub-directory for the version type - example: Aspire_Software/1_01). This allows you to keep the original source files for future use, if required.
6. Place the PC-ATA card to be used for the update into the Flash Card Reader.
7. Double-click on MY COMPUTER and then double-click on the flash card reader.
   The contents of the flash card should be displayed.
8. If there are any existing files on the flash card, delete or move any files off the card before proceeding.
9. Open the directory containing the system software files to be used for the system update.
10. Select all the files within the folder and copy them to the flash card.
    This can be done as follows:
    - From the software directory window, click: Edit - Select All - Edit - Copy
    - From the flash card window, click Edit - Paste
    The files are then copied from the PC to the flash card.

Upgrading Your Software

! Important !

As a precaution, it is recommended that the customer database be saved prior to updating the system software. Refer to **Backing Up/Restoring a Database** (page 2-71).

Prior to updating to system software 4.x or higher, due to capacity differences for the Aspire XL, a database file must be made in order to revert to any older version of software. The expanded database file from a 4.x software cannot be used in older software once the new ports are recognized and used by the system.

If a CompactFlash card is used for software instead of a PC-ATA flash card, a CompactFlash Adapter (with PCMCIA compatbility) is required.

1. Turn the system power off.
   With the Aspire M/L: Press the power button on the power supply in the PS1 slot.
   With the Aspire XL: Press the power switch on the expansion cabinet's DC-to-DC Converter, wait 5 seconds, then press the power switch on the main cabinet's DC-to-DC Converter.
   With the Aspire XL, if power is turned off on the expansion cabinet's DC-to-DC Converter, it only affects that particular cabinet. The main cabinet continues to operate normally.
2. Once the system has completed its powering down cycle (all LEDs are off), insert the PC-ATA card containing the software upgrade (P/N 0891060) into the PCMCIA card slot on the NTCPU.
3. Push in and hold the Load button.
4. Turn the system power on.
   With the Aspire M/L: Press the power button on the power supply in the PS1 slot.
   With the Aspire XL: Press the power switch on the expansion cabinet's DC-to-DC Converter, wait 5 seconds, then press the power switch on the main cabinet's DC-to-DC Converter.
   With the Aspire XL, if power is turned on or off on the expansion cabinet's DC-to-DC Converter, it only affects that particular cabinet.
5. Continue holding the Load button for approximately 10 seconds.
6. Release the Load button.
7. Wait until the Status LED on the NTCPU have the following indications (approximately 2 minutes): LED 1: Steady Green, LED 0: Flashing Red, LED 2: Flashing Red, LED 3: Flashing Red, LED 4: Steady Red.
8. Turn the system power off.
   With the Aspire M/L: Press the power button on the power supply in the PS1 slot.
   With the Aspire XL: Press the power switch on the expansion cabinet's DC-to-DC Converter, wait 5 seconds, then press the power switch on the main cabinet's DC-to-DC Converter.
   With the Aspire XL, if power is turned off on the expansion cabinet's DC-to-DC Converter, it only affects that particular cabinet. The main cabinet continues to operate normally.
9. Once the system has completed its powering down cycle (all LEDS are off), remove the PC-ATA card.
10. Turn the system power back on.
11. When the system has completed reloading the software, the Status LED will begin flashing on the NTCPU. The remaining 4 LEDs will now be off.
    To confirm the new software version has been installed, the system version number can be viewed by pressing CHECK and then the HOLD key on any display keyset. This can also be confirmed in Program 90-16-01.

    The existing system software in the flash memory is replaced, but the customer data (stored in the RAM) is saved.

- For Your Notes -

Section 3: Installing Extensions and Trunks

3

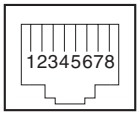
!! Important !!

Install telephones as on-premise extensions only. (Otherwise, the telephones are highly susceptible to lightning strikes.)

RJ-61 TO 66 BLOCK CONNECTIONS

Wiring RJ-61 Cables to 66 Blocks

When not using a 25-pair amphenol cable to connect extensions or trunks, use the following pin information for the RJ-61 connector to connect your cables to the 66 blocks.

66 Block	RJ-61 Connector	
Block Termination 1: WHT-BLU	Pin 5	
Block Termination 2: BLU-WHT	Pin 4	
Block Termination 3: WHT-ORN	Pin 3	
Block Termination 4: ORN-WHT	Pin 6	
Block Termination 5: WHT-GRN	Pin 2	
Block Termination 6: GRN-WHT	Pin 7	
Block Termination 7: WHT-BRN	Pin 1	
Block Termination 8: BRN-WHT	Pin 8	

INSTALLING 25-PAIR CABLES

Routing Cables (Figure 3-1)

It is recommended to install extension blocks to the left of each cabinet. The trunk blocks can then be installed to the right of each cabinet. Run the 25-pair cable from the extension block and from the trunk block through the cable pass-throughs on either side or the back of the cabinet.

Installing Extension Cross-Connect Blocks

It is also recommended to install cross-connect blocks for each of the system's major extension port device groups. Cross-connect blocks provide an easy way to troubleshoot, determine port identification numerically, and determine port utilization.

Install cross-connect blocks for the following interfaces:

- All digital extension circuits
- NTCPU functions (i.e.; BGM, MOH, Night mode switch, relay 1)
- External page
- External alarms
- Data devices

Installing Trunk Cross-Connect Blocks

It is also recommended to install cross-connect blocks for each of the system's major trunk device groups. Cross-connect blocks provide an easy way to troubleshoot, determine port identification numerically, and determine trunk port utilization.

Install cross-connect from telco's RJ21X to the trunk cross-connect blocks for the following:

- analog loop start lines
- analog ground start trunks
- DID trunks
- Tie lines

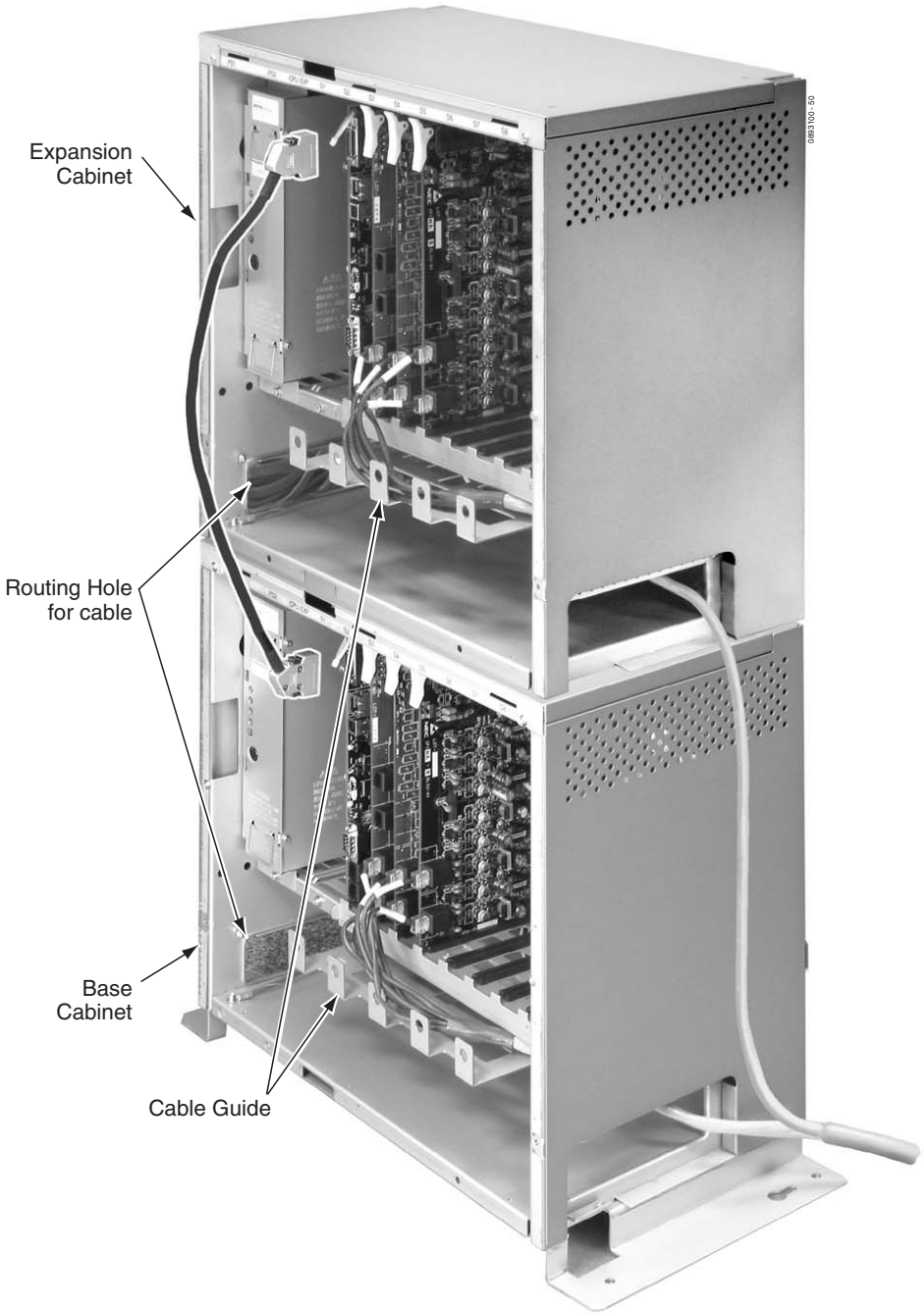


Figure 3-1: TYPICAL TRUNK CABLING LAYOUT

INSTALLING EXTENSIONS

Key Extension Cabling (Figure 3-2)

Each key extension requires one-pair twisted station cable from the MDF to the modular jack. A maximum of 24 2-wire extensions can be installed per 50-pin block.

To connect key station cabling:

1. Punch down one pair 24 AWG station cable for each key telephone to a cross-connect block.
2. Run one-pair cross-connect from the cross-connect block to the extension (B) block for each extension.
3. Connect the extension (B) block's 25-pair cable to the corresponding RJ-61 connector on the PCB.
4. Install bridging clips on the extension (B) block.

Installing a Key Telephone (Figure 3-2)

1. Install a modular jack for each extension. The modular jack should be within six feet of the phone.
2. For each extension, run one-pair 24 AWG station cable from the cross-connect block to a modular jack. Ground the unused pair.
3. Terminate the extension leads to GRN/RED of the modular jack. Terminate the unused leads to the jack.

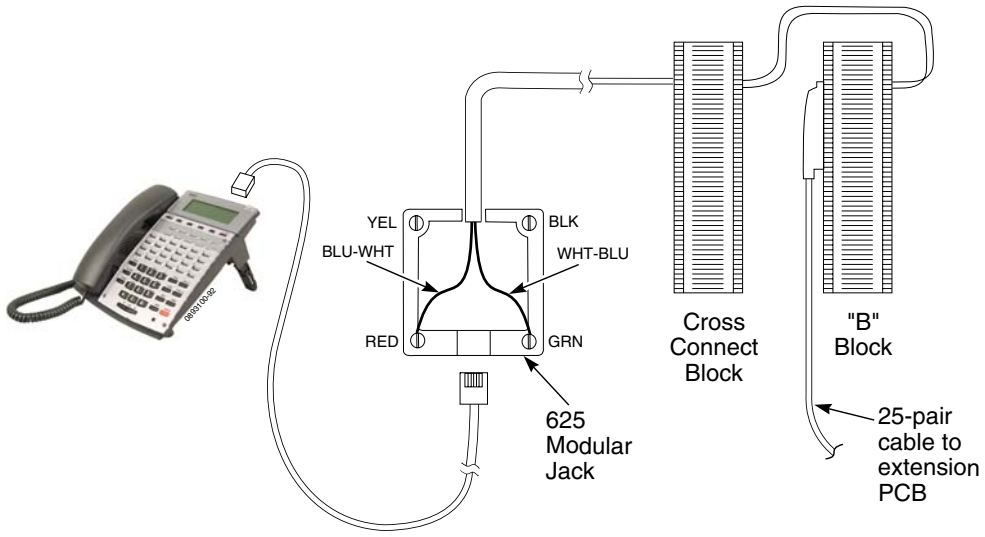


Figure 3-2: INSTALLING A KEY TELEPHONE

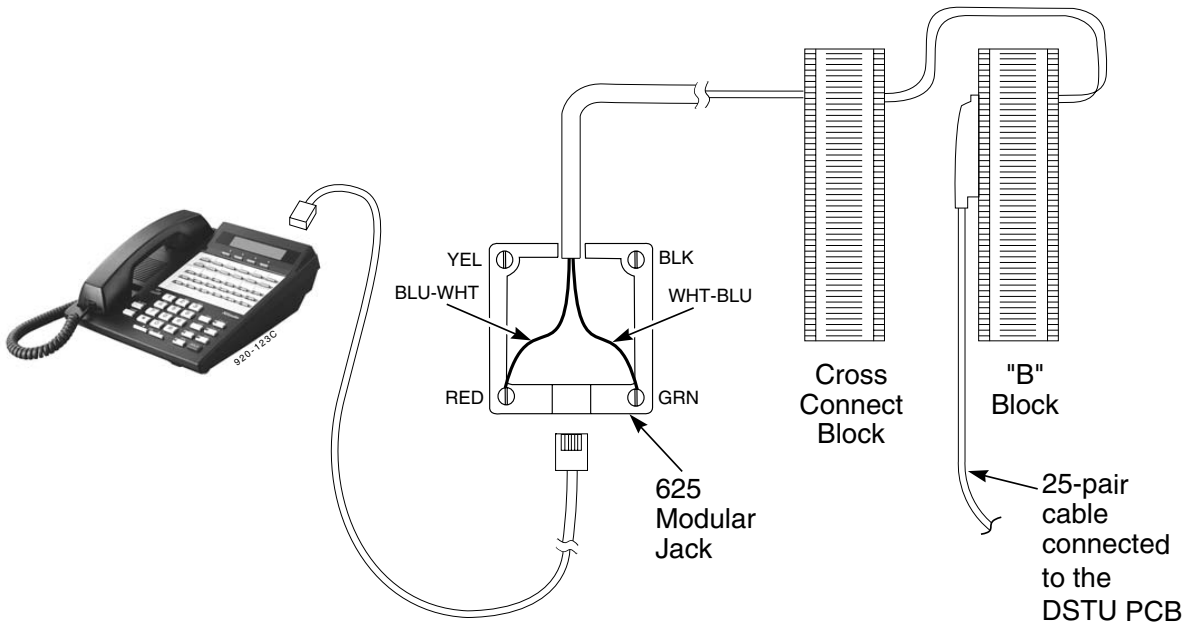


Figure 3-3: INSTALLING AN I-SERIES KEY TELEPHONE

INSTALLING SINGLE LINE TELEPHONES

Single Line Extension Cabling (Figure 3-4)

Each single line extension requires one-pair twisted station cable from the MDF to the modular jack. A maximum of 24 2-wire extensions can be installed per 50-pin 66 block.

To connect station cabling:

1. Punch down one pair 24 AWG station cable for each single line telephone to a cross-connect block.
2. Punch down cross-connect from the clips on the cross-connect block to their corresponding clips on the extension (B) block.
3. Connect the extension (B) block's 25-pair cable to the corresponding RJ-61 connector on the PCB.
4. Install bridging clips on the extension (B) block.

Installing a Single Line Telephone (Figure 3-4)

To install a single line telephone:

1. Install a modular jack for each single line telephone. The modular jack should be within six feet of the phone.
2. For each extension, run one-pair 24 AWG station cable from the cross-connect block to a modular jack.
3. Terminate the extension leads to GRN/RED of the modular jack. Terminate the unused leads to the jack.

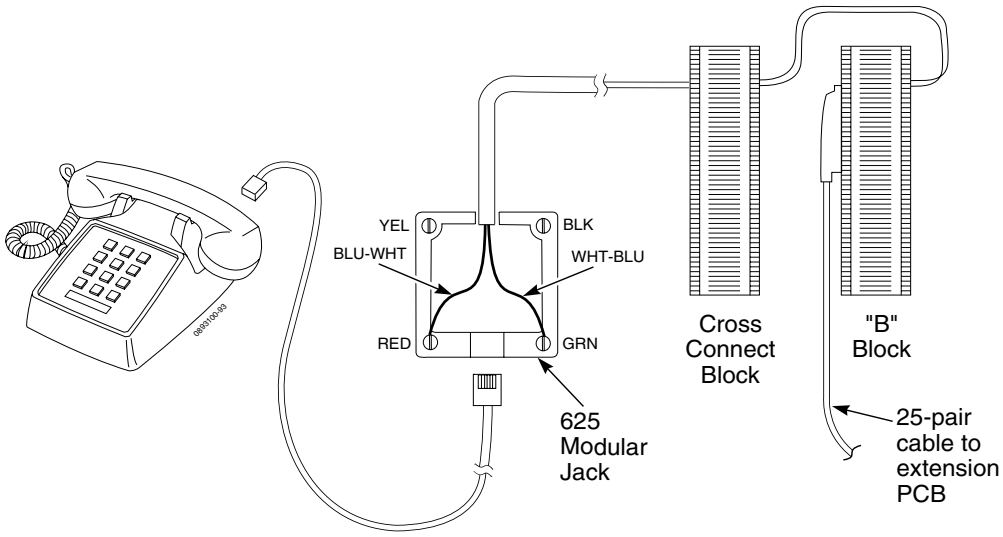


Figure 3-4: INSTALLING A SINGLE LINE TELEPHONE

INSTALLING CORDLESS TELEPHONES

The Cordless Lite II/Cordless II phone allows for the connection of an optional keyset phone. The base unit allows the user to switch between the Cordless Lite II/Cordless II phone and an Aspire keyset. Whichever phone is activated at the base unit is the telephone which will ring. This allows you to have a keyset phone to use while at your desk, and when you need to be away from your desk, you can carry the cordless phone with you. Refer to **Cordless Telephone — P/N 730088 and 730087** (page 4-63) for more details on setting up the phone and its optional equipment.

Cordless Phone Extension Cabling (Figure 3-5)

Each cordless phone extension requires a digital extension port with one-pair twisted station cable from the MDF to the modular jack.

To connect station cabling:

1. Punch down one-pair 24 AWG station cable for each cordless telephone to a cross-connect block.
2. Punch down cross-connect from the clips on the cross-connect block to their corresponding clips on the extension (B) block.
3. Connect the extension (B) block's 25-pair cable to the corresponding RJ-61 connector on the PCB.
4. Install bridging clips on the extension (B) block.

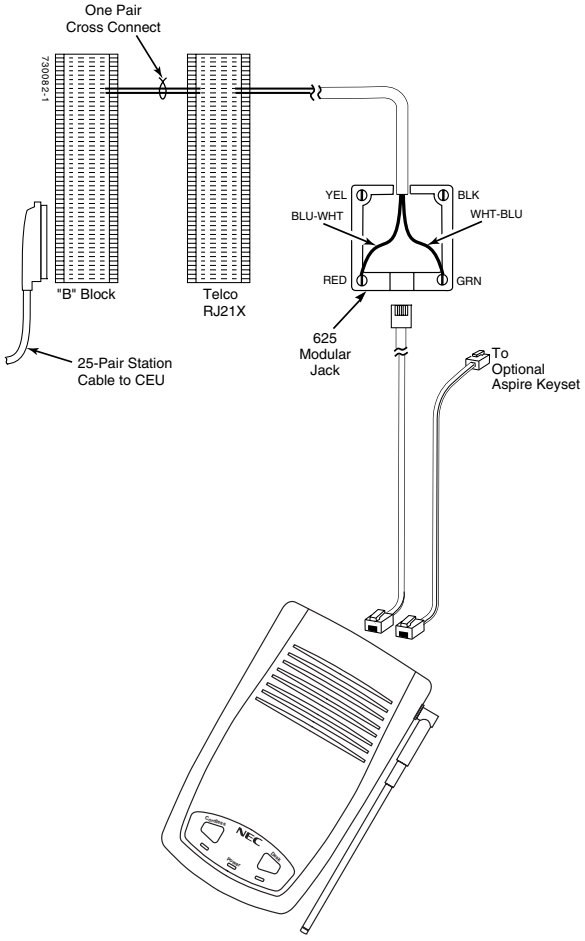


Figure 3-5: INSTALLING A CORDLESS PHONE

Installing a Cordless Telephone (Figure 3-5)

To install a cordless telephone:

1. Install a modular jack for each cordless telephone. The modular jack should be within six feet of the base unit.
2. For each extension, run one-pair 24 AWG station cable from the cross-connect block to a modular jack.
3. Terminate the extension leads to GRN/RED of the modular jack.

Important

In some cases, when testing the operation of an extension port when connecting to a Cordless II, Cordless Lite II, or 2PGDAD module, a technician may connect a line cord directly from an extension port on the Aspire/Aspire S ESIU PCB or Aspire S CPU. Though this is not the recommended connection, it can be used to check if the extension has dial tone.

Should a direct connection of this type be made to the base station of the Cordless II or Cordless Lite II, or to a 2PGDAD module, the line cord must be 2-wire (1-pair). If a 2-pair wire is used, the system will provide power to the unused pair. This can prevent the cordless telephone from acquiring a link with the base station or it can damage the 2PGDAD module or the Aspire station card.

The recommended connection is to punch down 2 wires to the cross-connect block, then connect the extension block to the RJ61 connector on the PCB or CPU.

EXTENSION CUTDOWN SHEET

Extension Cutdown Sheet Configuration (Figure 3-6, Figure 3-7)

Due to the inherent flexibility of the universal PCB slot configuration, standard cutdown sheets for extension cabling do not apply.

Note: The order in which the extension PCBs (8/16ESIU, 32ESIU, 8SLIU, 8SLIDB, DSIU, DSTU) are installed determines the assigned extension number.

For example, given that a 16ESIU is installed in slot #1 and uses extension numbers 301-316, if three 16ESIU PCBs or 8SLIU with the 8SLIDB PCBs were installed in the Main Cabinet in the order below, the numbering plan would correspond as follows:

Order of Install	PCB Slot #	Ext Numbers
1	1	301-316
2	2	317-332
3	4	333-348
4	3	349-364

To determine extension assignments for the system cutdown, the installer must identify the following in order:

- Order of installation
- Cabinet (Main, Expansion)
- Slot used
- PCB type (8ESIU, 16ESIU, 32ESIU, 8SLIU, 8SLIDB, etc.)
- Amphenol connector

To determine where any group of eight extensions is installed, note the order of install, cabinet, slot, amphenol connector used, PCB connector and PCB type.

On the following page is the extension cutdown sheet (Figure 3-6). Make as many copies as you need. Be sure to keep careful records of your installation. Refer to the sample extension cutdown sheet (Figure 3-7) if you need help completing Figure 3-6.

To install VoIP extensions, refer to **LAN DEVICES** (page 6-1) for more details.

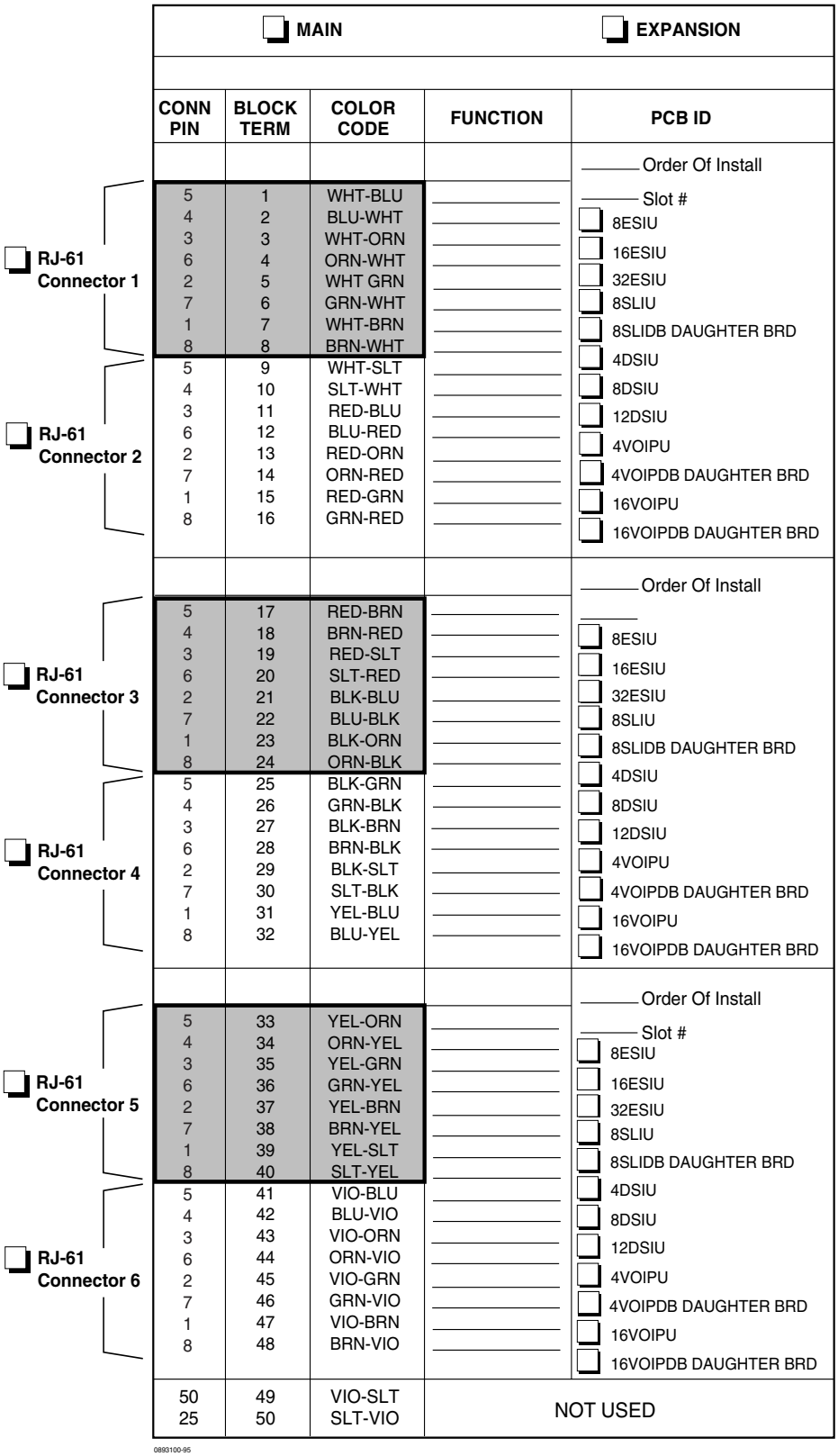


Figure 3-6: EXTENSION CUTDOWN SHEET

☑ MAIN ☐ EXPANSION

	CONN PIN	BLOCK TERM	COLOR CODE	FUNCTION	PCB ID
					1 Order Of Install
					1 Slot #
☐ RJ-61 Connector 1	5	1	WHT-BLU		☐ 8ESIU
	4	2	BLU-WHT		☑ 16ESIU
	3	3	WHT-ORN		☐ 32ESIU
	6	4	ORN-WHT		☐ 8SLIU
	2	5	WHT GRN		☐ 8SLIDB DAUGHTER BRD
	7	6	GRN-WHT		☐ 4DSIU
	1	7	WHT-BRN		☐ 8DSIU
	8	8	BRN-WHT		☐ 12DSIU
☑ RJ-61 Connector 2	5	9	WHT-SLT		☐ 4VOIPU
	4	10	SLT-WHT		☐ 4VOIPDB DAUGHTER BRD
	3	11	RED-BLU		☐ 16VOIPU
	6	12	BLU-RED		☐ 16VOIPDB DAUGHTER BRD
	2	13	RED-ORN		
	7	14	ORN-RED		
	1	15	RED-GRN		
	8	16	GRN-RED		

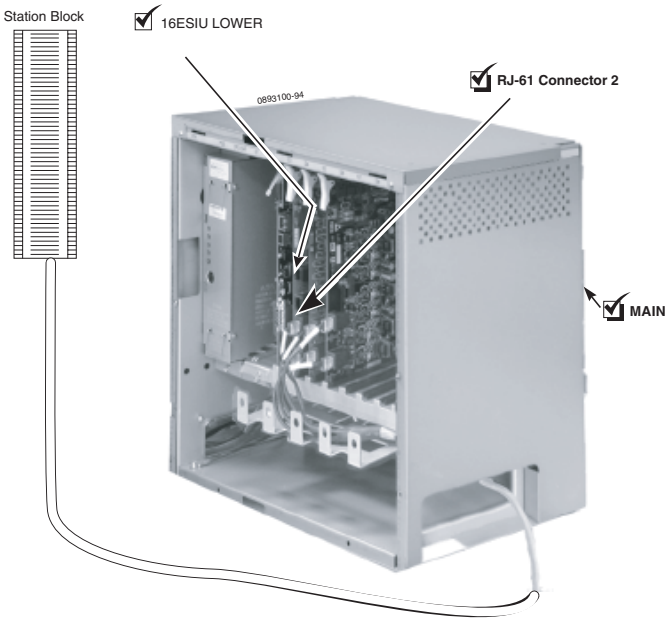


Figure 3-7: SAMPLE EXTENSION CUTDOWN SHEET

INSTALLING CO/PBX LINES

Ground Start/Loop Start Line Cabling

Ground start trunks/loop start lines must be bridged from the telco RJ21X to a line cross-connect block (A). Each ground/loop start CO/PBX line requires one-pair cross-connect cable from the RJ21X to the line (A) block.

The A block connects to the trunk PCB with a 24 pair cable. The line (A) block(s) should be arranged in groups of 4 (8 pins) or 8 lines (16 pins) to correspond to the PCB slots.

4COIU-LS1	4 loop start lines
8COIU-LS1	8 loop start lines
4COIU-LG1	4 ground start trunks
8COIU-LG1	8 ground start trunks

The CN3 and CN5 connectors each provide connection to 4 analog trunk ports, ***which are polarity sensitive (tip to tip, ring to ring)***. The power failure circuits, however, are not polarity sensitive.

! Important !

- When using the COIU-LG1 PCB for ground start trunks, the PBX and Earth grounds ***must*** be connected as described on page 1-38 or the trunks will not function correctly.
- When connecting the RJ61 cables to the COIU PCB, note the position of the Power Failure connector. Do not confuse this connector as the trunk connector.

Installing Ground Start Trunks/Loop Start Lines (Figure 3-8, Figure 3-9)

To install a ground start trunk/loop start line:

1. Punch down one pair cross-connect to the tip and ring leads for each line on the telco RJ21X CPE (customer) side of the block (Figure 3-8).
   *The CN3 and CN5 connectors **are polarity sensitive (tip to tip, ring to ring)**.*
2. Punch down the other end of the cross-connect to the line (A) block (in groups of 4 or 8 lines of the same line type).
3. Punch down a 25-pair cable to the opposite side of the line (A) block.
4. Plug in the corresponding RJ-61 connector to the COIU PCB connector (Figure 3-9).
5. Install bridging clips on the A block.

Note: Repeat steps 1-5 for each ground start trunk/loop start line. Label cross-connect blocks A2, A3, etc.

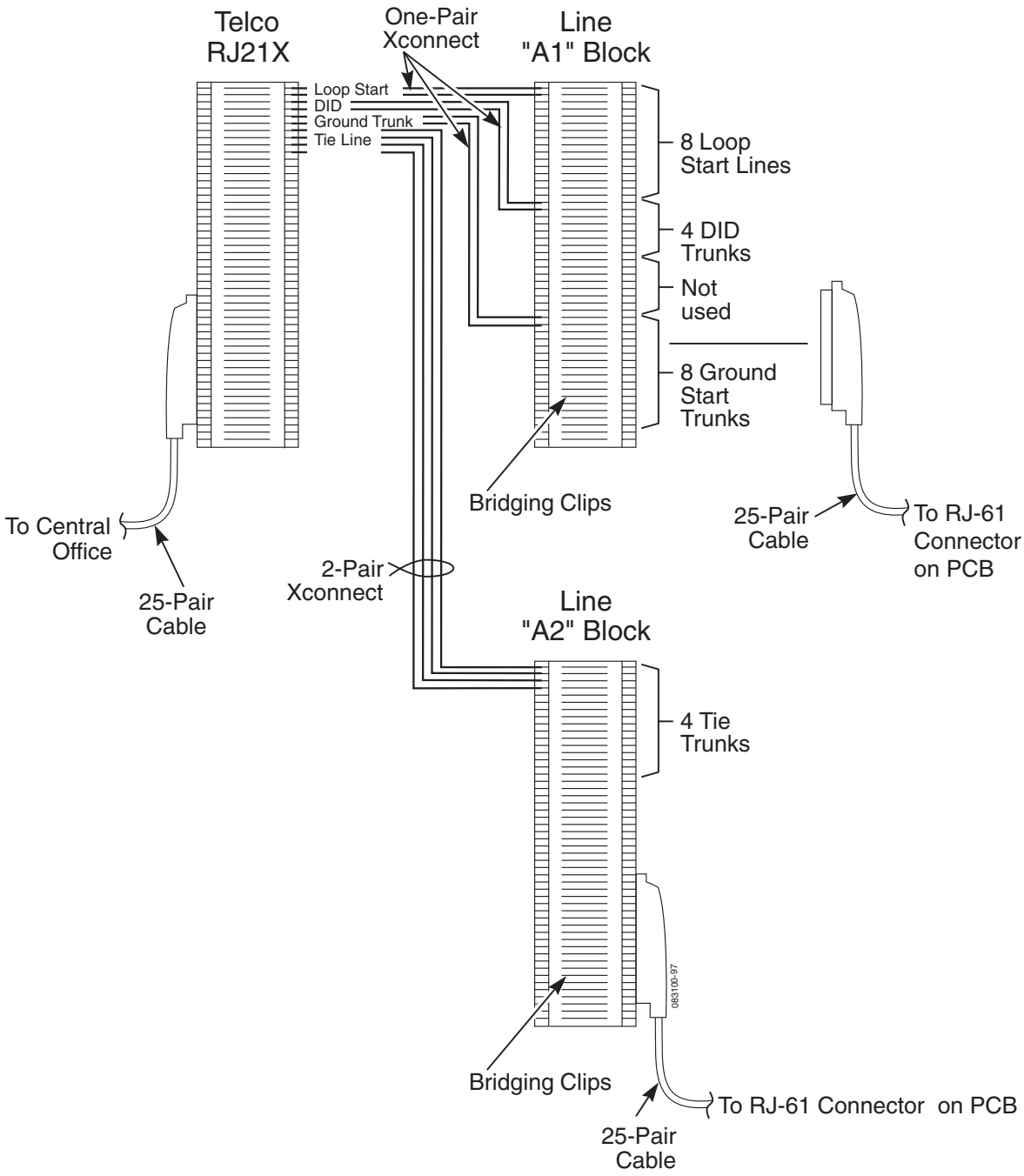


Figure 3-8: TYPICAL TRUNK/LINE INSTALLATION

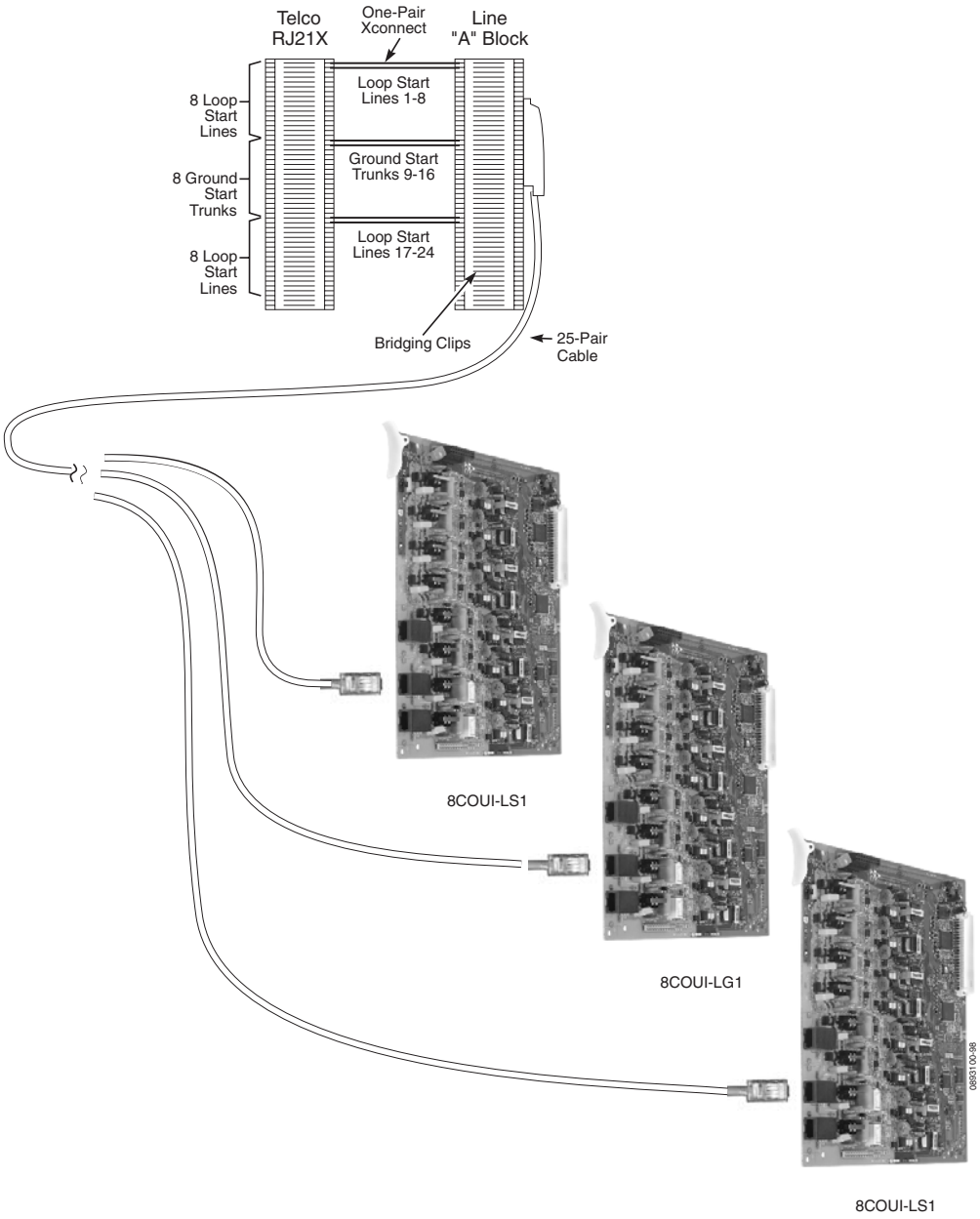


Figure 3-9: INSTALLING GROUND START TRUNK/LOOP START LINES

INSTALLING BRI TRUNKS

BRI Trunks (Figure 3-10)

BRI trunks must be bridged from the telco RJ21X to a line cross-connect (A) block. Each BRI Trunk requires one-pair cross-connect from the RJ21X to the line (A) block.

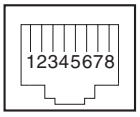
The A block connects to the BRI PCB with a 25-pair cable and an RJ-45 jack. The line (A) block should be arranged in groups of 2 BRI trunks (4 pins), 4 BRI trunks (8 pins) or 8 BRI trunks (16 pins) to correspond with the cabinet slot equipped with a 2/4/8BRI PCB.

Installing BRI Trunks

1. For each T-Bus or S-Bus line, run cross-connect wires between the pins on the cross-connect block and the station block.
2. Install bridging clips as required.
3. From the cross-connect block, connect 2 pairs of wires.
   For T-Bus: The opposite end is an 8-pin modular connector which is plugged into the NT1 Termination. Connect a line cord from the NT1 Network Line Termination to the telco BRI line. Connect the power cord to the NT1 Network Termination unit.
   For S-Bus: The opposite end is an 8-pin modular connector which is plugged into an RJ45 jack. Connect your ISDN terminals to this jack, and daisy-chain the connection for additional ISDN terminals. For pin-out information for S-Bus connections, refer to **BRI (2/4/8BRIU) Interface PCB (Figure 2-18)** (page 2-48).
4. Plug in the corresponding RJ-45 connector to the BRI PCB connector.

Note: Repeat steps 1-4 for each BRI trunk. Label cross-connect blocks A2, A3, etc.

RJ45 Cable Connector - CN5, CN6, CN7, CN8
T-Bus Connection



Pin No.	Connection
1	-
2	-
3	TA
4	RA
5	RB
6	TB
7	-
8	-

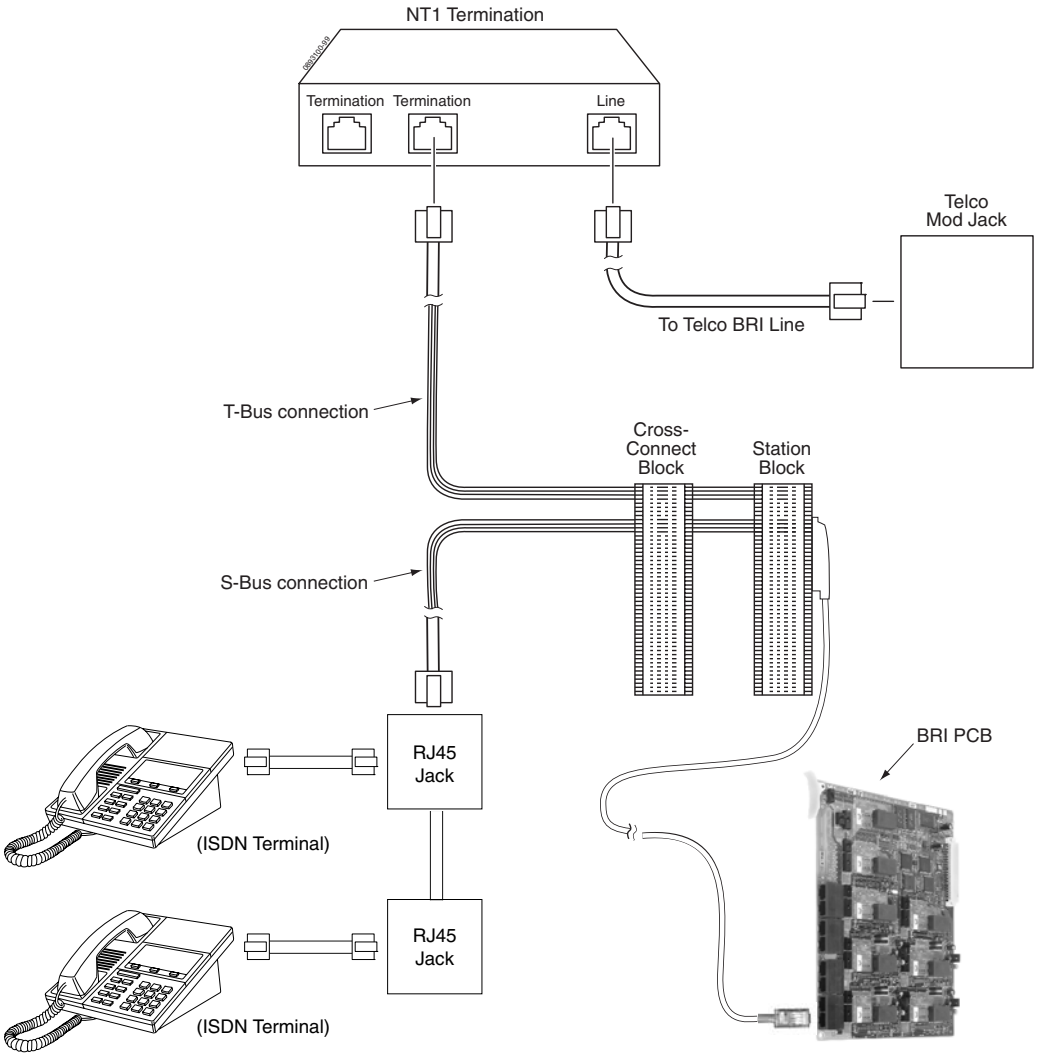


Figure 3-10: BRI Interface T-Bus Point-to-Point

INSTALLING DID TRUNKS

DID Trunks (Figure 3-11)

Direct Inward Dialing trunks must be bridged from the telco RJ21X to a line cross-connect (A) block. Each DID Trunk requires one-pair cross-connect from the RJ21X to the line (A) block.

The A block connects to the DID PCB and an RJ-61 jack. The line (A) block should be arranged in groups of 4 DID trunks (8 pins) or 8 DID trunks (16 pins) to correspond with the cabinet slot equipped with a DIOPU PCB.

Installing DID Trunks

1. Punch down one pair cross-connect to the tip and ring leads for each DID trunk on the CPE (customer) side of the RJ21X.
2. Punch down the other end of the cross-connect to the line (A) block tip and ring leads.
3. Punch down a 25-pair cable to the opposite side of the line (A) block.
4. Plug in the corresponding RJ-61 connector to the DID PCB connector.
5. Install bridging clips on the A block.

Note: Repeat steps 1-5 for each DID trunk. Label cross-connect blocks A2, A3, etc.

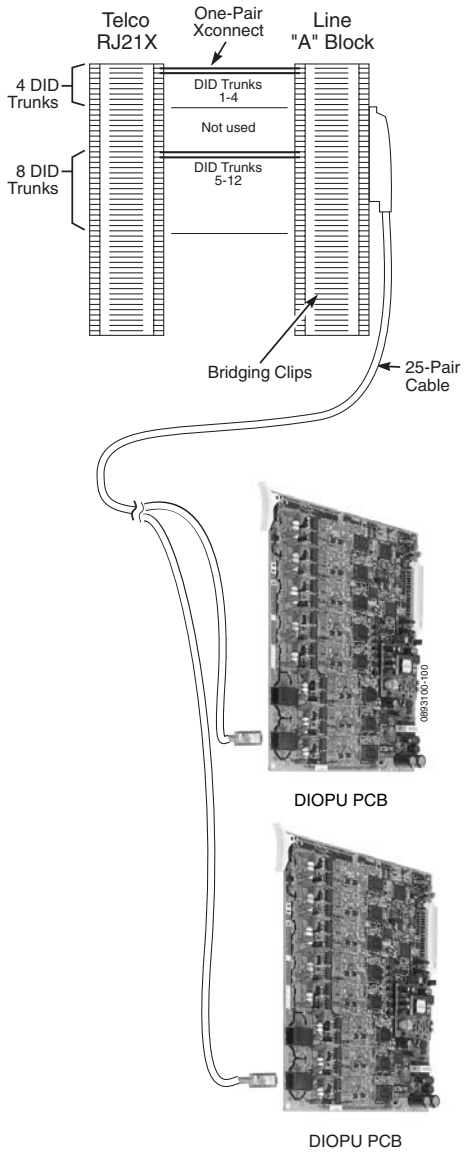


Figure 3-11: INSTALLING DID TRUNKSI

INSTALLING A DID CHOKE

DID Choke (Figure 3-12)

If your central office has a high level of AC noise or if your site is experiencing excessive hum on the DID lines, a customer-provided isolation transformer can be installed between the Aspire and telco blocks to help to suppress the hum.

DID trunks must be bridged from the telco RJ21X to a line cross-connect (A) block. The choke is installed between these two blocks.

DID Choke Installation:

1. Remove the bridging clips on the (A) block and telco block for the DID lines.
2. From the telco block, solder the Tip lead to the "3" connector on the choke.
3. From the telco block, take the Ring lead and solder it to the "1" connector on the choke.
4. From the (A) block, take the Tip 1 lead and solder it to the "4" connector on the choke.
5. Solder the Ring 1 lead from the (A) block to the "2" connector on the choke.
6. Reinstall the bridging clips as required.

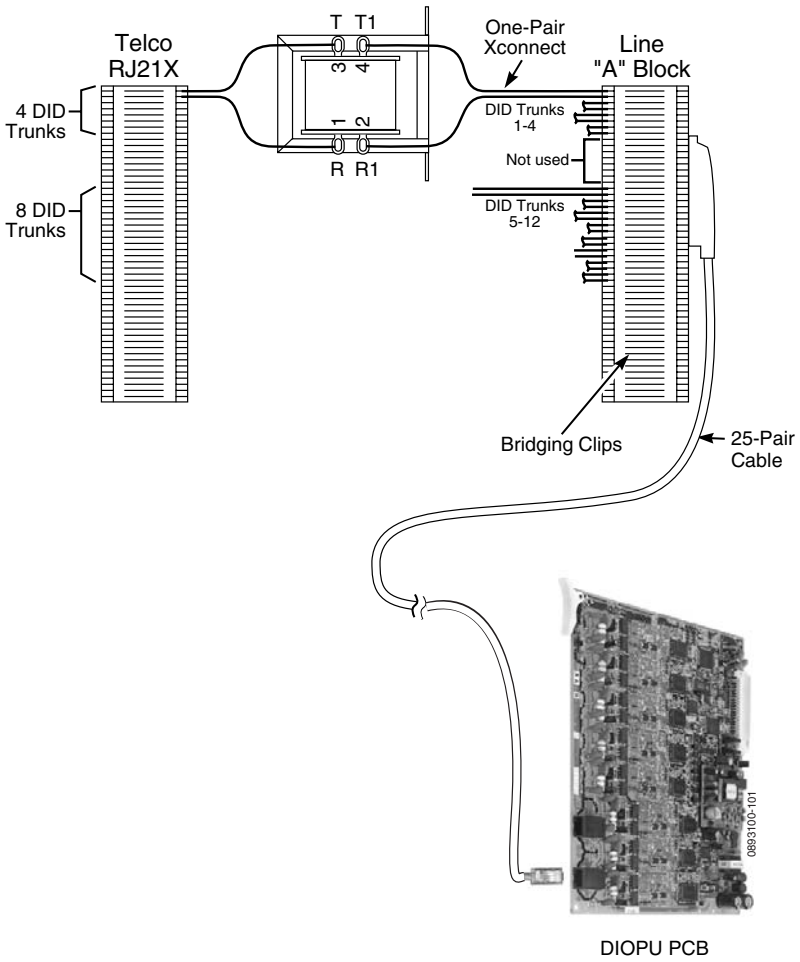


Figure 3-12: DID CHOKE INSTALLATION

INSTALLING TIE LINES

Tie Line: 4TLIU (Figure 3-13)

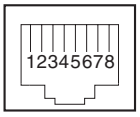
Tie lines must be bridged from the telco RJ21X to a line cross-connect (A) block. Each tie line requires two-pair or four-pair (depending on the type of tie line) cross-connect from the RJ21X to the line (A) block.

The A block connects to the 4TLIU PCB with a 25-pair cable. The line (A) block must be arranged in groups of 4 tie lines (32 pins) to correspond with the cabinet slot equipped with a 4TLIU PCB.

Installing 2-wire/4-lead Tie Lines:

1. Punch down two pair cross-connect on the tip, ring, E, M, SB and SG leads for each tie line on the CPE (customer) side of the RJ21X.
2. Punch down the other end of the cross-connect to the line (A) block tip, ring, E, M, SB and SG leads (in groups of 4 lines). Keep in mind that two pins of the RJ-61 connector are not used for 2-wire tie lines.

RJ61 Cable Connector - 2-Wire E&M, CN100 - CN400



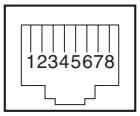
Pin No.	Connection	Description
1	SB	Ground wire for control
2	M	Control signal to trunk
3	-	
4	R	Voice signal both ways
5	T	Voice signal both ways
6	-	
7	E	Control signal from trunk
8	SG	Ground wire for control

3. Make sure the strapping on the 4TLIU PCB is set to the proper type (2-wire or 4-wire and Type I, II, III, IV or Type V).
4. Punch down a 25-pair cable to the opposite side of the line (A) block.
5. Plug in the corresponding RJ-61 connector to the 4TLIU PCB connector.
6. Install bridging clips on the A block. Label cross-connect blocks A2, A3, etc.

Installing 4-wire/8-lead Tie Lines:

1. Punch down four pair cross-connect on the tip, ring, tip 1, ring 1, E, SB, M, and SG leads for each tie line on the CPE (customer) side of the RJ21X.
2. Punch down the other end of the cross-connect to the line (A) block tip, ring, tip 1, ring 1, E, SB, M, and SG leads (in groups of 4 tie lines).

RJ61 Cable Connector - 4-Wire E&M, CN100 - CN400



Pin No.	Connection	Description
1	SB	Ground wire for control
2	M	Control signal to trunk
3	R	Voice signal to trunk
4	R1	Voice signal from trunk
5	T1	Voice signal from trunk
6	T	Voice signal to trunk
7	E	Control signal from trunk
8	SG	Ground wire for control

3. Make sure the strapping on the 4TLIU PCB is set to the proper type (2-wire or 4-wire and Type I, II, III, IV or Type V). Refer to *Tie Line (4TLIU) PCB (Figure 2-17)* on page 2-43 for detail on strapping.
4. Punch down a 25-pair cable to the opposite side of the line (A) block.
5. Plug in the corresponding RJ-61 connector to the 4TLIU PCB connector.
6. Install bridging clips on the A block. Label cross-connect blocks A2, A3, etc.

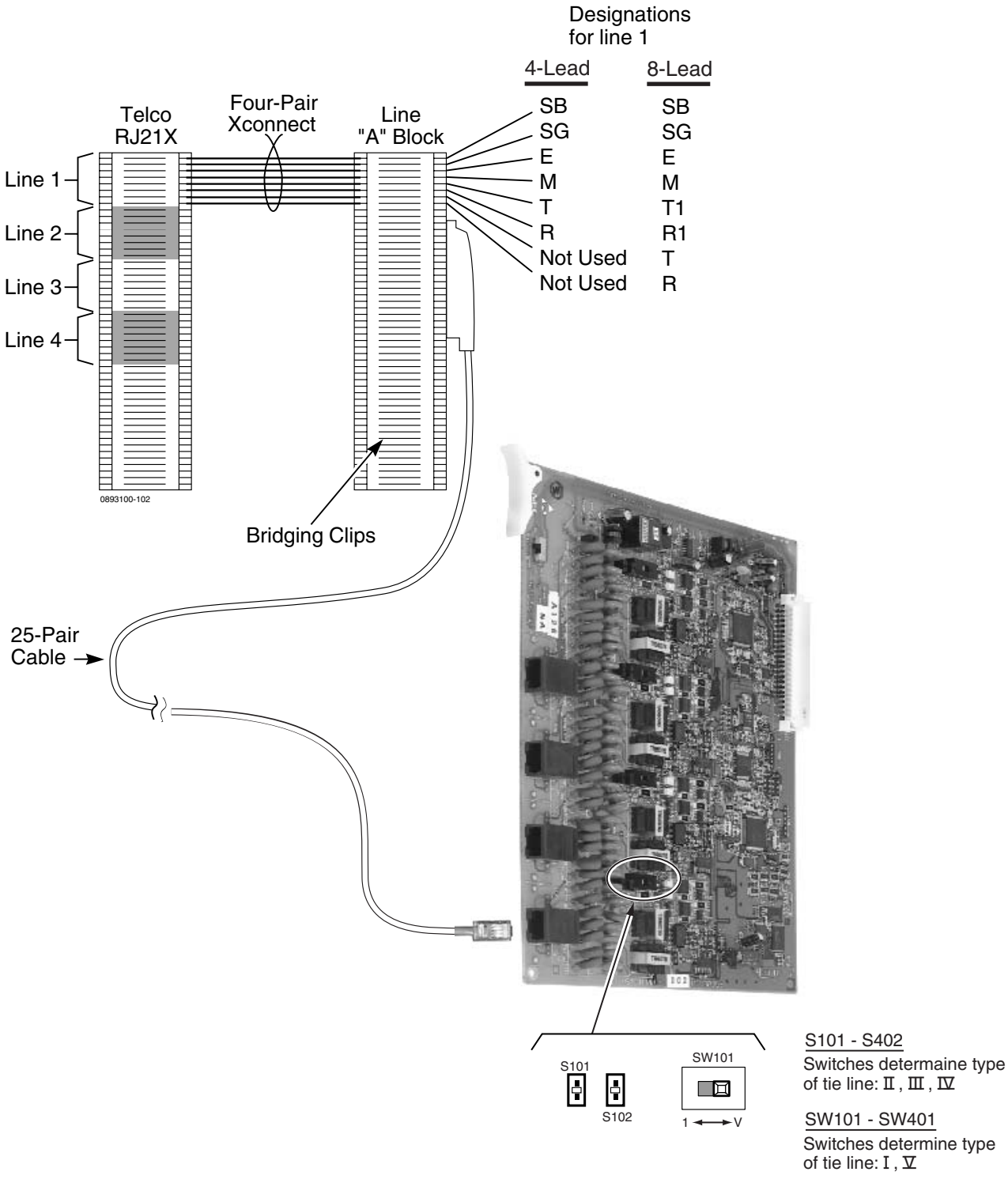


Figure 3-13: 4TLIU PCB INSTALLATION

LINE/TRUNK CUTDOWN SHEET

CO/PBX Line Cutdown Sheet Configuration (Figure 3-14, Figure 3-15)

Due to the flexibility of the system's universal PCB slot configuration, standard cutdown sheets for CO/PBX line cabling do not apply.

Note: The order in which the trunk PCBs are installed determines the assigned line circuit number.

For example, if four 8COIU's are installed in the Main Cabinet in the following order, the following numbering plan would be in effect:

Order of Install	PCB Slot #	Line Circuits
1	4	1-8
2	5	9-16
3	7	17-24
4	6	25-32

To determine trunk assignments for the system cutdown, the installer must identify the following in order:

- Order of installation
- Cabinet (Main, Expansion)
- Slot used
- PCB type (4COIU, 8COIU, 4TLIU, etc.)
- Amphenol connector

To determine where any group of lines are installed, note the order of install, cabinet, and slot.

On the following page is the line cutdown sheet (Figure 3-14). Make as many copies as you need. Be sure to keep careful records of your installation. Refer to the sample line cutdown sheet (Figure 3-15) if you need help completing Figure 3-14.

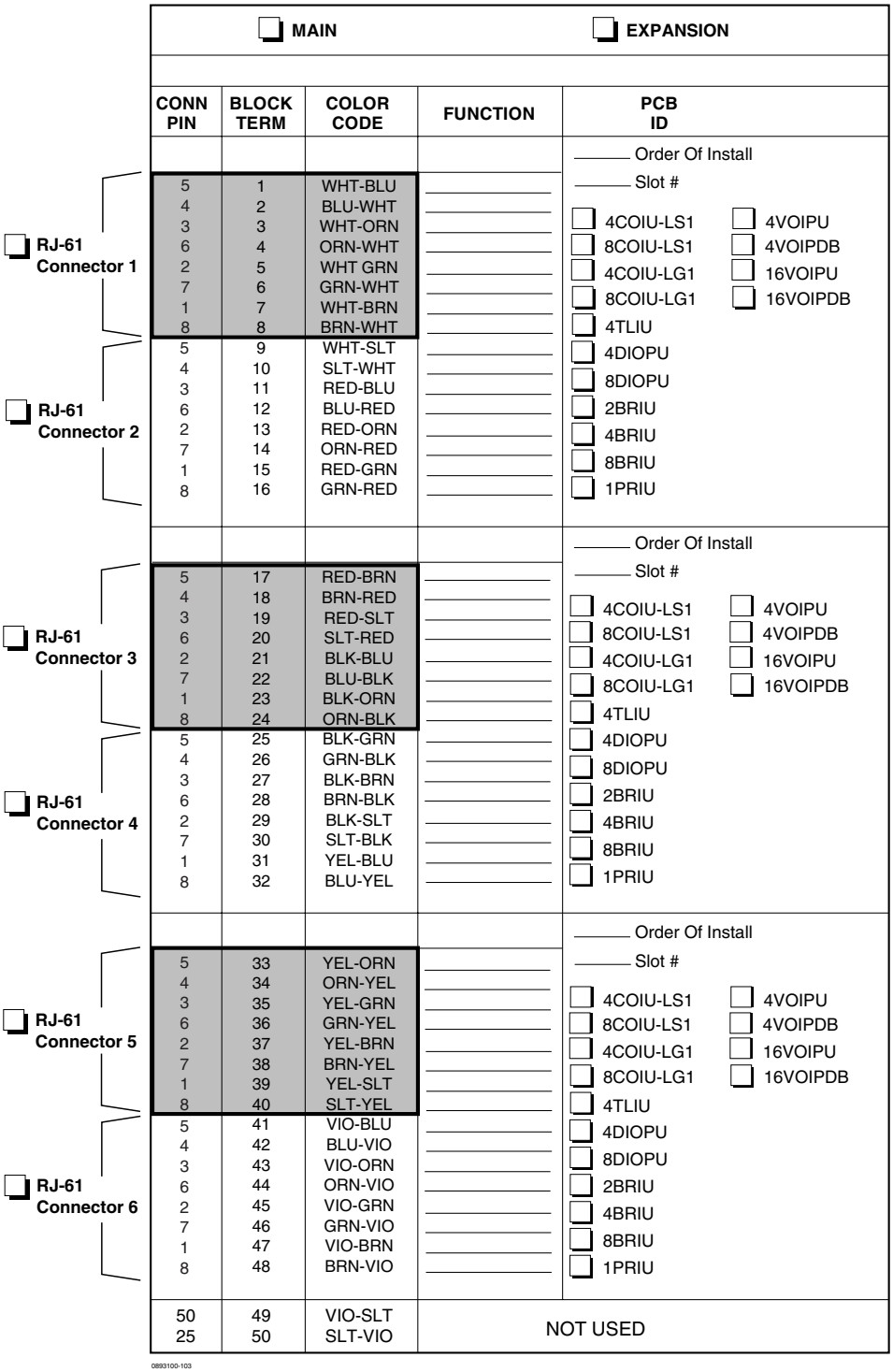


Figure 3-14: LINE CUTDOWN SHEET

☑ MAIN ☐ EXPANSION

CONN PIN	BLOCK TERM	COLOR CODE	FUNCTION
5	1	WHT-BLU	
4	2	BLU-WHT	
3	3	WHT-ORN	
6	4	ORN-WHT	
2	5	WHT GRN	
7	6	GRN-WHT	
1	7	WHT-BRN	
8	8	BRN-WHT	
5	9	WHT-SLT	
4	10	SLT-WHT	
3	11	RED-BLU	
6	12	BLU-RED	
2	13	RED-ORN	
7	14	ORN-RED	
1	15	RED-GRN	
8	16	GRN-RED	

☑ RJ-61 Connector 1

☐ RJ-61 Connector 2

PCB ID

1 Order Of Install

3 Slot #

- ☐ 4COIU-LS1
- ☐ 8COIU-LS1
- ☐ 4COIU-LG1
- ☑ 8COIU-LG1
- ☐ 4TLIU
- ☐ 4DIOPU
- ☐ 8DIOPU
- ☐ 2BRIU
- ☐ 4BRIU
- ☐ 8BRIU
- ☐ 1PRIU
- ☐ 4VOIPU
- ☐ 4VOIPDB
- ☐ 16VOIPU
- ☐ 16VOIPDB

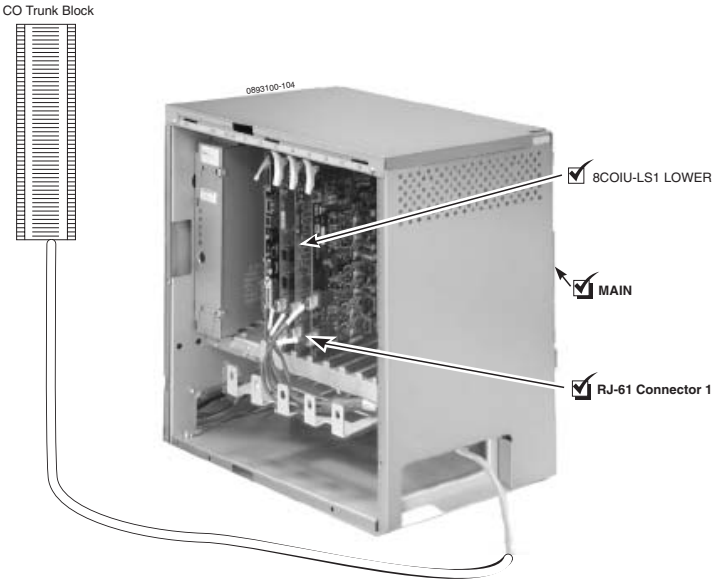
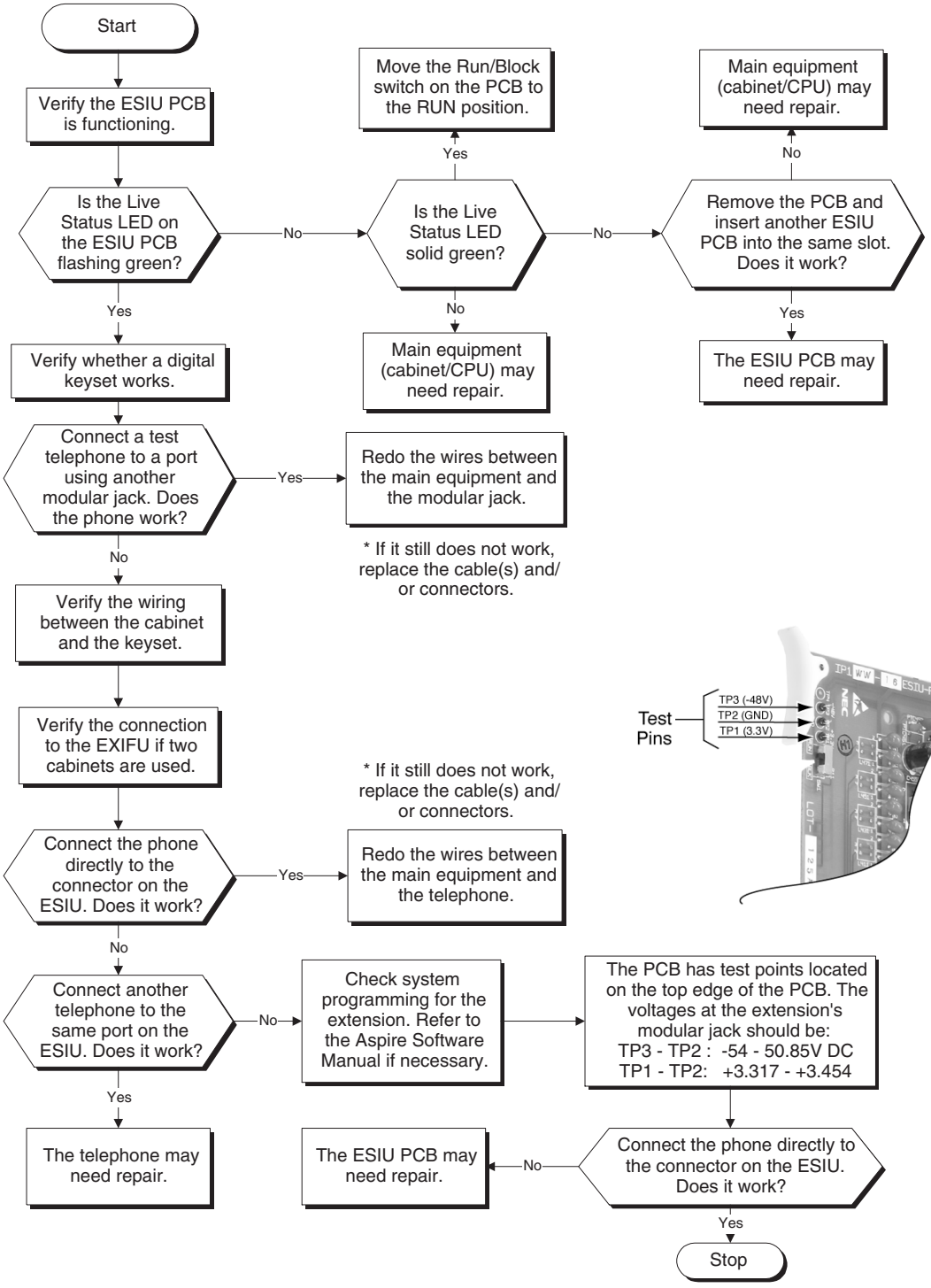


Figure 3-15: SAMPLE LINE CUTDOWN SHEET

TROUBLESHOOTING

Basic Troubleshooting

Troubleshooting Digital Extensions



Testing Telephone Operation

The following procedure will help you determine if a problem being experienced is due to the telephone or the system. Testing the operation of a keyset allows you to check the lamping of each key, the display, and tones. Follow the procedure below to determine if the phone is operating correctly.

Key Matrix and LED Test

1. Unplug the phone.
2. While holding down dial pad digits 1, 2 and 3, plug the phone back in.
3. Hold down the 1, 2 and 3 digits for approximately 10 seconds then release them.
   If the phone doesn't show "TEST PUSH=" on the display, then repeat Steps 1-3 and hold the keys down a few seconds longer.
4. Press any key and its Logical Name should be displayed.
   The following chart indicates the Logical Name for each key.

Logical Name Table

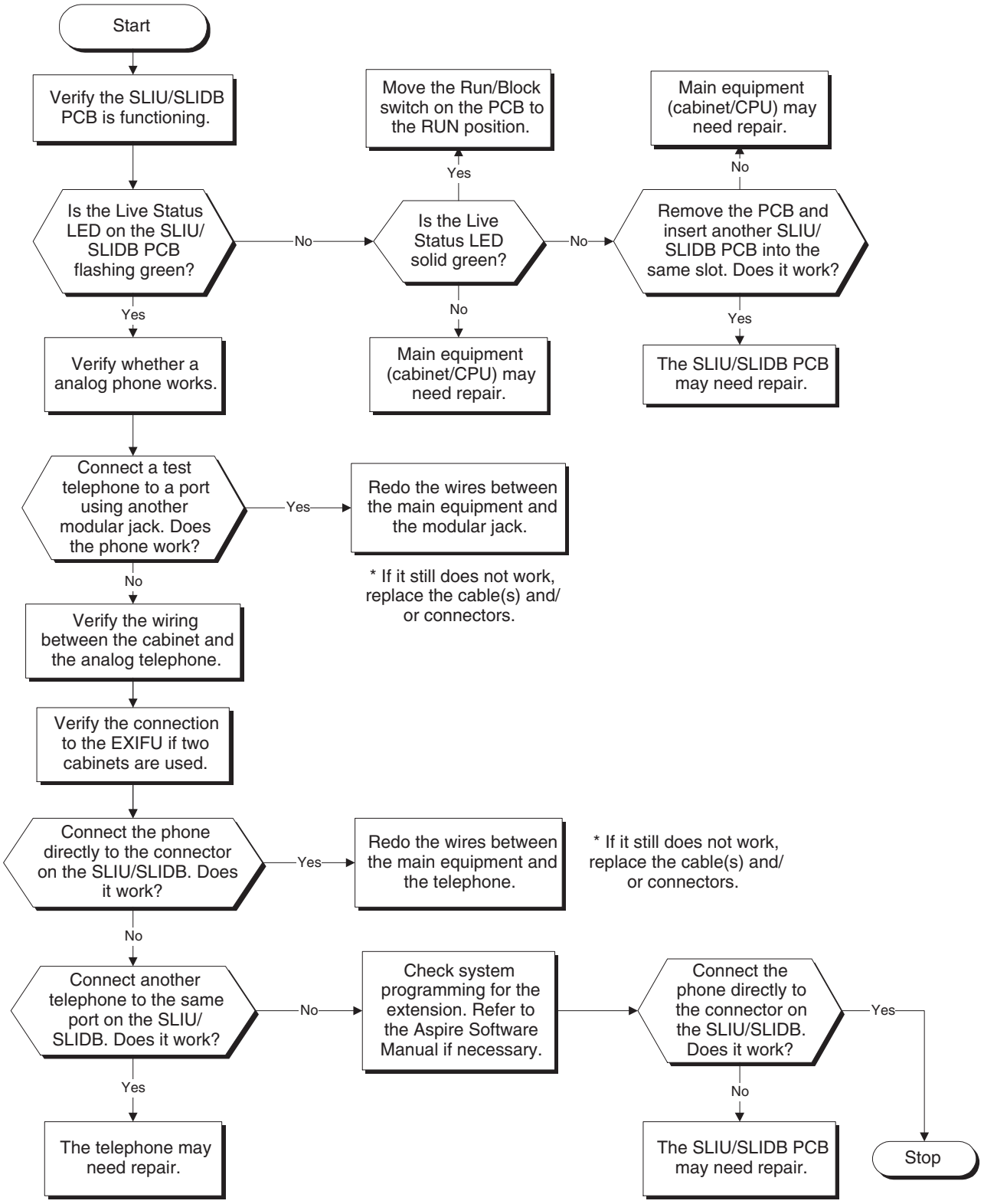
Keys	Logical Name	Keys	Logical Name
KEYPAD 0 - 9	D 0 - D 9	CALL2	F 8
KEYPAD *	D *	MIC	F 9
KEYPAD #	D #	MSG	F 10
Line Keys 1 - 24 [1]	L 1 - L 24	DIAL	F 11
DSS Keys 1 - 10	O 1 - O 10	CLEAR	F 12
LND	F 1	CHECK	F 13
CONF	F 2	SOFT KEY 1-4	S 1 - S 4
HOLD	F 3	MENU1 [2]	011
FLASH	F 4	MENU2 [2]	012
DND	F 5	VOL. UP	
CALL1	F 6	VOL. DOWN	
SPK	F 7		

[1] Keys 1, 2 and 3 will also check tones.
[2] 34-Button Super Display telephone only.

Quitting Test Mode

1. Lift the handset and then replace it.
2. The phone returns to an idle condition.

Troubleshooting Analog Extensions



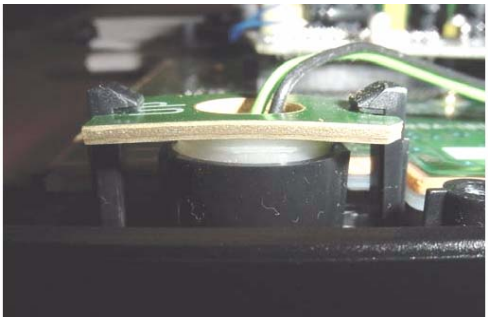
Aspire Keyset Speakerphone Problems When Used with Analog Trunks

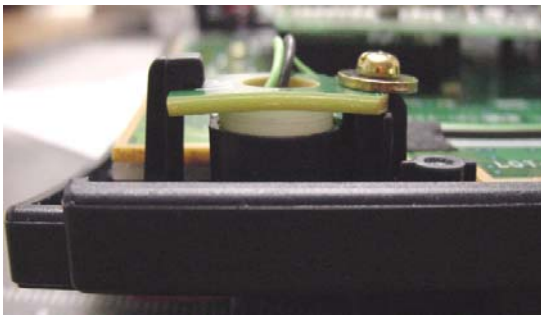
Some customers may be experiencing squealing/howling-related feedback when making a handsfree intercom call to another Aspire keyset. This is caused by the handsfree microphone element and/or rubber microphone holder not being seated properly.

To resolve this problem:

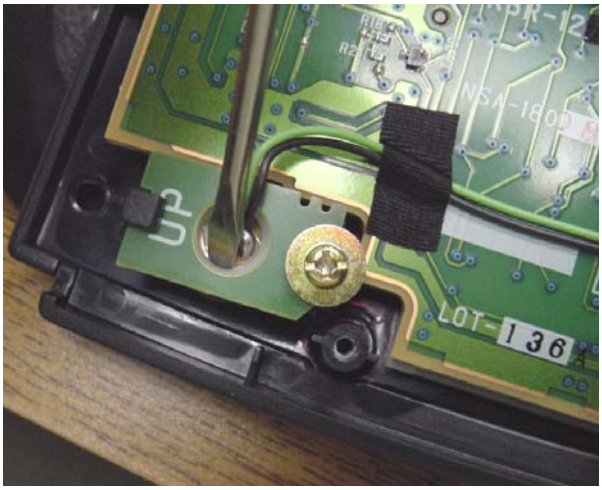
- Disassemble the phone using the steps below and inspect/reseat the handsfree microphone element to ensure that it is bottomed out within the rubber mic holder and that the rubber mic holder is seated properly within the plastic circular well. Check to make sure the small PCB that holds the mic holder in place is properly secured.
  1. Remove the four screws that hold the base plastic to the top panel and remove the base from the phone.
  2. Turn the phone so that the dial pad and keys are facing down.
  3. Locate the handsfree mic assembly in the lower left corner of the phone.
  4. Make sure the mic element is seated all the way down inside the white rubber mic holder and reseat the rubber mic holder so that it is seated at the very bottom of the round plastic mic housing.

     There are two possible phone styles for the mic assembly area - each one is pictured below.





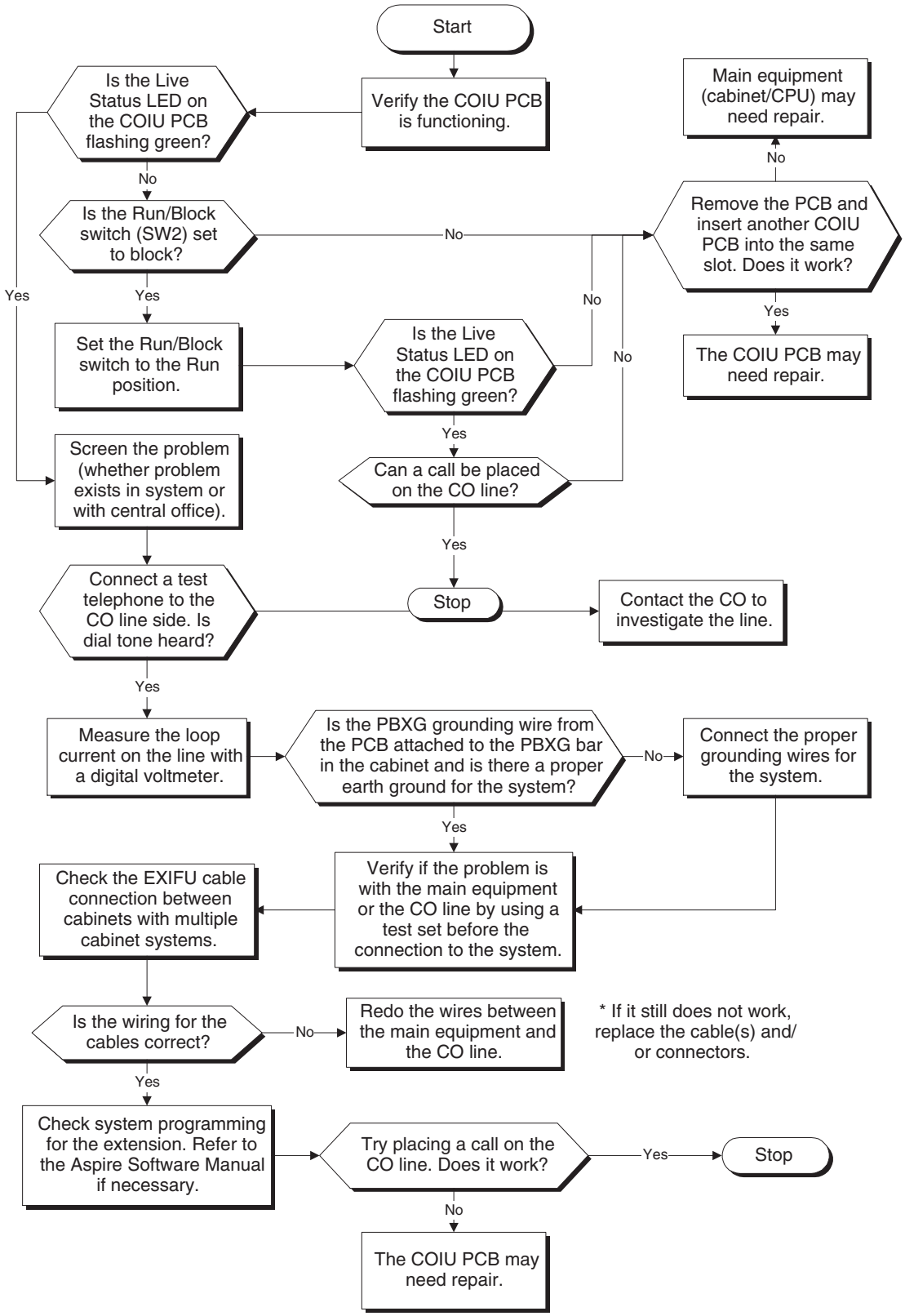
  5. Using a small flat screwdriver, carefully press the mic element down inside the rubber mic holder. Do not press on the solder joints of the two wires connected to the mic element.



6. If the phone style has two black clips holding the small PCB in place over the mic assembly and it does not have a tie-wrap as indicated in the picture below, one should be added. Install a small, ordinary tie-wrap as shown below to properly retain the mic holder and element in place.

7. Re-install the base to the phone and secure with 4 screws.

Troubleshooting CO Lines



Aspire Clipping Analog Trunk Calls

Some customers may be experiencing problems with analog trunk calls on the Aspire systems being clipped. The Aspire speakerphone switching results in clipping/chopping when making/receiving external calls with analog trunk-based systems. This is caused by apparent "hot" trunks. If overall volume levels of dial tone are found to be extremely loud, this can cause the speaker area of the phone to vibrate. In addition, high sidetone levels when using the handset can cause a problem. Both of these conditions result in an imbalance of the switching between the handsfree microphone and speaker.

To resolve the clipping/chopping problem on analog trunk calls perform each of the following steps - one at a time - trying the next step only if the problem still occurs.

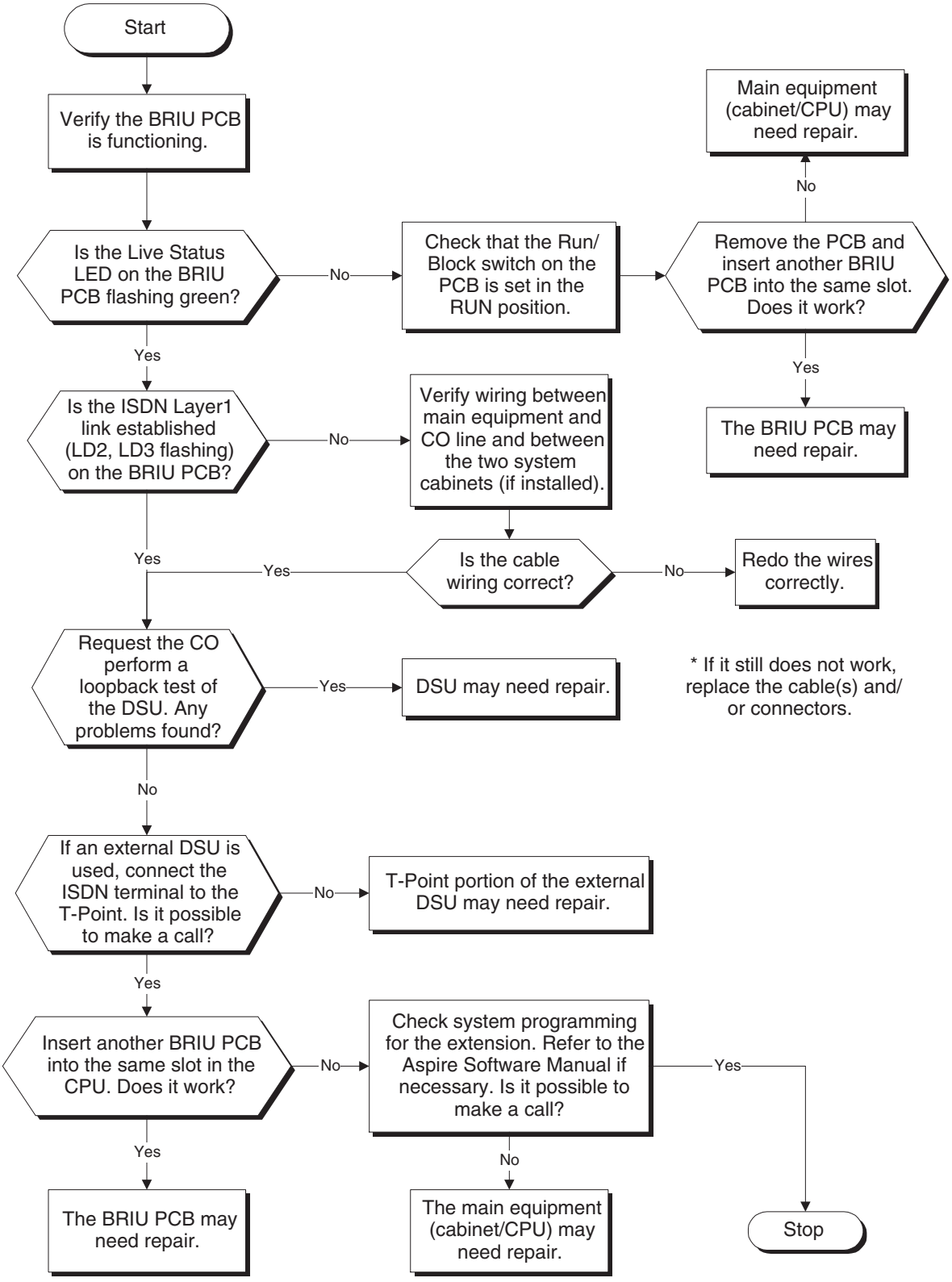
- Set the following programs back to the default entries for all analog trunks:
  Program 14-01-02 : Basic Trunk Data Setup - Transmit CODEC Gain Type = 32
  Program 14-01-03 : Basic Trunk Data Setup - Receive CODEC Gain Type = 32
  Program 81-07-01 : CODEC Filter Setup for Analog Trunk Ports = 2
  (Program 81-07-01 may take up to 20 seconds before the change takes affect.)
- Adjust **Program 81-07-01 : CODEC Filter Setup for Analog Trunk Ports** to make the trunk side tone the minimum for all analog trunks. Usually, an entry of "1" or "0" would have the best result, but the final setting may vary for each trunk.
- In **Program 14-01-02 : Basic Trunk Data Setup - Transmit CODEC Gain Type** and **Program 14-01-03 : Basic Trunk Data Setup - Receive CODEC Gain Type**, change the default values for the analog trunk transmit and receive gains to reflect a -5dB reduction. The entry in each program should be changed from the default setting of 32 (0dB) to 22 (-5dB). This programming change is required on a trunk by trunk basis and the value may vary for each trunk as the setting may be too low for some trunks. New settings will not take affect until the trunks become idle.

With these changes,
1. Dial tone volume levels appear more normal with little affect on the maximum volume settings.
2. Speakerphone switching becomes properly balanced with no clipping/chopping present.
3. Sidetone levels in the handset appear normal.

If, after performing the above steps, the problem still exists, please contact NEC Field Engineering for further investigation.

Should you be experiencing a squealing or howling-related feedback problem when making a handsfree intercom call, refer to **Aspire Keyset Speakerphone Problems When Used with Analog Trunks** (page 3-27). After following the recommendations on page 3-27, update the system software to version 4.01 or higher. If the problem still exists, please contact NEC Field Engineering for further investigation.

Troubleshooting ISDN Lines



Identifying Port Location

Port information such as PCB type, port numbers, PCB status, and individual port status can be obtained from the system. To obtain a System Report containing PCB information, the system must be connected to a PC or terminal using the serial, USB, or LAN port connector on the NTCPU, or CTA or CTU adapter.

Running program 90-13-03 in MAINTENANCE PROGRAMS prints a system PCB report. Refer to *Program 90-13-03 : System Information Output* in the Software Manual. The following is a typical report:

<<SYSTEM INFORMATION>> 01/03/03 09:49

slot	location	type	assign port	condition	note
1	1-1	ESIU	1- 16	Running	****---- -------- Connect:*
2	1-2	ESIU	1- 8	Running	
3	1-3	SLIU	1- 8	Running	
4	1-4	COIU	1- 16	Running	
5	1-5	COIU	1- 16	Running	
6	1-6	DIOPU	1- 8	Not Install	
7	1-7	- none -			
8	1-8	- none -			
9	2-1	- none -			
10	2-2	- none -			
11	2-3	- none -			
12	2-4	- none -			
13	2-5	- none -			
14	2-6	- none -			
15	2-7	- none -			
16	2-8	- none -			

Section 4: Telephones and Optional Equipment

2PGDAD MODULE

Using a 2PGDAD Module (Figure 4-1 - Figure 4-8)

The 2PGDAD module provides two circuits which allow connection to external terminals such as:

- Door Box (8 maximum per system)
- External Speaker (8 maximum with 2PGDAD modules [with amplifier], 1 on the NTCPU [no amplifier])
- External Music Source (external MOH) (96 maximum per system)
- External Recording System (96 maximum per system)
- External Ringing

The system allows for a maximum of 56 2PGDAD modules to be installed (48 for ACI ports [external MOH or external recording system], 4 for Door Boxes, and 4 for Paging). The 2PGDAD module also provides multi-purpose controls. These control relays can be used for controlling the external amplifier, external music source and door lock control with the use of a Door Box. The system allows for up 8 general purpose relays with the 2PGDAD modules and 1 on the NTCPU for a maximum of 9.

The 2PGDAD module connects to any available digital extension port. The terminal connections made within the PGDAD module and the jumper settings determine what features are used for each circuit.

Figure 4-1: 2PGDAD MODULE

LED Indications

LED	Indication	Note
LED 1	Green LED when CH1 in use.	Flashing green LED indicates dipswitch setting and programming for CH1 is conflicting.
LED 2	Green LED when CH2 in use.	Flashing green LED indicates dipswitch setting and programming for CH2 is conflicting.

Setting Up 2PGDAD Module Connections

If the 2PGDAD Module is to be wall mounted, it is recommended that all the cable connections be made first.

In order for the module to ID correctly after setting the jumpers, set the circuit type to "0" for the module's port in Program 10-03-01 prior to connecting the line cord to the 2PGDAD Module.

1. Remove the screw from the front of the 2PGDAD module.

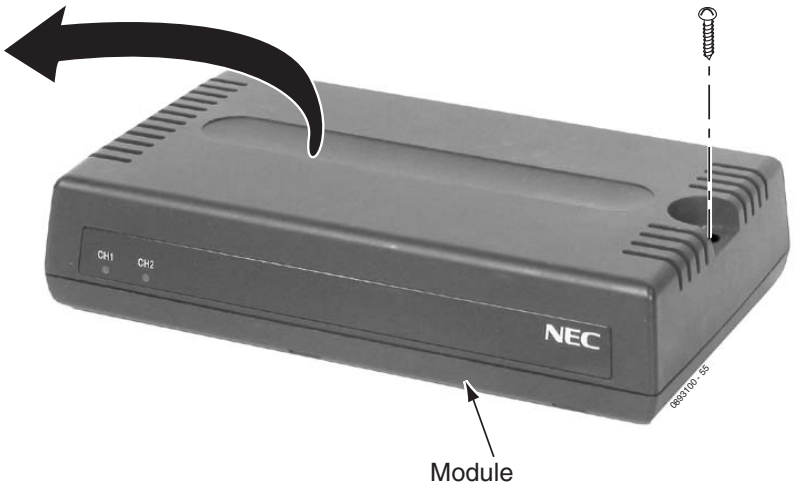


Figure 4-2: REMOVE COVER FROM 2PGDAD MODULE

2. Using a screwdriver, break out the plastic piece covering the cable hole.

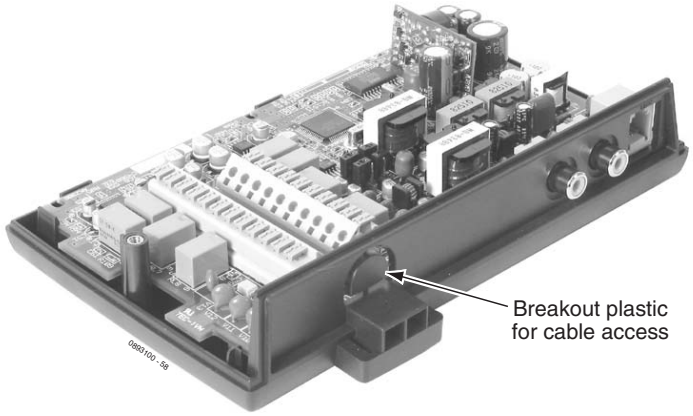


Figure 4-3: REMOVE PLASTIC COVER FROM CABLE HOLE

3. Set the S3 - S6 jumpers to the proper settings for the function to be used.

Channel 1	S3	S4	Function	LED Indication
	Open	Open	Door Box	On when in use.
	Open	Short	External Paging Speaker	On when in use.
	Short	Open	External Ringer	On when in use.
	Short	Short	External Music on Hold / Recording System	On steady.
Channel 2	**S5**	**S6**	**Function**	**LED Indication**
	Open	Open	Door Box	On when in use.
	Open	Short	External Paging Speaker	On when in use.
	Short	Open	External Ringer	On when in use.
	Short	Short	External Music on Hold / Recording System	On steady.

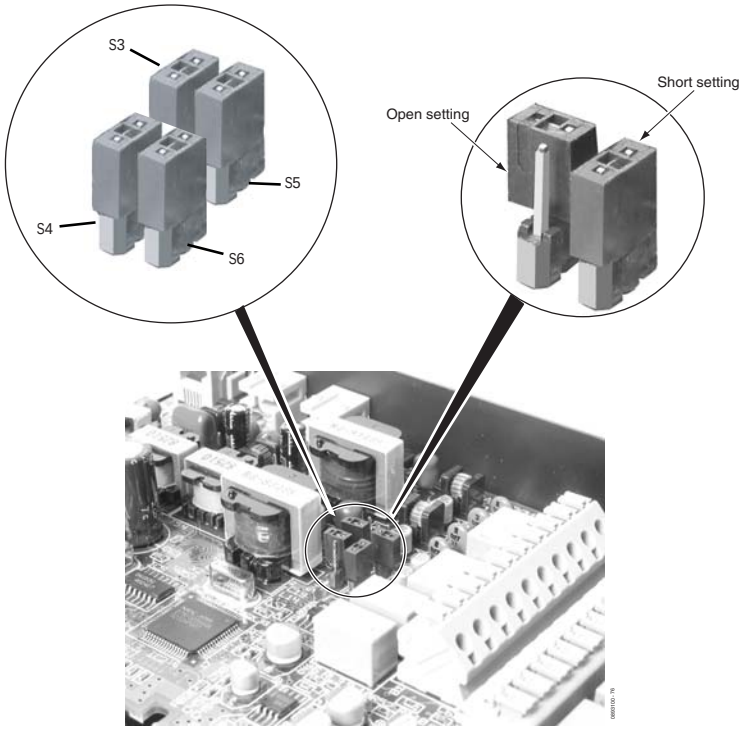
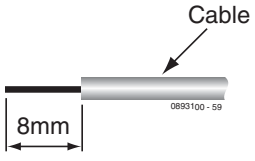


Figure 4-4: JUMPER SETTINGS

4. Strip one end of the cable to be connected to the control relay or door box so that approximately 1/4" (8 mm) of bare wire is exposed.



5. Insert the cable into the proper CN4 or CN5 location while holding down the lock button (holding down this lock button is easiest with a flat-head screwdriver). Once the cable is in place, release the lock button.

   Refer to the specific function being connected for more detail on 2PGDAD connections.

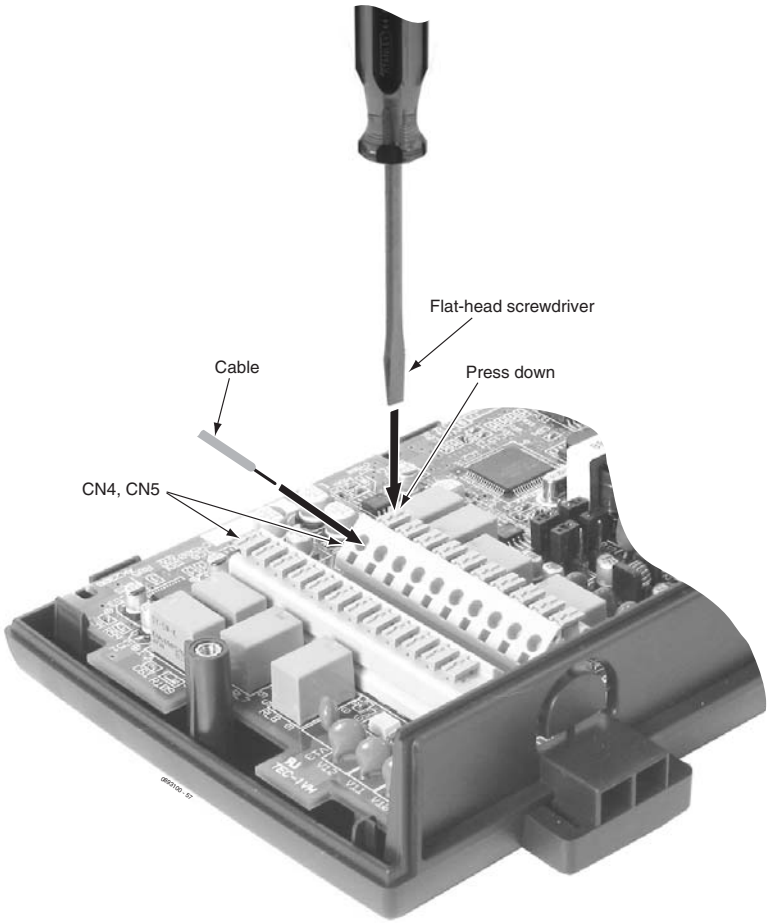


Figure 4-5: CONNECTING CABLE TO THE 2PGDAD MODULE

6. Repeat Steps 4 and 5 for any additional connections required.
7. Replace the cover and tighten the screw to hold the cover in place.
8. If required for the function being used, insert the RCA connectors into the CN2 (Channel 1) and CN3 (Channel 2) connectors on the back of the 2PGDAD module.

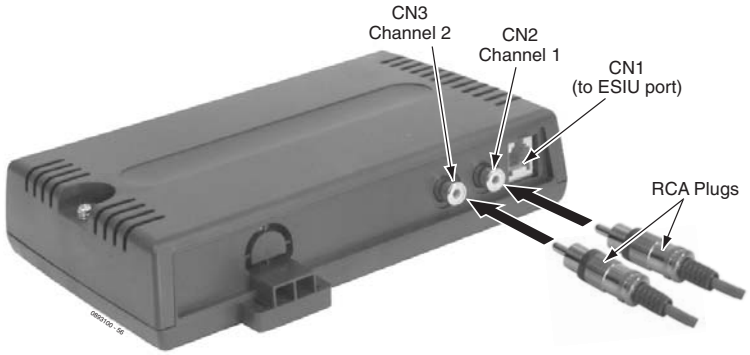


Figure 4-6: 2PGDAD MODULE CONNECTIONS

9. Install a modular jack for each 2PGDAD module. For each module, run one-pair 24 AWG station cable from the cross-connect block to a modular jack. Ground the unused pair.
10. Terminate the extension leads to GRN/RED of the modular jack. Terminate the unused leads to the jack.
11. Install bridging clips as required.
    In order for the module to ID correctly, set the circuit type to "0" for the port in Program 10-03-01 prior to connecting the line cord.
12. Plug a modular line cord from the mod jack to the CN1 connector on the 2PGDAD module.

Important
In some cases, when testing the operation of an extension port when connecting to a Cordless II, Cordless Lite II, or 2PGDAD module, a technician may connect a line cord directly from an extension port on the Aspire/Aspire S ESIU PCB or Aspire S CPU. Though this is not the recommended connection, it can be used to check if the extension has dial tone.

Should a direct connection of this type be made to the base station of the Cordless II or Cordless Lite II, or to a 2PGDAD module, the line cord must be 2-wire (1-pair). If a 2-pair wire is used, the system will provide power to the unused pair. This can prevent the cordless telephone from acquiring a link with the base station or it can damage the 2PGDAD module or the Aspire station card.

The recommended connection is to punch down 2 wires to the cross-connect block, then connect the extension block to the RJ61 connector on the PCB or CPU.

1. **Optional:**
   To wall mount the 2PGDAD module, insert two wood screws 100mm apart (3 15/16"). Leave 3mm (1/8") of the screw exposed. The screws can be installed either vertical or horizontal, depending on which position fits best for your location.

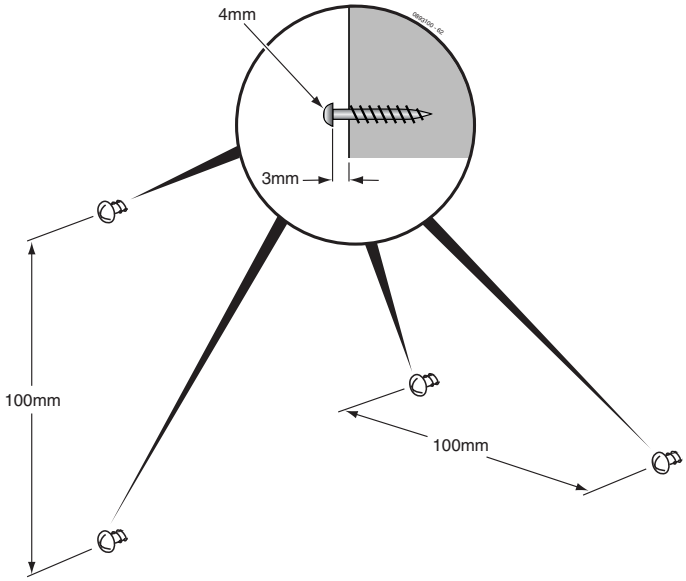


Figure 4-7: INSTALLING THE SCREWS

2. The back of the 2PGDAD module has two key-hole type openings. Place the 2PGDAD module over the two screws and slide it down or over (depending on the positioning) to lock it in place.

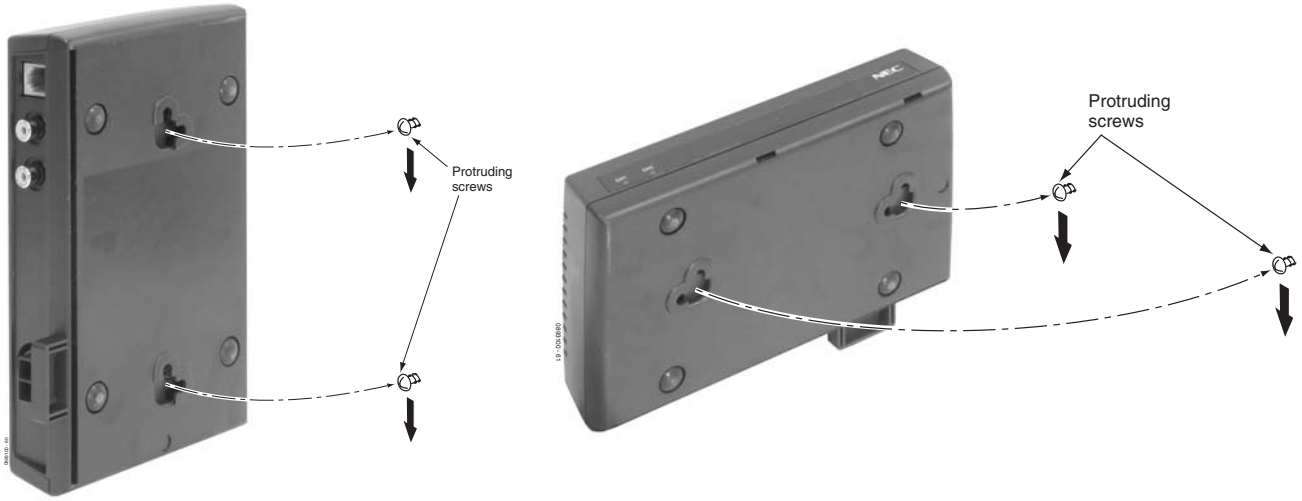


Figure 4-8: WALL MOUNTING THE 2PGDAD MODULE

BACKGROUND MUSIC

Installing Background Music (Figure 4-9)

Background Music (BGM) sends music from a customer-provided music source to speakers in keysets. If an extension user activates it, BGM plays whenever the user's extension is idle.

1. Connect an RJ61 modular line cord from the CN16 connector on the NTCPU to the appropriate location on the extension cross-connect block.
2. Connect the two-conductor station cable from the cross-connect block to the external music source.
3. Install bridging clips as required.

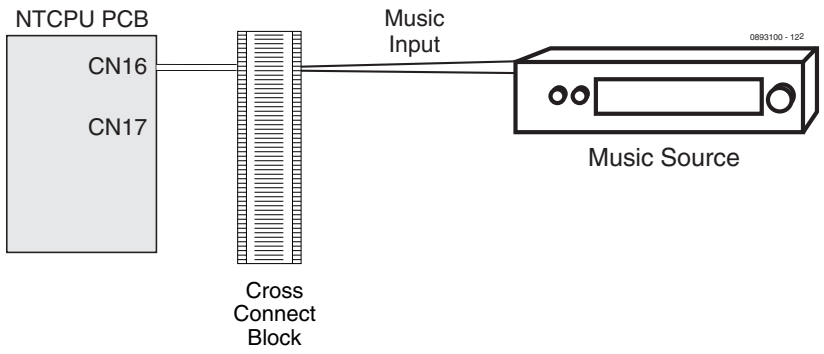


Figure 4-9: CPRU CONNECTIONS

Refer to *Background Music* in the software manual for additional information.

DOOR BOX

Installing a Door Box (Figure 4-10, Figure 4-11)

A 2PGDAD Module is required for this feature.

The Door Box is a self-contained, water-resistant, Intercom unit typically used to monitor an entrance door. A visitor at the door can press the Door Box call button (like a door bell). The Door Box then sends chime tones to all extensions programmed to receive chimes. The system can have up to eight Door Boxes.

Each 2PGDAD module audio output can optionally support two analog Door Boxes. In addition, you can connect each circuit's control relay to an electric door strike. This allows an extension user to remotely activate the door strike while talking to a visitor at the Door Box. The control relays are normally open. The NTCPU also provides 1 relay. This relay is defined as a general purpose relay in programming (Program 10-21-01 = 3). The NTCPU relay, which is relay "0", is assigned to the door box extension port in Program10-05-01. When the relay on the 2PGDAD is used, there is no need to assign the relay to the Door Box - simply connect the relay as detailed in the steps below for the Door Box used. The relays on the 2PGDAD modules are numbered 5-8.

The relay closes when the Door Box/external page zone is called. The maximum applied voltage is 24vDC at .5A for each contact.

NOTE: A 2PGDAD circuit used for an analog Door Box cannot also be used for External Paging.

1. Make sure the jumper in the 2PGDAD module for the associated Door Box is set correctly. (Refer to Figure 4-4 *JUMPER SETTINGS* on page 4-3).
2. If a line cord was not previously connected to the 2PGDAD, complete Steps 3-6. Otherwise, skip to Step 7.
3. Install a modular jack for each 2PGDAD module. For each module, run one-pair 24 AWG station cable from the cross-connect block to a modular jack. Ground the unused pair.
4. Terminate the extension leads to GRN/RED of the modular jack. Terminate the unused leads to the jack.
5. Install bridging clips as required.
6. Plug a modular line cord from the mod jack to the CN1 connector on the 2PGDAD module.
7. If wall mounting the Door Box, remove the screw on the front of the Door Box.
8. Remove the back half of the Door Box and attach this mounting bracket to the wall with the two screws provided.
9. Connect the two-conductor station cable from the CN4 connectors within the 2PGDAD module to the Door Box terminals. These wires must be routed through the opening in the bottom of the Door Box mounting bracket.
   Be sure to maintain the proper polarity.
10. Replace the front half of the Door Box and reattach the screw to secure it in place.
11. To connect a Door Box to an external relay for an unlock device, for example, connect one-pair 24 AWG station cable from the Relay 5 (for Door Box 1) or Relay 6 (for Door Box 2) connectors (CN5) in the 2PGDAD module. Connect the opposite end to the unlock device.
    Refer to External Page and Door Box/Page Relays on page 4-20 for additional information when using the NTCPU relay.

Refer to *Door Box* in the Software Manual for additional details.

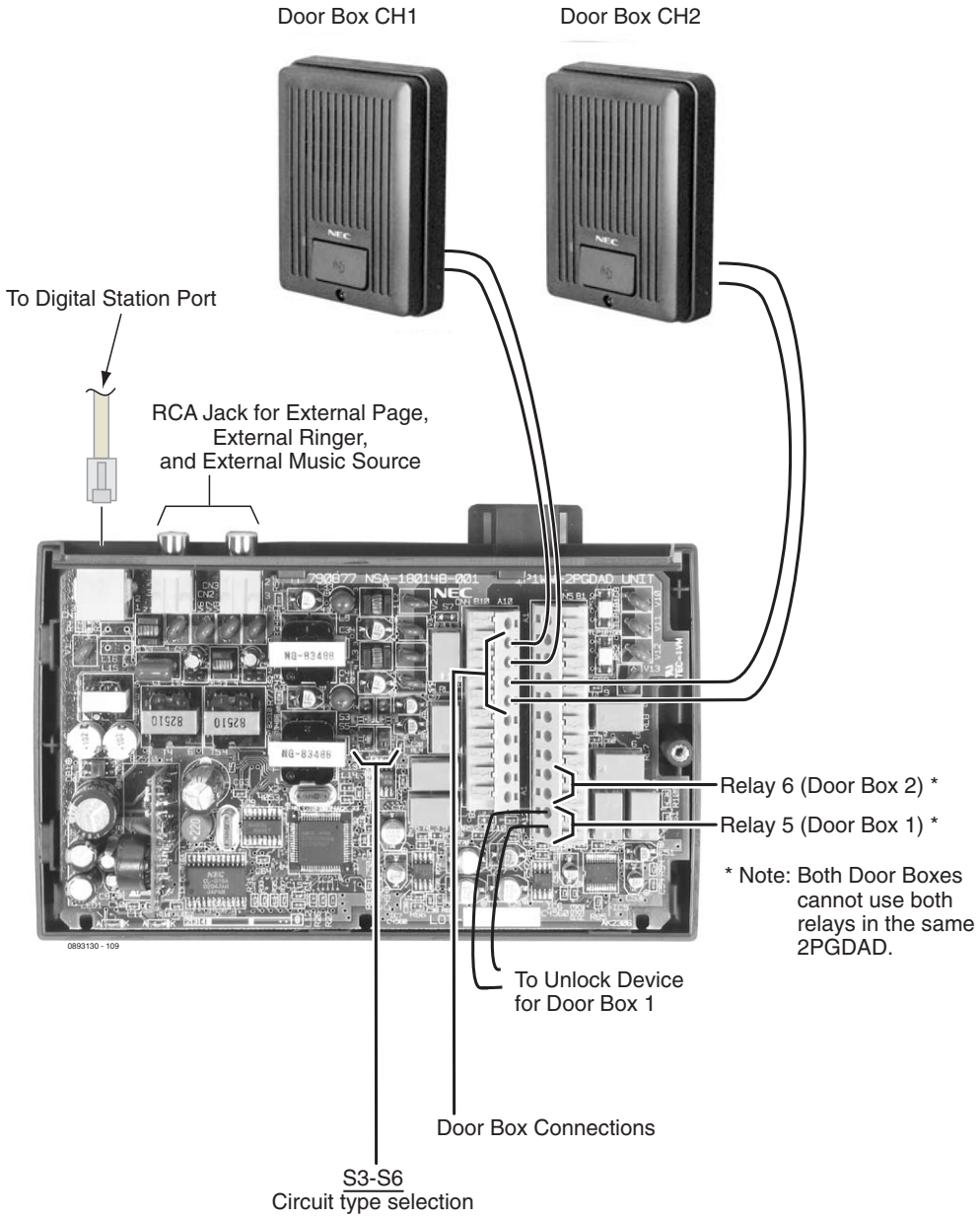


Figure 4-10: SETTING THE 2PGDAD FOR A DOOR BOX

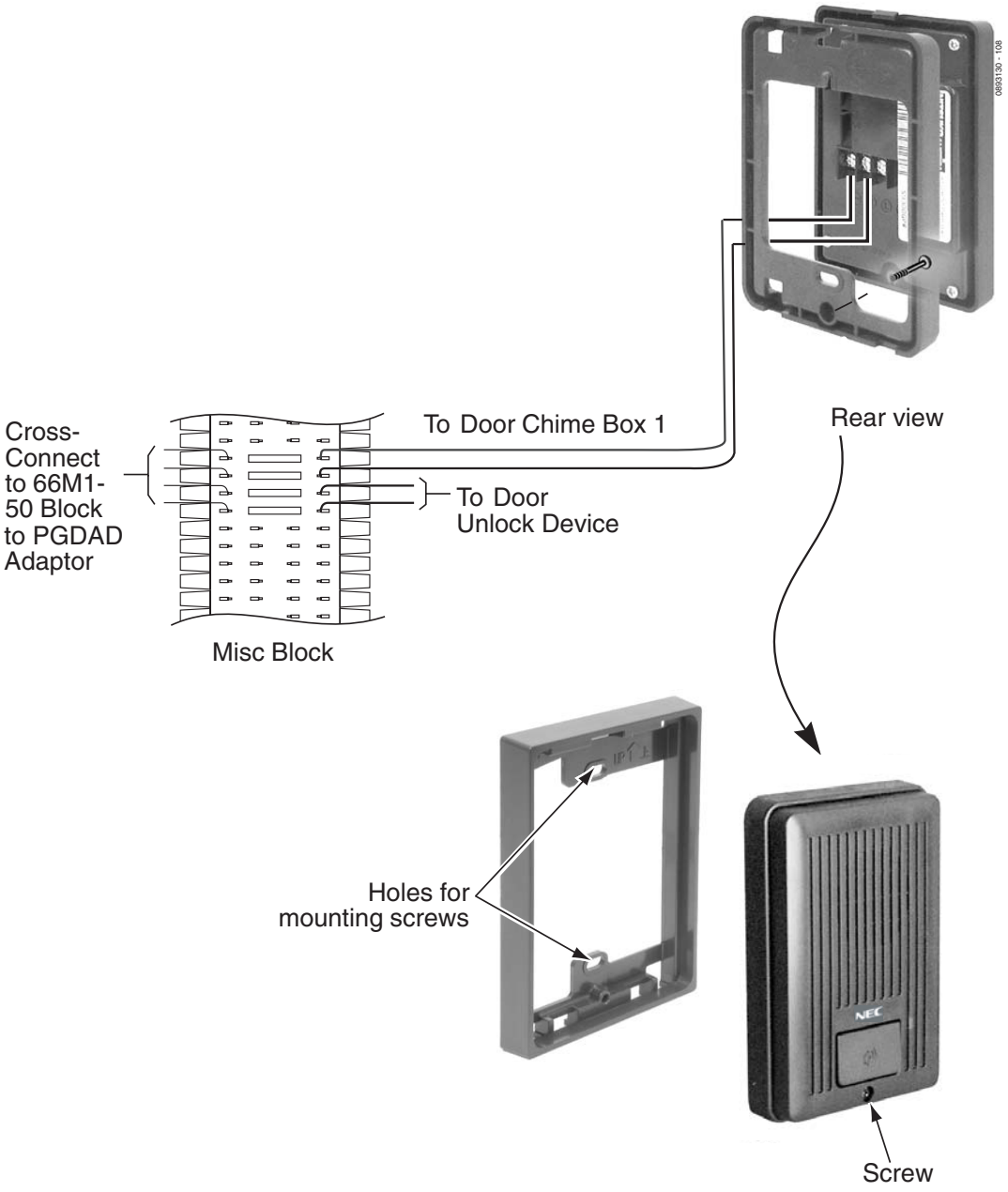


Figure 4-11: INSTALLING A DOOR BOX

DSS CONSOLE

Using a DSS Console (Figure 4-12 - Figure 4-14)

The DSS Console gives a keyset user a Busy Lamp Field (BLF) and one-button access to extensions, trunks and system features. The 110-Button DSS Console provides an additional 100 programmable keys, while the 24-Button DLS Console provides 24 programmable keys. The 110-Button DSS also has 10 fixed feature keys for Paging, calling Door Boxes, activating Night Service and enabling DSS Console Alternate Answer. There are also two keys that allow "shifting" between the first and second set of 100 extensions.

Keep the following in mind when installing DSS Consoles:

- A 24-Button DLS Console does ***not*** require a separate digital station port.
- A 110-Button DSS Console requires a separate digital station port.
- The system allows for a maximum of 32 110-Button DSS Consoles. One extension can have a maximum of 4 110-Button DSS Consoles. As the 24-Button DLS Console is connected to the bottom of the phone, an extension can only have one 24-button DLS Console installed. An extension can have either a 24-Button DLS Console and 4 110-Button DSS Consoles installed/assigned.
- A 24-Button DLS Console cannot be installed on an IPhone.
- By default, the 24-Button DLS Console has no keys defined. These keys can be programmed as line keys, extension DSS keys, or programmable function keys using Program 15-07. To program the keys, use the extension number to which the DLS is installed and, regardless of the type of keyset connected, ***start programming the DLS keys at key number 25***. Service codes 851 and 852 can also be used to program these keys if allowed by an extension's Class of Service.
- By default, the 110-Button DSS Console has extension DSS keys defined. These keys can be programmed as line keys, extension DSS keys, or programmable function keys using Program 30-03-01. Service codes 851 and 852 can also be used to program these keys if allowed by an extension's Class of Service.

For additional information, refer to *Direct Station Selection (DSS) Console* in the Software Manual.

Installing a 110-Button DSS Console

1. Install a modular jack for each 110-Button DSS Console. The modular jack should be within six feet of the phone.
2. For each 110-Button DSS Console, run one-pair 24 AWG station cable from the cross-connect block to a modular jack. Ground the unused pair.
3. Terminate the extension leads to GRN/RED of the modular jack. Terminate the unused leads to the jack.
4. Connect a line cord from the modular jack to the connector on the bottom of the DSS console.

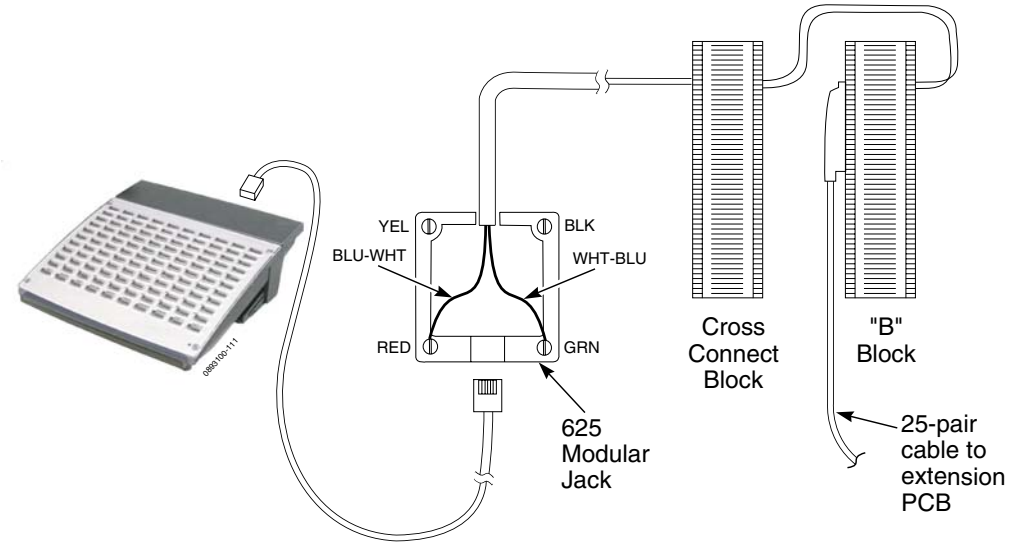


Figure 4-12: INSTALLING A DSS CONSOLE

5. **To program a DSS Console . . .**
   With the default settings, there are no DSS Consoles assigned.
   10-03-01 : PCB Setup
   The system automatically assigns the terminal type (10) for the port which has a DSS console installed.
   When installing a DSS, the system must auto-detect the console in order for the LEDS to function correctly. When connecting the DSS to a extension previously defined with another circuit type, undefine the circuit type (enter 00 in Program 10-03 for the extension number), then connect the DSS Console.
   30-02-01 : DSS Console Extension Assignment
   Designate the extensions that have DSS Consoles connected to them.
   30-03-01 : DSS Console Key Assignment
   Customize the functions of the DSS Console keys.
   30-04-01 : Alternate DSS Console Key Assignment
   If the console should have Alternate Answering, use this program to assign the Alternate Answering Destination.

Installing a 24-Button DLS Console

1. Turn the keyset over which will have the 24-Button DLS Console installed.
2. If only one adapter is to be installed on the phone, the console should be installed on the right-hand side of the phone (beneath the handset). Using a flat-head screwdriver, remove the plastic punch-out piece covering the connector.

   If a second adapter is required at a later time, the console connection will need to be moved to the left in order to accommodate the cable.
3. Plug the 24-Button DLS Console into the connector on the bottom of the keyset.
4. Push the cable from the console into the cable channel to allow the phone to rest flat.
5. Install the connector plate provided with the 24-Button DLS Console to the bottom of the console and phone to join the two sets together.

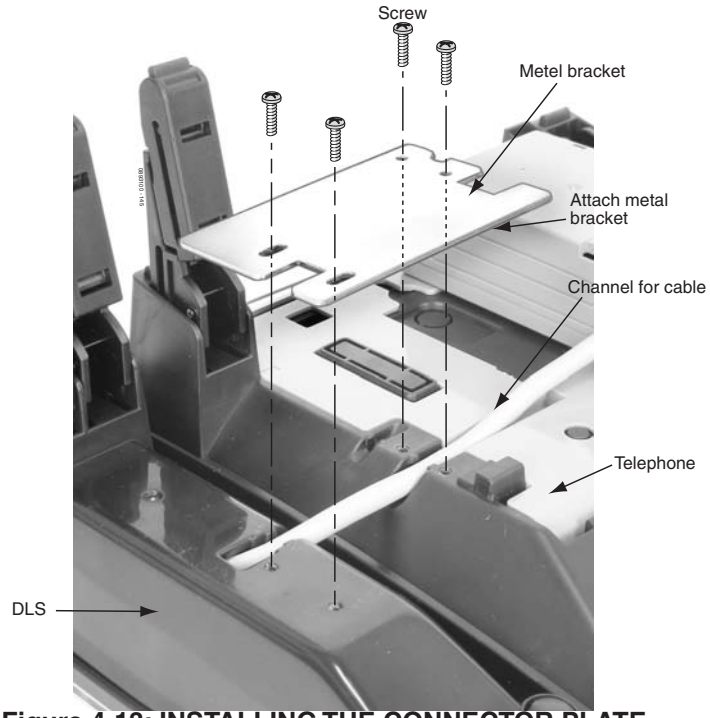


Figure 4-13: INSTALLING THE CONNECTOR PLATE

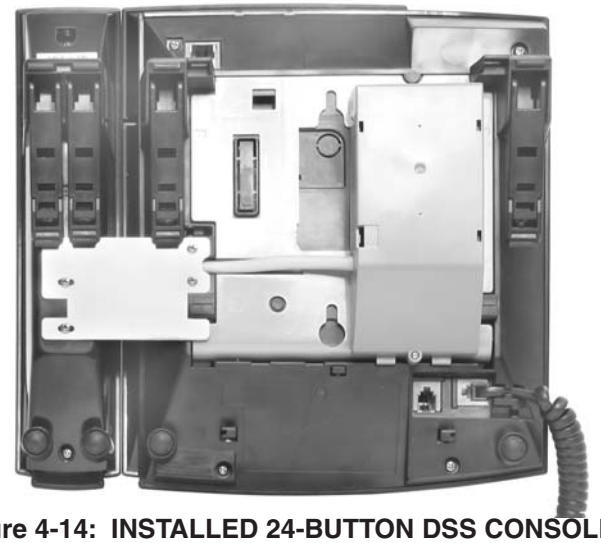


Figure 4-14: INSTALLED 24-BUTTON DSS CONSOLE

DTERM VOICE SECURITY RECORDER (VSR)

Dterm Voice Security Recorder (VSR)

The Dterm® Voice Security Recorder (P/N 780275) is a USB device that taps across the digital extension pair of the NEC telephone system allowing digital recording of the keyset user's conversation. The file created is saved either to the local PC or to a network location, depending on the application's setup. This adapter is for use with digital keysets. It cannot be used with analog, VoIP or i-Series phones.

The 2.0.7 software version for the VSR does not support Caller ID with the Aspire system.

CAUTION

The use of monitoring, recording, or listening devices to eavesdrop, monitor, retrieve, or record telephone conversation or other sound activities, whether or not contemporaneous with transmission, may be illegal in certain circumstances under federal or state laws. Legal advice should be sought prior to implementing any practice that monitors or records any telephone conversation. Some federal and state laws require some form of notification to all parties to a telephone conversation, such as using a beep tone or other notification methods or requiring the consent of all parties to the telephone conversation, prior to monitoring or recording the telephone conversation. Some of these laws incorporate strict penalties.

PC Compatibility

The Dterm® Voice Security Recorder application supports Microsoft operating systems which support USB devices such as Windows 98SE, Windows ME, Windows 2000, and Windows XP. Note that Windows 95 and below, Windows NT and Macintosh operating systems are not supported.

Installation

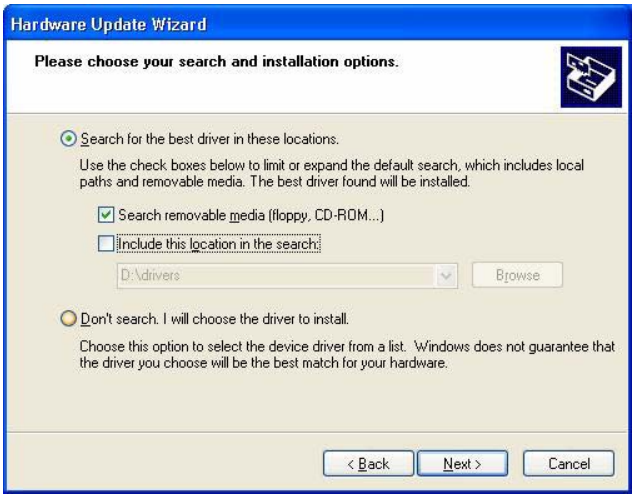
For Windows 98 or ME

1. Run the **Setup.exe** program file from the NEC installation CD **BEFORE** connecting the telephone interface unit to your PC.
2. Using the USB cable provided, connect the USB interface of the NEC VSR unit to an available USB port on your PC.
3. Unplug the line cord from your telephone and connect it to either port on the Dterm VSR unit.
4. Connect the NEC telephone system to the remaining port on the Dterm VSR unit. You are now ready to record.

For Windows 2000 or XP

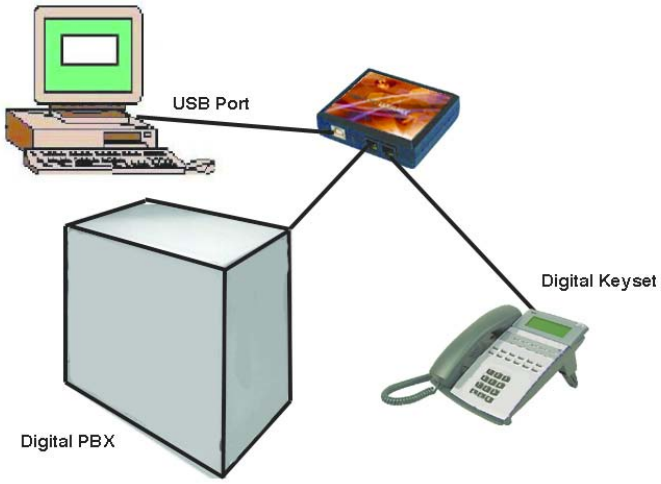
1. Using the USB cable provided, connect the USB interface on the Dterm VSR unit to your PC. Windows will automatically detect the new hardware and will start the New Hardware Wizard. This will display a dialog box similar to the one shown below. Select the second option, "**Install from a list or specific location**", then press **Next>.**

2. Insert the NEC Installation CD in your CD drive and press **Next>.**



3. If you downloaded the files from the internet, uncheck the "**Search removable media box**", select the "**Include this location**…" box and type the location where you stored the downloaded files (e.g. C:\My Documents). Press **Next>.**

4. The software has been fully tested, but has not yet been submitted to Microsoft for approval. Press "**Continue Anyway**".
5. Press **Finish** to close the dialog box.
6. Run **Setup.exe** on your NEC Installation CD to install the Dterm® Voice Security Recorder application software on your PC.
7. Using the USB cable provided, connect the USB interface of the NEC VSR unit to an available USB port on your PC.
8. Unplug the line cord from your telephone and connect the phone to either port on the Dterm VSR unit.
9. Connect the NEC telephone system to the remaining port on the Dterm VSR unit.



Operation Note

Use the Options and File Management tabs within the Dterm® Voice Security Recorder application to adjust the program settings as required (directory for storing messages, message deletion, file format, etc.).

It is recommended that after the initial installation of the Dterm® Voice Security Recorder application, that the audio balance of the remote side be changed to approximately 100%.

1. Open the Dterm® Voice Security Recorder application.
2. Click the **Options** tab.
3. Using the up arrow button, change the **Remote Boost (%)** setting to 100%.
   Excessive boost can distort audio.

EXTERNAL PAGING

External Page (Figure 4-15, Figure 4-16)

Two external page zone/door box circuits are provided by each 2PGDAD installed. Each Door Box/external page circuit provides a dry relay contact. The NTCPU also provides a connection for external paging and a relay. The external page on the NTCPU is speaker number 9 - the relay is number 0. The external page speakers provided by the 2PGDAD modules are 1-8 - the relays on the 2PGDAD modules are numbered 1-8. Refer to Paging, External in the Software Manual for additional details.

The 2PGDAD module can be used for talkback with External Page, as can a CO trunk port with the proper external page equipment (ex: Valcom) - set Program 31-06-03 to "0" for talkback. However, the external page circuit on the NTCPU cannot be used for talkback.

NOTE: A 2PGDAD circuit used for External Paging cannot also be used for an analog Door Box.

Installing an External Page System

1. ***Connecting to the NTCPU:***
   Connect an RJ61 modular line cord from the CN16 connector on the NTCPU to the appropriate location on the extension cross-connect block.
2. Connect the two-conductor station cable from the cross-connect block to the external relay/external page.
3. Install bridging clips as required.

OR

1. ***Connecting to the 2PGDAD Module:***
   Make sure the jumper in the 2PGDAD module for the channel is set correctly. (Refer to Figure 4-4 *JUMPER SETTINGS* on page 4-3).
2. If a line cord was not previously connected to the 2PGDAD, complete Steps 3-6. Otherwise, skip to Step 7.
3. Install a modular jack for each 2PGDAD module. For each module, run one-pair 24 AWG station cable from the cross-connect block to a modular jack. Ground the unused pair.
4. Terminate the extension leads to GRN/RED of the modular jack. Terminate the unused leads to the jack.
5. Install bridging clips as required.
6. Plug a modular line cord from the mod jack to the CN1 connector on the 2PGDAD module.
7. Connect the two-conductor station cable from the CN5 connectors within the 2PGDAD module to the external relay/external page.

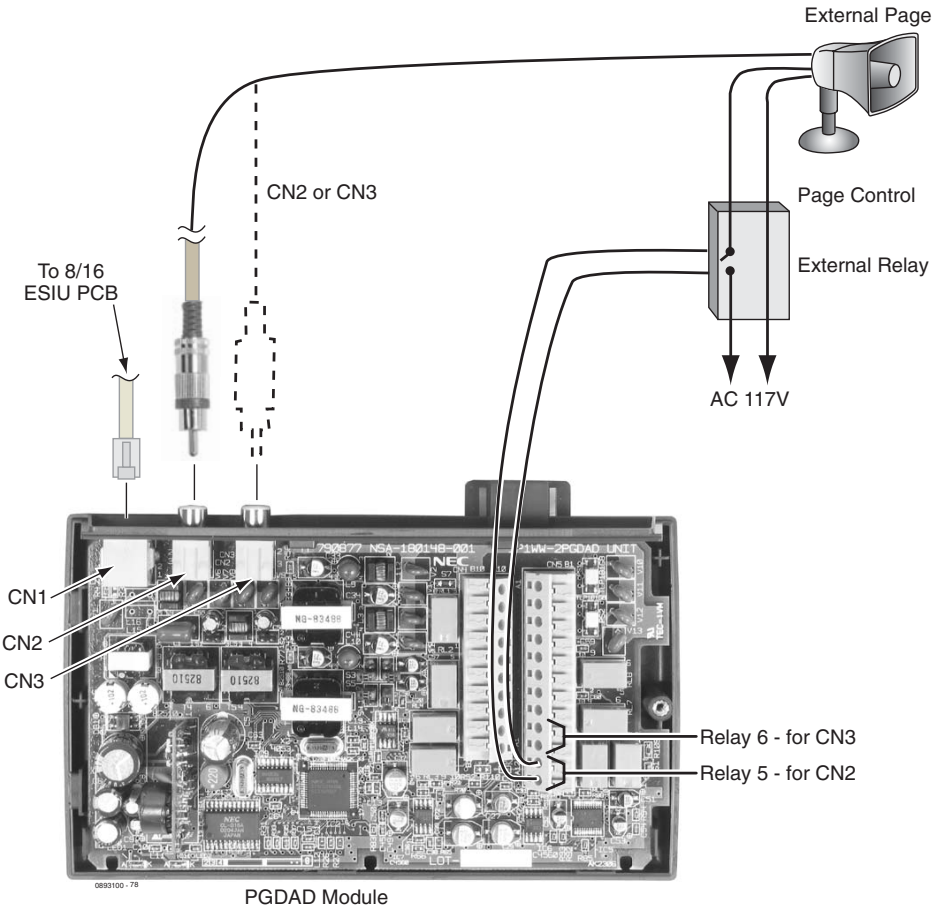


Figure 4-15: 2PGDAD CABLE CONNECTION

Note: **The 2PGDAD module provides amplifiers for each page output port (for a maximum of +8 dBM, 600 ohms at 1KHz). No additional page amplification is provided by the 2PGDAD module and, if required, an external page amplifier can be used for additional amplification .**

The page output of the NTCPU does not provide any amplification (for a maximum output of -3 dBm, 600 ohms at 1KHz). If the paging volume is not satisfactory using the CN16 connector on the NTCPU, it is recommended that the 2PGDAD module be used instead.

EXTERNAL PAGING AND DOOR BOX/PAGE RELAYS

External Page Relays

Two external dry contact relays are available when a 2PGDAD is installed which can be used to activate ancillary devices (i.e. door unlock devices). The NTCPU also provides 1 relay. The NTCPU relay is defined as a general purpose relay in programming (Program 10-21-01 = 3). The NTCPU relay, which is relay "0", is assigned to the door box extension port in Program10-05-01. When the relay on the 2PGDAD is used, there is no need to assign the relay to the Door Box - simply connect the relay as detailed in the steps below for the Door Box used. The relays on the 2PGDAD modules are numbered 5-8. Each Door Box/external page circuit provides a dry relay contact.

Program Note: Program 10-21-01 sets the relay switch on the NTCPU. If set to "2" (External Speaker), service code 803+1 pages and the relay closes. The relay reopens upon hang up. If set to '3" (General Purpose Relay), service code 880+0 toggles the relay open or closed.

The service codes indicated are the default codes. Refer to Program 11-12-20 and 11-12-50 to redefine these codes as needed.

Door Box /External Page Relay Contacts (Figure 4-15, Figure 4-16)

To connect a dry contact relay device to a Door Box/External Page Relay:

1. ***Connecting to the NTCPU:***
   Connect an RJ61 modular line cord from the CN17 connector on the NTCPU to the appropriate location on the extension cross-connect block.
2. Connect the two-conductor station cable from the cross-connect block to the external relay.
3. Install bridging clips as required.

OR

1. ***Connecting to the 2PGDAD Module:***
   Make sure the jumper in the 2PGDAD module for the channel is set correctly. (Refer to Figure 4-4 *JUMPER SETTINGS* on page 4-3).
2. If a line cord was not previously connected to the 2PGDAD, complete Steps 3-6. Otherwise, skip to Step 7.
3. Install a modular jack for each 2PGDAD module. For each module, run one-pair 24 AWG station cable from the cross-connect block to a modular jack. Ground the unused pair.
4. Terminate the extension leads to GRN/RED of the modular jack. Terminate the unused leads to the jack.
5. Install bridging clips as required.
6. Plug a modular line cord from the mod jack to the CN1 connector on the 2PGDAD module.
7. Connect the two-conductor station cable from the CN5 connectors within the 2PGDAD module to the external relay.

Note: The relay closes when the Door Box/external page zone is called. The maximum applied voltage is 24vDC at .5A for each contact.

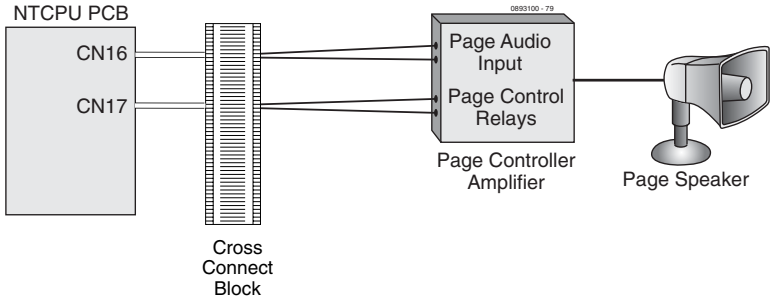


Figure 4-16: NTCPU PAGE CONNECTIONS

EXTERNAL RECORDING SYSTEM / EXTERNAL RINGER

External Recording System or External Ringer (Figure 4-17)

The 2PGDAD allows for the connection of an external recording system or external ringer. With a customer-provided tape recorder, when an extension user dials the ACI analog port extension number, they can automatically start the recorder and activate the record function. When the user hangs up, the recording stops and the tape recorder turns off. For tape recording, connect the tape recorder AUX input jack to the PGDAD jack. Connect the recorder control leads (if available) to the CTL (control relay) jack. By using Department Calling, you can arrange multiple tape recorders into a pool. When an extension user dials the Department Group pilot number, they reach the first available tape recorder in the pool.

The relays in the 2PGDAD module can optionally control customer-provided external ringers (loud bells) and buzzers. When an extension user dials the ACI analog port extension number, the associated PGDAD relay closes and activates the ringer. You could use this capability to control an emergency buzzer for a noisy machine shop floor, for example. In addition, if programmed for ringing, an incoming trunk call can activate the ringer/buzzer.

Installing an External Recording System or External Ringer

1. ***Connecting to the 2PGDAD Module:***
   Make sure the jumper in the 2PGDAD module for the channel is set correctly. (Refer to Figure 4-4 *JUMPER SETTINGS* on page 4-3).
2. If a line cord was not previously connected to the 2PGDAD, complete Steps 3-6. Otherwise, skip to Step 7.
3. Install a modular jack for each 2PGDAD module. For each module, run one-pair 24 AWG station cable from the cross-connect block to a modular jack. Ground the unused pair.
4. Terminate the extension leads to GRN/RED of the modular jack. Terminate the unused leads to the jack.
5. Install bridging clips as required.
6. Plug a modular line cord from the mod jack to the CN1 connector on the 2PGDAD module.
7. Connect an RCA jack to the audio output(s) on the back of the 2PGDAD module.
8. The opposite end of this cable is connected to the external recording system or external ringer either directly or by connecting to the cross-connect block where the item is connected.

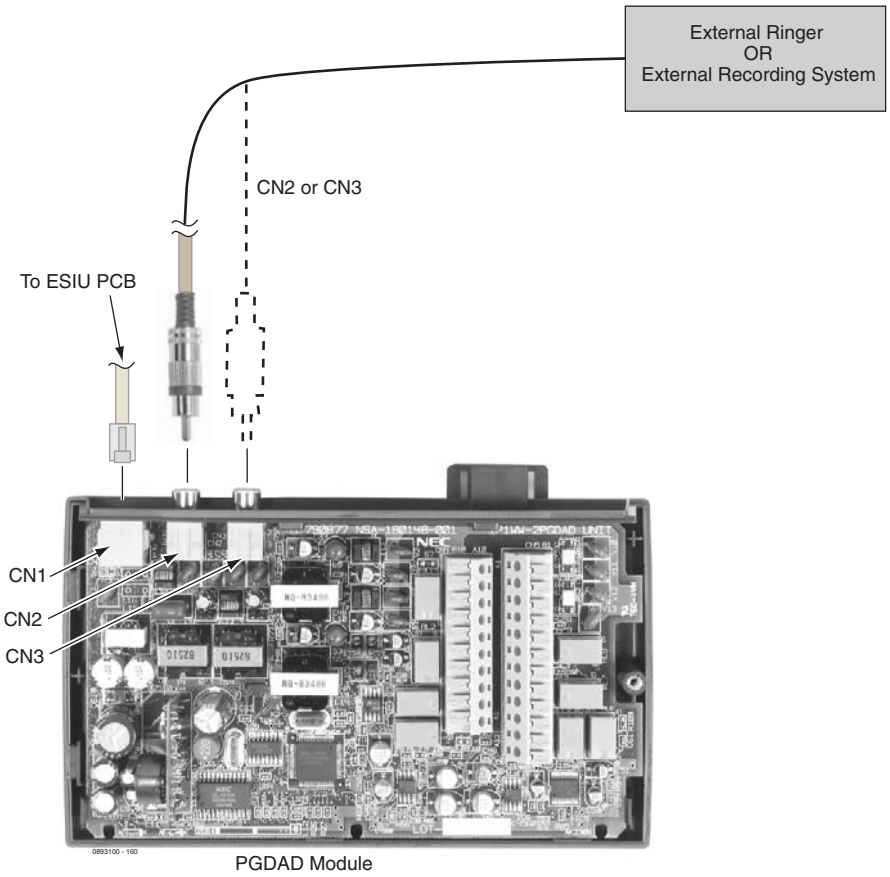


Figure 4-17: 2PGDAD CABLE CONNECTION

Programming

- **10-03-01 : PCB Setup - Terminal Type (Circuit 1)**
  10-03-06 : PCB Setup - Terminal Type (Circuit 2)
  Confirm that the 2PGDAD has defined the circuit types as either type "7" for External Ringer or "9" for ACIs. (If the 2PGDAD circuit had previously been defined for another type of circuit, unplug the 2PGDAD and plug it back in order to reset the circuit types.)
- **10-05-01 : General Purpose Relay Setup**
  Define which relay circuits (5-8) on the 2PGDAD Module are used for General Purpose Relays.
- **11-06-01 : ACI Extension Numbering**
  Assign extension numbers to ACI software ports. Select a number outside of the normal extension number range.
  Aspire S: ACI Ports 1-8
  Aspire: ACI Ports 1-96
- **11-08-01 : ACI Group Pilot Number**
  Assign pilot numbers to ACI groups. When a user dials the pilot number, they reach an available ACI software port within the group.
  Aspire S: ACI Groups 1-4
  Aspire: ACI Groups 1-16
- **11-12-50 : Service Code Setup (For Service Access)**
  Specify the service code to be used for toggling the relay open and closed (Default: 880).

- **33-01-01 : ACI Port Type Setup**
  Set each ACI software port for input (1) or input/output (2). Use input ports for Music on Hold sources. Use output ports for External Paging/ringer control.
  Aspire S: ACI Ports1-8
  Aspire: ACI Ports 1-96
- **33-02-01 : ACI Department Calling Group**
  Assign ACI software ports to ACI Department Groups. This lets ACI callers connect to ACI software ports by dialing the group's pilot number (set in Program 11-08).
  Aspire S: ACI Ports 1-8, ACI Groups 1-4
  Aspire: ACI Ports 1-8, ACI Groups 1-16

ACI Recording

- **10-07-01 : Conversation Record Circuits**
  Assign the number of conversation record circuits.
- **14-09-01 : ACI Conversation Recording Destination for Trunks - ACI Recording Destination Extension Number**
  Use this option to assign the ACI Call Recording destination on a per trunk basis. The destination can be an ACI port's extension number (assigned in Program 11-06-01) or an ACI Department Group pilot number (assigned in Program 11-08-01). If destinations are assigned in Programs 14-09 and 15-12, the destination in Program 15-12 will be followed.
- **14-09-02 : ACI Conversation Recording Destination for Trunks - ACI Automatic Recording for Incoming Call**
  Determine whether a trunk should be automatically recorded when an incoming call is received (0=off, 1=on).
- **14-09-04 : ACI Conversation Recording Destination for Trunks - ACI Automatic Recording for Outgoing Call**
  Determine whether a trunk should be automatically recorded when an outgoing call is initiated (0=off, 1=on).

- **15-07-01 : Programmable Function Keys**
  If required, program an ACI Conversation Record Key (code 69 + 0). This key allows an extension user to press the key to manually record a call to the ACI.
- **15-12-01 : Conversation Recording Destination for Extensions - ACI Recording Destination Extension Number**
  Use this option to assign the ACI Call Recording destination on a per extension basis. The destination can be an ACI port's extension number (assigned in Program 11-06) or an ACI Department Group pilot number (assigned in Program 11-08). If destinations are assigned in Programs 14-09 and 15-12, the destination in Program 15-12 will be followed.
- **15-12-02 : Conversation Recording Destination for Extensions - ACI Automatic Recording for Incoming Call**
  Determine whether an extension should be automatically recorded when an incoming call is received (0=off, 1=on).
- **15-12-04 : Conversation Recording Destination for Extensions - ACI Automatic Recording for Outgoing Call**
  Determine whether an extension should be automatically recorded when an outgoing call is received (0=off, 1=on).

External Ringer

- **31-05-01 : Universal Night Answer/Ring Over Paging**
  For each trunk port which should ring the external ringer, enter "1".

HEADSETS

Connecting a Headset

A keyset user can utilize a customer-provided headset in place of the handset. Like using Handsfree, using the headset frees up the user's hands for other work. However, Headset Operation provides privacy not available from handsfree.

The headset plugs into a separate jack on the bottom of the phone. This allows the use of the handset or headset - whichever is convenient at the time.

Simply connect the headset into the headset jack located on the bottom of the keyset. (This jack is located right next to the handset jack, so make sure to connect to the proper jack.)

Examples of compatible headsets are the:

- NEC Polaris Supra Monaural Noise Cancelling, P/N 750036
- NEC Polaris Supra Binaural Noise Cancelling, P/N 750033
- NEC Polaris Encore Binaural Noise Cancelling, P/N 750035

IN-LINE POWER ADAPTER (ILPA-R)

Using the In-Line Power Adapter (Figure 4-18)

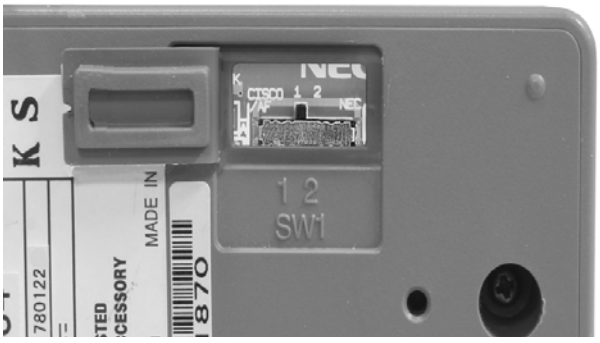
The In-Line Power Adapter (ILPA-R), P/N 780122, which is IEEE 802.3af compliant, detects power from a PoE-compatible ethernet switch and passes it to the IP terminal. The ILPA does the negotiation and detection with the switch and then relays the power to the IP terminal device. This provides an additional way to power the NEC IP terminals (Aspire IPhone or Aspire Keyset with IP Adapter). With this adapter, the IP terminals on the Aspire can be powered using:

- Local power connecting the IP terminal to a local AC wall outlet using the AC-R Adapter (P/N 780135)
- NEC power supply PoE-managed switch (BlueFire 200/24) (in-line and spare pair detection)
- Aspire 8SHUBU PCB (P/N 0891021) (spare pair detection)
- Cisco Data Switch - CDP supported (in-line and spare pair detection)
- In-Line Power Adapter

Conditions

- Only IP telephones supported by center feed can be used.
- This adapter can not be used with the H.323 telephones.
- **When center feed is used, first unplug the adapter from the ethernet switch before changing the SW1 setting on the back of the adapter.**
- **Please note that the ILPA-R adapter is intended for use with the Aspire IPhones (P/N 0890065) and IP Adapters (P/N 0890060). Installing any other device into the telephone port of the ILPA-R may result in damage to the device.**
- When powering an IP phone using an ILPA-R adapter, the phone should **not** get connected to a port on the 8SHUBU PCB.

When using center feed, set the SW1 switch located on the back of the adapter as follows:



Center Feed Hub System	SW1 Setting
IEEE802.3af STD System	1
Cisco Discovery Protocol System	1
NEC BlueFire 200/24 Switch	2

Installation

1. Set the SW1 switch on the ILPA-R adapter to the correct setting for the ethernet switch to which it is to be connected.

Center Feed Hub System	SW1 Setting
IEEE802.3af STD System	1
Cisco Discovery Protocol System	1
NEC BlueFire 200/24 Switch	2

2. Set the switch setting on the NEC IPhone or IP adapter to the correct position.

IPhone (SW2) or IP Adapter (SW1)	SW Setting
NEC Power Patch Panel (12 port NEC SN1604 PWRMS, 24 port NEC BlueFire 200/24) 8SHUBU PCB	1
Cisco Catalyst Power Patch Panel Cisco Catalyst PRW Series	2

3. Connect the NEC VoIP telephone (IPhone or keyset with an IP adapter) to the TEL connector on the ILPA-R adapter with the LAN cable provided with the adapter.

   If a customer-provided cable is used, the total length from the switch to the telephone should be less than 328 feet.

   The adapter can be positioned either closer to the keyset or switch - it does not matter.

4. Connect a cross-over LAN cable to the LAN connector on the ILPA-R adapter. Plug the opposite end into the switch which is to provide power to the telephone.

   If a straight-through cable is used, NIC Auto Detection must be enabled in Programs 10-12-05 (NTCPU), 84-05-02 (VOIPU) or 85-01-03 (SHUBU).

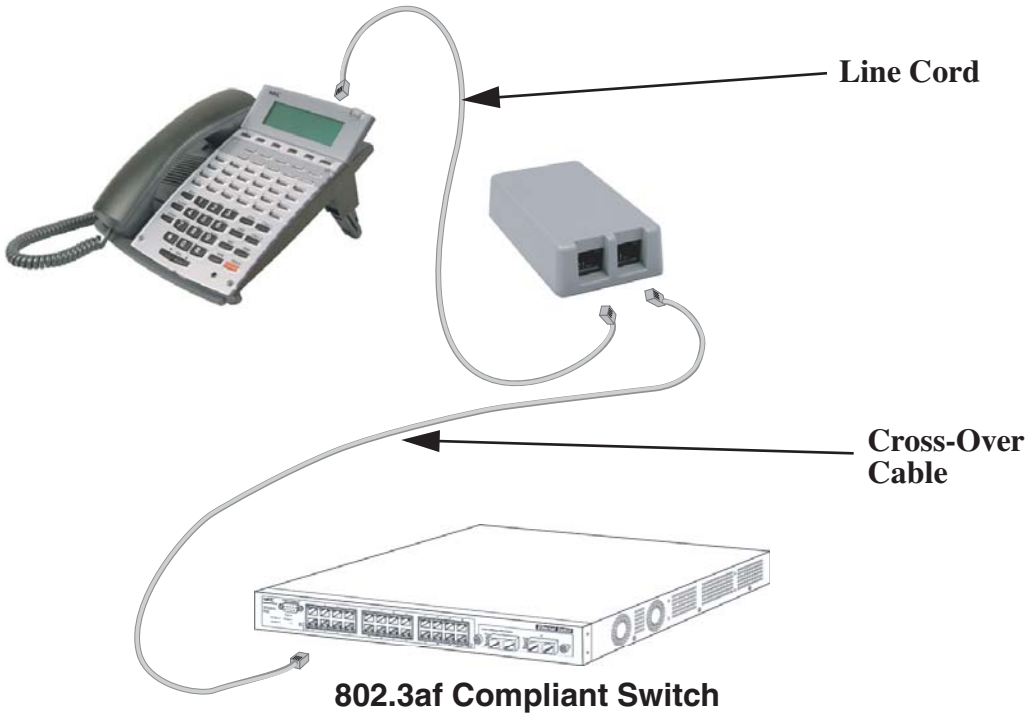


Figure 4-18: NEC TERMINAL CONNECTION TO AN IEEE 802.3af PoE SWITCH

KEYSET LABELING

Labeling Your Phone (Figure 4-19)

The Aspire keysets can be easily labeled by removing the clear plastic faceplate on the keysets. These labels can be printed by hand, typewriter, or by using the Aspire Labelmaker program. Labels for this are on 8 1/2 x 11" paper, which allows for easy printing by any printer - dot matrix, laser, etc.

Removing the Faceplate:

1. At the lower right-hand corner of the telephone, you'll notice a small notch in the faceplate plastic. Use this notch to help lift the faceplate up.
   Each corner has a plastic locking pin which releases as the faceplate is lifted up.
   If the faceplate is dropped, these pins may pop out of place. Be careful not to lose the pins.

Figure 4-19: REMOVING THE FACEPLATE

Replacing the Faceplate:

1. Place the faceplate back on the phone.
2. At each corner, press the locking pin back into place.

MUSIC SOURCES

Music on Hold (Figure 4-20, Figure 4-21)

The system can provide Music on Hold from either an internally synthesized source on the NTCPU or from an external source. The external MOH can be a tuner, tape deck, CD player, etc. The settings in Program 10-04-01 and 14-08-01 determine whether the source for MOH is internal or external (refer to the Software Manual for further details).

In addition to a connector on the NTCPU, the 2PGDAD modules also provide connections for external MOH sources. When using external music sources for external MOH, programming determines the MOH source for each trunk. Refer to *Music on Hold* in the Software Manual for more details.

The CPRU provides a dry relay that activates when a call is placed on Hold. When an external MOH source is connected to the MOH relay and a call is placed on Hold, the MOH relay is activated. This allows an external relay sensor/power supply to turn on the MOH source.

This arrangement allows the MOH source (e.g., a tape deck) to run only when a call is placed on Hold. The *maximum* applied voltage for the relay is 24vDC at .5A (the relays are normally open and close when a call is put on hold).

Installing External Music on Hold

1. ***Connecting to the NTCPU:***
   Connect an RJ61 modular line cord from the CN16 connector on the NTCPU to the appropriate location on the extension cross-connect block.
   OR
   To use CPRU Music on Hold contacts, connect an RJ61 modular line cord from the CN17 connector on the NTCPU to the appropriate location on the extension cross-connect block.
2. Connect the two-conductor station cable from the cross-connect block to the external music source.
3. Install bridging clips as required.

OR

1. ***Connecting to the 2PGDAD Module:***
   Make sure the jumper in the 2PGDAD module for the channel is set correctly. (Refer to Figure 4-4 *JUMPER SETTINGS* on page 4-3).
2. If a line cord was not previously connected to the 2PGDAD, complete Steps 3-6. Otherwise, skip to Step 7.
3. Install a modular jack for each 2PGDAD module. For each module, run one-pair 24 AWG station cable from the cross-connect block to a modular jack. Ground the unused pair.
4. Terminate the extension leads to GRN/RED of the modular jack. Terminate the unused leads to the jack.
5. Install bridging clips as required.
6. Plug a modular line cord from the mod jack to the CN1 connector on the 2PGDAD module.
7. Connect an RCA jack to the audio output(s) on the back of the 2PGDAD module.
8. The opposite end of this cable is connected to the external music source either directly or by connecting to the cross-connect block where the music source is connected.

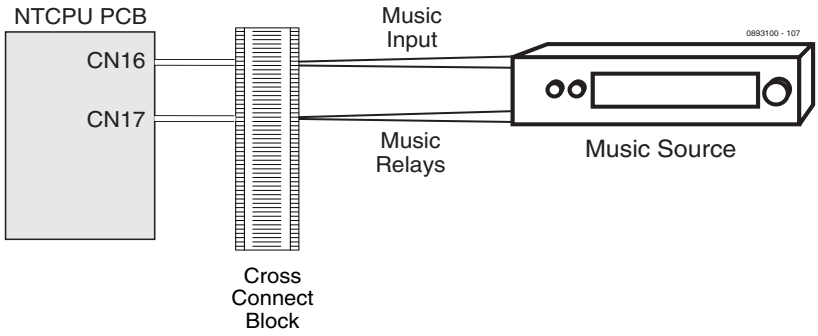


Figure 4-20: CPRU CONNECTIONS

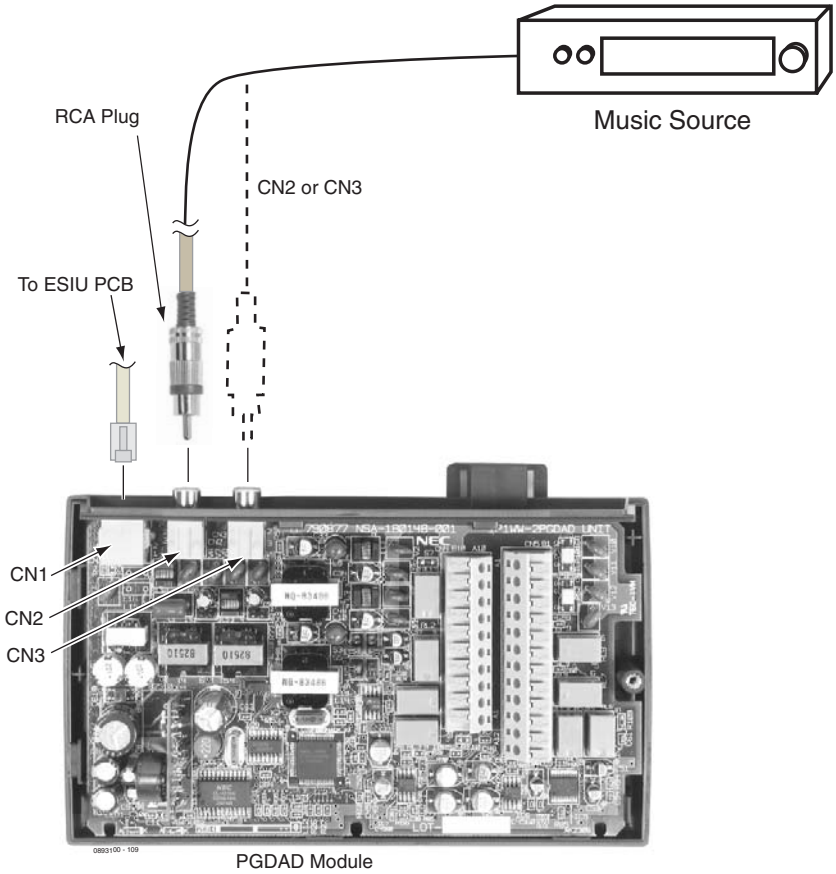


Figure 4-21: 2PGDAD CONNECTIONS

NIGHT MODE SELECTION

Night Mode Selector Switch

The Night Mode Switch relay closes when the system detects either an open or closure on the MISC block NIGHT SW terminals. Maximum 48v DC is output to the switch when open, and 7mA DC when shorted.

Refer to *Night Service* in the Software Manual for additional details.

Connecting a Night Mode Selector Switch

1. Connect an RJ61 modular line cord from the CN17 connector on the NTCPU to the appropriate location on the extension cross-connect block.
2. Connect the two-conductor station cable from the cross-connect block to the night switch mechanism output leads.
3. Install bridging clips as required.

PHONE ADAPTERS

Using Adapters (Figure 4-22)

Each Aspire keyset can have two optional adapters installed (unless an IP adapter is used). These adapters provide the keyset different capabilities, depending on the adapters installed.

These optional adapters cannot be installed on an Aspire 2-button phone.

The IP Adapter cannot be installed on a super display phone.

Only the ADA2 and PSA Adapters can be used on the Aspire IPhone.

- ADA - Conversation Recording
- ADA2 - Aspire IPhone Conversation Recording
- APA - Analog Port Adapter Without Ringer
- APR - Analog Port Adapter with Ringer
- CTA - Serial Interface (RS-232C)
- CTU - USB Interface
- HF-R - Speakerphone Adapter
- PSA - Aspire IPhone Power Failure
- IP - VoIP Connection
- 24-Button DLS Console (refer to page 4-11 for complete details on connecting the DLS)

Figure 4-22: INSTALLING ADAPTERS

The following chart indicates if there are restrictions when combining certain adapters. Select the adapter in the column and then select the adapter in the row to see if there are any restrictions. For example, using an APA and APR adapter refers you to restriction 3 (only one voice path provided - adapters can not be used together).

Adapter Compatibility Chart

	24DLS	IP	CTU	CTA	APR	APA	ADA	ADA2	HF-R	PSA
ADA	-	1	-	-	-	-	2	5	-	5
ADA2	5	5	5	5	5	5	5	5	5	5
APA	-	1	-	-	3	2	-	5	-	5
APR	-	1	6	-	2	3	-	5	6	5
CTA	-	1	4	2	-	-	-	5	-	5
CTU	-	1	2	4	6	-	-	5	6	5
IP	1	2	1	1	1	1	1	5	-	5
HF-R	-	1	6	-	6	-	-	5	2	5
PSA	5	5	5	5	5	5	5	5	5	5
24DLS	2	1	-	-	-	-	-	5	-	5

Adapter Compatibility Chart

1 = The IP Adapter takes the full space provided for adapters on the keysets. Therefore, if an IP adapter is installed, no other adapters can be used.

2 = Only one adapter of the same type can be used on a keyset.

3 = As there is only one voice path provided for adapters, the APR and APA adapters can not both be used on the same keyset.

4 = Due to protocol collision, the CTU and CTA adapters can not both be used on the same keyset.

5 = The ADA2 and PSA Adapters can only be installed on the Aspire IPhone, which only has one adapter connection. Therefore, if either the ADA2 or PSA is installed, no other adapters can be used.

6 = As this adapter requires the AC power adapter, it can not be installed on a phone with an APR or Speakerphone adapter, which also requires power. The placement of the AC power adapter plug will not allow the unit installed on the left side of the phone to receive power.

When installing or removing the adapters, ***the keyset should first be unplugged from the system***. Also note that the adapters may have an AC/DC power jack. Power is not required for all the adapters. You should refer to the information for the specific adapter to determine whether a power source is needed.

Telephones with any of these adapters installed cannot be wall-mounted. The bracket will not accommodate the adapter(s).

Removing the Adapter Cover (Figure 4-23)

1. With certain applications, it may be necessary to remove the cover from an adapter. First, remove the screw on the back of the adapter.
2. Using a small screwdriver, push in the ribs on the sides of the adapter.
   Do not push the ribs in too much or they may break.
3. Remove the cover.

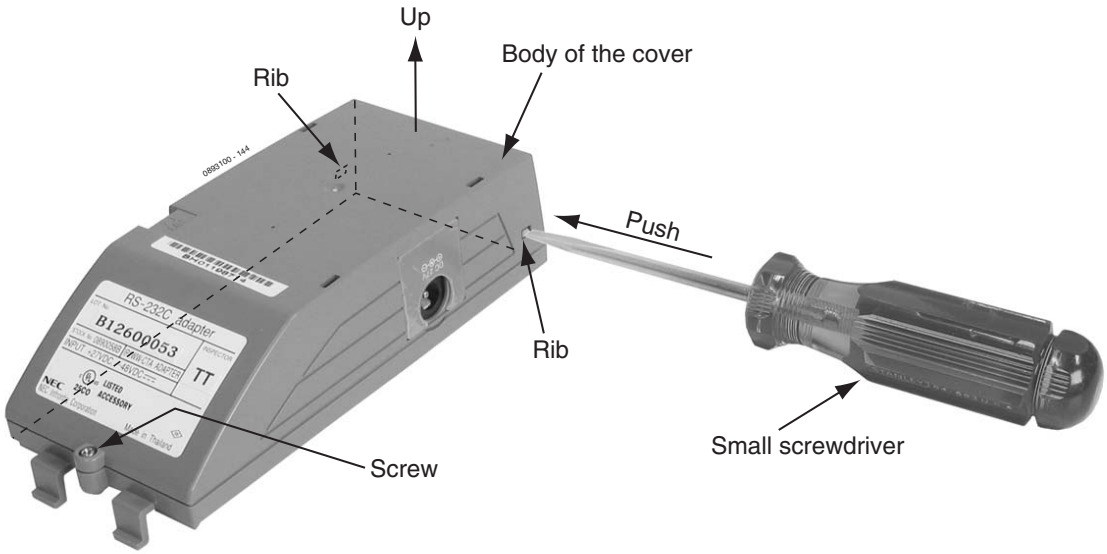


Figure 4-23: REMOVE THE ADAPTER COVER

ADA Adapter (Figure 4-24 - Figure 4-31)

Using the ADA Adapter provides a recording jack connection which provides a connection from a telephone to an external tape recorder or speaker. Both sides of the conversation are recorded. The adapter output is a 1/8" audio (mono) jack which you can connect directly to an AUX level input on a recorder or page amplifier. The recorder input can also be wired directly to the terminals on the inside of the adapter.

This optional adapter cannot be installed on an Aspire 2-button phone or IPhone.

When installing or removing the adapters, ***the keyset should first be unplugged from the system***. Telephones with any adapters installed cannot be wall-mounted. The bracket will not accommodate the adapter(s).

CAUTION

Be sure the connected audio device provides a standard AUX level input.

The use of monitoring, recording, or listening devices to eavesdrop, monitor, retrieve, or record telephone conversation or other sound activities, whether or not contemporaneous with transmission, may be illegal in certain circumstances under federal or state laws. Legal advice should be sought prior to implementing any practice that monitors or records any telephone conversation. Some federal and state laws require some form of notification to all parties to a telephone conversation, such as using a beep tone or other notification methods or requiring the consent of all parties to the telephone conversation, prior to monitoring or recording the telephone conversation. Some of these laws incorporate strict penalties.

The handset only records when a call is placed or answered.

Installing the ADA Adapter:

1. Unplug the line cord from the keyset.
2. If only one adapter is to be installed on the phone, the adapter should be installed on the right-hand side of the phone (beneath the handset). Using a flat-head screwdriver, remove the plastic punch-out piece covering the connector.
3. Set the dip switches on the ADA adapter to the required position. The SW1 and SW2 switches should be set to "1" for either application.

   The SW1 indicates the type of adapter (1=ADA) and the SW2 switch sets the impedance (1=620 Ohms, 2=30 Ohms). Both switches should remain in the "1" position.

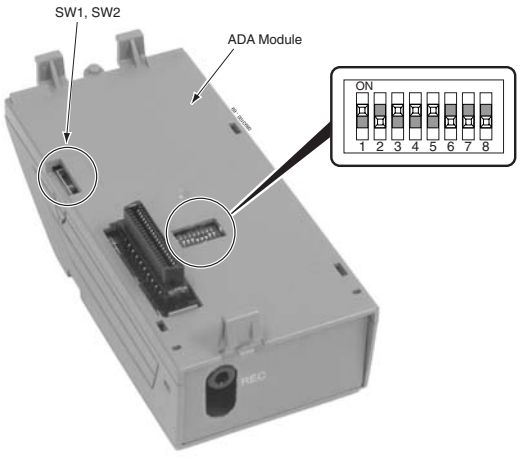


Figure 4-24: RECORDING DIP SWITCH SETTINGS

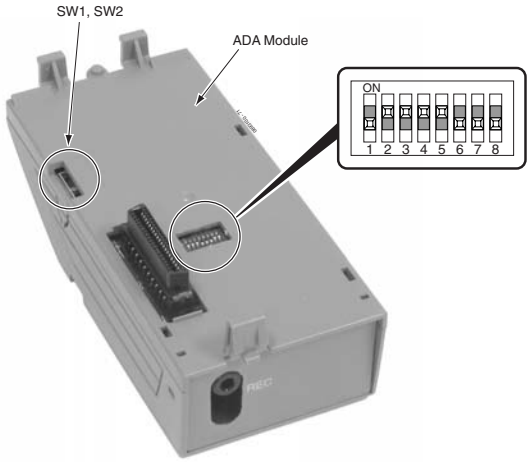


Figure 4-25: PLAYBACK DIP SWITCH SETTINGS

4. If using the mono audio jack to connect to the recorder or audio **input**, plug the audio jack into the REC connector on the ADA and then skip to Step 9. If wiring directly to the terminals inside the adapter, remove the screw on the back of the adapter. Using a small screwdriver, push the ribs on the sides of the adapter in and remove the cover.

   Do not push the ribs in too much or they may break.

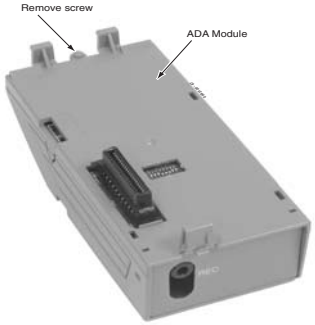


Figure 4-26: REMOVE THE SCREW FROM THE ADA ADAPTER

5. Determine which terminals should be connected. Terminals T3 and T4 are used for wiring to a recorder.

   T6 and T7 are used to activate a relay. T his relay will turn on a recorder when a call is placed ore received. The dip switch "1" must be set to the "on" position.

6. Run the cable to the ADA adapter through the opening near the audio jack.

Figure 4-27: RUNNING THE CABLE TO THE ADA

7. Insert the cable into the terminal. Place the cap over the terminal and push down to secure the cable.

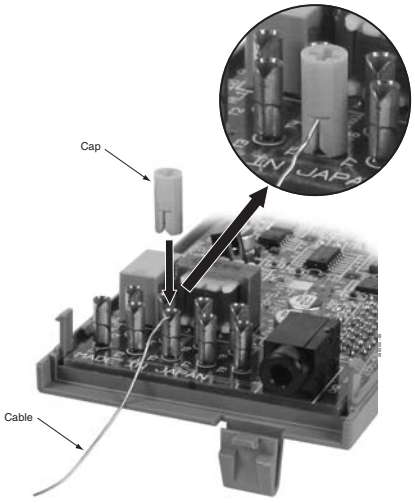


Figure 4-28: WIRING TO THE ADA TERMINAL

8. Replace the adapter cover and reattach the screw.
9. Connect the opposite end of the cable to the recording device or audio **input**.
   Make sure to connection the cable to the audio input (for example, on the PC's sound card). Plugging the adapter into any other connector may damage the ADA adapter.

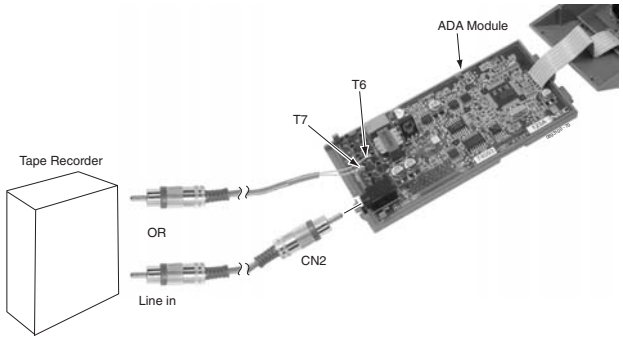


Figure 4-29: CONNECTION FOR RECORDING ONLY

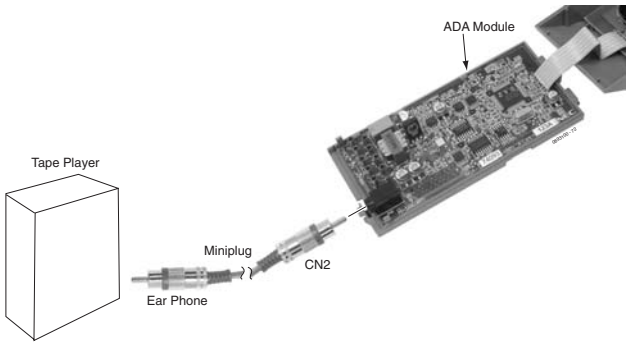


Figure 4-30: CONNECTION FOR PLAYBACK ONLY

10. Position the adapter with the connector positioned as shown below.
    You may wish to remove the wall-mount bracket to allow for easier adapter installation.

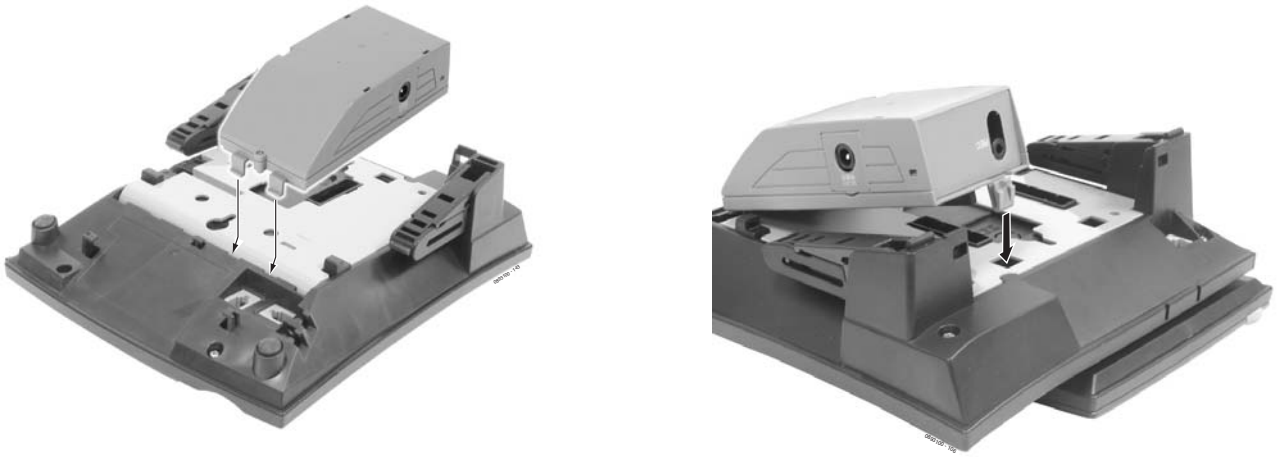


Figure 4-31: POSITIONING THE ADAPTER

11. Hook the two plastic prongs into the bottom of the phone.
12. Push the connector into place. The top latch on the top of the adapter should lock into place when it is properly positioned.
13. In order for the ADA adapter to recognized correctly, before plugging in the keyset, make sure that in Program 10-03-01, the extension number to be used for the ADA adapter is undefined.
14. Plug the line cord back into the keyset.
    To avoid any hardware problems, when removing the adapter, first unplug the line cord, then the power cord, then any other adapter cables.
15. Check Program 10-03-04 or 10-03-05 to make sure the system recognizes the ADA adapter.

ADA2 Adapter (Figure 4-32 - Figure 4-39)

Using the ADA2 Adapter provides a recording jack connection which provides a connection from an Aspire IPhone to an external tape recorder or speaker. The adapter output is a 1/8" audio jack which you can connect directly to an AUX level input on a recorder or page amplifier. The recorder input can also be wired directly to the terminals on the inside of the adapter. As the IPhone only has one connector available for additional adapters, if this adapter is connected, no other adapter can be installed on the phone.

When installing or removing the adapters, ***the keyset should first be unplugged from the system***. Telephones with any adapters installed cannot be wall-mounted. The bracket will not accommodate the adapter(s).

CAUTION

Be sure the connected audio device provides a standard AUX level input.

The use of monitoring, recording, or listening devices to eavesdrop, monitor, retrieve, or record telephone conversation or other sound activities, whether or not contemporaneous with transmission, may be illegal in certain circumstances under federal or state laws. Legal advice should be sought prior to implementing any practice that monitors or records any telephone conversation. Some federal and state laws require some form of notification to all parties to a telephone conversation, such as using a beep tone or other notification methods or requiring the consent of all parties to the telephone conversation, prior to monitoring or recording the telephone conversation. Some of these laws incorporate strict penalties.

The handset only records when a call is placed or answered.

Installing the ADA2 Adapter:

1. Unplug the LAN cable and AC adapter cable from the keyset if previously installed.
2. The adapter should be installed on the right-hand side of the phone (beneath the handset). Using a flat-head screwdriver, remove the plastic punch-out piece covering the connector.
3. Set the dip switches on the ADA2 adapter to the required position. The SW1 switch should be set to "2" and the SW2 switch should be set to "1".
   The SW1 indicates the type of adapter (2=ADA2) and the SW2 switch sets the impedance (1=620 Ohms, 2=30 Ohms). The SW2 switch should remain in the "1" position.

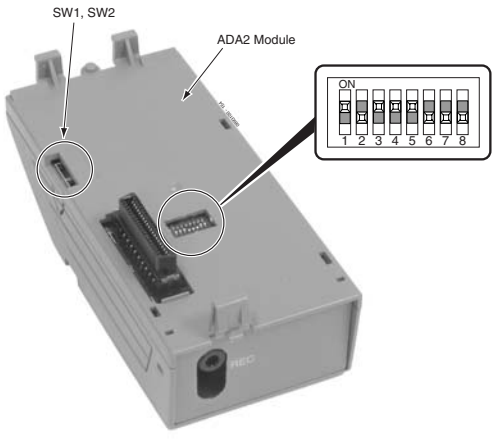


Figure 4-32: RECORDING DIP SWITCH SETTINGS

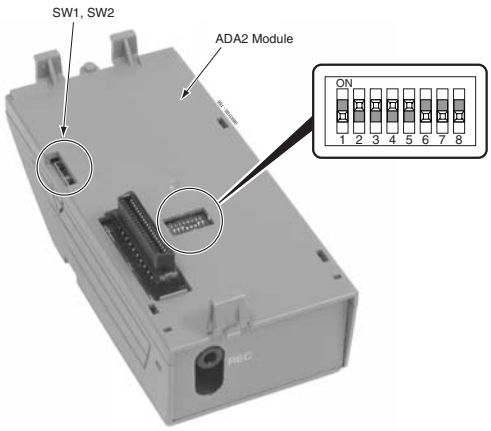


Figure 4-33: PLAYBACK DIP SWITCH SETTINGS

4. If using the mono audio jack to connect to the recorder or audio **input**, plug the audio jack into the REC connector on the ADA2 and then skip to Step 9. If wiring directly to the terminals inside the adapter, remove the screw on the back of the adapter. Using a small screwdriver, push the ribs on the sides of the adapter in and remove the cover.

   Do not push the ribs in too much or they may break.

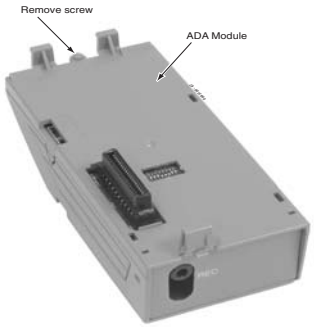


Figure 4-34: REMOVE THE SCREW FROM THE ADA2 ADAPTER

5. Determine which terminals should be connected. Terminals T3 and T4 are used for wiring to a recorder.

   T6 and T7 are used to activate a relay. T his relay will turn on a recorder when a call is placed ore received. The dip switch "1" must be set to the "on" position.

6. Run the cable to the ADA2 adapter through the opening near the audio jack.

Figure 4-35: RUNNING THE CABLE TO THE ADA2

7. Insert the cable into the terminal. Place the cap over the terminal and push down to secure the cable.

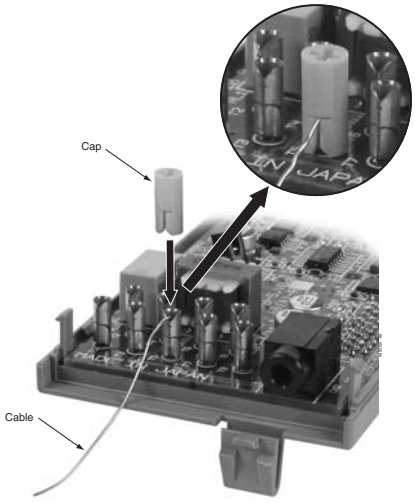


Figure 4-36: WIRING TO THE ADA2 TERMINAL

8. Replace the adapter cover and reattach the screw.
9. Connect the opposite end of the cable to the recording device or audio **input**.
   Make sure to connection the cable to the audio input (for example, on the PC's sound card). Plugging the adapter into any other connector may damage the ADA adapter.

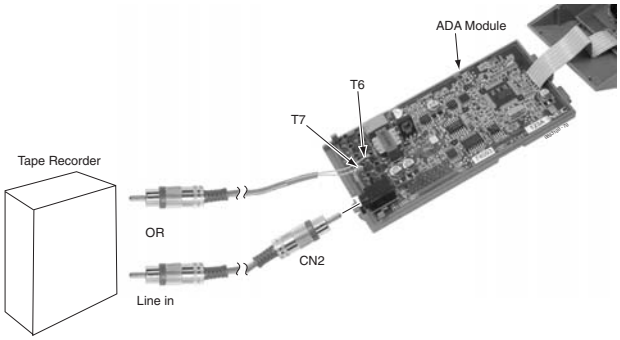


Figure 4-37: CONNECTION FOR RECORDING ONLY

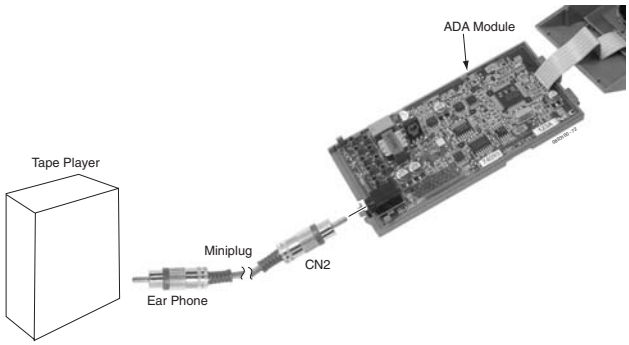


Figure 4-38: CONNECTION FOR PLAYBACK ONLY

10. Position the adapter with the connector positioned as shown below.
    You may wish to remove the wall-mount bracket to allow for easier adapter installation.

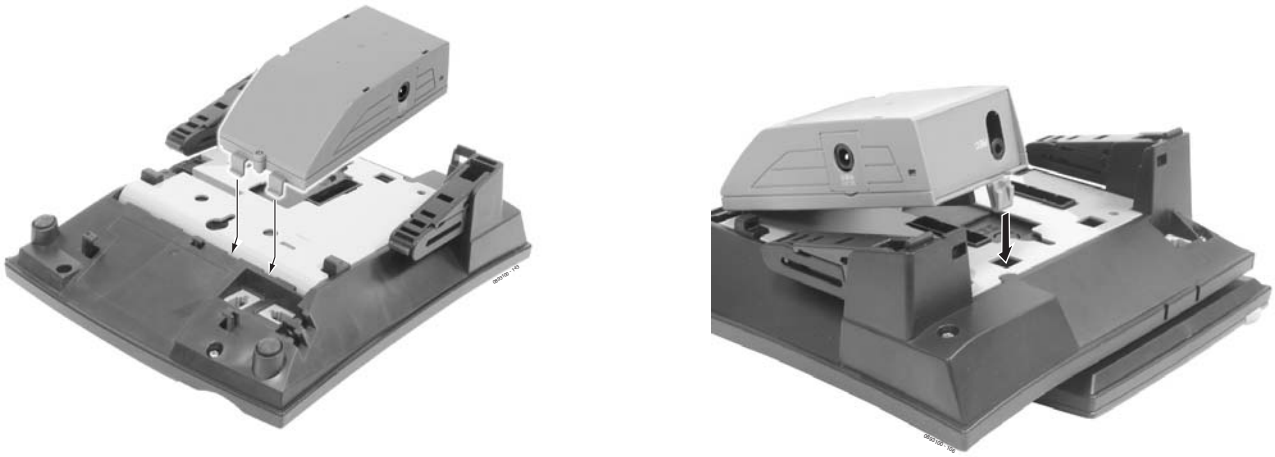


Figure 4-39: POSITIONING THE ADAPTER

11. Hook the two plastic prongs into the bottom of the phone.
12. Push the connector into place. The top latch on the top of the adapter should lock into place when it is properly positioned.
13. Plug the LAN cable and AC adapter cable into the keyset.
    To avoid any hardware problems, when removing the adapter, first unplug the line cord, then the power cord, then any other adapter cables.

APA and APR Adapters (Figure 4-40 - Figure 4-41)

The APA and APR Adapters provide an analog interface for the keyset. The APR Adapter provides ringing which allows the connected device to be used for incoming and outgoing calls. This adapter also provides a separate extension number for the analog device, which allows both devices to be used at the same time (this can be removed in system programming if you wish). The APA Adapter does not provide ringing, so the connected device is used for outgoing calls only (for example, when using a modem). One keyset can have either an APA or an APR Adapter. Both adapters ***cannot*** be installed on the same keyset as only one voice path is provided by the keyset for the adapters. **When installing the APR Adapter, an AC-R AC/DC adapter (P/N 780135) is required for power.** As this adapter requires the AC power adapter, it can not be installed on a phone with an CTU or Speakerphone adapter, which also require power. The placement of the AC power adapter plug will not allow the unit placed on the left of the phone to receive power.

The maximum distance between the APA or APR Adapter and the analog terminal is 49'.

With the APA adapter installed, when the analog device attached to the adapter is in use, the keyset cannot be used as there is only one physical port number assigned to the phone. If both the analog device and keyset are picked up at the same time, the analog device takes priority. If the keyset is on a call and the single line telephone is picked up, the single line telephone will take the call from the keyset.

When installing the APR adapter, there must be an extension port available for the adapter or it will function like an APA adapter (only one physical port assigned to the phone so only one phone can be used at a time).

When installing or removing the adapters, ***the keyset should first be unplugged from the system***. Telephones with any adapters installed cannot be wall-mounted. The bracket will not accommodate the adapter(s).

Neither the APA or APR Adapter supports reverse-polarity, message waiting lamping, or Caller ID.
These optional adapters cannot be installed on an Aspire 2-button phone or IPhone.

Installing the APA or APR Adapter:

1. Unplug the line cord from the keyset.
2. If only one adapter is to be installed on the phone, the adapter should be installed on the right-hand side of the phone (beneath the handset). Using a flat-head screwdriver, remove the plastic punch-out piece covering the connector.
3. Set the dip switches on the APA/APR adapter to the required position.
   - The SW3 switch is used to set the terminating impedance. Setting to position "1" is for a pure resistance of 600 ohms; position "2" is used for complex impedance (factory setting is set to "1").
   - The SW1 switch should be left at its factory setting of "1". This also applies to the dip switch settings (1 and 5 = on; 2-4, 6-8 = off).

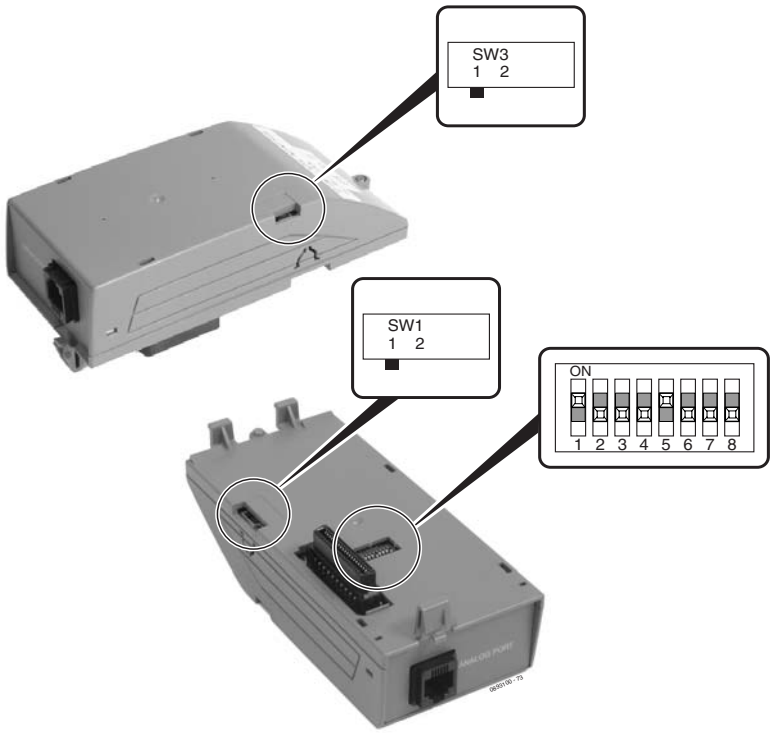


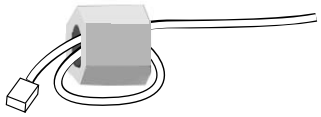
Figure 4-40: DIP SWITCH SETTINGS

4. If using an APR Adapter, plug the AC-R AC/DC adapter into the AC jack on the side of the adapter.
   The AC/DC adapter is not required when using the APA Adapter.
5. Position the adapter with the connector positioned as shown below.
   You may wish to remove the wall-mount bracket to allow for easier adapter installation.

Figure 4-41: POSITIONING THE ADAPTER

6. Hook the two plastic prongs into the bottom of the phone.
7. Push the connector into place. The top latch on the top of the adapter should lock into place when it is properly positioned.
8. In order for the APD/APR adapter to recognized correctly, before plugging in the keyset, make sure that in Program 10-03-01, the extension number to be used for the adapter is undefined.
9. Plug the line cord back into the keyset.

10. Using the ferrite bead that was included with the APA/APR Adapter, wrap the line cord once through the ferrite bead and snap it shut.



11. Plug the end of the line cord for the analog device which has the ferrite bead closest to it into the jack on the adapter. The opposite end should then be connected to the analog device.

    To avoid any hardware problems, when removing the adapter, first unplug the line cord, then the power cord, then any other adapter cables.

12. **To determine the APR's analog extension number . . .**
    10-03-04 : Optional Installed Unit 1
    Displays the type of terminal installed. This can be used to verify that the system recognizes the adapter.

    10-03-06 : PCB Setup
    Assign the terminal type (12) for the keyset's channel which has the APR Adapter installed.

    When you wish to have the APR use the same extension number as the keyset to which it is attached (like an APA), remove the terminal type in this option. With this setup, when the analog device is in use, it busies out the keyset as there is no separate port number assigned for the adapter. To reverse this, and allow the APR to have its own extension number, simply reassign the terminal type (12) in this option.

    10-03-07 : PCB Setup
    The port number of the APR Adapter is displayed for the extension (APR ports = 193-256 with all software through 3.07 OR 193-512 with 4.xx software and higher). The ports are assigned from the highest available port down.

    11-02-01 : Extension Numbering
    To determine the extension number assigned for the APR device, refer to the table below.

APR Extension Port Number	Extension Number
193	493
:	:
199	499
200	5000
:	:
256 or 512 * * Above 256, software 4.xx or higher is required.	5056 or 5312 * * Above 5056, software 4.xx or higher is required.

Refer to **Section 5: Data and SMDR** for additional details.

CTA Adapter (Figure 4-40 - Figure 4-41)

The CTA Adapter provides a serial interface (RS-232C) connector. This can be used for SMDR, TAPI (1.4), or system reporting. TAPI requires a CTA driver installation. This driver can be downloaded from the NEC Technical Support web site (http://ws1.necii.com). Refer to the CTI Installation Manual, P/N 0893102, for details on installing the driver. A maximum of 128 CTA Adapters can be installed in a system. When using the adapter for printing, the following printers are recommended:

- Citizen CBM CBM1000-RJ100S Thermal Printer
- Star Precision SP2520MD-J1 Impact Dot Printer

This optional adapter cannot be installed on an Aspire 2-button phone or IPhone.

No AC-R AC/DC Adapter is required for this unit.

When installing or removing the adapters, ***the keyset should first be unplugged from the system***. Telephones with any adapters installed cannot be wall-mounted. The bracket will not accommodate the adapter(s).

Installing the CTA Adapter:

Be sure to follow these steps in order to allow the system to properly recognize the CTA Adapter!

1. *Unplug the line cord from the keyset.*
2. If only one adapter is to be installed on the phone, the adapter should be installed on the right-hand side of the phone (beneath the handset). Using a flat-head screwdriver, remove the plastic punch-out piece covering the connector.
3. Set the dip switches on the CTA adapter to the required position.
   - The DSW settings are 1 = on, 2-8 = off for a PC connection or 1 and 2 = on, 3-8 = off for a printer/SMDR connection (factory setting is for a PC connection).

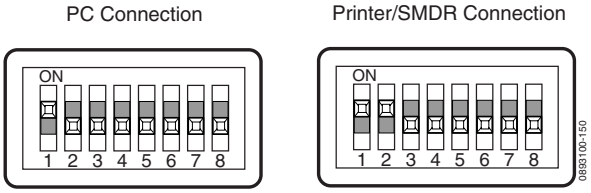


Figure 4-42: DIP SWITCH SETTINGS

4. Position the adapter with the connector positioned as shown below.
   You may wish to remove the wall-mount bracket to allow for easier adapter installation.

Figure 4-43: POSITIONING THE ADAPTER

5. Hook the two plastic prongs into the bottom of the phone.
6. Push the connector into place. The latch on the top of the adapter should lock into place when it is properly positioned.

7. Connect an RS-232C straight-thru cable from the adapter to the printer or PC.
8. Change system programming (15-02-19) to match the CTA module dip switch settings.
9. Change system programming (15-02-20) to the correct baud rate.
10. Change remaining system programming (see below) as required.
11. In order for the CTA adapter to recognized correctly, before plugging in the keyset, make sure that in Program 10-03-01, the extension number using the adapter is undefined.
12. Plug the line cord back into the keyset. **This should only be done once the system has been programmed as indicated in steps 8-10 above.**

    To avoid any hardware problems, when removing the adapter, first unplug the line cord, then the power cord, then any other adapter cables.
13. Wait approximately 1 minute for the adapter to be recognized by the system.
14. Check Program 10-03-04 or 10-03-06 to make sure the system recognizes the CTA adapter. If not, unplug the phone, undefine the port in Program 10-03-01 and repeat the installation steps.
15. Install the CTA Adapter driver (downloaded from the NEC Technical Support web site (http://ws1.necii.com).
16. Connect the serial cable from the PC to the CTA Adapter.

System Programming

SMDR

- **Program 14-01-06 : Basic Trunk Data Setup - SMDR Print Out**
  Use this option to have the system include/exclude the trunk you are programming form the SMDR printout. See Program 35-01 and 35-02 for SMDR printout options (0=No print out, 1=Prints out).
- **Program 15-02-19 : Multi-Line Telephone Basic Data Setup - CTA Data Communication Mode**
  Select '0' if the dip switch settings are set to PC connection or select '1' if printer/SMDR connection is selected on the CTA adapter.
- **Program 15-02-20 : Multi-Line Telephone Basic Data Setup - Baud Rate for CTA Port**
  Set the baud rate to be used by the CTA (0=4800, 1=9600, 2=19200).
- **Program 35-01-01 : SMDR Options - Output Port Type**
  This option specifies the type of connection used for SMDR (0=No setting, 1=COM (NTCPU), 2=USB (NTCPU), 4=CTA/CTU).
- **Program 35-01-02 : SMDR Options - Output Destination Number**
  This option specifies the extension number which has the CTA/CTU installed for the SMDR printer output.

  Refer to **Section 5: Data and SMDR** and the Aspire Software Manual (P/N 0893200) for additional details on programming for SMDR.

System Alarms

- **Program 90-12-01 : System Alarm Output - Output Port Type**
  Define the output port to be used as the output for system alarm report (0=no setting, 1=NTCPU COM port, 2=NTCPU USB port, 4=CTA/CTU adapter). Set the baud rate for the COM port in Program 10-21-02. The system can have up to 50 reports.
- **Program 90-12-02 : System Alarm Output - Destination Extension Number**
  If the output port type (90-12-01) is a CTA, enter the extension number with the CTA connection.

System Information Reports

- **Program 90-13-01 : System Information Output - Output Port Type**
  Define the output port to be used as the output for system information report (0=no setting, 1=NTCPU COM port, 2=NTCPU USB port, 4=CTA/CTU adapter). Set the baud rate for the COM port in Program 10-21-02. The system can have up to 50 reports.
- **Program 90-13-02 : System Information Output - Destination Extension Number**
  If the output port type (90-13-01) is a CTA, enter the extension number with the CTA connection.

For TAPI setup, refer to the Aspire CTI Manual (P/N 0893102) for complete details.

CTU Adapter (Figure 4-44 - Figure 4-46)

The CTU Adapter provides a USB connector. This can be used for TAPI (1.4) applications, SMDR, or system reporting. The CTU requires a driver installation. This driver can be downloaded from the NEC Technical Support web site (http://ws1.necii.com). Refer to the CTI Installation Manual, P/N 0893102, for details on installing the driver. A maximum of 128 CTU Adapters can be installed in a system. ***An AC-R AC/DC adapter (P/N 780135) is required for power for each CTU Adapter installed.*** As this adapter requires the AC power adapter, it can not be installed on a phone with an APR or Speakerphone adapter, which also require power. The placement of the AC power adapter plug will not allow the unit placed on the left of the phone to receive power.

This optional adapter cannot be installed on an Aspire 2-button phone or IPhone.

When installing or removing the adapters, ***the keyset should first be unplugged from the system***. Telephones with any adapters installed cannot be wall-mounted. The bracket will not accommodate the adapter(s).

Installing the CTU Adapter:

1. Unplug the line cord from the keyset.
2. If the keyset on which the CTU adapter is to be connected was previously installed, undefine the circuit type in Program 10-03-01 for the extension (enter 0 as the circuit type).
3. If only one adapter is to be installed on the phone, the adapter should be installed on the right-hand side of the phone (beneath the handset). Using a flat-head screwdriver, remove the plastic punch-out piece covering the connector.
4. Set the dip switches on the CTU adapter to the required position.
   - The DSW settings are
     For CTI connection: 2, 3, 5, 6 = on / 1, 4, 7, 8 = off (default factory setting)
     For non-procedure (SMDR) mode: 2, 5, 6 = on / 1, 3, 4, 7, 8 = off.

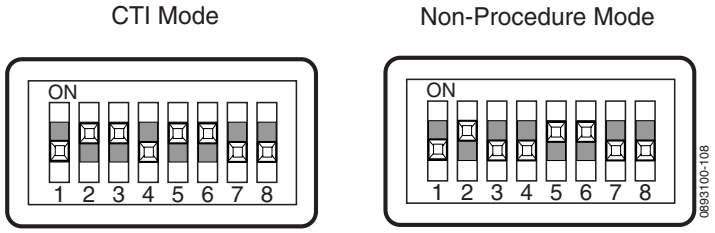


Figure 4-44: DIP SWITCH SETTINGS

5. Program the system for the feature to be used with the adapter.
   For SMDR:
   - 15-02-19 : Multi-Line Telephone Basic Data Setup - CTA/CTU Data Communication Mode
     Set to "1" (non-procedure mode). (When using PCPro or WebPro, select "Direct Print Mode".)
   - 15-02-20 : Multi-Line Telephone Basic Data Setup - Baud Rate for CTA/CTU
     Set the baud rate (for USB connections, this setting should not matter).
   - 14-01-06 : Basic Trunk Data Setup - SMDR Print Out
     Set to "1" for each trunk to be included in SMDR.
   - 15-01-03 : Basic Extension Data Setup - SMDR Print Out
     Set to "1" for each extension to be included in SMDR.
   - 35-01-01 : SMDR Options - Output Port Type
     Set to "4" (CTU) as the output type.
   - 35-01-02 : SMDR Options - Output Destination Number
     Enter the CTU extension number.

For System Alarms:

- **Program 90-12-01 : System Alarm Output - Output Port Type**
  Define the output port to be used as the output for system alarm report (0=no setting, 1=NTCPU COM port, 2=NTCPU USB port, 4=CTA/CTU adapter). Set the baud rate for the COM port in Program 10-21-02. The system can have up to 50 reports.
- **Program 90-12-02 : System Alarm Output - Destination Extension Number**
  If the output port type (90-12-01) is a CTU, enter the extension number with the CTU connection.

For System Information Reports:

- **Program 90-13-01 : System Information Output - Output Port Type**
  Define the output port to be used as the output for system information report (0=no setting, 1=NTCPU COM port, 2=NTCPU USB port, 4=CTA/CTU adapter). Set the baud rate for the COM port in Program 10-21-02. The system can have up to 50 reports.
- **Program 90-13-02 : System Information Output - Destination Extension Number**
  If the output port type (90-13-01) is a CTU, enter the extension number with the CTU connection.

For TAPI setup, refer to the Aspire CTI Manual (P/N 0893102) for complete details.

6. Install the CTU Adapter driver by double-clicking on the SETUP.EXE file.
   During the installation of the driver, select the non-procedure mode when using the CTU for SMDR, alarms or reports. Select CTI for TAPI only (by default, the CTI mode is selected).
   The CTU Adapter driver can be downloaded from the NEC Technical Support web site: http://ws1.necii.com.
7. Attach ferrite beads to the AC-R power cable and USB cables. These should be installed on the ends of the cables closest to the adapter.
   The USB cable is a USB Type B Male (to adapter) to Type A Male Cable (to USB device).

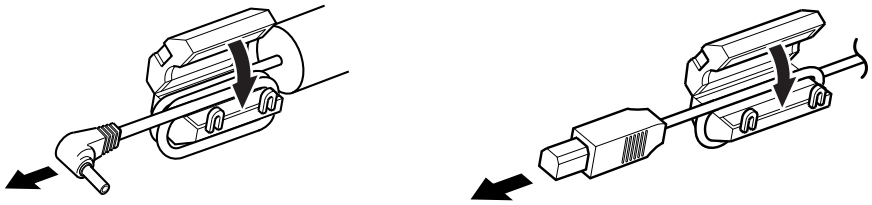


Figure 4-45: WRAPPING THE FERRITE BEADS

8. Plug the AC-R AC/DC adapter into the AC jack on the side of the adapter and to an AC outlet.
9. Position the adapter with the connector positioned as shown below.
   You may wish to remove the wall-mount bracket to allow for easier adapter installation.

Figure 4-46: POSITIONING THE ADAPTER

10. Hook the two plastic prongs into the bottom of the phone.
11. Push the connector into place. The top latch on the top of the adapter should lock into place when it is properly positioned.
12. Plug the line cord back into the keyset.
13. Connect the USB cable from the adapter to the USB device to be connected.

    To avoid any hardware problems, when removing the adapter, first unplug the line cord, then the power cord, then any other adapter cables.

    To print from the CTU to a printer, you must connect the CTU to a PC, with the printer then connected to the PC (you can not have a direct CTU-to-printer connection).
14. Confirm in Program 10-03-04 that the CTU adapter is recognized for the keyset's port.
15. You can now confirm the port assignment using the Windows Device Manager (click **Start - Settings - Control Panel - System - Hardware - Device Manager**). Under the **Ports (COM & LPT)** section should be displayed **NEC-I CTU Communications Port (Com x)**. Use the port number displayed here when connecting via your communications program (such as HyperTerminal). Note that the baud rate in HyperTerminal does not matter when connecting via USB.

PSA-R Adapter (Figure 4-47 - Figure 4-48)

Using the PSA-R Adapter provides power failure capability for the IPhone IP keysets. This allows a user to make or receive an outside call using the central office if an IP keyset is unable to make or receive a call using the LAN, if for instance, there was a power failure. In this case, the connection of the keyset would automatically be changed from LAN to PSTN (public switched telephone network). This allows the dial pad keys (0-9, * and #) to be used for placing and receiving calls - no other keyset functions are available. As the IPhone only has one connector available for additional adapters, if this adapter is connected, no other adapter can be installed on the phone.

The change from LAN to PSTN occurs in the following instances:

- No power supplied to the keyset
- PSTN is selected using the LAN/PSTN Change Switch on the adapter

  With this switch set to PSTN, a call cannot be made using the LAN, even if the LAN is functioning correctly and power is available.
- If the initial software operation for the IP keyset has not yet been completed before the IP keyset is powered up

Installing the PSA-R Adapter:

1. Unplug the line cord from the keyset.
2. The adapter should be installed on the right-hand side of the phone (beneath the handset). Using a flat-head screwdriver, remove the plastic punch-out piece covering the connector.
3. Set the dip switches on the PSA-R adapter to the required position.

SW3 Setting	1 = DP (dial pulse)		2 = DTMF (dual tone multi-frequency)	
SW1 Pulse Rate Setting	1 = 20 pps	2 = 10 pps	N/A	N/A
SW2 Making Rate Setting	1 = 33%	2 = 40%	N/A	N/A

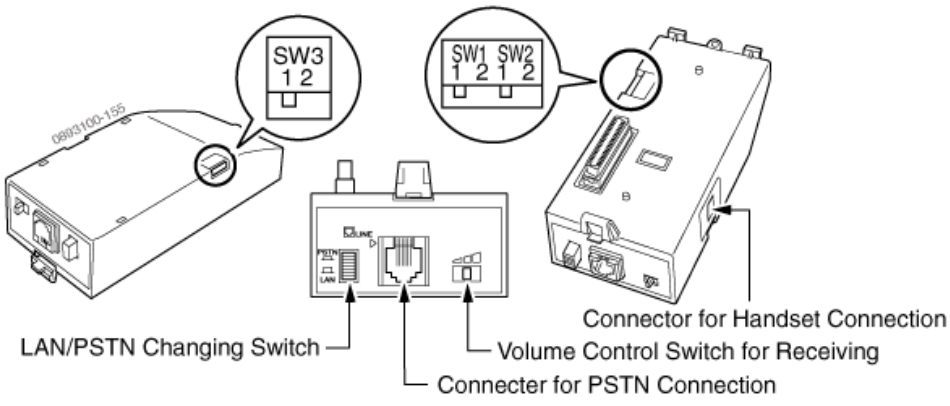


Figure 4-47: PSA-R SETTINGS

4. Position the adapter with the connector positioned as shown below.
   You may wish to remove the wall-mount bracket to allow for easier adapter installation.

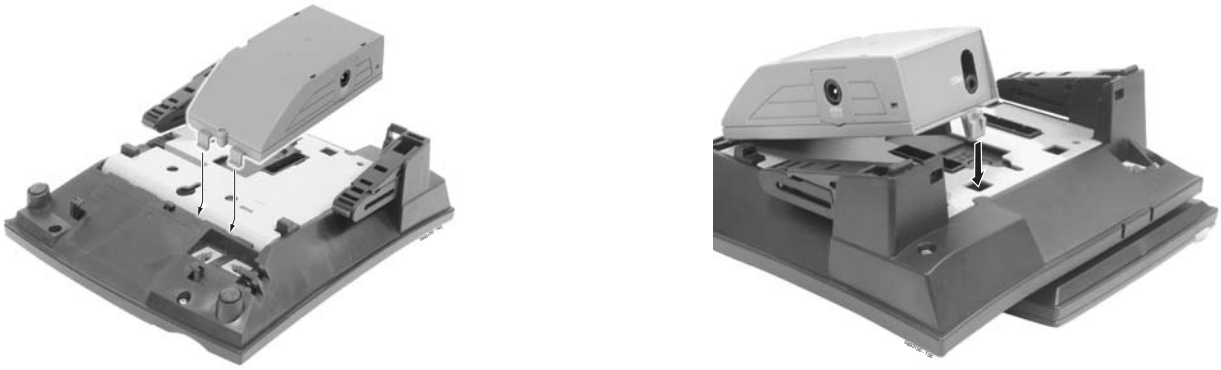


Figure 4-48: POSITIONING THE ADAPTER

5. Hook the two plastic prongs into the bottom of the phone.
6. Push the connector into place. The top latch on the top of the adapter should lock into place when it is properly positioned.
7. Connect the line cord to the adapter.
   This should be a PSTN, dedicated CO trunk.
8. Plug the LAN cable into the keyset.
9. If used, connect the AC adapter into the keyset.
   This should always be done after connecting the LAN cable.
10. Move the handset cord from the keyset to the handset connector on the adapter.

CAUTION: Before installing or removing the PSA-R adapter, be sure to first remove the line cord, LAN cable, and then AC adapter from the outlet.

Using the PSA-R Adapter:

1. ***Placing Calls:***
   When the PSTN line has been activated either manually by the switch or due to a power failure, use the dial pad buttons (0-9, *, #) to place an outside call.
   Other than receiving calls, no other keyset functions are available.

2. ***Answering Calls:***
   When a call is received, the PSA-R adapter rings. If the LAN/PSTN Change Switch is set to PSTN, answer the call by pickup up the handset. If the switch is set to the LAN position, answer the call by changing the switch to PSTN and then pickup up the handset.
   If you receive a call via PSTN during a conversation via LAN, answer the call by completing the LAN call and placing the handset back into the cradle. Change the LAN/PSTN Change Switch to PSTN and then lift the handset to answer the call. If you change the LAN/PSTN Change Switch to the PSTN position while talking via LAN, the LAN call is disconnected.
   Other than receiving calls, no other keyset functions are available.

3. ***Adjusting the Ring Volume***
   Use the Volume Control Switch located on the PSA-R adapter to adjust through the three available volume levels.
   Other than receiving calls, no other keyset functions are available.

4. ***When Power is Restored***
   The IP keyset restarts and reconnects to the network LAN. However, if you are on a PSTN call when the power is restored, your conversation will continue until the handset is placed into the cradle. Once this occurs, the IP keyset will restart and reconnect to the LAN.
   Other than receiving calls, no other keyset functions are available.

Speakerphone (HF-R) Adapter (Figure 4-40 - Figure 4-41)

The Speakerphone (HF-R) adapter (P/N 0890062 [black] / 0890063 [white]) offers 22-Button, 34-Button, and Super Display keysets high quality speakerphone capability. With the 6' cord, the microphone can be conveniently placed to provide the best transmit and receive quality. This could be useful, for example, when a group of people are participating in a handsfree call. The microphone can be centrally placed so that all comments can be heard. *When installing the HF-R Adapter, an AC-R AC/DC adapter (P/N 780135) is required for power.* As this adapter requires the AC power adapter, it can not be installed on a phone with an APR or CTU adapter, which also require power. The placement of the AC power adapter plug will not allow the unit placed on the left of the phone to receive power.

These optional adapters cannot be installed on an Aspire 2-button phone or IPhone.

When installing or removing the adapters, ***the keyset should first be unplugged from the system***. Telephones with any adapters installed cannot be wall-mounted. The bracket will not accommodate the adapter(s).

Installing the HF-R Adapter:

1. Unplug the line cord from the keyset.
2. If only one adapter is to be installed on the phone, the adapter should be installed on the right-hand side of the phone (beneath the handset). Using a flat-head screwdriver, remove the plastic punch-out piece covering the connector.
3. Position the adapter with the connector positioned as shown below.
4. Hook the two plastic prongs into the bottom of the phone.
5. Push the connector into place. The top latch on the top of the adapter should lock into place when it is properly positioned.

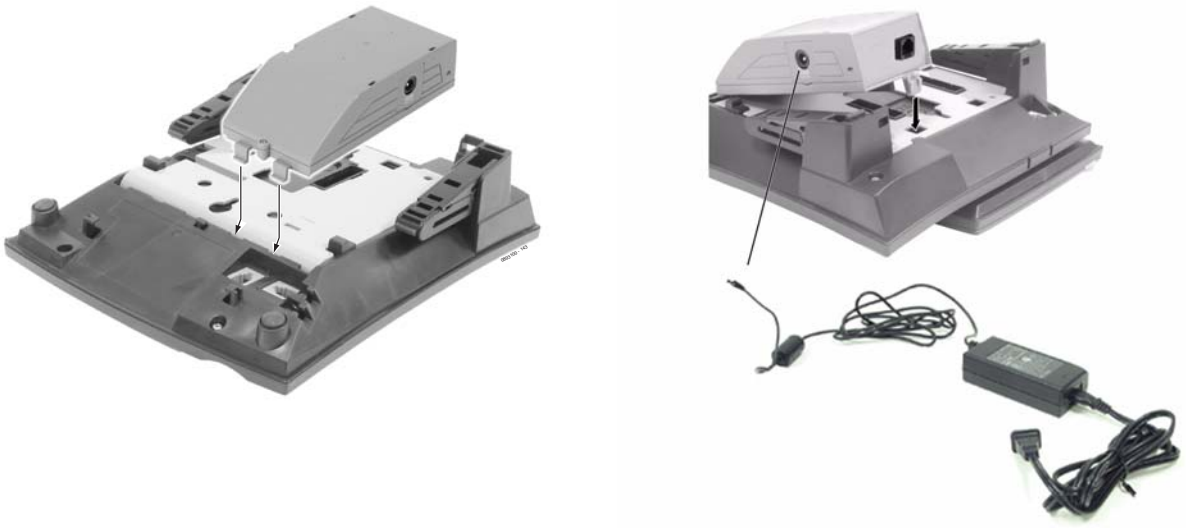


Figure 4-49: POSITIONING THE ADAPTER

6. Plug the AC-R AC/DC adapter into the AC jack on the side of the adapter.
7. Plug the line cord back into the keyset.
8. Using the ferrite bead that was included with the HF-R Adapter, wrap the mic cord supplied with the adapter once through the ferrite bead and snap it shut.

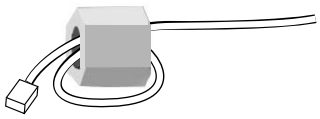


Figure 4-50: WRAPPING THE FERRITE BEAD

9. Plug the end of the mic cord which has the ferrite bead closest to it into the jack on the adapter. The opposite end should then be connected to the microphone.

   To avoid any hardware problems, when removing the adapter, first unplug the line cord, then the power cord, then any other adapter cables.

   FCC Registration: UL60950, FCC Part 15, Class B.

10. To allow the phone to sit properly with an adapter installed, extend the legs to the highest position.

System Programming

15-02-16 : Multi-Line Telephone Basic Data Setup - Handsfree Operation

Enable (1) an extension's ability to use the speakerphone.

Using the Adapter

- The HF-R adapter requires approximately 20 seconds to start up after first powering up the adapter. The microphone's LED will remain off during this period. When the microphone is activated, the LED will light (as long as the microphone switch on the adapter is enabled).
- The microphone's sound can be muted using the switch on the microphone.

Switch	Microphone	LED
Unlock	Talk	ON
Lock	Mute	OFF

- The microphone cable provides 6' of cable. The placement of the microphone unit can be anywhere within this 6' distance. For the best voice quality, it is recommended that the microphone unit be positioned with either the front or the side of the microphone facing the user. The back end (with the line cord) should not be facing the user.

  If the microphone is placed to the right of the phone and the volume is set to the maximum, when the user presses the CALL1 key, the ICM dial tone may modulate. Turning down the volume or moving the microphone should clear this problem.

  When confirmation tones are enabled or when placing a call on an outside trunk, the user will hear double tones as the keys are pressed.

- If confirmation tones are enabled (service code 824), when a call is placed on a trunk, the user will hear double confirmation tones as the keys are pressed. The call, however, will complete normally.

Figure 4-51: PLACEMENT OF THE HANDSFREE UNIT

VoIP Adapter (Figure 4-52 - Figure 4-54)

The VoIP Adapter provides the ability to communicate through a LAN which is connected to a 4VOIPU, 16VOIPU or 8SHUBU PCB. The 4VOIPU, 16VOIPU or 8SHUBU PCB is required in order to communicate with non-VoIP Aspire phones, as well as to place or receive outside calls.

This feature requires the use of a display keyset. As the VoIP Adapter is double the width of the other phone adapters, only the VoIP Adapter can be used on a keyset. No other space is available for any additional adapter.

This optional adapter cannot be installed on an Aspire 2-button, IPhone or super display telephone.

When installing the VoIP Adapter, an AC/DC adapter is required for local power or, for central power, one of the following must be used:

- 8SHUBU PCB
- Power Supply Patch Panel (SN1604 PWRMS - NEC standard product)
- Power Patch Panel (Cisco)
- Catalyst PWR Series (Cisco)

If a separate ethernet switch is used (and not the 8SHUBU PCB), it should be a 100Base/full duplex switch. To avoid network problems and to ensure good voice quality, do not use a Repeater Hub/10Base.

When installing or removing the adapters, ***the keyset should first be unplugged from the system***. Telephones with any adapters installed cannot be wall-mounted. The bracket will not accommodate the adapter(s).

Installing the VoIP Adapter:

1. Unplug the line cord from the keyset.
   The line cord will not be needed with the VoIP Adapter as the system connection will be made through the LAN connection.
2. Using a flat-head screwdriver, remove the plastic punch-out piece covering the connector.
   Note the position of the connector on the VoIP Adapter in order to remove the correct piece (the adapter uses the connection on the side of the phone which has the line cord connection.
3. Set the dip switches on the top of the VoIP adapter to the required position. The setting is dependent upon the type of power supply being used.
   - The SW1 settings are "1" when using an AC/DC adapter, 8SHUBU, or SN1604 PWRMS, "2' when using Cisco's Power Patch Panel or Catalyst PWR panel.

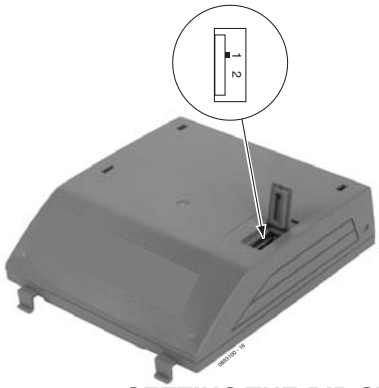


Figure 4-52: SETTING THE DIP SWITCHES

4. Position the adapter with the connector positioned as shown below.
   You may wish to remove the wall-mount bracket to allow for easier adapter installation.

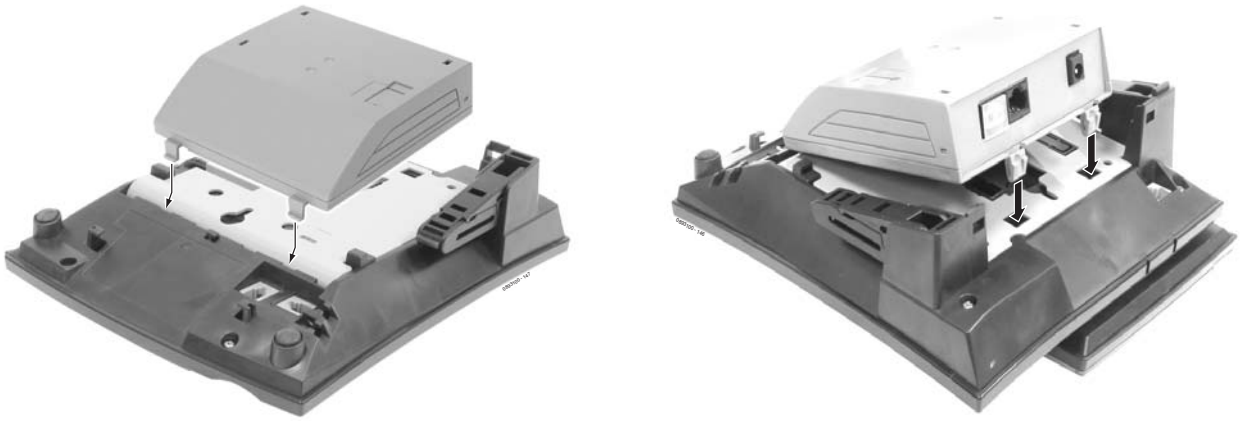


Figure 4-53: POSITIONING THE ADAPTER

5. Hook the two plastic prongs into the bottom of the phone.
6. Push the connector into place. The top latch on the top of the adapter should lock into place when it is properly positioned.
7. Plug an AC/DC adapter into the AC jack on the adapter if power is not supplied by the LAN.
8. Plug in the LAN straight-thru cable from the NTCPU LAN connector or 16VOIPU PCB LAN connector for the phone operation. If needed, connect the PC cross cable to the VoIP Adapter.
9. Refer to the **Aspire Software Manual (P/N 0893200)** for required programming.

To avoid any hardware problems, when removing the adapter, first unplug the line cord, then the power cord, then any other adapter cables.

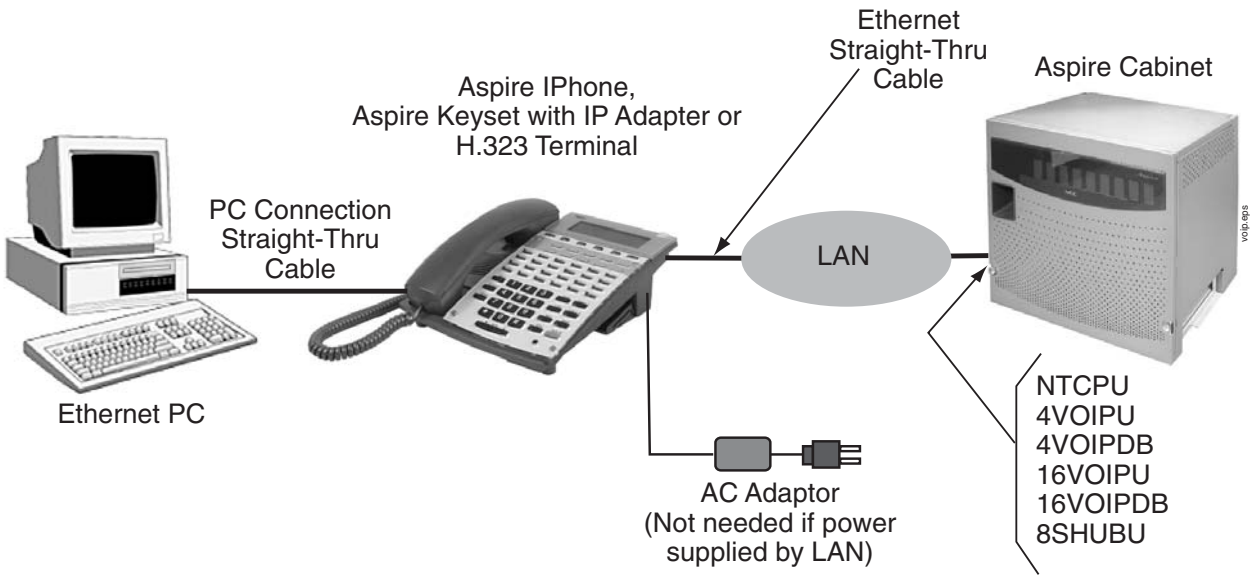


Figure 4-54: WIRING LAYOUT FOR VOIP

POWER FAILURE TELEPHONES

Power Failure (Figure 4-55)

The system allows connection for basic telephone service during a power failure. The power failure operation occurs during a commercial power failure, and is not affected by PCB failure. Power Failure Transfer is provided by connecting to either the COIU-LS1 or COIU-LG1 PCB.

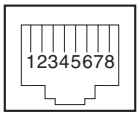
The 4COIU-LS1 or 4COIU-LG PCB provides 1 Power Failure Transfer circuit or using the 8COIU-LS1 or 8COIU-LG1 PCB, 2 circuits are provided.

The CN3 and CN5 connectors each provide connection to 4 analog trunk ports, ***which are polarity sensitive (tip to tip, ring to ring)***. The power failure circuits, however, are not polarity sensitive. A maximum of 15 4/8COIU-LS1 PCBs per system is allowed.

! Important !

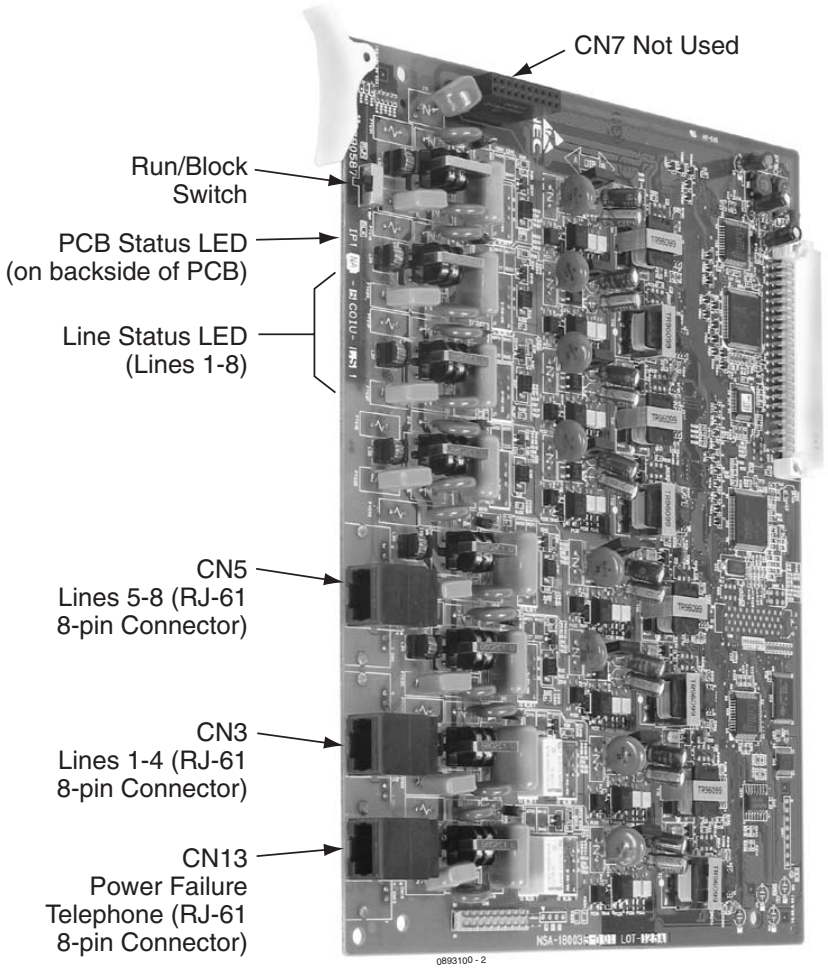
- When connecting the RJ61 cables to the COIU PCB, note the position of the Power Failure connector. Do not confuse this connector as the trunk connector.

Connector Pin-Outs on COIU PCB for Power Failure Circuits

RJ61 Cable Connector		
RJ61 Cable Connector - CN13, SLT Interface for Power Failure		
	**Pin No.**	**Connection**
	1	-
	2	-
	3	Circuit 2 - Tip
	4	Circuit 1 - Ring
	5	Circuit 1 - Tip
	6	Circuit 2 - Ring
	7	-
	8	-

Installing the Power Failure Telephones:

1. Connect an RJ-61 connector to the COIU PCB installed in the Aspire system.
2. Install a modular jack for each single line telephone supporting PF operation. The modular jack should be within six feet of the phone.
3. For each extension, run one-pair 24 AWG station cable from the cross-connect block to a modular jack.
4. Terminate the extension leads to GRN/RED of the modular jack. Terminate the unused leads to the jack.



The 8COIU PCB is shown here.

Figure 4-55: POWER FAILURE CIRCUIT INSTALLATION

SLT ADAPTER

Using the SLT Adapter (Figure 4-56 - Figure 4-58)

The SLT Adapter converts a digital port from an ESIU PCB into an analog port which can be used for connecting on-premise 2500 type single line devices (i.e., telephones, fax machines, modems, etc.). Each SLT Adapter requires its own digital port.

The SLT Adapter supports Caller ID if provided by the telco.

The SLT Adapter provides the ring generator circuit used by the analog device. The unit provides constant current which is fixed at 47 mA.

Maximum Cable Distance From ESIU	600m @ 24 AWG
Loop Resistance	500 ohms

Refer to *Single Line Telephones* in the Software Manual for more details.

Installing the SLT Adapter

1. Punch down one pair 24 AWG station cable for each SLT Adapter to a cross-connect block.
2. Run one-pair cross-connect from the cross-connect block to the extension (B) block for each SLT Adapter.
3. Connect the extension (B) block's 25-pair cable to the corresponding RJ-61 connector on the ESIU PCB.
4. Install bridging clips on the extension (B) block.
5. Install a modular jack for the SLT Adapter within six feet of the module's location.
6. Terminate the station cable WHT/BLU - BLU/WHT leads to the RED and GRN lugs in the modular jack.
7. Plug a line cord into the SLT Adapter's connector marked "ESIU". Plug the opposite end of the line cord into the modular jack.
8. Plug a second line cord into the SLT Adapter's connector marked "TEL". The opposite end of the line cord should be plugged into the analog device to be used.

Figure 4-56: INSTALLING THE SLT ADAPTER

Refer to *Single Line Telephones* in the Software Manual for programming details.

Wall-Mounting the SLT Adapter

1. Unplug the two line cords from the SLT Adapter.
2. Remove the two screws from the front of the SLT Adapter.
3. Lift the cover off the adapter.
4. Using the two screws provided with the SLT Adapter, attach the back cover to the desired location.

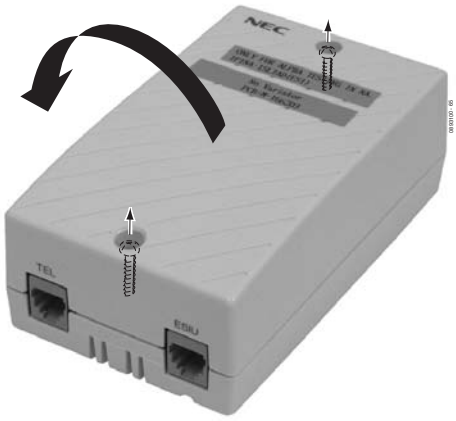


Figure 4-57: REMOVING THE COVER

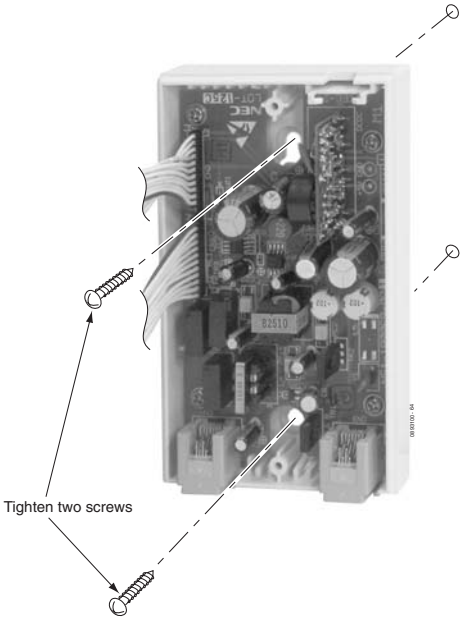


Figure 4-58: ATTACHING THE UNIT

5. Replace the front cover and the two screws removed in Step 2.
6. Plug the two modular line cords back into the SLT Adapter which were removed in Step 1.

Telephones

34-Button Super Display Telephone – P/Ns 0890049 & 0890050

The Super Display Telephone is the system's premier telephone instrument, featuring an interactive 9-line, 24-character display with 12 associated interactive keys. As the Super Display Telephone user processes calls, the interactive key functions change to provide intuitive access to the system's most sophisticated features. Every Super Display Telephone has a built-in speakerphone for full Handsfree operation. Handsfree Answerback and Intercom voice-announce capability is also standard.

The telephone's 24 programmable function keys can be customized by the user for one-button access to co-workers, features like Paging or Park or specific outside lines. The Dual LEDs in each programmable key help the user see which calls are for them and which features are active. Access to other commonly used features is simplified by 15 fixed feature keys.

In addition, the Super Display Telephone provides a built-in wall-mount bracket, as well as adjustable legs which allow each phone to be angled at a height which best suits the user.

Note that the three IP adapters (IP, ADA2, and PSA) do not work on the super display telephones.

✍ **At a glance**

Super Display Telephone - Part Numbers 0890049 & 0890050					
Function Keys:	✔	Accepts 110-Button DSS:	✔	Accepts 24-Button DLS:	✔
Handsfree (Speakerphone):	✔	Dual LEDs:	✔	ADA Adapter:	✔
ADA2 Adapter:	No	APA Adapter:	✔	APR Adapter:	✔
CTA Adapter:	✔	CTU Adapter:	✔	IP Adapter:	No
PSA Adapter:	No				

34-Button Display Telephone — P/Ns 0890045 & 0890046

The 34-Button Display Telephone has a 3-line, 24-character display with four interactive soft keys for intuitive feature access. In addition, the 34-Button Display Telephone has 24 user-programmable function keys (with Dual LEDs) for one-button access to co-workers, features and outside lines. The telephone also provides 10 user-programmable One-Touch (Personal Speed Dial) keys and 15 additional fixed feature keys.

The 34-Button Display Telephone has a built-in speakerphone and can accept optional adapters. You can also assign 110-Button DSS Consoles or connect 24-Button DLS Consoles to these phones. Like the Super Display, the 34-Button Display provides Handsfree Answerback, Intercom voice-announcements. In addition, the 34-Button Display provides a built-in wall-mount bracket, as well as adjustable legs which allow each phone to be angled at a height which best suits the user.

✍ **At a glance**

34-Button Display Telephone - Part Numbers 0890045 & 0890046					
Function Keys:	✔	Accepts 110-Button DSS:	✔	Accepts 24-Button DLS:	✔
Handsfree (Speakerphone):	✔	Dual LEDs:	✔	ADA Adapter:	✔
ADA2 Adapter:	No	APA Adapter:	✔	APR Adapter:	✔
CTA Adapter:	✔	CTU Adapter:	✔	IP Adapter:	✔
PSA Adapter:	No				

22-Button Display Telephone — P/Ns 0890043 & 0890044

The 22-Button Display Telephone features a 3-line, 24-character display with 4 interactive soft keys for intuitive feature access, in addition to 12 function keys with Dual LEDs. The function keys are user-programmable and can provide 1-button access to co-workers, features and outside lines. The telephone additionally provides 10 user-programmable One-Touch (Personal Speed Dial) keys and 15 additional fixed feature keys.

The 22-Button Display Telephone has a built-in speakerphone, provides Handsfree Answerback, Intercom voice-announcements. In addition, the 22-Button Display provides a built-in wall-mount bracket, as well as adjustable legs which allow each phone to be angled at a height which best suits the user.

✍ **At a glance**

22-Button Display Telephone - Part Numbers 0890043 & 0890044					
Function Keys:	✔	Accepts 110-Button DSS:	✔	Accepts 24-Button DLS:	✔
Handsfree (Speakerphone):	✔	Dual LEDs:	✔	ADA Adapter:	✔
ADA2 Adapter:	No	APA Adapter:	✔	APR Adapter:	✔
CTA Adapter:	✔	CTU Adapter:	✔	IP Adapter:	✔
PSA Adapter:	No				

22-Button Standard Telephone — P/Ns 0890041 & 0890042

The 22-Button Telephone offers similar capabilities as the 22-Button Display Telephone, but excludes the alphanumeric display and soft keys.

✍ **At a glance**

22-Button Telephone - Part Numbers 0890041 & 0890042					
Function Keys:	✔	Accepts 110-Button DSS:	✔	Accepts 24-Button DLS:	✔
Handsfree (Speakerphone):	✔	Dual LEDs:	✔	ADA Adapter:	✔
ADA2 Adapter:	No	APA Adapter:	✔	APR Adapter:	✔
CTA Adapter:	✔	CTU Adapter:	✔	IP Adapter:	✔
PSA Adapter:	No				

4

2-Button Telephone — P/Ns 0890047 & 0890048

The Digital 2-Button Telephone offers many keyset features and conveniences at an analog station set price. Handsfree Answerback lets users answer Intercom calls without touching the phone. The 11 fixed feature keys provide quick access to many essential features, and the Message Waiting lamp always shows when there are unanswered messages.

✍ **At a glance**

2-Button Telephone - Part Numbers 0890047 & 0890048					
Function Keys:	✔	Accepts 110-Button DSS:	✔	Accepts 24-Button DLS:	No
Handsfree (Speakerphone):	✔	Dual LEDs:	✔	ADA Adapter:	No
ADA2 Adapter:	No	APA Adapter:	No	APR Adapter:	No
CTA Adapter:	No	CTU Adapter:	No	IP Adapter:	No
PSA Adapter:	No				

Cordless Single Line Headset Telephone, CT-11 — P/N 730090

The CT-11 is a 2.4GHz cordless headset which connects to an analog port or an analog telephone line as a stand-alone unit or to an analog port adapter (APR, P/N 0890056). When the APR is set up as the same extension of the telephone, you can use the headset to answer and make calls using the cordless headset. The CT-11 offers Caller ID, but only if it is connected to an analog port on an analog station card. The CT-11 will not receive Caller ID if it is connected to an APA or APR adapter (these adapters do not output Caller ID).

The number of units which can be used on the system is greatly affected by the environment. The closer or smaller the area, the smaller the number of units which can be used. It is recommended to start with 3 or less. If there are no conflicts between the telephones, you can try adding additional units (up to 5 would be the recommended maximum).

When using wireless LAN, keep in mind that although there should not be a problem with interference from WLAN's, 802.11b and 802.11g both share the same frequency as the CT-11 telephone. In theory, the CT-11 is a narrow band high power device where as the 802.11b and 802.11g are both wide band low power technologies. Therefore, the higher power CT-11 could disrupt the low power device and slow the data network. There are, however, many exceptions to this (for example, if the WLAN uses highly directional antennas, higher power relays between buildings, etc.). The CT-11 can not lock down channels, unlike the 802.11b and 802.11g.

The CT-11 features include:

- 2.4 GHz Cordless Headset Phone
- Range of Up to 150'
- 6 Hours of Talk Time, 80 Hours Standby Time
- Audible Low Battery Indicator
- Single Line Operation
- Ultra-Compact Remote Unit with Belt Clip
- Variable Range Volume Control
- 10 Speed Dial Numbers
- Page/Find Feature
- Redial/Flash
- Mute with Audible Reminder
- Talk/Charge/Power Indicator Lights
- Built-in Headset Stand

✍ **At a glance**

Analog Single Line Telephone, CT-11 - Part Number 730090					
Function Keys:	No	Accepts 110-Button DSS:	No	Accepts 24-Button DLS:	No
Handsfree: (only through headset)	✔	Dual LEDs:	No	ADA Adapter:	No
ADA2 Adapter:	No	APA Adapter:	No	APR Adapter:	No
CTA Adapter:	No	CTU Adapter:	No	IP Adapter:	No
PSA Adapter:	No				

Cordless Telephone — P/N 730088 and 730087

The Aspire System supports a Cordless Telephone. The DTR-4R-2 Cordless II (P/N 730088) is a 900 MHz spread-spectrum digital cordless telephone that provides mobility, flexibility and convenience for those who spend much of the workday away from their desk. Fully integrated with the telephone system, the DTR-4R-2 Cordless II offers many standard features such as Park, Do Not Disturb, Hotline, Voice Over and Voice Mail. Normally paired with a companion keyset for improved 1-button call coverage capabilities, the DTR-4R-2 Cordless II will also work as a stand-alone telephone.

Complemented by 4 fully programmable function keys (with LEDs), the DTR-4R-2 Cordless II achieves a whole new level of convenience and mobility. An easy-to-read LCD display, volume controls, a rechargeable nickel-cadmium battery pack and a handy belt clip round out the elegant and affordable DTR-4R-2 Cordless II Phone.

A second Cordless Phone is also available: the Cordless Lite II. The Cordless Lite II offers the same features as the DTR-4R-2 Cordless II except that it uses a NiMH battery and has FM modulation (single channel) instead of the spread spectrum modulation. (Unlike the Cordless II phone, this phone's Desktop Charging does not provide a location for charging the spare battery.)

4

Recommended Usage Guidelines for Cordless Phones

In ideal conditions, multiple spread spectrum type cordless phones (Cordless II can be utilized in the same environment. However, due to the possible interference problems caused by the bases being placed in close proximity to each other, we recommend the following:

Spread Spectrum Phones (Cordless II P /N 730088)
Where users require greater range on the cordless phones and 3 or less cordless phones are being used at a specific site, we recommend using the spread spectrum cordless phone.

FM Modulation Phones (Cordless Lite II P /N 730087)
Where more than 3 cordless phones are to be used at one specific site, we recommend using the FM modulation cordless phones which have 30-channel capability.

Note: The range of the phones depends largely on the environmental factors, such as the building structure, the size of the room, RF interference and other electronic equipment installed in the same area. For optimum range and performance, we suggest the following:

1. Place the base units at least 15 feet apart. The performance of the phones become more stable when the distance between the bases is greater.
2. Place the base unit in the center of the coverage area.
   If the phone will also be used in an outdoor area, like a parking lot, install the base unit in an area close to the window.
3. If a phone experiences interference and noise, press the channel key to select another channel.

Selecting the Installation Location

Select a location for the phone that avoids excessive heat or humidity. The base unit can be placed on a desk or tabletop near a standard 120V AC outlet and telephone line jack. The base unit can also be mounted on a standard AT&T or GTE wall plate using the Wall Mount Adaptor. If the phone is to be paired with a keyset, place both phones in the same area. Keep the base unit and handset away from sources of electrical noise (motors, fluorescent lighting, computers). Each Cordless Telephone unit should be at least 5 feet away from any other Cordless Telephone or Aspire keyset to avoid interference.

With multiple cordless phones installed, each handset should have its channel button changed to a different channel if possible (10 channels are available on the Cordless II, 30 channels on the Cordless Lite II). This will help avoid any problems with interference between handsets when going off hook.

Connecting the Telephone Line

There are two types of phone outlets:

1) Modular Jack
Plug the telephone line cord from the base unit into a standard modular telephone jack.

2) Hardwired Jack
A modular jack converter (not included) is required. You may need to rewire when connecting the converter (making color-coded connections).

Applying Power to the Base Unit

Use the supplied 10V adaptor.

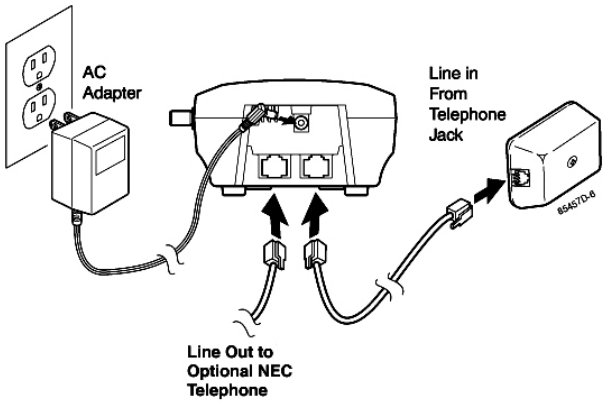
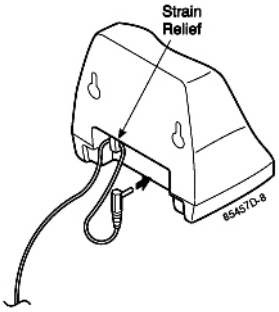


Figure 4-59: POWERING THE BASE UNIT

Applying Power to the Desktop Charger

Use the supplied 9V AC adaptor. Wrap the power cord around the convenient notch on the bottom.



Cordless II Charger Shown

Figure 4-60: POWERING THE DESKTOP CHARGER

IMPORTANT! Route the power cord where it will not create a trip hazard, or where it could become chafed and create a fire or other electrical hazard.

Note: The AC adaptors furnished with this phone may be equipped with a polarized line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. If you are unable to insert the plug fully into the outlet, try reversing the plug. Do not alter the shape of the blades of the polarized plug.

Note: If you cannot plug the AC adaptors into the outlet, contact someone about replacing the outlet.

Before using your phone, be sure to raise the antenna to the vertical position.

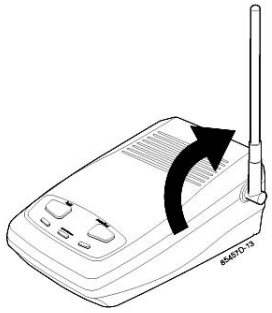


Figure 4-61: ANTENNA POSITION

Wall Installation

Standard Wall Plate Mounting

This phone is designed to be mounted on a standard wall plate. To attach the wall mount stand to the Base Unit:

1. Slide the Wall Mount stand into the notches at the top of the Base Unit, push the Wall Mount stand down and snap it into place.
2. Plug the AC Adapter into the Base Unit.
3. Place the AC Adapter cord inside the molded channel of the Wall Mount stand.
4. Plug one end of the short telephone cord into the LINE jack on the Base Unit. Optionally, plug one end of an NEC keyset desk phone into the phone jack. Then place the telephone cord(s) inside the molded channel(s) on the bottom of the Wall Mount stand
5. Plug the other end of the short telephone cord into the modular wall jack.
6. Place the Base Unit on the posts of the wall plate and push down until it's firmly seated.
7. Plug the AC Adapter into a standard 120V AC wall outlet.

   Note: Do not use an outlet controlled by a wall switch.

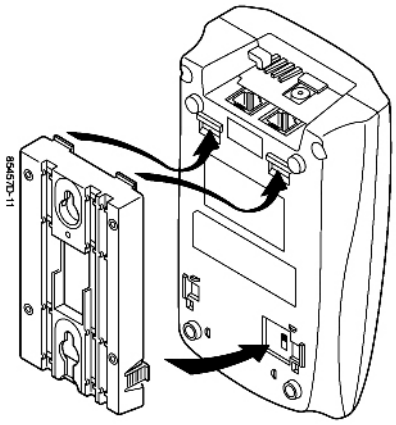


Figure 4-62: ATTACHING THE WALL MOUNT PLATE

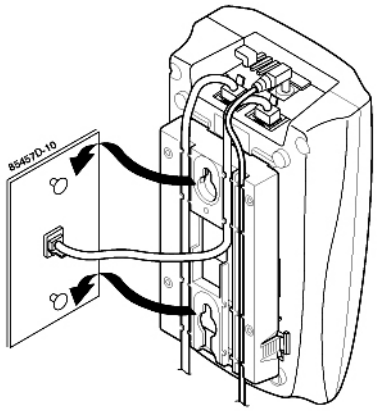


Figure 4-63: ATTACHING TO THE WALL PLATE

Direct Wall Mounting

If you do not have a standard wall plate, you can mount your phone directly on a wall. Before mounting your phone, consider the following:

- Select a location away from electrical cables, pipes, or other items behind the mounting location that could cause a hazard when inserting screws into the wall.
- Make sure the wall material is capable of supporting the weight of the Base Unit.
- Use #10 screws with anchoring devices suitable for the wall material where the Base Unit will be placed.

1. Insert two mounting screws into the wall 3-15/16 inches apart. Allow about 3/16 of an inch between the wall and screw heads for mounting the phone.
2. Plug and secure the AC Adapter cord by following steps 2 and 3 of the *Standard Wall Plate Mounting*.

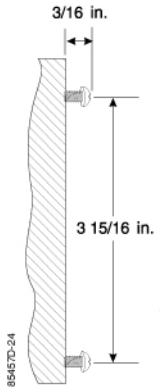


Figure 4-64: POSITIONING THE SCREWS

3. Plug one end of the telephone line cord into the LINE jack on the Base Unit. Optionally, plug one end of an Aspire keyset to be used as a desk phone into the PHONE jack. Then place the telephone cord(s) inside the molded channel(s) on the bottom of the Wall Mount stand.
4. Place the Base Unit on the posts of the wall screws and push down until it is firmly seated.
5. Plug the other end of the short telephone cord into a telephone wall jack.
6. Plug the AC Adapter into a standard 120V AC wall outlet.

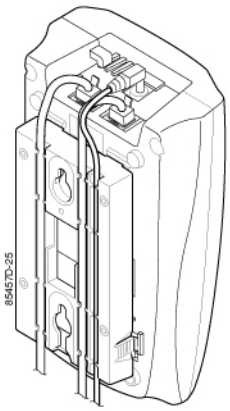


Figure 4-65: POSITIONING THE LINE CORDS

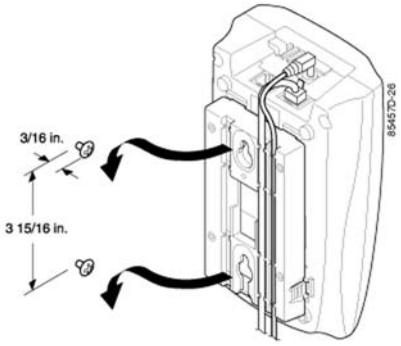


Figure 4-66: PLACING BASE UNIT ON WALL

4

Desktop Charger Wall Mounting

The Desktop Charger is also designed to be wall mounted. You can mount your phone directly on a wall. Before mounting your charging unit, consider the following:

- Select a location away from electrical cables, pipes, or other items behind the mounting location that could cause a hazard when inserting screws into the wall.
- Make sure the wall material is capable of supporting the weight of the Desktop Charger.
- Use #10 screws with anchoring devices suitable for the wall material where the Desktop Charger will be placed.

1. Insert two mounting screws into the wall 1-9/10 inches apart. Allow about 3/16 of an inch between the wall and screw heads for mounting the phone.
2. Plug the AC Adapter into the Desktop Charger as previously described. Wrap the AC Adapter cord around the strain relief.
3. Place the Desktop Charger on the posts of the wall screws and push down until it is firmly seated.
4. Plug the AC Adapter into a standard 120V AC wall outlet.

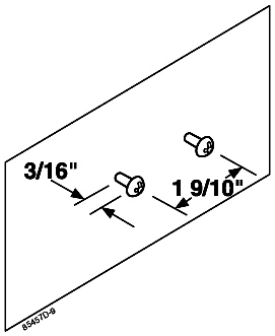


Figure 4-67: POSITIONING THE SCREWS

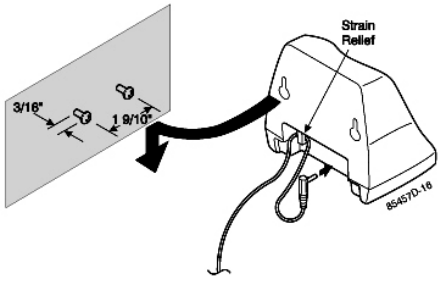


Figure 4-68: WALL MOUNTING THE CHARGER

Attaching the Belt Clip to the Handset

You can use the Belt Clip to attach the handset to your belt or pocket for convenient portability.

1. Slide the clip into the tab slot.
   CAUTION: The Belt Clip is designed to fit snugly onto the handset.
2. Press firmly unit it snaps into place.
3. To remove, simply press the retaining clip in toward the Belt Clip and slide the clip up at the same time.

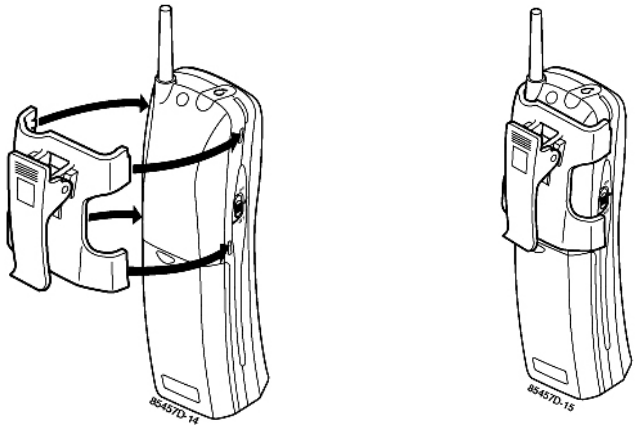


Figure 4-69: ATTACHING THE BELT CLIP

Installing the Handset Battery

1. Remove the battery cover from the handset by pressing the latch and sliding the cover down until it comes off the handset.
2. Slide the top of the battery into position, then lower the bottom portion into place. Note that the battery has positive and negative indications. *With the Cordless II phone*, make sure to place the battery in the handset so the negative is on the left and positive is on the right (the metal contacts should face down toward the phone). *With the Cordless Lite II phones*, the battery pack cable must be plugged into the handset.
3. Securely close the battery compartment cover by sliding it up until it snaps into place.

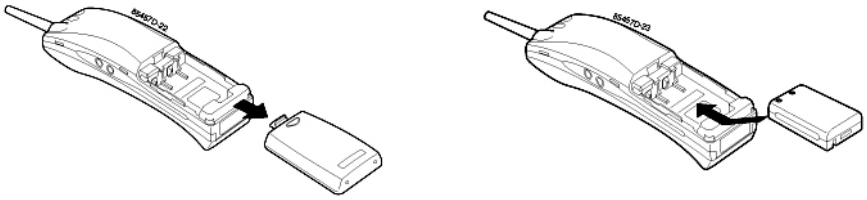


Figure 4-70: INSTALLING THE BATTERY

Charging the Handset Battery

The rechargeable battery pack must be fully charged before using your phone for the first time. Charge the battery without interruption for 5 hours. The unique design of the telephone and charger allows you to place the handset in the Desktop Charger with or without the Belt Clip attached.

1. Place the phone in the front slot of the desktop charger. The dial pad should be facing out in order for the battery contacts to connect.
2. Make sure the CHARGE 1 LED lights. If the LED doesn't light, check to see that the AC adapter is plugged in, and that the handset is making good contact with the battery contacts.

Charging the Spare Battery

The desktop charger of your Cordless II phone is equipped with a Battery Charger for charging the optional spare battery. The battery pack can be charged either in or out of the handset. ***The Cordless Lite II's Desktop Charging does not provide a location for charging the spare battery.***

1. Place the spare battery into the battery slot. In order for the battery to charge correctly, the metal contacts must face down into the charger.
   If the battery is not positioned correctly, the CHARGE 2 LED will not light.
2. Slide the spare battery pack into the second slot in the charger until the retaining clip snaps over the top of the pack.

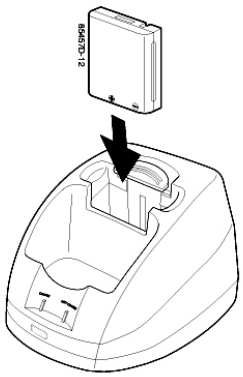


Figure 4-71: CHARGING THE CORDLESS II'S SPARE BATTERY

Make sure the CHARGE 2 LED lights. If the LED does not light, check to see that the AC Adaptor is plugged in, and that the battery pack is seated into the Charging Compartment. Charge the battery pack without interruption for 12-15 hours.

When charging is complete, press the latch back slightly to remove the battery if it is needed. Otherwise, leave the battery in the Charging Compartment. It will not overcharge.

Low Battery Indicator

When the battery in the handset is low and needs to be charged, you will see a "LOW" warning icon on the display. While in standby mode, the phone will beep every 15 seconds for three minutes. In talk mode, the tone will beep every 3 seconds as long as the conversation continues. After the conversation is completed, the handset returns to the battery low condition in standby mode. Return the handset to the desktop charger for charging or replace the handset battery with the spare battery.

When the Low Battery Indicator Appears While	
On a Call	**In Standby Mode**
Only the TALK key operates	None of the buttons operate
Handset beeps once every 3 seconds	Handset beeps every 15 seconds for 3 minutes
Action: Complete your call as quickly as possible	Cannot make or receive a call
Replace the battery pack within 20 seconds to continue call	Replace battery pack before making a call

The battery can be hot swapped while a conversation is taking place. The battery must be changed within 20 seconds, otherwise, the connection will be lost.

Cleaning the Battery Contacts

To maintain a good charge, it is important to clean all charging contacts on the handset, desktop charger, and spare battery pack about once a month. Use a pencil eraser or soft dry cloth. Do not use any liquids or solvents.

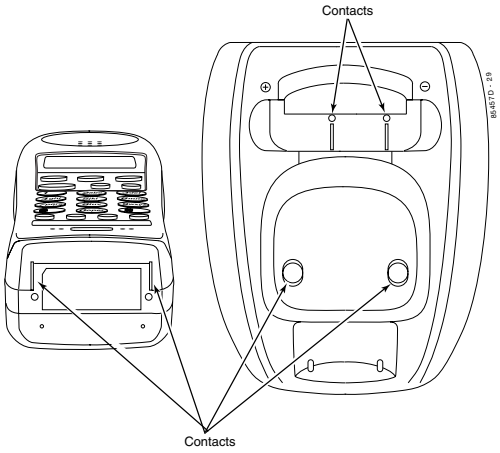


Figure 4-72: BATTERY CONTACTS

Desk Phone

The cordless phone allows for the connection of an optional Aspire keyset phone. The system can be programmed so that the keyset and/or the Cordless Telephone rings. If there is no answer, it can then transfer to voice mail. This allows you to have a keyset phone to use while at your desk, and when you need to be away from your desk, you can carry the cordless phone with you. Refer to **Installing a Cordless Telephone (Figure 3-5)** (page 3-7) for details on connecting the phones.

Headset

The optional headset provides a handsfree option for your convenience. With the headset installed, you can use the belt clip to carry the handset and conduct a conversation using the headset.

To install the optional headset, open the cover over the HEADSET jack and plug the headset in. (The headset jack should be 2.5mm.) No other settings are required.

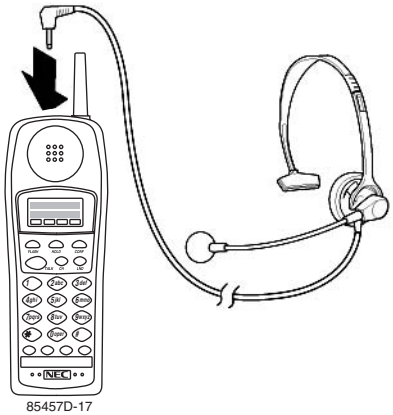


Figure 4-73: CONNECTING THE HEADSET

Operation of the phone is exactly the same as using the handset. However, you will hear through the headset earphone and talk through the headset microphone. The handset earpiece and microphone/mouthpiece are disconnected.

Troubleshooting Procedures

If your phone is not performing to your expectations, please try these simple steps. If you are still unable to resolve the problem, contact your communications manager.

Problem	Suggestion
Charge light won't come on when the handset is placed in the desktop charger.	• Make sure the AC Adaptor is plugged into the desktop charger and wall outlet. • Make sure the handset is properly seated in the desktop charger. • Make sure the battery pack is properly placed in the handset. • Make sure that the charging contacts on the handset and desktop charger are clean.
Conversation interrupted frequently.	• Make sure that the base unit's antenna is fully vertical. • Move closer to the base unit.
Warning tone and NO SERVICE message.	• Move closer to the base unit.
Handset doesn't ring.	• The battery pack may be weak. Charge the battery for 5-6 hours. • Make sure the base unit antenna is fully vertical. • The handset may be too far away from the base unit. • Ensure the Ringer ON/OFF switch is in the ON position.
Interference from other cordless phone users.	• Press the Channel (CH) key to switch channels. The channel can be changed while you are on an active call, but not when you are dialing a telephone number. There are 10 Cordless Lite or 30 Cordless Lite II channels from which you can select.
Interference or noise in the handset.	• Make sure the base unit is at least 3' away from any computer fax machine, printer, or TV (they generate radio waves) • Make sure the antenna is in the upright position

IP Station Equipment

34-Button Aspire IPhone - BK — P/N 0890065

This keyset provides a network connector which allows it to be used with the VoIP feature. The 34-Button Aspire IPhone has a 3-line, 24-character display with four interactive soft keys for intuitive feature access. In addition, it has 24 user-programmable function keys (with Dual LEDs) for one-button access to co-workers, features and outside lines. The telephone also provides 10 user-programmable One-Touch (Personal Speed Dial) keys and 15 additional fixed feature keys.

The 34-Button Aspire IPhone has a built-in speakerphone and can accept optional IP adapters (PSA, ADA2). You can also assign 110-Button DSS Consoles to these phones, but they must be on site (not networked). It provides Handsfree Answerback, Intercom voice-announcements. In addition, the telephone provides a built-in wall-mount bracket, as well as adjustable legs which allow each phone to be angled at a height which best suits the user.

✍ **At a glance**

34-Button Aspire IPhone Telephone - Part Numbers 0890065					
Function Keys:	✔	Accepts 110-Button DSS:	✔	Accepts 24-Button DLS:	**No**
Handsfree (Speakerphone):	✔	Dual LEDs:	✔	ADA Adapter:	**No**
ADA2 Adapter:	✔	APA Adapter:	**No**	APR Adapter:	**No**
CTA Adapter:	**No**	CTU Adapter:	**No**	IP Adapter:	**No**
PSA Adapter:	✔				

H.323 IP Phone — P/N 780005

This UIP300 H.323 IP phone is a business IP phone in enterprise LAN environment and will be connected to IP PBX systems via RJ45 network cable.

Standard Telephone Features:

- Alphanumeric LCD display with 2 lines of 24 characters
- 10 LED indicators (Line 1 / Line 2[1] / Status / Mute / Speaker (Headset) / 5 Function keys)
- 12 Key Dial Pad
- 20 Specific Keys (5 Function keys, Menu, Select, Cancel/Del, Transfer, Mute, Redial, Hold, Conference (not available with Aspire), Speaker, Line 1 and 2 keys, Volume Up and Down keys, Menu Up and Down keys)
- Local Date and Time
- Call Duration Display
- Volume Control for Speaker, Handset, Headset, and Ringer
- Phone Book, Speed Dial, Dial from Call Logs (30 Outgoing Calls, 30 Incoming Calls and 15 Missed Calls)

1. Only one phone number will be assigned to this IP phone. Line 2 is not available for a gateway system.

- Redial, Hold[1], Mute
- Call Waiting, Call Forward, Call Transfer, Do Not Disturb (DND)
- Display Caller ID (Name & Number)
- On-hook Dialing, Handsfree Talking (Full Duplex)
- DTMF Generation
- 8 Ringer Tones

VoIP Specific Features:

- H.323 v1, 2 Standard Compliant
- Gatekeeper Routed and Direct Routed Call Models
- Voice Codec: G.711 (64kbit/s, u-Law and A-law), G723.1, G729AB
- E.164 Dialing
- Acoustic Echo Cancellation (G.167)
- Rapid Configuration with DHCP or Statically Configured IP Address
- Voice Activity Detection (VAD)
- QoS (IEEE 802.1 p/q Based and DiffServ)
- Jitter Compensation
- 10/100 Base-T Ethernet Interface

When installing an Aspire IP phone (IPhone, Aspire keyset with IP adapter, or H.323 phone), an AC/DC adapter is required for local power or, for central power, one of the following must be used:

- 8SHUBU PCB
- 24-Port Power PoE-Managed Switch (BF200/24 - NEC standard product)
- 12-Port Power Supply Patch Panel (SN1604 PWRMS - NEC standard product)
- Power Patch Panel (Cisco)
- Catalyst PWR Series (Cisco)

If a separate ethernet switch is used (and not the 8SHUBU PCB), it should be a 100Base/full duplex switch. To avoid network problems and to ensure good voice quality, do not use a Repeater Hub/10Base.

1. Hold, Transfer, Call Forward and Conference will not be available in the IP address call mode but in the phone number dial mode only.

Connecting the IPhone

1. Set the dip switches on the bottom of the Aspire IPhone to the required position. The setting is dependent upon the type of power supply being used.
   - The SW1 settings are:
     "1" when using an AC/DC adapter, 8SHUBU, or NEC Power Patch Panel (SN1604 PWRMS) or NEC PoE Switching hub (BF200/24PoE),
     "2' when using Cisco's Power Patch Panel or Catalyst PWR panel.

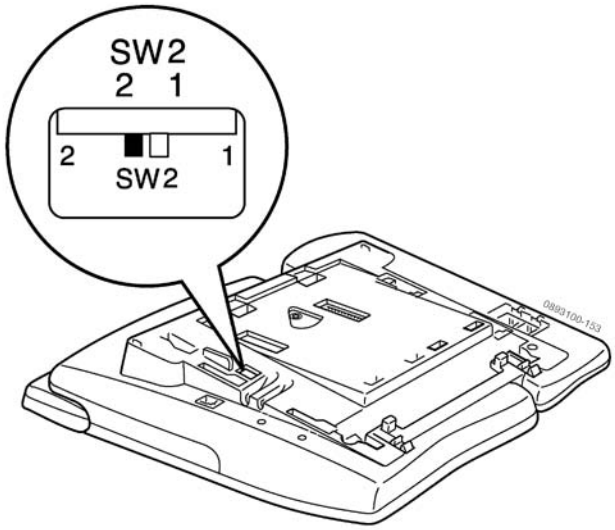


Figure 4-74: SETTING THE ASPIRE IPHONE DIP SWITCHES

2. Plug an AC/DC adapter into the AC jack on the adapter if power is not supplied by the LAN.
3. Plug in the LAN straight-thru cable from the NTCPU LAN connector or 16VOIPU PCB LAN connector for the phone operation. If needed, connect the PC cross cable to the VoIP Adapter.
4. Refer to **Section 6: LAN Connection** (page 6-1) for additional LAN and PoE information.
5. Refer to the **Aspire Software Manual (P/N 0893200)** for required programming.

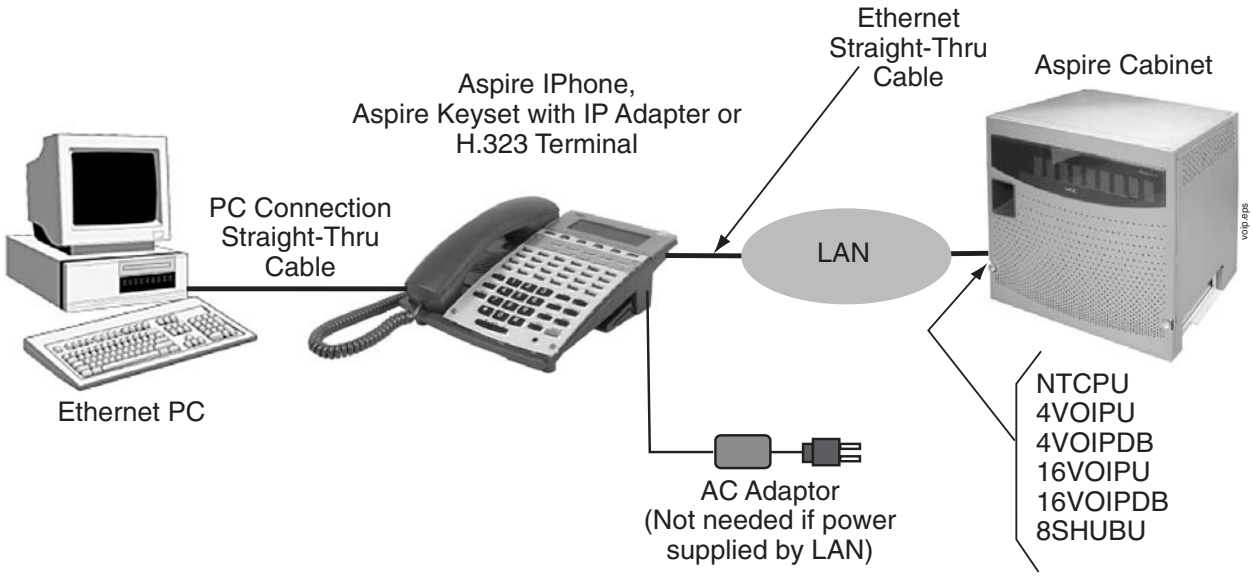


Figure 4-75: WIRING LAYOUT FOR VOIP

SUPER DISPLAY LCD

Positioning the Super Display LCD (Figure 4-76, Figure 4-77)

The LCD on a super display keyset has two angles which it can be positioned for the best viewing for the customer.

Raising the LCD

1. Gently lift the LCD display up from the top of the phone.
2. You'll hear a click when it locks into the first position. If you wish the display to be at a higher angle, continue to lift the LCD display until a second click is heard. This is the highest angle available for the display.

Figure 4-76: LIFTING THE LCD DISPLAY

Lowering the LCD

1. On the base of the phone, beneath the display, gently pull the lever out.
   This allows the latch holding the display is place to be released.
2. Slowly push the LCD display down.

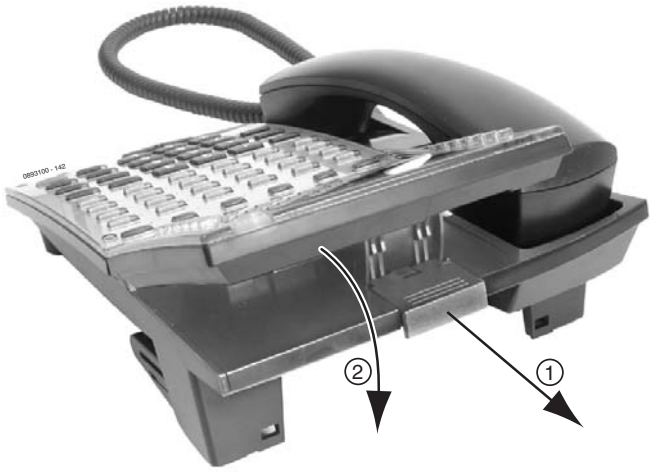


Figure 4-77: LOWERING THE LCD DISPLAY

TELEPHONE LEGS

Using the Telephone Legs (Figure 4-78 - Figure 4-82)

The Aspire keysets provide two legs for angling the phone to best suit each user (this is in addition to the display positioning provided by display keysets). The legs can be set for three different heights.

Adjusting the Leg Height

1. In the first position (flat), the legs are folded in.
2. To set to the second position, fold the leg down then push in slightly toward the phone to set the leg into position.
3. ***To set to the third position starting when set at the first position:*** Fold the leg down and slightly pull the extension out. Tip the extension down then slide it back until the slide reaches the opposite end of the extension. Pull the leg forward and then push the completely extended leg back into the phone to set it into position.
   To set to the third position starting when set at the second position: Pull the extension of the leg out. Tip the extension down then slide it back until the slide reaches the opposite end of the extension. Pull the leg forward. Push the completely extended leg back toward the base of the phone to set it into position.

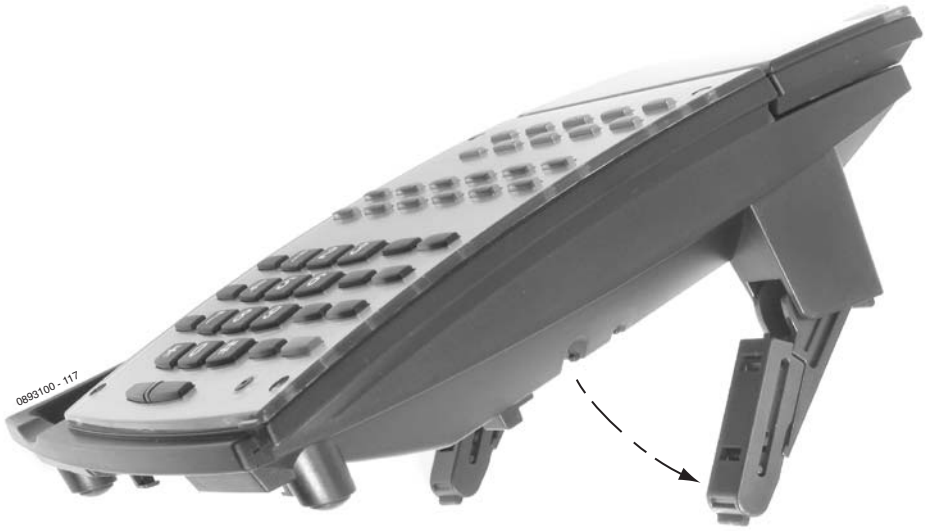


Figure 4-78: ADJUST THE LEG HEIGHT - POSITION 2

Figure 4-79: SETTING THE LEGS - POSITION 2

Figure 4-80: EXPANDING THE LEG HEIGHT - POSITION 3

Figure 4-81: EXTENDING THE LEGS - POSITION 3

Figure 4-82: SETTING THE LEG POSITION - POSITION 3

WALL-MOUNT BRACKET

Using the Wall-Mount Bracket

Each Aspire phone has an integrated wall-mounting bracket. This allows the phone to be mounted to a wall at a convenient location.

Telephones with any optional adapters installed cannot be wall-mounted. The bracket will not accommodate the adapter(s).

There are two types of mounting brackets - one for the multi-line keysets and one for the 2-button telephone.

Installing the Keyset Wall-Mount Bracket (Figure 4-83 - Figure 4-85)

1. Remove the integrated wall bracket from the bottom of the keyset. Refer to Figure 4-83.
   - From the center cut-out, pull the bracket up and out.
2. Remove the wall-mount hookswitch tab located on the bracket by gently pulling the locking lever down slightly while lifting the tab out (Figure 4-84).
3. Insert the wall-mount hookswitch tab in the slot below the hookswitch (Figure 4-85).

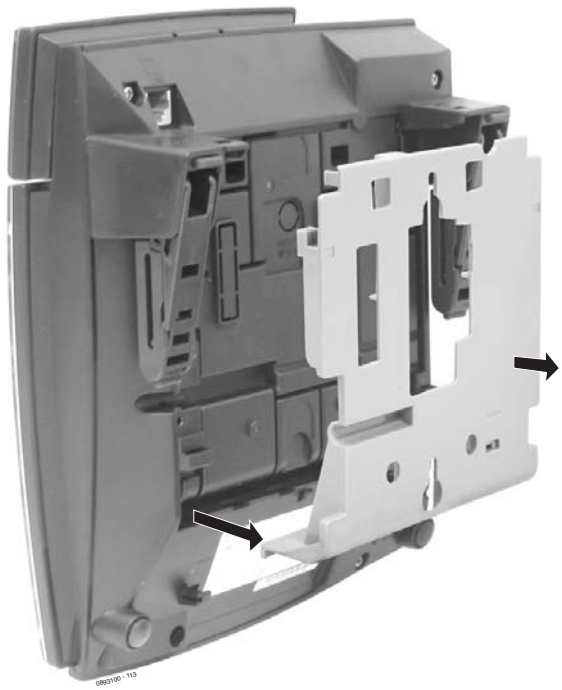


Figure 4-83: REMOVING THE WALL-MOUNT BRACKET

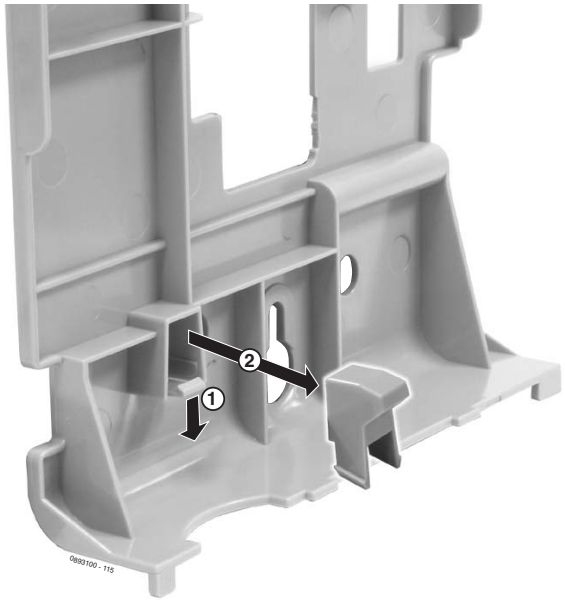


Figure 4-84: REMOVING THE HOOKSWITCH HANGER

Figure 4-85: INSTALLING THE HOOKSWITCH HANGER

4. After removing the integrated wall bracket from the bottom of the keyset (Figure 4-83), attach the wall bracket to the wall using three screws (in the positions indicated below) to the desired wall location.

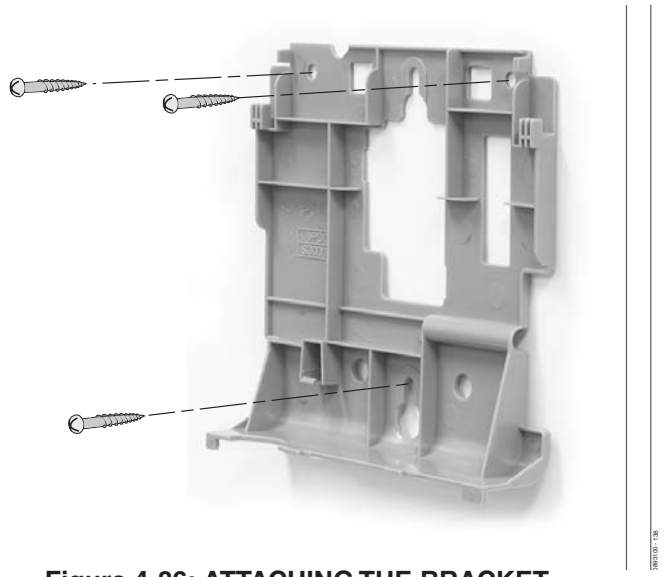


Figure 4-86: ATTACHING THE BRACKET

5. Attach the keyset to the wall-mount bracket by inserting the bottom hooks (indicated by "A" in Figure 4-87 *BRACKET HOOKS* on page 4-81) on the bracket into the back of the keyset (Figure 4-89).

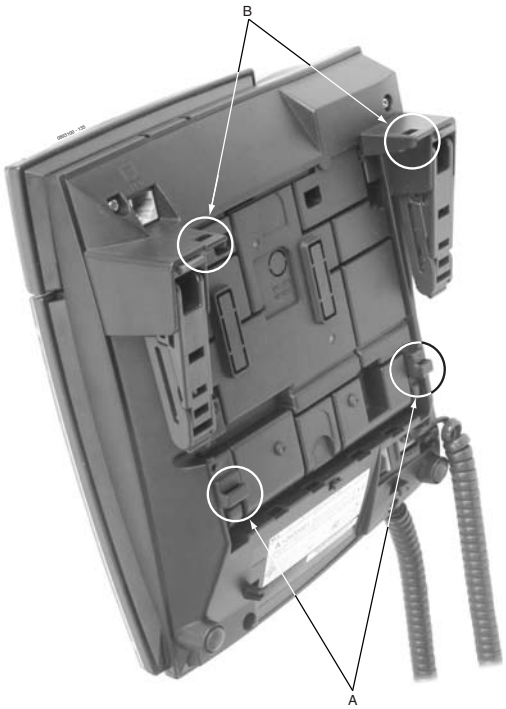


Figure 4-87: BRACKET HOOKS

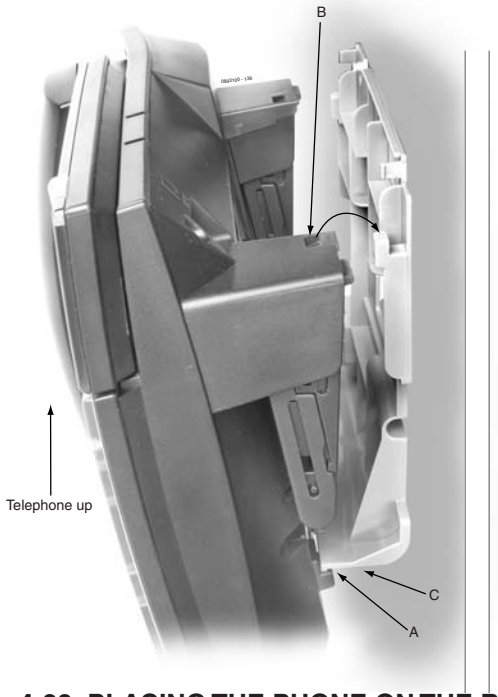


Figure 4-88: PLACING THE PHONE ON THE BRACKET

6. While lifting the bottom of the phone (the wall-mount bracket will bend) and then slightly pushing the top towards the wall, insert the top hooks into the back of the phone.

Figure 4-89: COMPLETED WALL-MOUNT BRACKET INSTALLATION

7. Insert the telephone's line cord from the 625 modular jack into the phone.
   Note that the telephone legs must be completely folded in or the bracket will not reach the wall.

Removing the Keyset From a Wall-Mounting Bracket (Figure 4-90 - Figure 4-91)

1. Grip the keyset on both sides in the location shown below by “A”.

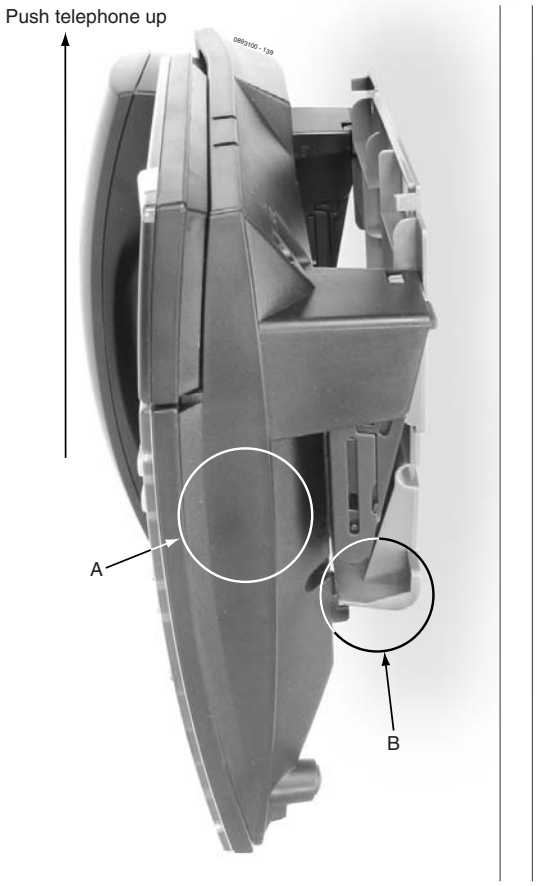


Figure 4-90: GRIP THE KEYSET

2. Lift the phone up. The wall-mount bracket will bend slightly (at location “B”).

3. Tilt the top of the keyset forward slightly to remove it from the top bracket hooks (“C”), then unhook the bottom hooks (“D”).

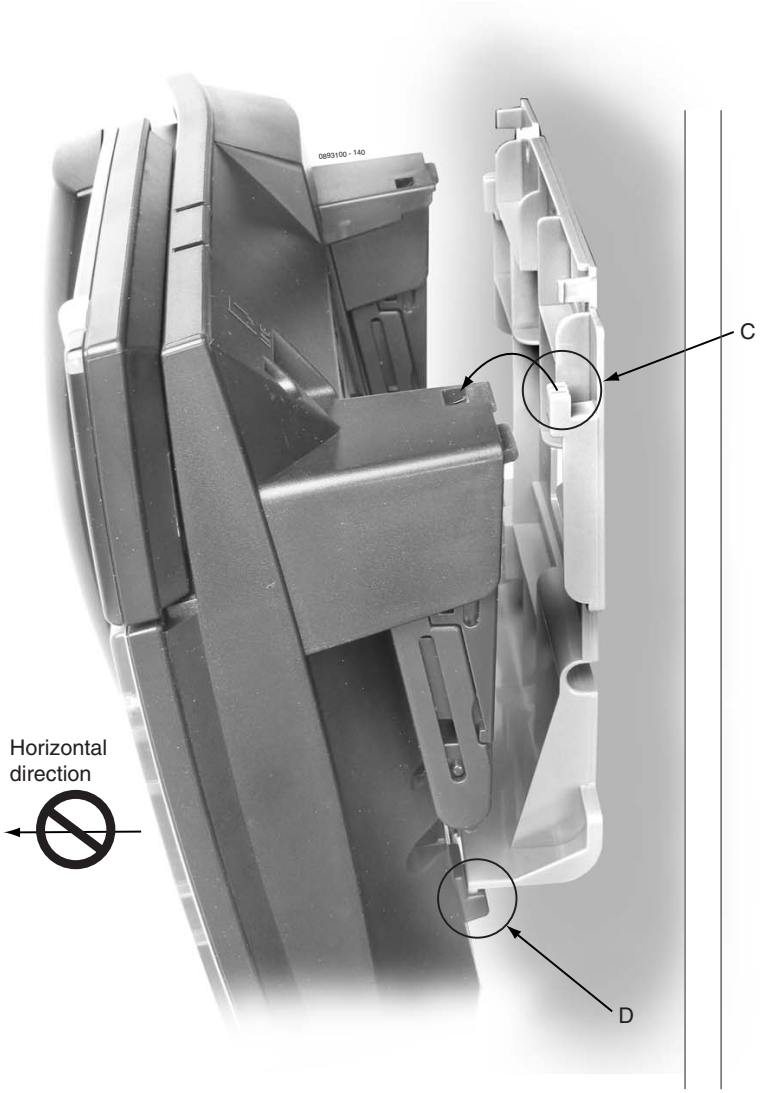


Figure 4-91: REMOVING THE KEYSET FROM THE WALL-MOUNT BRACKET

4. Move the phone down to remove it from the bottom bracket hooks.
   It is important to note that the phone should not be pulled out horizontally or the bottom bracket hooks may break.

Installing the 2-Button Phone's Wall-Mount Bracket

(Figure 4-92 - Figure 4-94)

1. Unscrew the two screws securing the bracket to the bottom of the 2-button phone and remove the bracket. Refer to Figure 4-92.

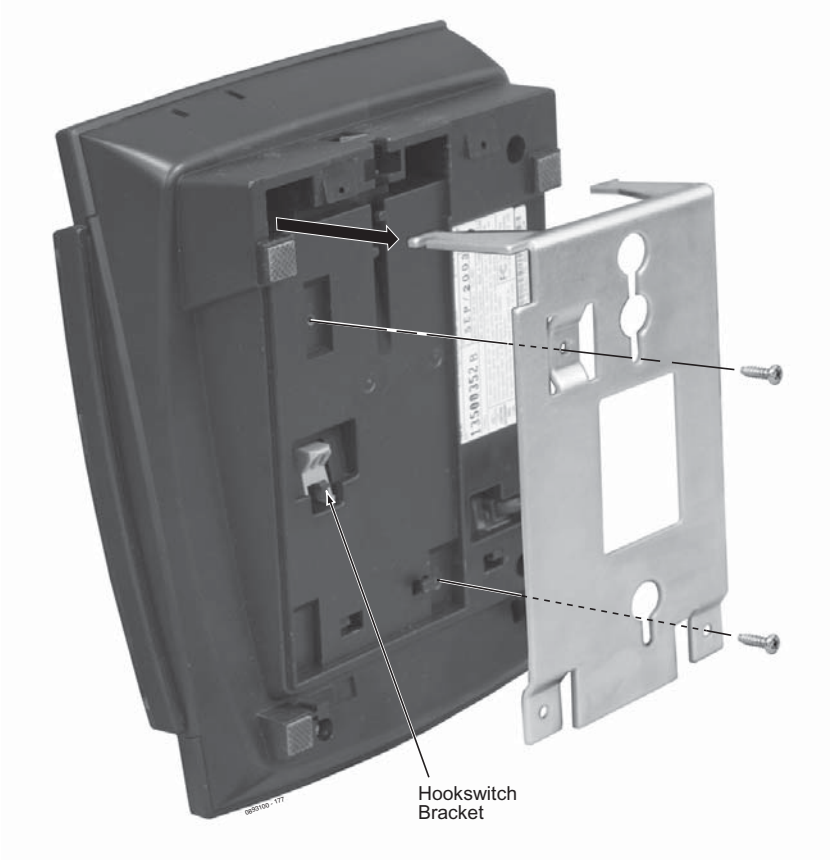


Figure 4-92: REMOVING THE WALL-MOUNT BRACKET

2. Remove the wall-mount hookswitch tab located on the bracket by gently pulling the locking lever down slightly while lifting the tab out.

3. Insert the wall-mount hookswitch tab in the slot below the hookswitch (Figure 4-93).

Figure 4-93: INSTALLING THE HOOKSWITCH HANGER

4. After removing the integrated wall bracket from the bottom of the 2-button telephone (Figure 4-92), position the bracket as shown below - the legs of the bracket should slide into the slots located near the bottom edge of the phone, then be pushed up slightly to secure the bottom of the bracket.
5. Attach the wall-mount bracket to the phone using the two screws which initially held the bracket to the phone. The screws should be positioned at the top of the bracket.

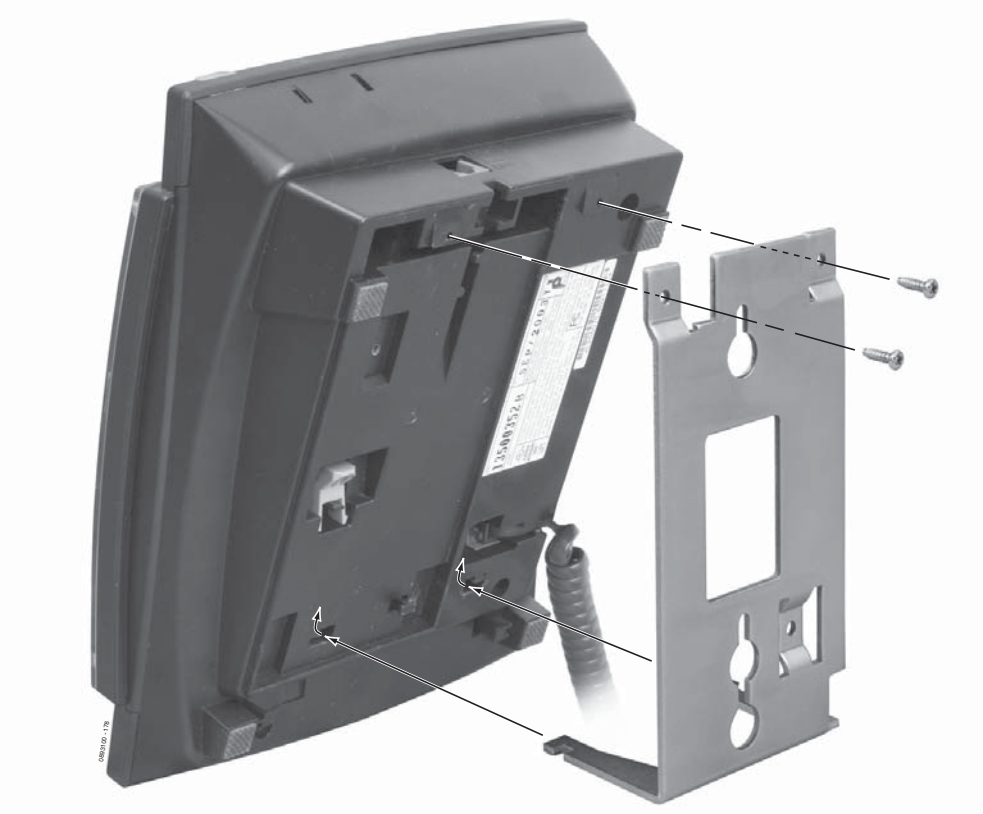


Figure 4-94: ATTACHING THE BRACKET

Section 5: Data and SMDR

DATA OVERVIEW

Data Communications

The system provides data device interfaces for data communications - up to 128 (using CTA or CTU adapters) or 192 (using APA or APR adapters) Using data devices allows a network to share a limited number of business resources such as modems, printers, and PC's.

In addition to the NTCPU's serial, USB, and ethernet connections, there are four types of data devices available: APA, APR, CTA and CTU.

APA Adapter

The APA Adapter provides an analog interface for the keyset. The APA Adapter does not provide ringing, so the connected device is used for outgoing calls only (for example, when using a modem). One keyset can have either an APA or an APR Adapter. Both adapters ***cannot*** be installed on the same keyset as only one voice path is provided by the keyset for the adapters. The maximum distance between the APA Adapter and the analog terminal is 49'.

The APA Adapter does not support reverse-polarity, message waiting lamping, or Caller ID.

APR Adapter

The APR Adapter provides an analog interface for the keyset. The APR Adapter provides ringing which allows the connected device to be used for incoming and outgoing calls. One keyset can have either an APA or an APR Adapter. Both adapters ***cannot*** be installed on the same keyset as only one voice path is provided by the keyset for the adapters. When installing the APR Adapter, an AC-R AC/DC adapter (P/N 780135) is required for power. The maximum distance between the APR Adapter and the analog terminal is 49'.

The APR Adapter does not support reverse-polarity, message waiting lamping, or Caller ID.

When installing the APR adapter, there must be an extension port available for the adapter or it will function like an APA adapter (only one physical port assigned to the phone so only one phone can be used at a time).

CTA Adapter

The CTA Adapter provides a serial interface (9-pin male RS-232C) connector. This can be used for SMDR or TAPI (1.4) or system reporting. When using the adapter for printing, the following printers are recommended:

- Citizen CBM CBM1000-RJ100S Thermal Printer
- Star Precision SP2520MD-J1 Impact Dot Printer

When used for SMDR or system reports, the CTA driver does not need to be installed. When used for TAPI, the CTA driver (available on NEC's Technical Support web site: ws1.necii.com) is required.

CTU Adapter

The CTU Adapter provides a USB connector. This can be used for either SMDR, TAPI (1.4), or system reporting. The CTU driver needs to be installed for any use. The CTU driver is available on NEC's Technical Support web site: ws1.necii.com.

NTCPU Serial Port

The Aspire S and Aspire M/L/XL NTCPU provides a serial interface (9-pin male RS-232C) connector. This can be used for PCPro, WebPro, SMDR, or system reporting. When using the adapter for printing, the following printers are recommended:

- Citizen CBM CBM1000-RJ100S Thermal Printer
- Star Precision SP2520MD-J1 Impact Dot Printer

No driver installation is required for this serial connection.

NTCPU USB Port

The NTCTU provides a USB connector. This connector requires the installation of a USB driver, which can be downloaded off the NEC Technical Support web site (ws1.necii.com). This can be used for either SMDR, system reporting, or PC Programming. Refer to the Aspire PCPro/WebPro Installation Manual (P/N 0893201) for details on installing the driver.

Data Communication Availability With Hardware

Functions	NTCPU Port			CTA	CTU
	Serial	USB	Ethernet		
PCPro	Yes	Yes	Yes	No	No
Web Programming for Installer	Yes	Yes	Yes	No	No
Web Programming for User	No	No	Yes	No	No
SMDR Output to Printer	Yes	Yes	No	Yes	Yes
SMDR Output to PC	Yes	Yes	Yes	Yes	Yes
ACD MIS	Yes	Yes	Yes	No	No
Hotel PMS	No	No	No	Yes	Yes
Traffic Report	Yes	Yes	No	Yes	Yes
System Information Print Output	Yes	Yes	No	Yes	Yes
Alarm Information	Yes	Yes	No	Yes	Yes
First Party CTI (via serial)	No	No	No	Yes	No
First Party CTI (via USB)	No	No	No	No	Yes
Third Party CTI (via LAN)	No	No	Yes	No	No

5

Ports for APR Adapter

The APR Adapter's extension number is determined when the adapter is connected to the keyset. After assigning the APR Adapter a circuit type of '12' in Program 10-03-06, the system automatically selects the next available port within the APR's range (ports = 193-256 with all software through 3.07 OR 193-512 with 4.xx software and higher). The system assigns the ports numbers from highest to lowest (512, 511, 510, etc.). Program 10-03-07 indicates which port is assigned for the APR Adapter. You can reassign the extension number for the port using Program 11-02-01.

Use the table below to determine the extension number associated with the port number

APR Extension Port Number	Extension Number
193	493
:	:
199	499
200	5000
:	:
256 or 512 * * Above 256, software 4.xx or higher is required.	5056 or 5312 * * Above 5056, software 4.xx or higher is required.

Programming for System and Alarm Reports

- **90-12-01 : System Alarm Output - Output Port Type**
  Indicate the type of connection used for the System Alarms. The baud rate for the COM port should be set in Program 10-21-02 (0=No setting, 1=COM port (NTCPU), 2=USB port (NTCPU), 4=CTA/CTU).
- **90-12-02 : System Alarm Output - Destination Extension Number**
  If the output port type (item 1) is set to CTA/CTU, enter the extension number with the CTA/CTU connection.
- **90-12-06 : System Alarm Output - Output Mode**
  Indicate if the output for the alarms should be manual (0) or automatic (1).
- **90-13-01 : System Information Output - Output Port Type**
  Indicate the type of connection used for the output (0=No setting, 1=COM port (NTCPU), 2=USB port (NTCPU), 4= CTA/CTU).
- **90-13-02 : System Information Output - Destination Extension Number**
  If the output port type (item 1) is set to CTA/CTU, enter the extension number with the CTA/CTU connection.
- **90-13-03 : System Information Output - Output Command**
  Dialing 1 from this program sends the system report to the connected device.

Use the following programs for outputting or clearing the alarm reports:

- **90-12-03 : System Alarm Output - Output All Alarm Reports**
- **90-12-04 : System Alarm Output - Printout New Alarm Reports**
- **90-12-06 : System Alarm Output - Clear All Alarm Reports**

Refer to *Maintenance* in the Software Manual for additional details.

SMDR

Using SMDR (Figure 5-1)

Station Message Detail Recording (SMDR) provides a record of the system's outside calls. Typically, the record outputs to a customer-provided printer, terminal or SMDR data collection device. Use SMDR when you need to monitor the usage at each extension and trunk.

The following devices can be used to output SMDR from the system:

- CTA
- CTU
- NTCPU's Serial Port
- NTCPU's USB Port
- NTCPU's Ethernet Port

Installing SMDR

1. Install the data device to be used (refer to the specific CTA/CTU information described previously).
   If using a CTU or the NTCPU's USB connector, drivers are required for each of these devices. The drivers can be downloaded from NEC's Technical Support web site (ws1.necii.com). Refer to the Aspire CTI Manual (P/N 0893102) or the Aspire PCPro/WebPro Manual (P/N 0893201) for details on installing these drivers.
2. Install the SMDR recording device according to the manufacturer's instructions.
3. Connect the SMDR recording device to the telephone system - through the CTA, CTU or one of the NTCPU ports.

Note: When using a CTA, a straight through RS-232C cable terminated with a 9-pin female connector is required. Refer to the pin-out information in Figure 5-1.

Note: When using a CTU or the NTCPU USB port, a standard USB cable (USB Type B Male-to-USB Type A Male) is required.

Note: When using the NTCPU ethernet port, a standard ethernet cross-over cable is required.

Note: When using the NTCPU serial connector, a null modem cable is required. This cable is available from NEC as part number 0892004 or refer to the pin-out information below to make your own cable.

Null Modem Pin-Out						
Signal	**DB-25 Pin**	**DB-9 Pin**	**To**	**DB-9 Pin**	**DB-25 Pin**	**Signal**
FG (Frame Ground)	1	-		-	1	FG
TD (Transmit Data)	2	3		2	3	RD
RD (Receive Data)	3	2		3	2	TD
RTS (Request to Send)	4	7		8	5	CTS
CTS (Clear to Send)	5	8		7	4	RTS
SG (Signal Ground)	7	5		5	7	SG
DSR (Data Set Ready)	6	6		4	20	DTR
CD (Carrier Detect)	8	1		4	20	DTR
DTR (Data Terminal Ready)	20	4		1	8	CD
DTR (Data Terminal Ready)	20	4		6	6	DSR

RS-232-C Pin Out Information

RS-232-C Connector	Description	Direction of Signal Flow (→output or ←input) DCE (CTA, CTU or Modem)	DTE (PC or Printer)
8	DCD	→	←
3	RXD	→	←
2	TXD	←	→
20	DTR	←	→
6	DSR	→	←
4	RTS	←	→
5	CTS	→	←
7	GND		

25-Pin RS-232-C Connector

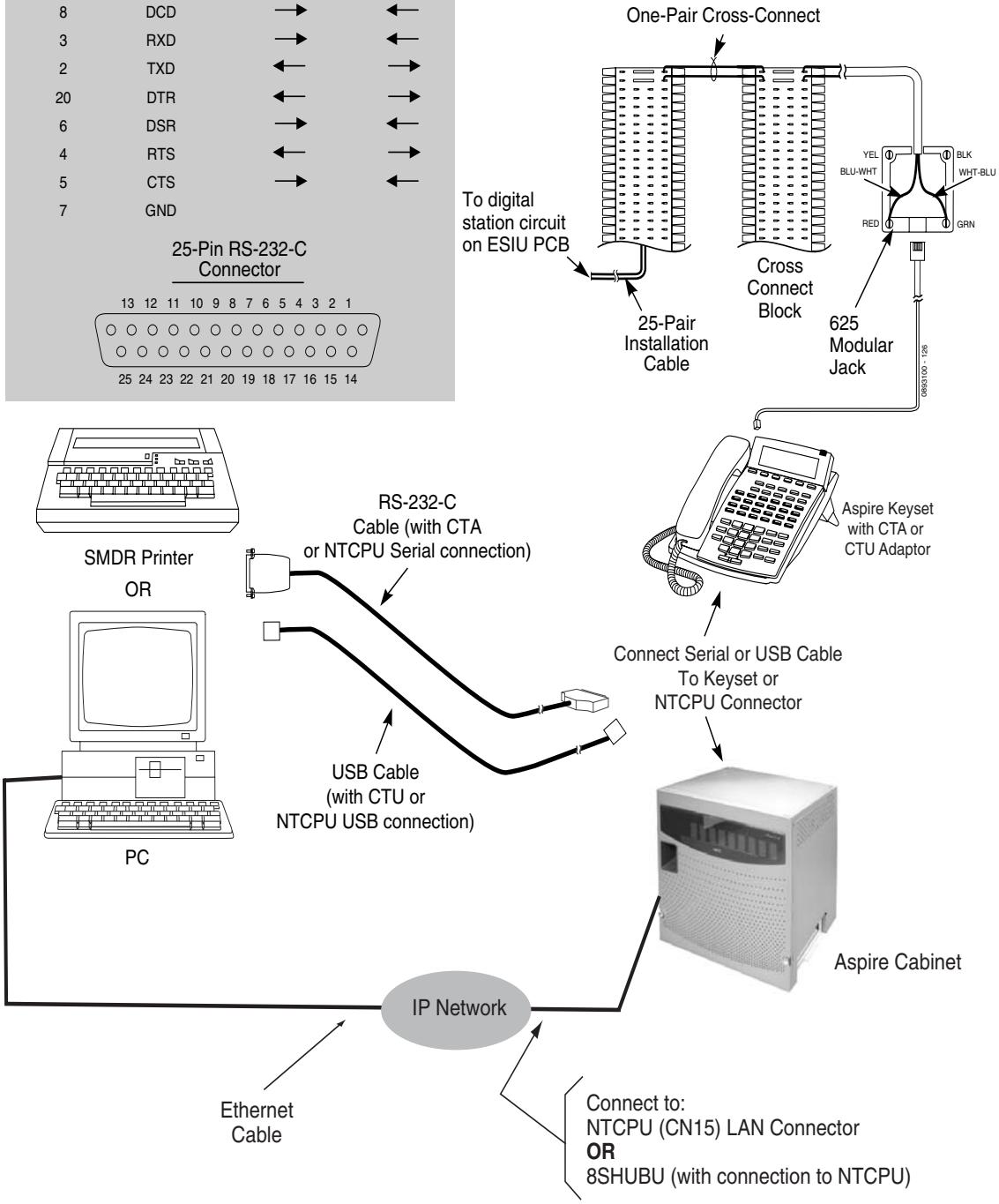


Figure 5-1: CONNECTING AN SMDR DEVICE

Programming SMDR

- **10-12-01 : NTCPU Network Setup - IP Address**
  When using an IP connection from the NTCPU's ethernet port, set up the IP address used to connect from the PC to the Aspire system (Default: 172.16.0.10).
- **10-20-01 : LAN Setup for External Equipment**
  Define the TCP port (0-65535) when communicating to the SMDR (type 5).
- **10-21-02 : NTCPU Hardware Setup - Baud Rate for COM Port**
  If the SMDR connection is made using the COM port on the NTCPU, define the baud rate (0=4800, 1=9600, 2=19200, 3=38400).
- **14-01-06 : Basic Trunk Data Setup - SMDR Print Out**
  For each trunk, enter 1 if trunk's calls should appear on SMDR report. Enter 0 if trunk's calls should not appear on SMDR report.
- **15-01-03 : Basic Extension Data Setup - SMDR Printout**
  For each extension, enter 1 if extension's calls should appear on SMDR report. Enter 0 if extension's calls should not appear on SMDR report.
- **15-02-19 : Multi-Line Telephone Basic Data Setup - CTA/CTU Data Communication Mode**
  Select '0' if the dip switch settings are set to PC connection or select '1' if printer/SMDR connection is selected on the CTA/CTU adapter.
- **15-02-20 : Multi-Line Telephone Basic Data Setup - Baud Rate for CTA Port**
  Set the baud rate to be used by the CTA (0=4800, 1=9600, 2=19200).
- **35-01-01 : SMDR Options - Output Port Type**
  Specify the type of connection used for SMDR (0=No setting, 1=COM(NTCPU), 2=USB (NTCPU), 3=LAN (NTCPU), 4=CTA/CTU). The baud rate for the COM port should be set in Program 10-21-02 or 15-02-20.
- **35-01-02 : SMDR Options - Output Destination Number**
  Specify the SMDR printer output port (CTA/CTU port number).
- **35-01-03 : SMDR Options - Header Language**
  Specify the language in which he SMDR header should be printed (0=English, 1=German, 2=French, 3=Italian, 4=Spanish).
- **35-01-04 : SMDR Options - Omit (Mask) Digits**
  Enter the number of digits (1-24) you want SMDR to block (i.e., "X" out). Enter 0 not to block any digits.
- **35-01-05 : SMDR Options - Minimum Number of SMDR Digits**
  Enter the minimum number of digits a user must dial (1-24) before the system includes a call on the SMDR report. Enter 0 to include all outgoing calls, regardless of the number of digits dialed.
- **35-01-06 : SMDR Options - Minimum Call Duration**
  Enter the minimum duration of a call (1-65535) that will print on the SMDR report. Enter 0 to have calls of any duration print.
- **35-01-07 : SMDR Options - Minimum Ringing Time**
  Enter how long an unanswered call must ring (1-65535) before SMDR logs it as "No Answer". Enter 0 to allow all "No Answer" calls to print.
- **35-01-08 : SMDR Options - SMDR Format**
  Do not change:
  This option is added to allow an increased account code field from 8 to 16 when used in the U.K. This allows 16 characters of the Caller ID name to be displayed. For the U.S., this option is set to "0" and should remain at this setting as 16 characters are already provided for the account code field.
- **35-02-01 : SMDR Output Options - Toll Restricted Call**
  Enter 1 if you want the SMDR report to include calls blocked by Toll Restriction. Enter 0 to exclude blocked calls.

- **35-02-02 : SMDR Output Options - PBX Calls**
  If system is behind a PBX, enter 1 to have SMDR include all calls to the PBX. Enter 0 to have SMDR include only calls dialed using PBX trunk access code.
- **35-02-03 : SMDR Output Options - Display Trunk Name or Number**
  Select whether the system should display the trunk name (0) or the number (1) on SMDR reports. ***If this option is set to "1", Program 35-02-14 must be set to "0".***
- **35-02-04 : SMDR Output Options - Daily Summary**
  35-02-05 : Weekly Summary and
  35-02-06 : Monthly Summary
  Enter 1 to enable a summary report. Enter 0 to disable a summary report. The daily report prints every day at midnight. The weekly report prints every Sunday night at midnight. The monthly report prints at midnight on the last day of the month.
- **35-02-08 : SMDR Output Options - Incoming Calls**
  Enter 1 if you want the SMDR report to include incoming calls. Enter 0 if you want the SMDR report to exclude incoming calls.
- **35-02-09 : SMDR Output Options - Print Name or Number**
  Enter 1 if you want the SMDR report to include the extension's name. Enter 0 if you want the SMDR report to include the extension's number.
- **35-02-10 : SMDR Output Options - All Lines Busy (ALB) Output**
  Enter 1 to report information when all lines in a group are busy and an extension user tries to access the group. Enter 0 if this information should not be included.
- **35-02-12 : SMDR Output Options - DID Table Name Output**
  Determine if the DID table name should be displayed for incoming DID calls (0=Not Displayed, 1=Displayed).
- **35-02-13 : SMDR Output Options - CLI Output When DID to Trunk**
  Determine if the Caller ID should be displayed when the incoming DID number is transferred to an outgoing trunk (0=Not Displayed, 1=Displayed).
- **35-02-14 : SMDR Output Options - Date**
  Determine whether the date should be displayed on SMDR reports (0=not displayed, 1=displayed). ***This option must be set to "0" if the trunk name is set to be displayed in Program 35-02-03.***
- **35-02-15 : SMDR Output Options - CLI/DID Number Switching**
  Enter 0 to display the Caller ID number. Currently, option "1" for the DID number is not available. With software 4.0E+, determine if the Caller ID number (0), DID number (1) or Caller ID name (2) should be displayed in the SMDR output.
- **35-02-16 : SMDR Output Options - Print Trunk Name or Received Dialed Number**
  Determine how the SMDR should print incoming calls on ANI/DNIS or DID trunks. If set to (1), ANI/DNIS trunks can print DNIS digits. For DID trunks, if the received number is not defined in Program 22-11-01, then no number will be printed. If set to (0) trunk names are printed instead (as assigned in Program 14-01-01).
- **35-02-17 : SMDR Output Options - Print Account Code or Caller ID Name**
  Determine whether the Account Code (0) or Caller ID name (1) should appear in the SMDR record. By default, the Account Code will be displayed.
  Note: Program 35-01-08 must be set to "0" for this entry to be followed.
- **35-02-18 : SMDR Output Options - Caller ID Name Output Method**
  Select whether to display up to 16 characters of the Caller ID Name on the same line as the call record (0) or if a line feed should be added and up to 24 characters of the Caller ID Name will be displayed on the following line (1). If the line feed option is selected, the Caller ID Name will be displayed on the next line as : NEXT "Caller ID Name". The default entry for this option is "0".
  This setting will work regardless of the setting in Program 35-02-15.
  Note: With this option set to "1", if your communications program (such as HyperTerminal) has the line wrap option enabled in the ASCII setup, an additional line break may appear above the Caller ID name line.

- **35-03-01 : SMDR Port Assignment for Trunks**
  For each trunk group, select the SMDR port to which the incoming information should be sent.
- **35-04-01 : SMDR Port Assignment for Department Groups**
  Assign the SMDR port for each Department Group. For each Department Group, select the SMDR port to which the outgoing SMDR information should be sent.
- **80-05-01 : Date Format for SMDR and System Reports**
  Set the date format for SMDR (0=American, 1=Japanese or 2=European).

Refer to *Station Message Detail Recording* in the Software Manual for additional details.

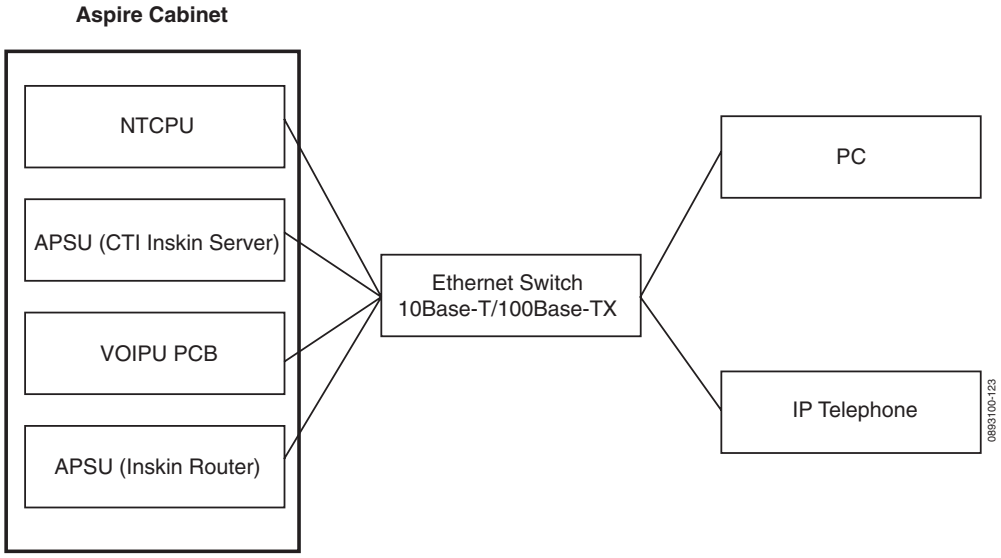
- For Your Notes -

Section 6:
LAN Connection

LAN DEVICES

Using LANs

Using a LAN setup (local area network) with the Aspire system complies with the ethernet standard (10Base-T/100Base-TX).



To connect a telephone to a LAN connection, the system allows the use of an Aspire digital IP 34-button keyset (referred to as Aspire IPhone), an Aspire digital keyset with an IP Adapter installed or an H.323 IP digital telephone. For details on installing the IP Adapter, refer to **VoIP Adapter (Figure 4-52 - Figure 4-54)** (page 4-53).

If connecting a LAN to a WAN (wide area network), follow the instructions included with the ADSL modem or gateway device.

IP Address

Equipment/devices used in the Aspire LAN setup must have an IP address assignment. An IP address assigns a unique address for each device. There are two types of IP addresses: Private and Global. A Private IP Address is not accessible through the internet - a Global IP Address can be accessed through the internet.

With a Private IP Address, with equipment that does not access the internet directly, addresses can be assigned to the equipment within Class A, B or C by assigning a number within the class's range of numbers.

Class	Allowed IP Address	Recommended Environment
A	10.0.0.0 ---10.22.255.255	Large Scale Network
B	172.16.0.0 --- 172.31.255.255	Mid Scale Network
C	192.168.0.0 --- 192.168.255.255	Small Scale Network

With a Global IP Address, connected equipment can be accessed through the internet, so each address must be unique. To avoid a conflict, the addresses are controlled by ARIN (American Registry for Internet Numbers). To obtain a Global IP Address, contact ARIN or apply with your local ISP (internet service provider).

The first one to three groups of numbers (depending on the subnet mask) identify the network on which your computer is located. The remaining group(s) of numbers identify your computer on that network.

Subnet Mask

As the IP Address includes information to identify both the network and the final destination, the Subnet Mask is used to set apart the network and destination information.

The default subnet masks are:

Class	Default Subnet Mask
A	255.0.0.0
B	255.255.0.0
C	255.255.255.0

In the above table, you'll see that the Subnet Mask is made up of four groups of numbers. When a group contains the number '255', this is telling the router to ignore or mask that group of numbers in the IP address as it is defining the network location of the final destination. So, for example, if the IP Address were: 172.16.0.10 and the Subnet Mask used was Class B (255.255.0.0), the first two groups of numbers (172.16) would be ignored once they reached the proper network location. The next two groups (0.10) would be the final destination within the LAN to which the connection is to be made.

DHCP

DHCP (Dynamic Host Configuration Protocol) is a protocol which assigns a dynamic IP Address. Network control may be easier with DHCP as there is no need to assign and program individual IP Addresses for the LAN equipment. To use a dynamic IP Address, a DHCP server must be provided. The Aspire system provides the ability to use DHCP.

When equipment which is connected to the LAN (the DHCP client) is requesting an IP Address, it searches the DHCP server. When the request for an address is recognized, the DHCP server assigns an IP Address, Subnet definition, and the IP Address of the router, etc., based upon the system programming.

Note that the NTCPU must always have a static IP address. This address is set in ***Program 10-12-01 : NTCPU Network Setup - IP Address*** (default: 172.16.0.10).

Gatekeeper

Whenever an H.323 terminal activates, a check is made of the network to see if there are any gatekeepers available. When a gatekeeper is present, it provides users with:

- Address Translation
  Users typically do not know the IP addresses of other terminals. When a user makes a call, the gatekeeper translates an alias address (name or number) to the destination address.

- Admissions Control
  Users will not all be able to access the network at the same time because of limited shared resources. Gatekeepers may restrict network access based on call authorization, bandwidth usage, or some other criteria. It is important to note that Admissions Control is a way to preserve the integrity of the calls (provide QoS guarantees) that are already up and operating when a user requests access.

- Bandwidth Control
  Besides network access control, the gatekeeper offers network managers the ability to restrict or assign bandwidth to different applications along certain protocol conventions. This is another place network managers can enforce QoS guarantees and other enterprise-wide usage policies.

With the Aspire system, a separate external gatekeeper is not required unless connecting to an outside H.323 endpoint/gateway which requires an outer gatekeeper or if over 50 outer addresses must be registered. Otherwise, the Aspire provides tables within the system programming for address resolution.

IP Hardware

PCBs:

- **NTCPU** - Signals the gateway with VoIP communication
- **4VOIPU** - The 4VOIPU PCB provides a 4-channel voice packet gateway unit and works as a media gateway for VoIP communication. This PCB is required for either VoIP trunks or when using VoIP keysets which talk to non-IP keysets. VoIP keyset-to-VoIP keyset can talk without a media gateway and without using any DSP resources using the Peer-to-Peer feature. Refer to the VoIP feature in the Aspire Software Manual for more detail on the Peer-to-Peer feature.
- **4VOIPDB** - The 4VOIPDB daughter board provides an additional 4 channels when attached to either the 4VOIPU or 16VOIPU PCB
- **16VOIPU** - The 16VOIPU PCB provides a 16-channel voice packet gateway unit and works as a media gateway for VoIP communication. This PCB is required for either VoIP trunks or when using VoIP keysets which talk to non-IP keysets. VoIP keyset-to-VoIP keyset can talk without a media gateway and without using any DSP resources using the Peer-to-Peer feature. Refer to the VoIP feature in the Aspire Software Manual for more detail on the Peer-to-Peer feature.
- **16VOIPDB** - The 16VOIPDB daughter board provides an additional 16 channels when attached to the 16VOIPU PCB
- **8SHUBU** - Provides an 8-port switching hub for use with the Aspire system

Terminals:

- **IPhone** - Aspire 34-button multi-line IP phone
- **IP Adapter** - IP adapter connects an Aspire keyset to the VoIP network
- **ITR-2D-1** - H.323 IP phone

Power must be supplied to the IPhone, the Aspire keyset with an IP adapter, or ITR-2D1 phone using either a local or central power supply. If there is a power outage, the VoIP phones will not work unless the phones are plugged into a UPS (Uninterruptable power supply).

- Local Power Supply
  The AC-R Unit is an AC adapter for Aspire IPhone or the IP adapter. The ITR-2D1 has an AC adapter included that should be used for power. Terminals connected to the 8SHUBU PCB must provide local power unless the PoE jumper is enabled. Refer to **LAN 8-Port Switching Hub (8SHUBU) PCB (Figure 2-20)** (page 2-59) for jumper settings.

  Using one Aspire power supply, the 8SHUBU can support 10 IP phones with no other Aspire phones connected.

  ! CAUTION !

  If the 8SHUBU PCB is used to supply PoE, only Aspire IP phones and Aspire IP Adapters and H.323 phones must be connected. The provided DC voltage provided through the spare pairs (4/5, 7/8) may damage any other equipment.

- Central Power Supply:
  - 24-port power supply PoE-managed switch (NEC BlueFire 200/24)
    Power feeding through signal pair (1/2, 3/6) or spare pair (4/5, 7/8)
  - Cisco Data Switch - CDP Supported

  Note that the Aspire IP phones are not IEEE 802.3af compliant.

  Other manufacturer central power supplies may be usable, but the above items have been tested for compatibility with the Aspire equipment.

Aspire VoIP Specifications

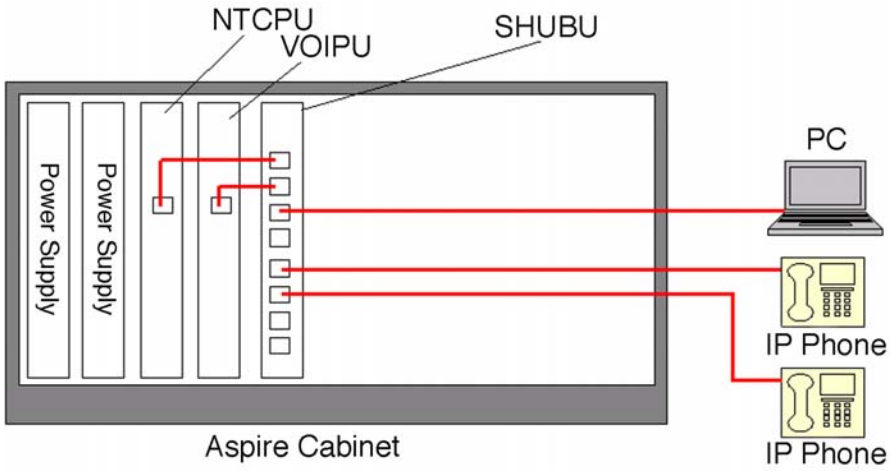
Category	Feature	Note
IP Address	DHCP Server	NTCPU
	DHCP Client	VOIPU PCB or IP Phone
QoS	802.1p/1q	
	L3 QoS (ToS)	Diffserv/IP Precedence
Maintenance	HTTP Server	NTCPU
Server	H.323 Gatekeeper	For H.323 Phone Registration and Routing
VLAN	Tag and port-based VLAN	
VoCoder	G.711 μ-law/A-law	
	G.729a	
	G.723.1	
	Fax Relay	
Jitter Buffer Size	Set by system programming	
RTP Length	Set by system programming	
Echo Canceller Tail Size	Set by system programming	
Level Adjustment	Set by system programming	
Protocol	H.323	
	NGT	
IP Phone	H.323 Phone	ITR-2D1 H.323 Phone
	NGT Phone	Maximum 512 Phones
IP Trunk	H.323 Trunk	Maximum 200 Trunks

LAN Connections

Hardware:

- 8SHUBU PCB - Provides 8-port switching hub and the ability to provide PoE for Aspire equipment
  - 802.1p/1q Support
- 24-Port Power Supply PoE-managed switch (NEC BlueFire 200/24)
  - PoE (Power over Ethernet) to the Aspire IP/H.323 Phone
  - Spare Pair (4/5, 7/8) / Signal Pair (1/2, 3/6) Selection
- Cisco Data Switch - CDP Supported

Note: The Aspire IP phones are not IEEE 802.3af compliant.



8SHUBU PCB Features

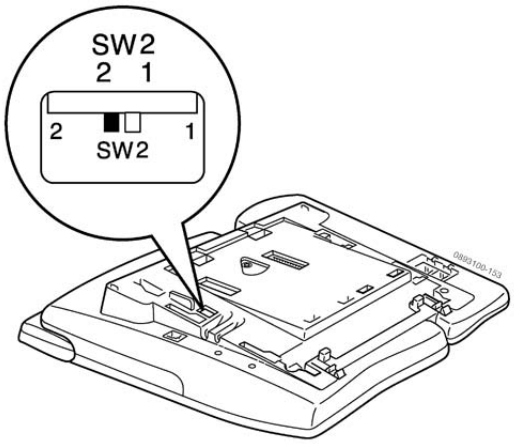
- Configurable on Each Port: Auto Negotiation/Full Duplex/Half Duplex
- MDI/MDI-X Auto Crossover
- Tag VLAN Based on IEEE802.1Q
- QoS Feature Based on IEEE802.1p
- Port Mirroring Feature
- Backpressure/Flow Control Feature
- Auto MAC Address Learning/Migrating/Aging
- Learn Maximum 8k MAC Addresses
- Store and Forward Switching Method
- Maximum 100m Transmission Distance by CAT-5 Cable

Installing a LAN Device or VoIP Telephone

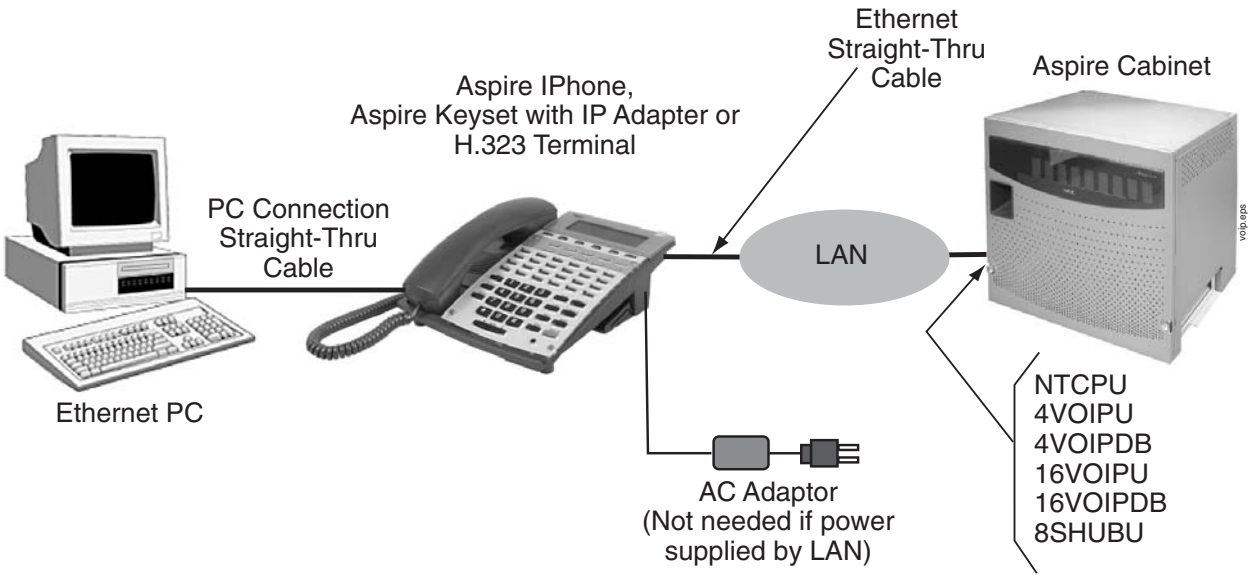
Actual installation will vary depending on each customer's installed Aspire and networking hardware.

1. Plug a cable with an RJ-45 modular jack into the system PCB (NTCPU, VoIP PCB, or 8SHUBU).
2. Connect the RJ-45 modular connector on the opposite end of the cable to the IP telephone or PC's network interface card (NIC).
   When connecting an IP telephone, a connection can then be made to a network PC using the PC connector on the back of the phone.
3. If local power is to be provided to the IP telephones, connect the AC adapter to the phone.
   When using the IPhone (P/N 0890065), set the SW2 dip switch on the bottom of the phone to the appropriate setting shown below:

Feeding Method	Power Source	Setting of SW2
Local Feeding	AC Adapter	1 (48 volts to phone)
Center Feeding	NEC Power Patch Panel (12 port NEC SN1604 PWRMS - 24-port NEC BlueFire 200/24)	
Center Feeding	Cisco Catalyst Power Patch Panel	2 (data pairs)
	Cisco Catalyst PRW Series	



4. Plug the AC adapter into an outlet.



For complete programming information, refer to the Aspire Software Manual (P/N 0893200).

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- For Your Notes -

Section 7: Specifications and Parts List

ASPIRE M/L SYSTEM SPECIFICATIONS

	Aspire M/L System Capacities				
	NTCPU-A with Basic PAL Chip	NTCPU-A with Feature Upgrade PAL Chip (Software 1.00-3.07)	NTCPU-A with Feature Upgrade PAL Chip (Software 4.00+)	NTCPU-B	Notes
Cabinets	1	2 (Main and 1 Expansion Cabinet)	2 (Main and 1 Expansion Cabinet)	2 (Main and 1 Expansion Cabinet)	
Power Supplies	2	4 (2 per cabinet)	4 (2 per cabinet)	4 (2 per cabinet)	
Trunks (CO/PBX lines)	64 [1]	64 [1]	128 [2]	200 [3]	[1] combined trunk and extension total of 64 [2] combined trunk and extension total of 128 [3] combined trunk and extension total of 256
Digital Key Telephones	64 [1]	64 [1]	128 [2]	256 [3]	[1] combined trunk and extension total of 64 [2] combined trunk and extension total of 128 [3] combined trunk and extension total of 256 [4] in addition to the digital or analog ports [5] combined total, including extensions and trunks, cannot exceed 512
Analog Single Line Telephones	64 [1]	64 [1]	128 [2]	256 [3]	
Aspire Wireless 2.4 GHz Telephones	64 [1]	64 [1]	120 [2]	120 [4]	
IP Telephones	64 [1]	64 [1]	128 [2]	512 [5]	

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Aspire XL System Specifications

Aspire XL System Capacities (requires software 4.xx or higher)				
	NTCPU-A with Basic PAL Chip	NTCPU-A with Feature Upgrade PAL Chip	NTCPU-B	Notes
Cabinets	1	2 (Main and 1 Expansion Cabinet)	2 (Main and 1 Expansion Cabinet)	
AC/DC Power Supplies	2	2	2	
DC/DC Converters	1	2 (1 per cabinet)	2 (1 per cabinet)	
Trunks (CO/PBX lines)	64 [1]	128 [2]	200 [3]	[1] combined trunk and extension total of 64 [2] combined trunk and extension total of 128 [3] combined trunk and extension total of 384
Digital Key Telephones	64 [1]	128 [2]	384 [3]	[1] combined trunk and extension total of 64
Analog Single Line Telephones	64 [1]	128 [2]	384 [3]	[2] combined trunk and extension total of 128
Aspire Wireless 2.4 GHz Telephones	64 [1]	120 [2]	120 [4]	[3] combined trunk and extension total of 384
IP Telephones	64 [1]	128 [2]	512 [5]	[4] in addition to the digital or analog ports [5] combined total, including extensions and trunks, cannot exceed 512

Aspire M/L/XL System Specifications

Aspire M/L/XL System Capacities				
	NTCPU-A with Basic PAL Chip	NTCPU-A with Feature Upgrade PAL Chip (any version of software)	NTCPU-B	Notes
24-Button DLS Consoles 110-Button DSS Consoles	64 32	64 32	256 32	1 maximum per extension 4 maximum per extension.
Conference Circuits	64 (32-parties max per Conference)	64 (32-parties max per Conference)	64 (32-parties max per Conference)	
ADA Adapter	64	64	192	installs on a keyset
ADA2 Adapter	64	64	192	installs on a keyset
APA Adapter	64	64	192	installs on a keyset
APR Adapter	64	64	192	installs on a keyset
CTA Adapter	64	64	128	installs on a keyset
CTU Adapter	64	64	128	installs on a keyset
Handsfree Adapter (HF-R)	64	64	192	installs on a keyset
IP Adapter	64	64	256	installs on a keyset
PSA Adapter	64	64	256	installs on a keyset
Power Failure Telephones	14	28	28	provided by COIU PCBs
SLT Adapter	16	16	16	
2PGDAD Modules	56 (48 for ACI ports, 4 for Door Boxes, 4 for Pages)	56 (48 for ACI ports, 4 for Door Boxes, 4 for Pages)	56 (48 for ACI ports, 4 for Door Boxes, 4 for Pages)	
Door Box/Door Unlock Contacts Internal Page Zones External Page Zones	8 64 9	8 64 9	8 64 9	
Dial Tone Detector Circuits DTMF Receiver Circuits	32* 32*	64** 64**	64** 64**	* combined total to 32 ** combined total to 64
Universal PCB slots Main Cabinet Expansion Cabinet	1-8 (Not including NTCPU slot)	1-8 (Not including NTCPU slot) 8-16 (Not including EXIFU slot)	1-8 (Not including NTCPU slot) 8-16 (Not including EXIFU slot)	
* ***NOTE:*** Maximum capacities above are determined by maximum PCB configuration allowed. When installing single line sets, DISA, or tie lines, NTCPU circuits must be allocated for DTMF receivers. To install single line sets with CO/PBX line access, or when installing immediate-start tie lines, NTCPU circuits must be allocated for dial tone detection.				

Aspire M/L/XL PCB Capacities				
	NTCPU-A with Basic PAL Chip	NTCPU-A with Feature Upgrade PAL Chip (Software 1.00-3.07)	NTCPU-A with Feature Upgrade PAL Chip (Software 4.00+)	NTCPU-B
NTCPU Central Processing Unit	1	1	1	1
EXIFU Expansion PCB	-	1	1	1
DSPDB Resource/VRS Daughter Board (installs on NTCPU)	-	1	1	1
8ESIU 8 Digital Stations	8	8	16	16
16ESIU16 Digital Stations	4	4	8	16
32ESIU 32 Digital Stations	2	4	4	***With P/N 0891000 power supplies (Aspire M/L) :*** 4 ***Software 4.xx+ and P/N 0892011/0892012 power supplies (Aspire XL):*** 12 (8 max. per cabinet)
8SLIU 8 Analog Stations	7	7	15	15
8SLIDB 8 Analog Stations Daughter Board (installs on 8SLIU)	3	3	8	15
16DSTU 16 i-Series Keyset Interface	3	3	7	15
4COIU-LS1 4 Analog/Loop Start Trunks (no ground start)	7	14	15	15
8COIU-LS1 8 Analog/Loop Start Trunks (no ground start)	7	7	15	15
4COIU-LG1 4 Analog/Loop Start Trunks (with ground start)	7	14	15	15
8COIU-LG1 8 Analog/Loop Start Trunks (with ground start)	7	7	15	15
4DSIU Aspire Wireless Interface	1	1	1	1
8DSIU Aspire Wireless Interface	1	1	1	1
12DSIU Aspire Wireless Interface	1	1	1	1
2BRIU 2 Two-Channel BRI Circuits	-	14	15	15
4BRIU 4 Two-Channel BRI Circuits	-	7	15	15
8BRIU 8 Two-Channel BRI Circuits	-	3	As T-Bus: 8 As S-Bus: 7	As T-Bus: 12 As S-Bus: 15
1PRIU 24 T1/PRI Trunks / Channels	-	2	5	8

Aspire M/L/XL PCB Capacities				
	NTCPU-A with Basic PAL Chip	NTCPU-A with Feature Upgrade PAL Chip (Software 1.00-3.07)	NTCPU-A with Feature Upgrade PAL Chip (Software 4.00+)	NTCPU-B
4TLIU 4 E&M Tie Line Trunks	-	14	15	15
4DIOPU 4 DID/OPX Trunks	7	14	15	15
8DIOPU 8 DID/OPX Trunks	7	7	15	15
2FMSU 2 Flash Memory Voice Mail	1	1	1	1
4FMSU 4 Flash Memory Voice Mail	1	1	1	1
4VMSU 4 HDD Voice Mail	1	1	1	1
4VMDB 4 HDD Voice Mail - Daughter Board	1	1	1	1
8SHUBU 8 Switch Hub	4	8 (4 per cabinet)	8 (4 per cabinet)	8 (4 per cabinet)
4VOIPU 4 VoIP Media Gateway	8 *	16 *	16 *	16 *
4VOIPDB 4 VoIP Media Gateway Daughter Board (installs on 4VOIPU or 16VOIPU)	8 *	8 *	16 *	16 *
16VOIPU 16 VoIP Media Gateway	-	4 *	8 *	16 *
16VOIPDB 16 VoIP Media Gateway Daughter Board (installs on 4VOIPU or 16VOIPU)	-	3 *	6 *	16 *
* In addition to the load factor, additional factors may limit these quantities further (such as available bandwidth, VIF and compression).				

7

Environmental Requirements

Meeting established environmental standards maximizes the life of the system. Refer to the Standard Practices Manual for further information. Be sure that the site is not:

1. In direct sunlight or in hot, cold or humid places.
2. In dusty areas or in areas where sulfuric gases are produced.
3. In places where shocks or vibrations are frequent or strong.
4. In places where water or other fluids comes in contact with the main equipment.
5. In areas near high-frequency machines or electric welders.
6. Near computers, telexes, microwaves, air conditioners, etc.
7. Near radio antennas (including shortwave).

Environmental Specifications

Cabinets, PCBs and Key Telephones
Temperature: 0ºC - 40ºC (32 - 104ºF)
Humidity: 10-90% RH

Door Box
Temperature: -20ºC - 60ºC (-4 - 140ºF)
Humidity: 20-80% (non-condensing)

Aspire S Power Supply
Operating:
Temperature: 0ºC - 60ºC (32 - 140ºF)
Humidity: 10-90% RH
Storage:
Temperature: -20ºC - 75ºC (-4 - 167ºF)
Humidity: 10-95% RH

Aspire Power Supply
Operating:
Temperature: 0ºC - 40ºC (32 - 104ºF)
Humidity: 20-90% RH
Storage:
Temperature: -40ºC - 75ºC (-4 - 167ºF)
Humidity: 10-95% RH

VMSU-A1 PCB
Temperature: +5ºC - 40ºC (41-104ºF)
Humidity: 10-90% RH

Power Requirements

A dedicated 110 VAC 60 Hz circuit located within seven feet of the cabinet is required. You should install a separate dedicated outlet for each cabinet.

Caution
Double Pole/Neutral Fusing
(power supply fuses located at both the L and N side)

Site Requirements

The system can be floor-, wall- or rack-mounted. Brackets secure each cabinet to a wall.

Aspire M/L Electrical Specifications

Power Supply

AC Power Supply
Dedicated 15 Amp circuit
Power Requirements: 120 VAC @ 15A Main Cabinet
Power Consumption: Base Cabinet=360W (493 VA), Expansion Cabinet=360W (493 VA), total 720W (986 VA)
Input Voltage: 85VAC to 135VAC
Frequency: 47 Hz - 63Hz (Rated frequency: 50/60 Hz)
Phase and Wire: Single, 2-Wire
Grounding Requirements: No. 14 AWG copper wire

With input voltage of 120 VAC and with full load conditions:

Output Power: One Power Supply: Base Cabinet=100.5W
Two Power Supplies: Base Cabinet=200.9W, Expansion Cabinet=200.9, total 401.8W

AC Input I: One Power Supply: Base Cabinet=2.06A
Two Power Supplies: Base Cabinet=4.11A, Expansion Cabinet=4.11A, total 8.22A

VA @ 120V: One Power Supply: Base Cabinet=246.6VA
Two Power Supplies: Base Cabinet=493.2 VA, Expansion Cabinet=493.2 VA, total 986.4 VA

KWh @ AC Input I x 120V/1000: One Power Supply: Base Cabinet=0.247 KWh
Two Power Supplies: Base Cabinet=0.493 KWh, Expansion Cabinet=0.493 KWh, total 0.986 KWh

BTU (KWh x 3413): One Power Supply: Base Cabinet=842 btu
Two Power Supplies: Base Cabinet=1683 btu, Expansion Cabinet=1683 btu, total 3366 btu

Caution
Double Pole/Neutral Fusing
(power supply fuses located at both the L and N side)

Output Voltage Types	+3.42VDC (-3%, +1%)	+5VDC (+/- 2%)	-48VDC (+/- 5%)
Output Current 1	0.0A - 6.0A	0.0A - 5.0A	0.0A - 1.0A
Output Current 2	0.0A - 3.2A	0.0A - 1.0A	0.0A - 2.0A
Ripple/Noise	50mV p-p	100mV p-p	200mV p-p
Overvoltage Protection	3.7 - 8.0V	5.6 - 13.0V	-55.0 - 64.8V
Overcurrent Protection	6.6 - 7.7A	5.5 - 6.5A	2.2 - 2.6A

Aspire XL Electrical Specifications			
Power Supply AC Power Supply Dedicated 15 Amp circuit Input Voltage: 90VAC to 132VAC Frequency: 50/60 Hz Rated Input: 100Vac / 120Vac / 220-240Vac 7.6A / 6.1A / 3.3A-3.1A			
Main Output Terminal	+3.3V	+5V	-48V
Output Voltage	+3.42V	+5.0V	-51.90V
Output Voltage Range	+3.317V - +3.454V (+3.42V-3%+1%)	+4.90V - +5.10V (+5.0V±2%)	-49.84V - -52.94V (-51.90V+2%-4%)
Maximum Load Current	12.0A	10.0A	8.0A
Load Regulation Range	0.0A~12.0A	0.0A~10.0A	0.0A~8.0A
Ripple/Noise	100mV p-p or less	150mV p-p or less	200mV p-p or less
Psophometric Noise	-65dBm or less	-65dBm or less	-65dBm or less
Overvoltage Protection	latched off	latched off	latched off
Overcurrent Protection	latched off	latched off	auto-recovered (after removal of fault)
Capacitive Load	12000 μ F	12000 μ F	24000 μ F

Aspire Soft Phone Requirements
Before setting up *Aspire Soft Phone*, ***make sure the VoIP feature is programmed and operating*** in the Aspire system. Refer to the Aspire Software Manual (P/N 0893200) for details.

Conditions

- Aspire Soft Phone does not support G.723.
- Using DHCP, the IP address of the NTCPU cannot be obtained.

For the *Aspire Soft Phone* application, please confirm the following requirements are met for the PC.

Minimum PC Requirements
Aspire Soft Phone is installed on a PC. Please confirm that the PC meets the minimum PC requirements before installing the *Aspire Soft Phone*.

Internet Explorer version 6.0 or higher is required. If an older version of Internet Explorer is installed, the *Aspire Soft Phone* installation is stopped and the installation cannot be completed correctly.

Required Environment	
CPU	Intel Pentium® III, Celeron™ Processor 600MHz or higher AMD Athlon™ , Duron™ Processor 700MHz or higher
Memory	128MB or more
HDD	30MB HDD empty space
Sound	Sound equipment on Windows® operating system
Video	SVGA (800x600) display resolution and high color (16 bit, 65536 colors) video card and monitor
Peripheral Equipment	Speaker and MIC (or Headset)
OS	Microsoft® Windows® 2000 Professional Microsoft® Windows® XP Home Edition Microsoft® Windows® XP Professional
Font Size	Small size (Microsoft® Windows® 2000 Professional) Normal size (Microsoft® Windows® XP Professional, Microsoft® Windows® XP Home Edition)
Browser	Microsoft® Internet Explorer 6.0 or higher

CallAnalyst Requirements

Ultra Call Analyst
Minimum PC Requirements
- PC with Pentium Processor
- 256 MB RAM
- VGA monitor 800 x 600 resolution (recommended SVGA 1024 x 768)
- Windows Operating Software - 95/98/ME, NT-SP 3 or later, 2000, XP
- 500 MB of free hard drive space
- CD-ROM drive (for software installation)
- Available serial port and RS-232 cable
- Printer (if required to print reports)

CallAnalyst Enterprise Server

Main Server Minimum PC Requirements
Hardware
- PC with Pentium 4 Processor
- 512 MB RAM
- SVGA Monitor with 1024 x 768 resolution
- 2 GB of free hard drive space
- CD-ROM drive (for software installation)
- Available serial port and RS-232 cable (if required)
- Network Interface Card (NIC)
- Printer (if required to print reports)

Software
- Windows NT 4.0 (workstation or server) w/SP6, 2000 Professional w/SP3, XP Professional w/ SP1 or 2003 Server
- MS SQL Server 2000 or MSDE (Microsoft Database Engine) for the database (MSDE is included on the application CD)
- Microsoft Internet Explorer 5.0 or higher (Internet Explorer is included on the application CD)

Network Client / Remote Site Reporting Client Minimum PC Requirements
Hardware
- PC with Pentium III Processor
- 256 MB RAM
- 1 GB of free hard drive space
- CD-ROM drive (for software installation)
- Network Interface Card (NIC)
- Available serial port and RS-232 cable (if required)

Software
- Windows NT 4.0 w/ SP6, or 2000 Professional w/ SP3, XP Professional w/ SP1 or 2003 Server
- Microsoft Internet Explorer 5.0 or higher (Internet Explorer is included on the application CD)

inDepth Requirements		
inDepth Server Requirements		
	Minimum	**Recommended**
Computer/Processor	Pentium II 300 Megahertz (MHz) or equivalent	Pentium III 700 Megahertz (MHz) or above
Memory	RAM requirements depend on the operating system used:	
Windows 98 Second Edition	32 MB	64 MB
Windows Millennium Edition	64 MB	128 MB
Windows XP Home Edition	128 MB	128 MB
Microsoft Windows NT4	64 MB	128 MB
Windows 2000 Professional	64 MB	128 MB
Windows XP Professional	128 MB	128 MB
Hard Disk Free Space	Hard disk space requirements will vary depending on the operating system configuration and call traffic:	
	2 GB	10 GB
Graphics Card	256 color resolution 800 x 600 (SVGA)	256 color resolution 800 x 600 (SVGA) or above
Video Monitor	14”	17” or above
CD-ROM Drive	Installed	Installed
Network Card	10 Mbps	100 Mbps
Uninterruptable Power Supply	No	Yes
Additional Software: Internet Explorer	Version 4	Version 6
Backup	N/A	CD-R, Tape or Network
Serial Ports	Serial port requirements dependant upon configuration.	
Events from Switch	1	
Physical Wallboard	1	
External Modem	1	
Parallel Ports (Free)	1	
Microsoft Network	Required	
TCP/IP	- Each PC must have TCP/IP installed. - Each inDepth PC must have a unique IP address - If running a networked inDepth system, each inDepth. PC must be able to communications with each other inDepth PC via TCP/IP. - It is recommended that name resolution be implemented.	
Static IP Address	Required	
Network File Sharing	Enabled	
Remote Support		
Software	PC Anywhere Version 9 or Above	
Connection	Direct Telephone Line or Remote Access Server	

inDepth Requirements (cont'd)		
inDepth Client - Sub-Supervisor Requirements		
	Minimum	**Recommended**
Computer/Processor	Pentium II 300 Megahertz (MHz) or equivalent	Pentium III 700 Megahertz (MHz) or above
Operating System	• Windows 98 Second Edition • Windows Millennium Edition • Windows XP Home Edition	• Microsoft Windows NT4 with Service Pack 6a • Windows 2000 Professional SR-3 • Windows XP Professional
Memory	RAM requirements depend on the operating system used:	
Windows 98 Second Edition	32 MB	64 MB
Windows Millennium Edition	64 MB	128 MB
Windows XP Home Edition	128 MB	128 MB
Microsoft Windows NT4	64 MB	128 MB
Windows 2000 Professional	64 MB	128 MB
Windows XP Professional	128 MB	128 MB
Hard Disk Free Space	Hard disk space requirements will vary depending on the operating system configuration and call traffic:	
	30 MB	30 MB
Graphics Card	256 color resolution 800 x 600 (SVGA)	256 color resolution 800 x 600 (SVGA) or above
Video Monitor	14"	17" or above
Network Card	10 Mbps	100 Mbps
Uninterruptable Power Supply	No	Yes
Additional Software: Internet Explorer	Version 4	Version 6
Installation	CD-ROM or Network Drive	CD-ROM or Network Drive
Serial Ports	Serial port requirements dependant upon configuration.	
Physical Wallboard	1	
Microsoft Network	Required	
TCP/IP	Installed	

* The above requirements are based on systems with no other applications installed. If you run other applications, you may need to increase processor speed, memory and hard disk space accordingly.

inDepth Requirements (cont'd)		
inDepth Client - inView LAN Wallboard Requirements		
	Minimum	**Recommended**
Computer/Processor	Pentium II 300 Megahertz (MHz) or equivalent	
Operating System	• Windows Millennium Edition • Windows XP Home Edition • Microsoft Windows NT4 with Service Pack 6a • Windows 2000 Professional SR-3 • Windows XP Professional	
Memory Windows Millennium Edition Windows XP Home Edition Microsoft Windows NT4 Windows 2000 Professional Windows XP Professional	RAM requirements depend on the operating system used: 64 MB 128 MB 64 MB 64 MB 128 MB	
Hard Disk Free Space	30 MB	30 MB
Graphics Card	256 color resolution 800 x 600 (SVGA)	
Video Monitor	14"	
Network Card	10 Mbps	
Uninterruptable Power Supply	No	
Additional Software: Internet Explorer	Version 4	
Installation	CD-ROM or Network Drive	
Microsoft Network	Required	
TCP/IP	Installed	
* The above requirements are based on systems with no other applications installed. If you run other applications, you may need to increase processor speed, memory and hard disk space accordingly.		

IP Routers
When purchasing a router for use with the Aspire IP feature, the minimum requirements would be that it provide VPN and QoS. Current VoIP protocols for the Aspire, NGT and H.323 telephones can not communicate over NAT. Therefore, when communications is required over NAT, the router must support VPN. Note that a router which supports 'VPN Pass Through' requires a VPN server. The priority control feature is required to prevent RTP packet loss. If a WAN is used for VoIP only and the bandwidth is wide enough for the VoIP channel, then the QoS feature might not be required.
The following are available routers which provide VPN and QoS: • NEC IX1000 / 2000 Series • Yamaha RT105, RTX1000 / 2000 • Cisco 800 Series • Furukawa FITELnet - F40 • Fujitsu SiR-170, SiR-150
The following routers provide VPN but no priority control (QoS): • Linksys BEFSX41, DEFVP41 • OMRON MR104DV, MR104FH • Allied Telesis AR410

Mechanical Specifications

Equipment	Width	Depth	Height	Weight
Aspire M/L/XL KSU Cabinet	16 1/2"	10"	15 1/2"	55 lbs 11 oz fully equipped
Aspire XL Power Supply Cabinet	16 1/2"	10"	15 1/2"	45 lbs 12 oz fully equipped
2 Button Telephone	6 3/8"	8 3/4"	2 3/4"	2 lbs 1 oz
22 Button Non-Display Keyset	7 3/4"	9 2/8"	3 7/8" no leg extension 5 7/8" legs fully extended	2 lbs 4 oz
22 Button Display Keyset	7 3/4"	9 2/8"	3 7/8" no leg extension 5 7/8" legs fully extended	2 lbs 4 oz
34 Button Display Keyset	7 3/4"	9 2/8"	3 7/8" no leg extension 5 7/8" legs fully extended	2 lbs 5 oz
Super Display Keyset	7 3/4"	10 7/8"	3 7/8" no leg extension 6 1/8" legs fully extended, display down 7 7/8"legs fully extended, display up	2 lbs 7 oz
IP Keyset	7 3/4"	9 2/8"	3 7/8" no leg extension 5 7/8" legs fully extended	2 lbs 13 oz
110-Button DSS	7 3/4"	9 2/8"	3 3/16"	1 lb 12 oz
24-Button DLS	2"	9 2/8"	2 15/16"	12 oz

2PGDAD Module/NTCPU Input/Output	
Audio/Music Input	
Input Impedance:	47 KOhm @ 1KHz
Audio/Paging Output	
2PGDAD:	
Output Impedance:	600 Ohms @ 1 KHz
Maximum Output:	+8 dBm
NTCPU:	
Output Impedance:	600 Ohms @ 1 KHz
Maximum Output:	-3 dBm
Relay Contacts	
Configuration:	Normally Open
Maximum Contact Ratings:	24 VDC, 0.5A 120 VAC, 0.25A
Night Mode Relay Connection, Input	
Break:	48 VDC
Make:	7 mA

AC-2R Input/Output	
AC Input	100 ~ 240VAC 50/60Hz 800mA
Output	27VDC 750MA
Tip	Negative

BGM/MOH Music Source Input	
Input Impedance:	47KOhm / 1Khz
Input Level:	Nominal 250 mV (-10 dBm)
Maximum Input:	1V RMS
Inputs for MOH and BGM are located on the NTCPU PCB. The 2PGDAD also provides MOH inputs.	

Door Box/External Paging	
Output Impedance:	600 Ohm
Output Level:	Nominal 250 mV (-10 dBm)
Maximum Output:	400 mV RMS
Configuration:	Normally open

LAN Specifications	
Standard	IEEE802.3 10Base-T and 100Base-TX Compliant
Access	CSMA/CD
Capacity	10Base-T/100Base-TX; Aspire S: 1 Port for LAN Terminal Aspire: 8 Ports for LAN Terminal
I/F (Layer 1)	- Speed; 10Mbps/100Mpbs Auto Negotiation - Cable; Category 5 or better, Straight/Cross Cable Auto Crossover
Aspire Switching	- Store and Forward Layer 2 Switching - MAC Address Auto Recognition - Store Max. 1,000 MAC Addresses - Flow control in Back Pressure Mode Compliant

Single Line Telephone - DTH-1-1

Message Waiting Lamp

Lamp On (Activation Voltage): 88-108 VDC
Lamp Off (Deactivation Voltage): 53 VDC or less

SLT Adapter

Constant Current Circuit: Current fixed at 47 mA

Signal Method

On-Hook Condition: 48VDC
Ringer Signal: 180 Vp-p, 16Hz

SLIU PCB / SLIDB

Aspire S Signal Method

On-Hook Condition: -28VDC +- 1.4VDC
Message Waiting Signal: -110VDC +- 5.5VDC
Ringer Signal: 65Vrms, 20Hz (with no load)

Note: The Message Waiting lamp is not provided to the analog ports on the CPU.

Aspire Signal Method

On-Hook Condition: -46VDC +- 3VDC
Message Waiting Signal: -112VDC +- 3VDC
Ringer Signal: 75Vrms +-1Vrms (no load condition), 20Hz +-1%

Recommended Usage Guidelines for Cordless Phones
In ideal conditions, multiple spread spectrum type cordless phones (Cordless II can be utilized in the same environment. However, due to the possible interference problems caused by the bases being placed in close proximity to each other, we recommend the following:
Spread Spectrum Phones (Cordless II P /N 730088) Where users require greater range on the cordless phones and 3 or less cordless phones are being used at a specific site, we recommend using the spread spectrum cordless phone.
FM Modulation Phones (Cordless Lite II P /N 730087) Where more than 3 cordless phones are to be used at one specific site, we recommend using the FM modulation cordless phones which have 30-channel capability.
Note: The range of the phones depends largely on the environmental factors, such as the building structure, the size of the room, RF interference and other electronic equipment installed in the same area. For optimum range and performance, we suggest the following: • Place the base units at least 15 feet apart. The performance of the phones become more stable when the distance between the bases is greater. • Place the base unit in the center of the coverage area. • If the phone will also be used in an outdoor area, like a parking lot, install the base unit in an area close to the window. • If a phone experiences interference and noise, press the channel key to select another channel.

Cordless Lite II	
General	
Frequency Control	Phase Lock Loop
Modulation	900 MHz Narrow Band FM with ADPMC (digital)
Operating Temperature	0°C - +50°C (+32°F to +122°F)
Bandwidth	50 kHz
Data Transmission Speed	688 bps
Channels	30 Channels
Base Unit	
Receive/Transmit Frequency	902 MHz - 928 MHz
Power Requirements	10V DC from supplied AC adapter
Size	4 1/4" W x 7 5/8" D x 2 1/4" H
Weight	Approximately 13.7 oz.
Handset	
Receive/Transmit Frequency	902 MHz - 928 MHz
Power Requirements	NiMH Battery
Size	2" W x 1 1/4" D x 5 1/2" H (with antenna)
Weight	8.7 oz. with battery
Battery	Capacity 700 mAh, 3.6V
Talk Mode	5 hours (typical)
Standby Mode	40 hours (typical)
Specifications shown are typical and subject to change without notice.	
Battery Charger	
Power Requirements	9V DC from supplied AC adapter
Size	1 3/8" W x 1 1/2" D x 2 1/4" H
Range	
Range	350' (depending on environmental conditions)

Cordless II	
General	
Frequency Control	Phase Lock Loop
Modulation	Digital Spread Spectrum
Operating Temperature	0°C - +50°C (+32°F to +122°F)
Output Power	60 mW
Occupied Bandwidth	± 500 KHz
Data Transmission Speed	688 bps
Channels	10 Channels
Base Unit	
Receive/Transmit Frequency	902 MHz - 928 MHz
Power Requirements	10V DC from supplied AC adapter
Size	4 1/4" W x 7 5/8" D x 2 1/4" H
Weight	11.8 oz.
Handset	
Receive/Transmit Frequency	902 MHz - 928 MHz
Power Requirements	Nickel-Cadmium Battery Pack
Size	2 1/4" W x 1 1/2" D x 6 5/16" H
Weight	8.6 oz.
Battery	Capacity 800 mAh, 3.6V
Charging Time	5-6 hours max. to full charge
Talk Mode	6 hours (typical)
Standby Mode	4 days (typical)
Specifications shown are typical and subject to change without notice.	
Battery Charger	
Power Requirements	9V DC from supplied AC adapter
Size	4 3/4" W x 4 1/2" D x 3 1/2" H
Weight	6.5 oz.
Range	
Range	350' (depending on environmental conditions)

UL Listed System
A label will be affixed to the product with the letters UL inside a circle which is the symbol used by UL to indicate that a product is UL Listed. If you see a small "c" outside the symbol, then the product also meets the requirements for Canada.

FCC Registration Information	
Manufacturer:	NEC Infrontia, Inc.
FCC Part 15 Registration:	Class A
Model:	**Aspire**
FCC Registration Number: (Refer to the label on the Main Cabinet for the FCC Registration Number.	KF: US:NIFKF07BASPIRE MF: US:NIFMF07BASPIRE PF: US:NIFPF07BASPIRE

Reg. Status	Facility Interface Code (FIC)	Mfrs. Port Identifier	Ringer Eq. Number	Service Order Code (SOC)	Network Jacks
Original	02LS2	4COIU-LS1	0.7B	9.0F	RJ21X
Original	02LS2	8COIU-LS1	0.7B	9.0F	RJ21X
Original	02GS2	4COIU-LG1	0.7B	9.0F	RJ21X
Original	02GS2	8COIU-LG1	0.7B	9.0F	RJ21X
Original	02RV2-T	4DIOPU	---	AS.2	RJ21X
Original	02RV2-T	8DIOPU	---	AS.2	RJ21X

Reg. Status	Analog Private Line Interfaces	Mfrs. Port Identifier		Service Order Code (SOC)	Network Jacks
Original	TL11M	4TLIU	---	9.0F	RJ2EX

Loop Resistance for COIU PCBs	
DC Loop Resistance	Less than 60 Ohms
AC Impedance	600 Ohms

FCC DID Requirements

Federal Communications Commission DID Requirements

This equipment must operate in a manner that is not in violation of Part 68 rules. This equipment returns answer supervision to the Public Switched Network when the DID trunk is: (1) answered by the called station; (2) answered by the attendant; (3) routed to a recorded announcement that can be administered by the CPE user; (4) routed to a dial prompt.

The equipment returns answer supervision on all DID calls forwarded back to the Public Switched Telephone Network except when: (1) a call is unanswered; (2) a busy tone is received; (3) a reorder tone is received.

When ordering DID Service, provide the telco with the following information:

Aspire FCC Registration Number:	
KF	US:NIFKF07BASPIRE
MF	US:NIFMF07BASPIRE
PF	US:NIFPF07BASPIRE
DID Facility Interface Code:	02RV2-T
DID Service Order Code:	9.0F
DID Answer Supervision Code	A S.2
DID USOC Jack Type:	RJ21X

Please note the following:

1. DID services must be purchased from the local telephone company.
2. Refer to the Software Manual for detailed DID description, conditions, and programming instructions.

Cabling Requirements
1. Do not run station cable in parallel with the AC source, telex or computer, etc. If the cables are near cable runs to those devices, use shielded cable with grounded shields or install the cable in conduit. 2. When cables must be run on the floor, use cable protectors. 3. Cable runs for key telephones, single line telephones, Door Boxes, CTA or CTU adapters, and 2PGDAD Modules must be a dedicated, isolated cable pair. 4. The Telco RJ21X and cross-connect blocks should install to the right of the Main Cabinet. Extension blocks and cross-connect blocks should be installed to the left of the Main Cabinet.

Aspire M/L/XL Cable Requirements

Device	Cable Type	Cable Run Length (ft)	Notes
Key Telephone, DSS Console:	2-wire 26 AWG 2-wire 24 AWG 2-wire 22 AWG	1312 1968 2624	
Single Line Telephone, Analog Terminals:	2-wire 26 AWG 2-wire 24 AWG 2-wire 22 AWG	13,123 20,997 34,776	
20mA Setting: 35mA Setting:	1,500 ohm loop resistance 900 ohm loop resistance		Includes resistance of telephone
SLT Adapter: SLTAD to SLT:	2-wire 26 AWG 2-wire 24 AWG 2-wire 22 AWG	1312 1968 2624 500 ohm (including phone's DC termination)	
2PGDAD Adapter:	2-wire 26 AWG 2-wire 24 AWG 2-wire 22 AWG	1312 1968 2624	
Door Box to 2PGDAD:	2-wire 26 AWG 2-wire 24 AWG 2-wire 22 AWG	200 328 550	
Using Under Carpet Cable: The cable is not twisted, but flat parallel wire. Good impedance balance cannot be expected and reduces the cable length to no more than 300m when using the flat cable.			
NTCPU to PC:	Serial cross cable (null modem) Ethernet cross cable USB cable (USB1.1)	49.21 (15 meters) 328.08 (100 meters) 16.40 (5 meters)	
NTCPU to Hub:	Ethernet straight cable	328.08 (100 meters)	
NTCPU to Printer:	Serial cross cable	49.21 (15 meters)	
IP Telephone	LAN (UTP) cable with category 3 or more for 10Base-T, and 5 or more for 100 Base-TX	328.08 (100 meters)	Regardless of whether it receives power from the AC adapter or switching hub.
PC to CTA	Serial Straight Thru Cable	4.92	

Aspire M/L/XL Cable Requirements			
Device	**Cable Type**	**Cable Run Length (ft)**	**Notes**
16VOIPU PCB to IP Telephone and Router	Standard Ethernet Cable	328	
DID Trunks:		DTMF = 1,500 ohm DP = 3,000 ohm	Includes SLT or exchange
8SLIU/8SLIDB to Analog Terminals:		Loop resistance 900 ohm @35mA, 1500 ohm @20 mA	
2/4/8BRIU to ISDN Terminals:	4-wire 24 AWG	100m with Point-Multi-point short connection 300m with Point-Multi-point long connection 500m with Point-Point connection	
1PRIU to ISDN Terminal:	4-wire 24 AWG	164.02 (50 meters)	
ILPA Adapter	Cross-over cable		

Aspire M/L/XL Configuration Guide

Expansion Cabinet								
Power Supply Type								
☐ Qty 1 - P/N 0891000	☐ Qty 2 - P/N 0891000	☐ Qty 1 - P/N 0892011 and P/N 0892012						
Slot Assignment								
EXIFU Expansion Interface	32-Channel Digital/Analog Slots							
	1	2	3	4	5	6	7	8

Main Cabinet								
Power Supply Type								
☐ Qty 1 - P/N 0891000	☐ Qty 2 - P/N 0891000	☐ Qty 1 - P/N 0892011 and P/N 0892012						
Slot Assignment								
NTCPU	32-Channel Digital/Analog Slots							
	1	2	3	4	5	6	7	8

PARTS LIST

Station Equipment	
Description	**Part Number**
2-Button Telephone - Black	0890047
2-Button Telephone - White	0890048
22-Button Handsfree Non-Display Telephone - Black	0890041
22-Button Handsfree Non-Display Telephone - White	0890042
22-Button Handsfree Display Telephone - Black	0890043
22-Button Handsfree Display Telephone - White	0890044
34-Button Handsfree Display Telephone - Black	0890045
34-Button Handsfree Display Telephone - White	0890046
34-Button Super Display Telephone - Black	0890049
34-Button Super Display Telephone - White	0890050
34-Button Aspire IPhone - Black	0890065
24-Button DLS Console - Black	0890053
24-Button DLS Console - White	0890054
110-Button DSS Console - Black	0890051
110-Button DSS Console - White	0890052
NEC H.323 IP Telephone	780005
NEC H.323 IP Telephone AC Adapter	780600
Analog Telephones:	
DTR-1-1 (BK) Single Line Telephone with redial, flash, mw lamp, data jack ringer/handset volume control - Black	780020
DTR-1-1 (WH) Single Line Telephone with redial, flash, mw lamp, data jack ringer/handset volume control - White	780021
DTR-1HM-1 (BK). Same as P/N 780020 with 8 programmable feature/speed dial keys - Black	780025
DTR-1HM-1 (WH). Same as 780021 with 8 programmable feature/ speed dial keys - White	780026
DTH-1-1 (BK) Single line telephone with 4 programmable feature/ speed dial keys, mw lamp, redial, flash & mute keys	780034
Cordless Telephones and Options:	
NEC Cordless II Telephone (Uses 1 Aspire digital station port)	730088
NEC Cordless II - Charger Unit	730621
NEC Cordless II - Belt Clip	730620
NEC Cordless II - Cordless II Leather Case	730626
NEC Cordless II - Replacement Battery	730622
NEC Cordless Lite II Telephone (Uses 1 Aspire digital station port)	730087
NEC Cordless Lite II - Replacement Battery	730631
NEC Cordless Lite II - Wall Mount Unit for Charger	730633
NEC Cordless Lite II - Belt Clip	730634
NEC Cordless Lite II - Charger Unit	730632
AC for Charger (Cordless II or Cordless Lite II)	730619
AC for Base (Cordless II or Cordless Lite II)	730618
Headset (Cordless II or Cordless Lite II)	730602
Wall Mount Plate for Base	730608

Station Equipment	
Description	**Part Number**
Aspire Wireless Telephone and Options:	
Base Station	780136
Handset with Battery	780004
Leather Cover with Clip	780148
Charging Cradle	780137
Repeater Unit	780138
External Antenna with Cable for Repeater	780145
AC Adapter	780139
Battery	780140
Handset Belt Clip	780141
Repeater Programming Kit	780142
Service Tool Kit	780143
Deployment Tool	780144
2.4G Deployment/Diagnostic Kit	780146
Special Additional Handset for Diagnostic Kit	780147

Peripheral Station Equipment	
Description	**Part Number**
2PGDAD Module (for Door Box/Page/ACI)	0891027
AC Adapter (AC-2R)	780135
Analog Interface with Ringing Adapter (APR) (Requires P/N 780135 AC-2R Adapter)	0890056
Analog Interface without Ringing Adapter (APA)	0890057
Call Recording Adapter (ADA)	0890055
Door Box	92245
Headsets (Modular):	
Polaris™ Supra® Monaural, Noise Cancelling	750636
Polaris™ Supra® Binaural, Noise Cancelling	750633
Polaris™ Supra Monaural	750632
Polaris™ Encore Monaural - Voice Tube	750634
Polaris™ Encore® Binaural, Noise Cancelling	750635
Polaris Tristar - Voice Tube	750630
Polaris Mirage - Voice Tube	750631
CT-11 Cordless Headset Telephone	730090
Polaris Headset Accessories:	
Ear Cushion (Pkg of 2)	750656
Clothing Clip	750657
Wind Screen	750650
Clear Voice Tube for Encore and Tristar	750652
Clear Voice Tube for Mirage and Supra	750651
Polaris Extension Cable	750655
Rainbow Voice Tube Pack for Encore and Tristar (Pkg of 6)	750654
Rainbow Voice Tube Pack for Mirage and Supra (Pkg of 6)	750653
IP Adapter (IP)	0890060
In-Line Power Adapter (ILPA)	780122
NEC Audio Emcee:	
Audio Emcee	750316
Replacement Audio Emcee Remote	750317
Replacement RCA Cable	750318
Power Failure Adapter for IP Telephone (PSA)	0890067
Recording Adapter for IP Telephone (ADA2)	0890066
RS-232C Adapter (CTA)	0890058
SLT Adapter	0891026
Speakerphone Adapter - Black (Requires P/N 780135 AC-2R Adapter)	0890062
Speakerphone Adapter - White (Requires P/N 780135 AC-2R Adapter)	0890063
USB Adapter (CTU) (Requires P/N 780135 AC-2R Adapter)	0890059
Voice Security Recorder (VSR) with USB Cable and Software	780275

Aspire Applications	
Description	**Part Number**
Aspire Soft Phone Software on CD	0893641
NEC USB Handset	780094
NEC USB Headset	750638
inDepth/inDepth Plus - ***Aspire M/L/XL Only***	
Aspire inDepth Lite Software (Dongle and Software)	0892144
Aspire inDepth Software (Dongle and Software)	0892102
Aspire inDepth+ Software (Dongle and Software)	0892103
Aspire inDepth Supervisor	0892125
Aspire inDepth Lite to inDepth Upgrade	0892141
Aspire inDepth Lite to inDepth Plus Upgrade	0892142
inDepth to inDepth Plus Upgrade	0892143
inDepth Upgrade i-Series to Aspire	0892153
Aspire inView for 5 Agents	0892126
Aspire inView for 10 Agents	0892127
Aspire inView for 15 Agents	0892128
Aspire inView for 20 Agents	0892129
Aspire inView for 25 Agents	0892130
Aspire inView for 30 Agents	0892131
Aspire inView for 40 Agents	0892132
Aspire inView for 50 Agents	0892133
Aspire inView Upgrade to Add 5 Agents	0892134
Aspire inView Upgrade to Add 10 Agents	0892135
Aspire inView Upgrade to Add 15 Agents	0892136
Aspire inView Upgrade to Add 20 Agents	0892137
Aspire inView Upgrade to Add 25 Agents	0892138
Aspire inView Upgrade to Add 30 Agents	0892139
Aspire inView Upgrade to Add 40 Agents	0892140
Aspire inDepth/inDepth+ Demo CD	0892101
Ultra CallAnalyst	
Ultra CallAnalyst Lite	0891081
Ultra CallAnalyst Lite - to - Full Upgrade	0891082
Ultra CallAnalyst Full	0891083
Ultra CallAnalyst Full + 1 Client	0891084
Ultra CallAnalyst Additional 1 Client	0891085
Ultra CallAnalyst Enterprise Additional Remote Site License Requires 0891095.	0891094
Ultra CallAnalyst Enterprise Server & 120 Ports	0891095
Ultra CallAnalyst Enterprise Remote Site License (with no Ports) Requires 0891095.	0891096
Ultra CallAnalyst Enterprise Additional Port License Requires 0891095.	0891097
Ultra CallAnalyst Enterprise Additional Network Client License Requires 0891095.	0891098
Ultra CallAnalyst Enterprise Site Reporting Thin Client Requires 0891095.	0891099

Aspire M/L/XL Common Equipment	
Description	**Part Number**
Aspire 8 Slot KSU	0890000
Power Supply - Aspire M/L	0891000
Power Supply Set - Includes:	0890069
AC/DC Power Supply - Aspire XL	0892011
DC/DC Converter - Aspire XL	0892012
Power Supply Cable for Power - Aspire XL	0892013
Power Supply Cable for Signal - Aspire XL	0892010
Power Supply Cabinet - Aspire XL	0890068
19” Rack Mount Bracket	0891300
Null Modem Cable for Aspire Mail/PCPro	0892004
NTCPU Battery	EX054-0040
Mod 8 to 25 Pair (Unterminated) Installation Cable	80892
KSU Expansion Set	0891001
64 Port Basic CPU	0891002
256/384 Port CPU	0891038
Feature Upgrade PAL (PAL-A) Chip for 0891002	0891039
32MB Flash Memory PCMCIA Card - with System Software	0891060
32MB Flash Memory PCMCIA Card - Blank	0891061
DSP Resource Daughter Board	0891003
VRS Compact Flash Card	0891040
2 Port Aspire Mail PCB	0891032
2-to-4 Port Aspire Mail Upgrade (for 0891032)	0891044
4 Port Aspire Mail PCB	0891037
4 Port Aspire Mail Plus PCB	0891033
4 Port Aspire Mail Plus Expansion Daughter Board (only used on 0891033)	0891034
4 Port Aspire Mail UMS PCB	0891035
4 Port Aspire Mail Expansion Daughter Board (only used on 0891037)	0891045
8 Port Aspire Mail Plus PCB	0891056
8 Port Aspire Mail Plus Expansion Daughter Board (only used on 0891057)	0891057
56K Modem	85862D
Kentrox Satellite 931 CSU	85945

Aspire M/L/XL PCBs	
Description	**Part Number**
Trunk Interfaces	
4 CO Loop Start Trunk PCB	0891005
8 CO Loop Start Trunk PCB	0891004
4 CO Loop Start/Ground Start Trunk PCB	0891029
8 CO Loop Start/Ground Start Trunk PCB	0891028
4 DID/OPX PCB	0891013
8 DID/OPX PCB	0891012
4 E&M Tie Line PCB	0891011
2 BRI PCB	0891006
4 BRI PCB	0891007
8 BRI PCB	0891008
PRI/T1 PCB	0891009
Station Interfaces	
8 Aspire Digital Station PCB	0891015
16 Aspire Digital Station PCB	0891014
32 Aspire Digital Station PB	0891058
16 i-Series Digital Station PCB	0891016
8 Analog Station PCB	0891017
8 Analog Station Expansion Daughter Board	0891018
4 Aspire Wireless PCB	0891090
8 Aspire Wireless PCB	0891091
12 Aspire Wireless PCB	0891092
10/100Base-T 8-Port Switching Hub (8SHUBU) PCB	0891021
4 Channel VoIP Media Gateway PCB	0891042
4 Channel VoIP Media Gateway Expansion Daughter Board	0891043
16 Channel VoIP Media Gateway PCB	0891022
16 Channel VoIP Media Gateway Expansion Daughter Board	0891023

Bluefire	
Description	**Part Number**
Aspire 4VOIP/Bluefire IX2010 Bundle (IP Card and Router)	0892025
Aspire 16VOIP/Bluefire IX2010 Bundle (IP Card and Router) - Requires PALA (0891039) or NTCPU-B1 (0891038)	0892026
Aspire 4VOIP/Bluefire IX1035 Bundle (IP Card and Router)	0892027
Aspire 16VOIP/Bluefire IX1035 Bundle (IP Card and Router) - Requires PALA (0891039) or NTCPU-B1 (0891038)	0892028
Aspire IP Telephone/Bluefire IX2010 Bundle (Contains 2 0890065 IPhones and Router)	0892029
Aspire IP Telephone/Bluefire IX1035 Bundle (Contains 2 0890065 IPhones and Router)	0892030
Aspire/Bluefire IX1035 IAD 16 Port Bundle (16 Port IP Card and Router with T1) - Requires PALA (0891039) or NTCPU-B1	0892035
Aspire/Bluefire IX1035 IAD 4PORT Bundle (IP Card and Router with T1)	0892036
Bluefire 24 Port 10/100 Base-T Layer 2 Switch with POE, With Power Over Ethernet (POE)	0362009
Bluefire 24 Port 10/100 Base-T Layer 2 Switch, Without POE	0362010
2 Port Fiber Uplink Module for BF 100/24 & 200/24, Connect to Fiber	0362002
2 Port 1000 Base-T Uplink Module for BF 100/24 and 200/24, RJ-45 connector	0362021

Desi Labels	
Description	**Part Number**
Analog Telephones:	
Desi Labels for 780020/780021 - Black, Package of 25	780400
Desi Labels for 780020/780021 - Green, Package of 25	780401
Desi Labels for 780020/780021 - Silver, Package of 25	780402
Desi Labels for 780020/780021 - White, Package of 25	780403
Desi Labels for 780025/780026 - Black, Package of 25	780404
Desi Labels for 780025/780026 - Green, Package of 25	780405
Desi Labels for 780025/780026 - Silver, Package of 25	780406
Desi Labels for 780025/780026 - White, Package of 25	780407
Desi Labels for 780034 - Metal Silver, Package of 25	780450
2-Button Telephones:	
Desi Label for 2BTN Tel-Silver (25-pkg), For Laser Jet printers only	0893704
Desi Label for 2BTN Tel-Solid Silver (25-pkg), For Ink Jet and Laser Jet printers - solid silver	0893764
Desi Label-2BTN Tel-Black (25-pkg), For Ink Jet and Laser Jet printers with light striping	0893724
Desi Label for 2BTN Tel-White (25-pkg), For Ink Jet and Laser Jet printers with light striping	0893734
Desi Label for 2BTN Tel-Silver (25-pkg), For Ink Jet and Laser Jet printers with light striping	0893744
Desi Label for 2BTN Tel-Silver (25-pkg), No labels on fixed feature keys, used for other languages	0893774
Desi Labels for 2BTN Tel (25-pkg) - Blank, Used with Desi Pre-Print Software for printing large pictures	0893784
22-Button Non-Display Telephones:	
Desi Label for 22BTN Tel-Silver (25-pkg), For Laser Jet printers only	0893700
Desi Label for 223BTN Tel-Solid Silver (25-pkg), For Ink Jet and Laser Jet printers - solid silver	0893760
Desi Label for 22BTN Tel-Black (25-pkg), For Ink Jet and Laser Jet printers with light striping	0893720
Desi Label for 22BTN Tel-White (25-pkg), For Ink Jet and Laser Jet printers with light striping	0893730
Desi Label for 22BTN Tel-Silver (25-pkg), For Ink Jet and Laser Jet printers with light striping	0893740
Desi Label for 22BTN Tel-Silver (25-pkg), No labels on fixed feature keys, used for other languages	0893770
Desi Labels for 22BTN Tel (25-pkg) - Blank, Used with Desi Pre-Print Software for printing large pictures	0893780

Desi Labels	
Description	**Part Number**
22-Button Display Telephones:	
Desi Label for 22BTN Display Tel-Silver (25-pkg), For Laser Jet printers only	0893701
Desi Label for 22BTN Display Tel-Solid Silver (25-pkg), or Ink Jet and Laser Jet printers - solid silver	0893761
Desi Label for 22BTN Display Tel-Black (25-pkg), For Ink Jet and Laser Jet printers with light striping	0893721
Desi Label for 22BTN Display Tel-White (25-pkg), For Ink Jet and Laser Jet printers with light striping	0893731
Desi Label for 22BTN Display Tel-Silver (25-pkg), For Ink Jet and Laser Jet printers with light striping	0893741
Desi Label for 22BTN Display Tel-Silver (25-pkg), No labels on fixed feature keys, used for other languages	0893771
Desi Labels for 22BTN Display Tel (25-pkg) - Blank, Used with Desi Pre-Print Software for printing large pictures	0893781
34-Button Display Telephones:	
Desi Label for 34BTN Display Tel-Silver (25-pkg), For Laser Jet printers only	0893702
Desi Label for 34BTN Display Tel-Solid Silver (25-pkg), For Ink Jet and Laser Jet printers - solid silver	0893762
Desi Label for 34BTN Display Tel-Black (25-pkg), For Ink Jet and Laser Jet printers with light striping	0893722
Desi Label for 34BTN Display Tel-White (25-pkg), For Ink Jet and Laser Jet printers with light striping	0893732
Desi Label for 34BTN Display Tel-Silver (25-pkg), For Ink Jet and Laser Jet printers with light striping	0893742
Desi Label for 34BTN Display Tel-Silver (25-pkg), No labels on fixed feature keys, used for other languages	0893772
Desi Labels for 34BTN Display Tel (25-pkg) - Blank, Used with Desi Pre-Print Software for printing large pictures	0893782
34-Button Super Display Telephones:	
Desi Label for 34BTN Display Tel-Silver (25-pkg), For Laser Jet printers only	0893703
Desi Label for 34BTN Display Tel-Solid Silver (25-pkg), For Ink Jet and Laser Jet printers - solid silver	0893763
Desi Label for 34BTN Display Tel-Black (25-pkg), For Ink Jet and Laser Jet printers with light striping	0893723
Desi Label for 34BTN Display Tel-White (25-pkg), For Ink Jet and Laser Jet printers with light striping	0893733
Desi Label for 34BTN Display Tel-Silver (25-pkg), For Ink Jet and Laser Jet printers with light striping	0893743
Desi Label for 34BTN Super Display Tel-Silver (25-pkg), No labels on fixed feature keys, used for other languages	0893773
Desi Labels for 34BTN Super Display Tel (25-pkg) - Blank, Used with Desi Pre-Print Software for printing large pictures	0893783

Desi Labels	
Description	**Part Number**
110-Button DSS Consoles:	
Desi Label for 110 DSS-Silver (25-pkg), For Laser Jet printers only	0893705
Desi Label for 110 DSS-Solid Silver (25-pkg), For Ink Jet and Laser Jet printers - solid silver	0893765
Desi Label for 110 DSS-Black (25-pkg), For Ink Jet and Laser Jet printer with light striping	0893725
Desi Label for 110 DSS-White (25-pkg), For Ink Jet and Laser Jet printers with light striping	0893735
Desi Label for 110 DSS-Silver (25-pkg), For Ink Jet and Laser Jet printers with light striping	0893745
Desi Label for 110 DSS-Silver (25-pkg), No labels on fixed feature keys, used for other languages	0893775
Desi Label for 110 DSS-Silver (25-pkg) - Blank, Used with Desi Pre-Print Software for printing large pictures	0893785
24-Button DLS:	
Desi Label for 24 DLS-Silver (25-pkg), For Laser Jet printers only	0893706
Desi Label for 24 DLS-Solid Silver (25-pkg), For Ink Jet and Laser Jet printers - solid silver	0893766
Desi Label for 24 DLS-Black (25-pkg), For Ink Jet and Laser Jet printers with light striping	0893726
Desi Label for 24 DLS-White (25-pkg), For Ink Jet and Laser Jet printers with light striping	0893736
Desi Label for 24 DLS-Silver (25-pkg), For Ink Jet and Laser Jet printers with light striping	0893746
Desi Label for 24 DLS-Silver (25-pkg), No labels on fixed feature keys, used for other languages	0893776
Desi Label for 24 DLS-Silver (25-pkg) - Blank, Used with Desi Pre-Print Software for printing large pictures	0893786

Spare Parts	
Description	**Part Number**
Aspire Handset without cord - White	NSG-170108-001
Aspire Handset without cord - Black	NSG-170108-002
Aspire Faceplate Kit - 22B Non-Display Telephone, Package of 10 with 40 Rivets	0892000
Aspire Faceplate Kit - 22B Display Telephone, Package of 10 with 40 Rivets	0892001
Aspire Faceplate Kit - 34B Display Telephone, Package of 10 with 40 Rivets	0892002
Aspire Faceplate Kit - 34B Super Display Telephone, Package of 10 with 40 Rivets	0892003
Aspire Faceplate Rivets, Package of 25	0892005
Aspire Plastic Wall Mount Plate, Package of 10	0892007
Aspire Wall Mount Hooks-All Telephones, Package of 10	0892008
Aspire 2B DSLT Metal Wall Plates, Package of 5	0892009
Bottom Directory Tray (Dial card)	M-790526
Flying Directory Plastic Clip, Package of 10	780525
Flying Directory Card Kit (10 Directory cards for 780525)	770626

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S

NEC

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Customer Service FAX: 203-926-5454
Technical Service: 203-925-8801
Discontinued Product Service: 900-990-2541
Technical Training: 203-926-5430
Emergency Technical Service (After Hours) 203-929-7920
(Excludes discontinued products)

0893100

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