MERLIN™

COMMUNICATIONS SYSTEM

SERVICE AND MAINTENANCE MANUAL: MODELS 1030 AND 3070

Table of Contents

NOTE: Pages within the individual trouble sections are numbered in an unusual way to make this manual easy to update. In page number A1-4, for instance, the A indicates the section— "A. Trouble on One Telephone." The 1 indicates the first trouble category within that section—Ringing. The 4 indicates the fourth page of ringing symptoms.

Refer to the letters and numbers on the tab dividers for help in finding page numbers listed in the index.

Introduction

Even the magic of the MERLIN™ communications system sometimes fails. The problem may be a user error, installation problem, or faulty component. Usually you can correct the problem on the spot without returning any equipment for maintenance exchange.

The *Service and Maintenance Manual: Models 1030 and 3070* is intended for use by both the customer and services technician. This troubleshooting manual is divided into five parts:

- **Functional Overview** describes each communications system component and its use.
- **Isolating and Correcting Troubles** includes step-by-step procedures to help you isolate a problem to a user error or a specific component. Most procedures require no tools. A few procedures require a screwdriver or a basic Touch-Tone or rotary telephone (a Power Failure Transfer Telephone will work).
- **CIB 3018: Diagnostics Module** describes how to use the optional Diagnostics Module.
- **CIBs** includes copies of customer instruction booklets shipped with the components. The CIBs describe the functional features and installation of each component.
- **Index** lists problems, features, and components. It will help you find the information you need quickly.

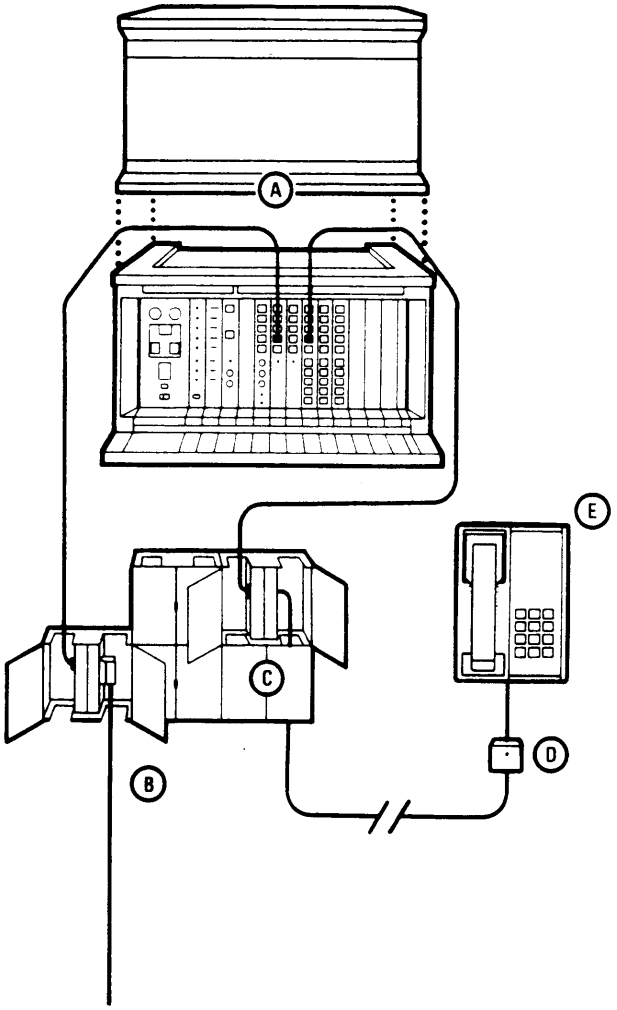
Functional Overview

This section describes the components of the MERLIN communications system and explains how they fit together in a typical installation. Every MERLIN system installation will include the major components shown on page 5.

Additional equipment may be attached to the MERLIN communications system to provide expanded features and services. See pages 14 to 18 for information about optional voice terminal accessories and control unit accessories.

Further information on many of the components (including installation instructions) is available in the customer instruction booklets (CIBs) included under the CIB tab divider. The CIB number for each component is noted near its illustration in this section.

BASIC CONFIGURATION



A. **Control unit:** The control unit is the heart of the MERLIN system. It provides the power and intelligence for all voice terminals as well as the connection between voice terminals and outside lines. Program memory for the MERLIN system resides in the control unit.

   Model 1030 is the basic control unit (the lower half of the unit illustrated) and has a capacity of 10 lines and 30 voice terminals or telephones. Model 3070, with the expansion unit mounted above the basic control unit as illustrated, has a capacity of 30 lines and 70 voice terminals or telephones.

B. **Network interface:** The network interface connects the control unit and the outside lines. The most common network interface is the 25-pair amphenol connector (RJ21) illustrated. However, the network interface may be different (see the *Installation Guide: Models 1030 and 3070).*

C. **Jack field:** The jack field connects the control unit and modular jacks for the voice terminals. Optional attachments (extra alerts, paging systems, etc.) may also connect to the control unit through the jack field.

D. **Modular jack:** Each voice terminal wiring run from the jack field terminates in a modular jack. Every voice terminal has a separate modular jack.

E. **Voice terminal:** The voice terminal provides not only basic telephone functions, but also access, usually by programmable buttons, to the advanced feature software residing in the control unit. Basic Touch-Tone and rotary-dial telephones may also be used with the MERLIN system. These telephones access system features by means of dial codes.

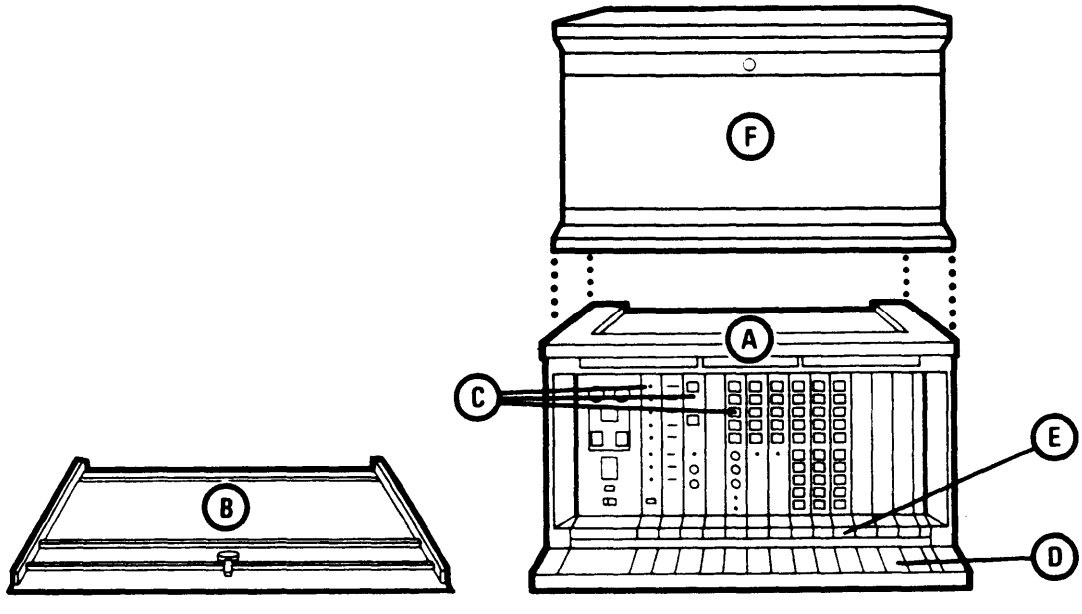
CONTROL UNIT

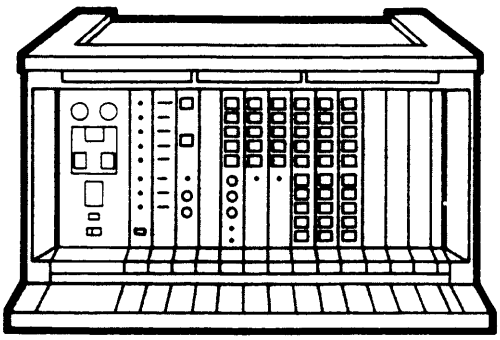
The control unit provides power for all voice terminals and most accessories. All outside lines and all voice terminals and telephones connect to the control unit, which contains the microprocessor and modules for all the advanced features available with the MERLIN system.

Model 1030 consists of a basic control unit (A). Behind the removable front panel (B) of the control unit, the modules (C) are arranged vertically across the width of the unit. Each vertical position serves the particular function defined on the colored band on the base (D). Tabs (E) on the individual modules are color-coded to the appropriate positions. Module positions in the basic control unit are numbered on the colored band (from left to right) I through I5. Positions reserved for optional features and services may be vacant and will have protective plastic covers.

In Model 3070, an expansion unit (F) is mounted on top of the control unit. Additional modules, located behind the removable front panel of the expansion unit, increase the capacity of the system to up to 30 lines and 70 voice terminals or telephones. Module positions in the expansion unit are numbered 16 through 28. Wiring connecting the two units runs inside the cabinets behind the modules.

Modules are electrically connected to the control unit via pins located at the rear of the module slots. Abrupt insertion or removal of modules may cause pins to bend, triggering problems within the control unit. (For any problem common to several voice terminals, it is advisable to examine the pins.)





POWER MODULE

The Power Module, color-coded red, occupies position 1 and supplies power to the entire Model 1030 control unit. In Model 3070, a second Power Module in position 16 of the expansion unit supplies power for lines CO through C4 and D0 through D4 and intercoms 40 through 69. (The Line Module description on page 12 explains how line designations are determined; the Voice Terminal Module description on page 13 explains how intercom designations are determined.) In systems with more than 20 lines or more than 60 voice terminals or telephones, a Supplementary Power Module occupies position 27 in the expansion unit and supplies power to lines E0 through E4, lines F0 through F4, and intercoms 70 through 79.

Circuit Breakers: Provide current surge protection for the control unit.

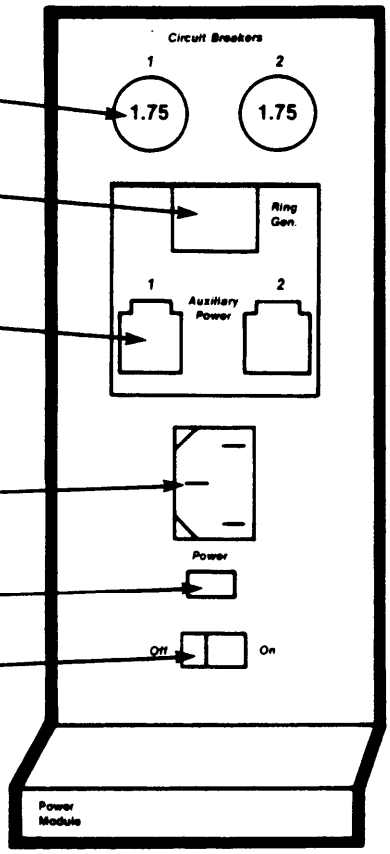
Ring Gen. jack: Provides connection for Ring Generator Unit needed for basic telephones.

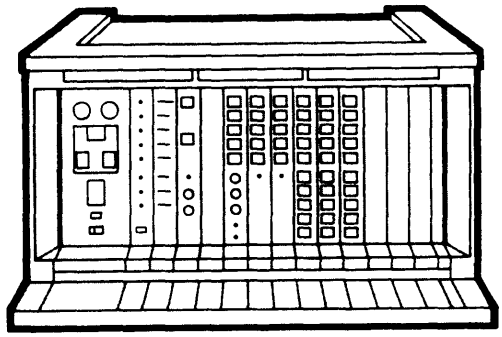
Auxiliary Power jacks: Provide connections for Auxiliary Power Units needed for systems with many accessories or 34-button deluxe voice terminals.

Power receptacle: Provides connection for ac power cord plug.

Power light (green): Goes on when power is on.

On/Off switch: Turns ac power on and off; resets control unit when switches on Processor Module are changed.



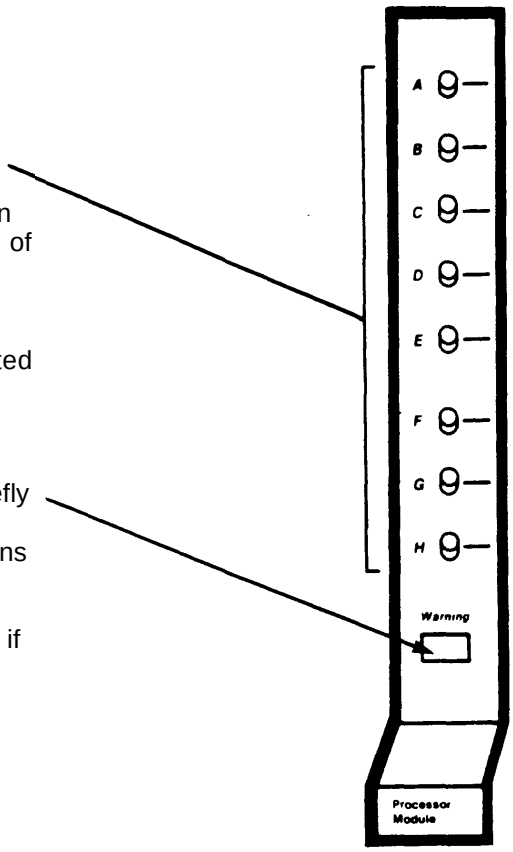


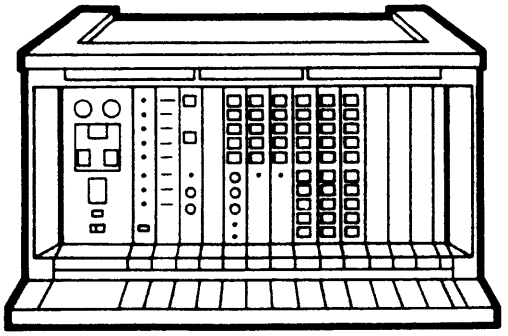
PROCESSOR MODULE

The Processor Module, color-coded violet, occupies position 2. This module contains the microprocessor which runs all the programs stored in the Feature Module (see page 8) of the MERLIN system.

Switches A through H: Each switch on the Processor Module aligns with a label on the Feature Module in position 3 when both modules are in place. The function of each switch is indicated by the corresponding label on the Feature Module. (Refer to the *Administration Manual: Models 1030 and 3070* associated with the Feature Module for specific information about the switches.)

Warning light (red): When power is turned on, the warning light goes on briefly (while the module runs certain internal diagnostics) and then goes out. It remains on if there is a problem with the control unit, for example, if a module is not completely plugged in. It goes on again if a problem occurs while the system is running.



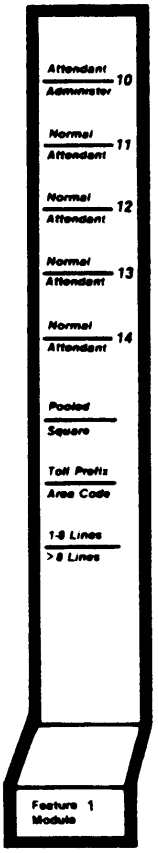


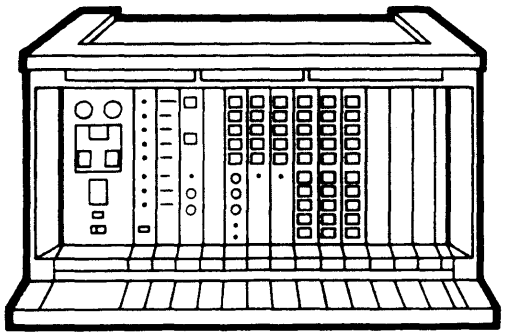
FEATURE MODULE

Feature Module 1, color-coded orange, occupies position 3. Feature Module 1 is the first in a series. This module contains all programs for the MERLIN system features on ROM (read-only memory) chips. The individual voice terminal has no memory or programming capabilities in itself. A voice terminal, when connected to the MERLIN system, can be programmed to perform specific functions (for example, automatic dialing of home number). However, the actual program instructions are stored in the Feature Module, not in the voice terminal. The system will not operate without a Feature Module in position 3.

Labels on the Feature Module indicate the functions of the corresponding switches on the Processor Module in position 2. Numbers on the top five positions are intercom designations (see Voice Terminal Module description, page 13, for discussion on how intercom designations are determined).

Refer to the *Administration Manual: Models 1030 and 3070* for specific information about the switch definitions on Feature Module 1.





DIAGNOSTICS MODULE (OPTIONAL)

The Diagnostics Module, an optional module color-coded orange, occupies position 4. (When the Diagnostics Module is not used, a plastic cover protects position 4.) The Diagnostics Module permits testing of memory and individual Line, Voice Terminal, and Basic Telephone Modules.

EIA RS-232c jack: Permits connection of a data terminal for more detailed testing. This jack is covered with a plastic tab if a data terminal is not used.

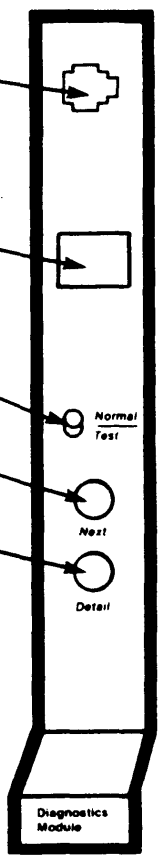
4-character alphanumeric display: Provides diagnostic messages during testing.

Normal/Test switch: Permits normal call processing when set to *Normal;* permits diagnostic testing when set to *Test.*

Next pushbutton: Pressed to resume testing when diagnostics are interrupted by a problem.

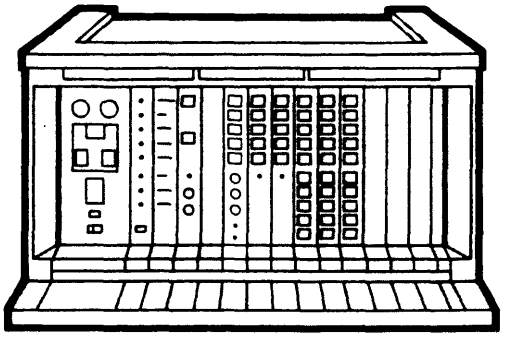
Detail pushbutton: Pressed to request further information when * appears in the character display area, signaling detection of a problem.

See *CIB 3018: Diagnostics Module* under the Diagnostics tab divider for further information about the Diagnostics Module.



MODULE A

Position 5, color-coded gold, is reserved for future use. At present a plastic cover protects this position.



SERVICES MODULE TYPE B (OPTIONAL)

The Services Module (Type B), an optional module color-coded yellow, occupies position 6. When a Type B module is not used, a plastic cover protects position 6. The Services Module provides connections for auxiliary equipment: single- and multizone paging systems, music sources, extra alerts, and Power Failure Transfer Telephones.

PFTT jack: Provides connection for up to four backup basic Touch-Tone or rotary telephones (Power Failure Transfer Telephones). Service will automatically switch over to these telephones if power to the control unit is interrupted. When power is restored, service will automatically switch back to the control unit. A single telephone plugged into the module connects with line A0. When connected through a 4-Way Modjack Adapter, four phones will access lines A0, A1, B0, and B1. (See Line Module description, page 12, for information on line designations.)

Extra Alert jacks: Provide connections for three separately controllable extra alerts (horns, bells, chimes, strobes, etc.).

Page jack: Provides connections for a single- or multizone paging system.

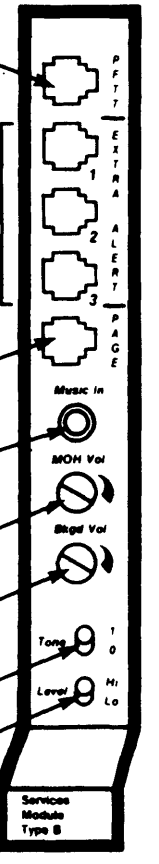
Music In jack: Provides a music source connection for Music-on-Hold and Background Music features.

MOH Vol screw: Controls the volume for Music-on-Hold.

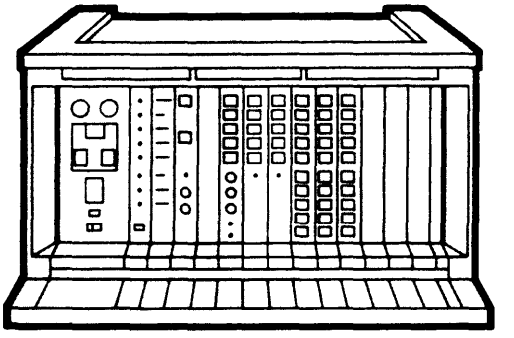
Bkgd Vol screw: Controls the volume for Background Music.

Tone switch: Turns paging signal on and off (1 = on, 0 = off).

Level switch: Sets impedance level for music source.

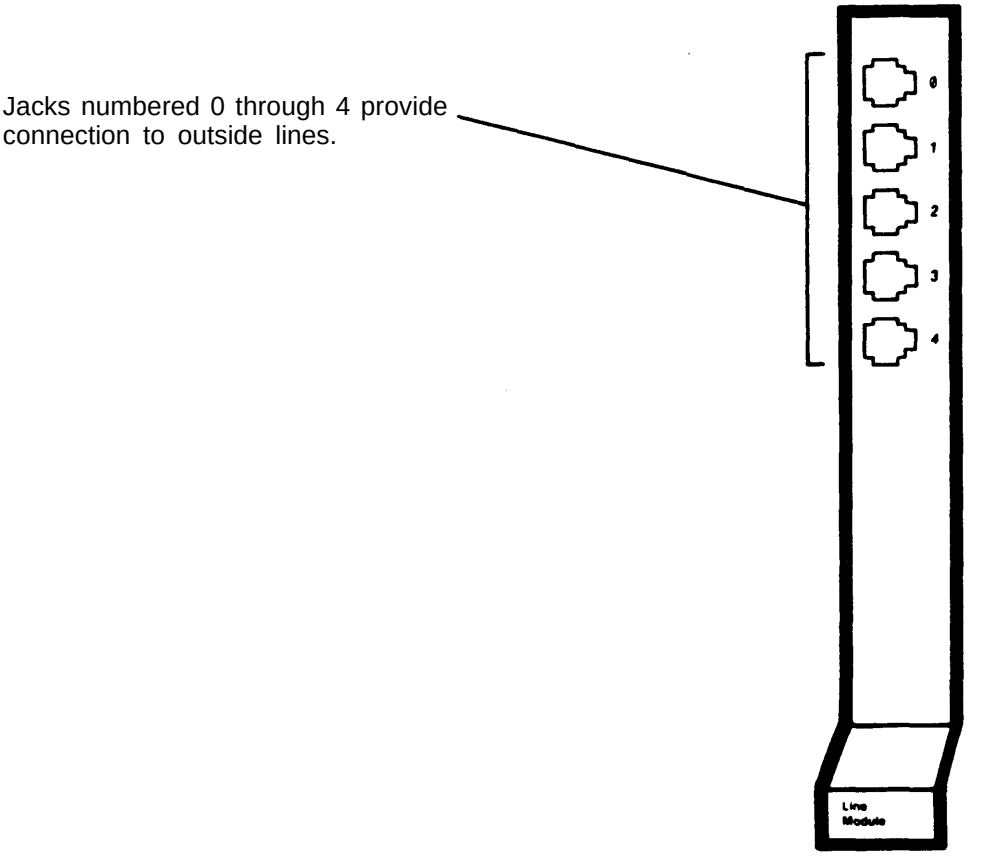


CIB 3016

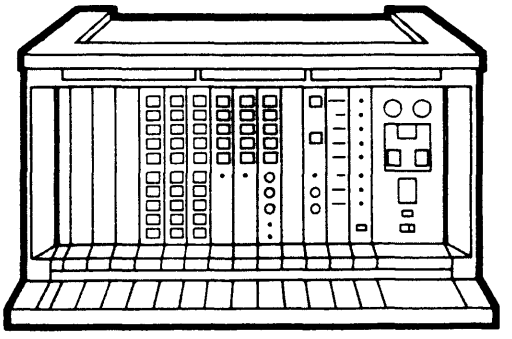


LINE MODULE

The Line Module, color-coded green, occupies position 7. Additional Line Modules (up to five) can occupy position 8 in the control unit and positions 17, 18, 19, and 20 in the expansion unit. Line Module positions are labeled on the colored bands on the control unit and the expansion unit with the letters A through F in addition to position numbers 7, 8, 17, 18, 19, and 20. Each Line Module provides connections for five outside lines via modular jacks labeled 0 through 4. Both the module and the jack to which a line connects determine the line designation: The designation is the letter label of the module position plus the number of the jack on that module to which the line connects. For example, the line plugged into the third jack on the module in position 8 (labeled Lines B0 to B4) is designated B2.

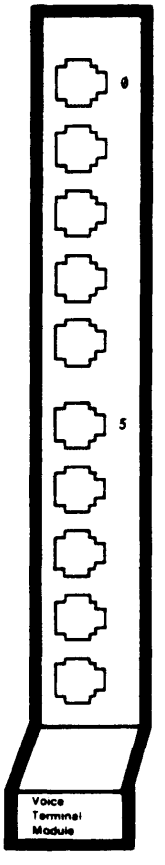


CIB 3014



VOICE TERMINAL MODULE

The Voice Terminal Module, color-coded blue, occupies position 9 (labeled Intercoms 10 to 19). Up to six additional Voice Terminal Modules can occupy positions 10 and 11 in the Model 1030 control unit, and positions 21, 22, 23, and 24 in the expansion unit. The seven Voice Terminal Module positions are labeled on the colored bands on the control unit and the expansion unit with intercom designations (Intercom 10 to 19, Intercom 20 to 29, etc., through Intercom 70 to 79) in addition to position numbers 9, 10, 11, 21, 22, 23, and 24. Each Voice Terminal Module provides connections for 10 voice terminals via 4-pair modular jacks (only jacks 0 and 5 are numbered). Both the module position and the jack number determine the intercom number for each voice terminal. For example, the voice terminal connected to the third jack from the top in position 11 (labeled Intercoms 30 to 39) is number 32.

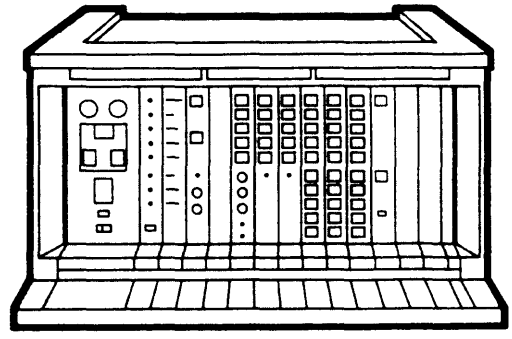


CIB 3013

BASIC TELEPHONE MODULE (OPTIONAL)

Basic Telephone Modules are interchangeable with Voice Terminal Modules and occupy the same positions (except for position 9). These modules allow for connection of basic Touch-Tone and rotary telephones to the MERLIN system via modular jacks. Advanced features are available through dial-access codes (see *User's Guide for Basic Touch-Tone and Rotary Telephones).* A Ring Generator Unit must be connected to the Power Module to provide ringing current to the telephones connected to the Basic Telephone Module.

CIB 3040



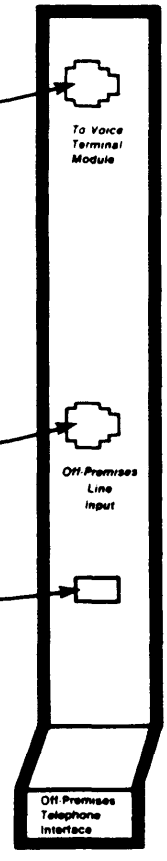
OFF-PREMISES TELEPHONE INTERFACE TYPE C (OPTIONAL)

The Off-Premises Telephone Interface, an optional module color-coded gray, may occupy position 12, 13, or 14 on the Model 1030 control unit or position 25 or 26 on the expansion unit. This module connects off-premises telephones to the MERLIN communications system, making the advanced features available to the off-premises user. Unlike the other modules, this module has no electrical connections to the backplane of the control unit; power is supplied directly through the top jack connection.

To Voice Terminal Module jack: Connection via a 4-pair cord is made from this jack to an open jack on a Voice Terminal Module. The jack to which this module is connected determines the intercom number of the off-premises telephone. Connecting a 4-pair cord from this jack to jack 8 on the Voice Terminal Module in position 9, for example, will mean the off-premises phone will be intercom 17.

Off-Premises Line Input jack: Off-premises outside line connects via 2-pair wire directly to this input.

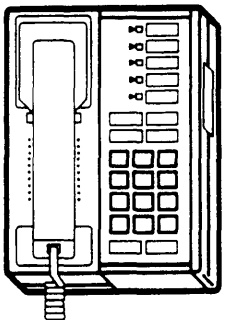
Power light (green): Goes on when power is on.



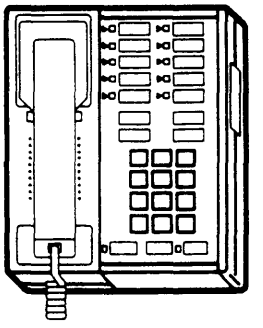
CIB 3009

VOICE TERMINALS

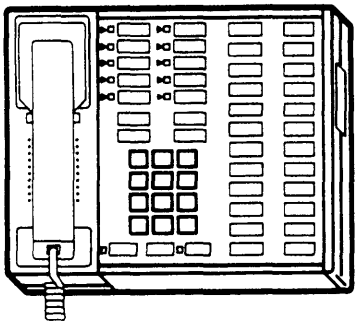
Several types of voice terminals may be connected to Model 1030/3070. The different types of voice terminals are distinguished from each other by the number of silver membrane buttons above and to the right of the dial pad. These buttons give access to lines and features; most buttons are programmable. The operation of each voice terminal can be customized by programming different features to these buttons. (The individual voice terminal has no memory or programming capabilities by itself, however. Actual program instructions are stored in the Feature Module of the control unit.) Refer to the *Administration Manual: Models 1030 and 3070* or the *User's Guide: Models 1030 and 3070* for more information about voice terminal operation. Examples of available voice terminals are illustrated below.



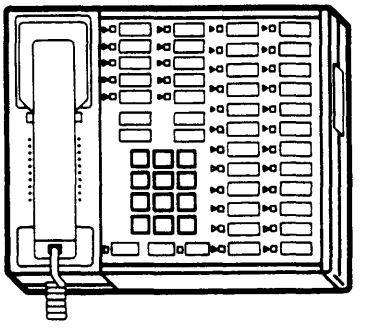
5-Button Voice Terminal



10-Button Voice Terminal



34-Button Voice Terminal



34-Button Deluxe Voice Terminal

BASIC TOUCH-TONE/ROTARY TELEPHONE

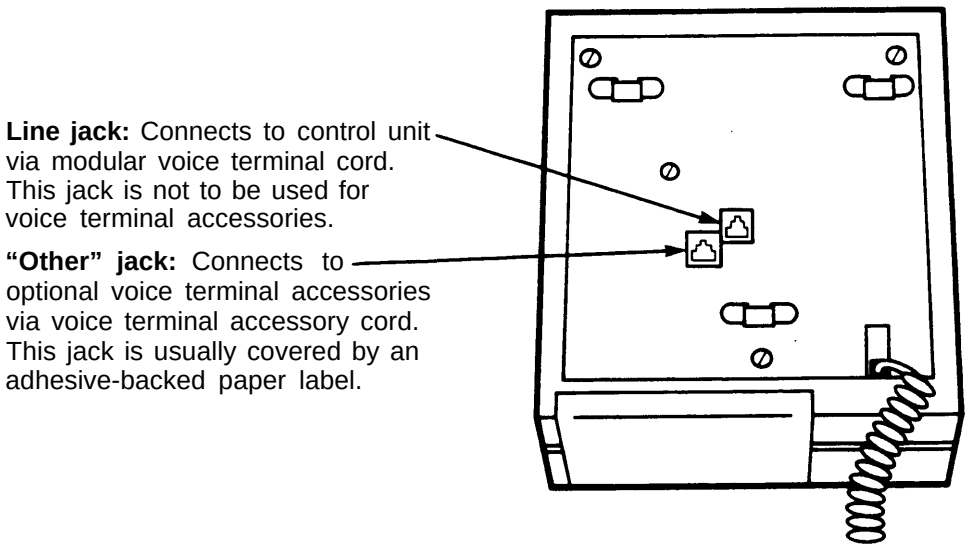
MERLIN system features are also available using dial-access codes and a Touch-Tone or rotary telephone (see *User's Guide for Basic Touch-Tone and Rotary Telephones).* Basic telephones are also used for off-premises and power failure backup service. Basic telephones may connect to the control unit through the Basic Telephone Module, the Off-Premises Telephone Interface, and the PFTT jack on the Services Module.

OPTIONAL EQUIPMENT

In addition to the essential components of the MERLIN communications system, several different accessories may be connected to voice terminals or the control unit.

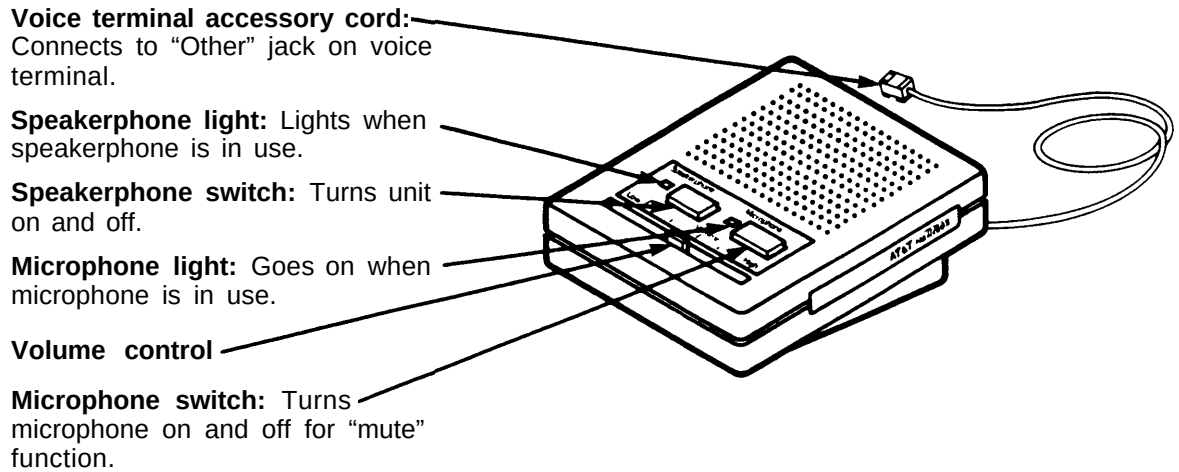
Optional Voice Terminal Accessories

Hands-Free Units, Headset Adapters, and Multipurpose Adapters can be connected directly to the underside of the voice terminal, illustrated below. A Voice Terminal Power Supply can also be connected to a voice terminal and an ac outlet.



Hands-Free Unit (HFU)

The Hands-Free Unit provides speakerphone capability, making it possible to place and receive outside and intercom calls without using the voice terminal handset. The HFU, shown below, can be used with 10-button or 34-button voice terminals.



CIB 2864

Headset Adapter

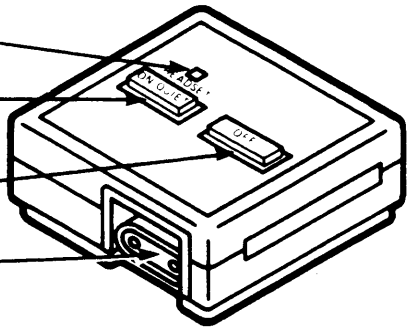
The Headset Adapter makes it possible to use a headset with a 10-button or 34-button voice terminal.

Headset light: Goes on when headset is in use.

On/Quiet switch: Turns adapter sound on; when held down, provides "mute" function.

Off switch: Turns adapter sound off.

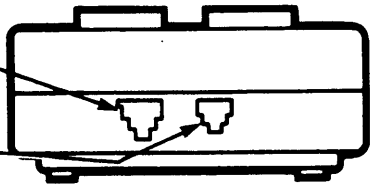
Jack: Provides connection for headset equipped with 2-prong plug.



Front

Jack: Provides connection by a voice terminal accessory cord to the "Other" jack on the voice terminal.

Jack: Provides connection for headset equipped with modular plug.



Back

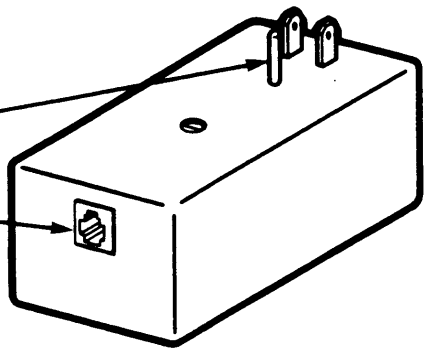
CIB 2867

Voice Terminal Power Supply

A Voice Terminal Power Supply provides extra power to 34-button deluxe voice terminals and attendant consoles. The power supply plugs into an ac outlet not controlled by a switch. A cord (included with the power supply) connects it to one jack of a 2-jack adapter (also included). The modular terminal cord from the voice terminal plugs into the other jack on the adapter. The adapter has a plug end that connects to a modular jack mounted near the voice terminal.

Plug: Connects to ac outlet.

Output jack: Provides connection for cord to Z400F Adapter.



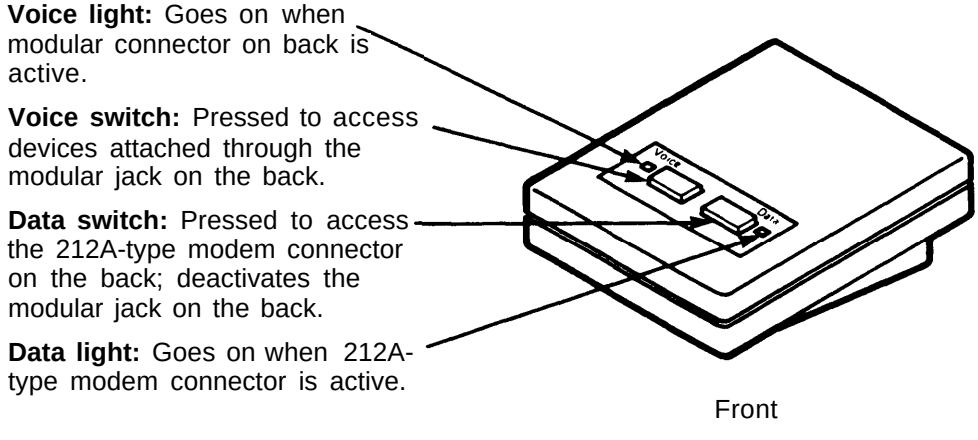
CIB 3007

Multipurpose Adapters

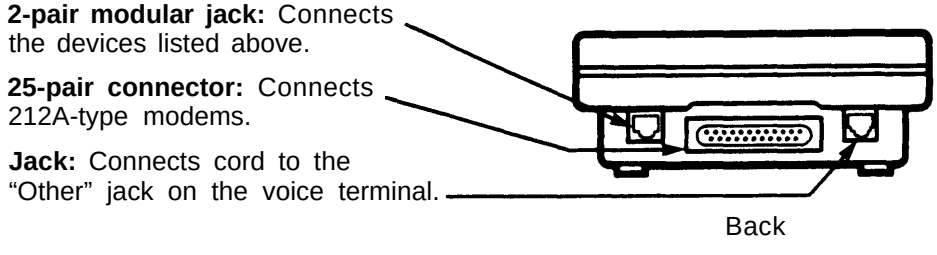
The Manual Multipurpose Adapter (illustrated below) permits these devices to be connected to a voice terminal:

- Modems and data terminals with builtin modems. (An extra telephone is not needed with an AT&T 212A-type modem with a special cable. Automatic answering modems cannot be used.)
- Basic Touch-Tone or rotary telephones. (These telephones will not ring for incoming calls. Calls cannot be dialed out on rotary telephones.)
- Speakerphones and conference phones.
- Touch-Tone automatic dialers.
- Cordless telephones. (Cordless telephones will not ring for incoming calls. Calls cannot be dialed out on cordless rotary telephones.)
- Facsimile machines.

The Automatic Multipurpose Adapter, very similar in appearance to the Manual Multipurpose Adapter, can be differentiated by the word AUTO on the front surface. It permits the same attachments as the manual adapter and also allows for connection of an answering machine or automatic answering modem to a voice terminal.



Front

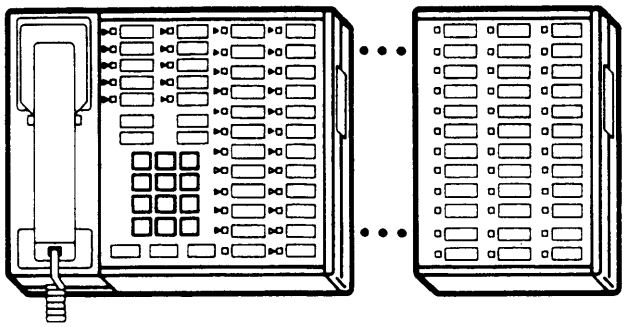


Back

CIB 3008

Attendant Intercom Selector

The Attendant Intercom Selector can be attached to a 34-button deluxe voice terminal. The selector's 30 buttons can be used to access up to 70 Intercom Auto Dial numbers. The light beside each button indicates whether a voice terminal or basic telephone is busy and whether its message light is on (voice terminals only).



CIB 3026

Optional Control Unit Accessories

Some optional accessories connect directly to the control unit to give the MERLIN system additional capabilities.

Ring Generator Unit

The Ring Generator Unit must be connected to the Power Module on the control unit to provide ringing current when basic Touch-Tone or rotary telephones are connected to a Basic Telephone Module. The Ring Generator Unit looks similar to the Auxiliary Power Unit illustrated on page 19. However, the Ring Generator Unit has, in place of the Aux Power jack, a permanent cord with a plug that connects to the Ring Gen. jack on the Power Module.

CIB 3019

Auxiliary Power Unit

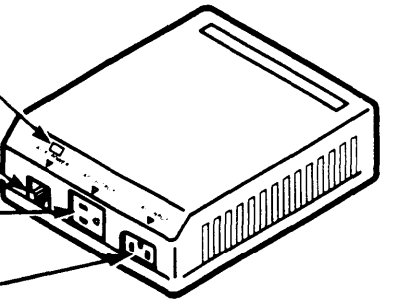
The Auxiliary Power Unit connects to the Power Module to provide extra power to the control unit in systems with many accessories or 34-button deluxe voice terminals.

Aux Power light: Goes on when the Auxiliary Power Unit is connected to the Power Module of the control unit.

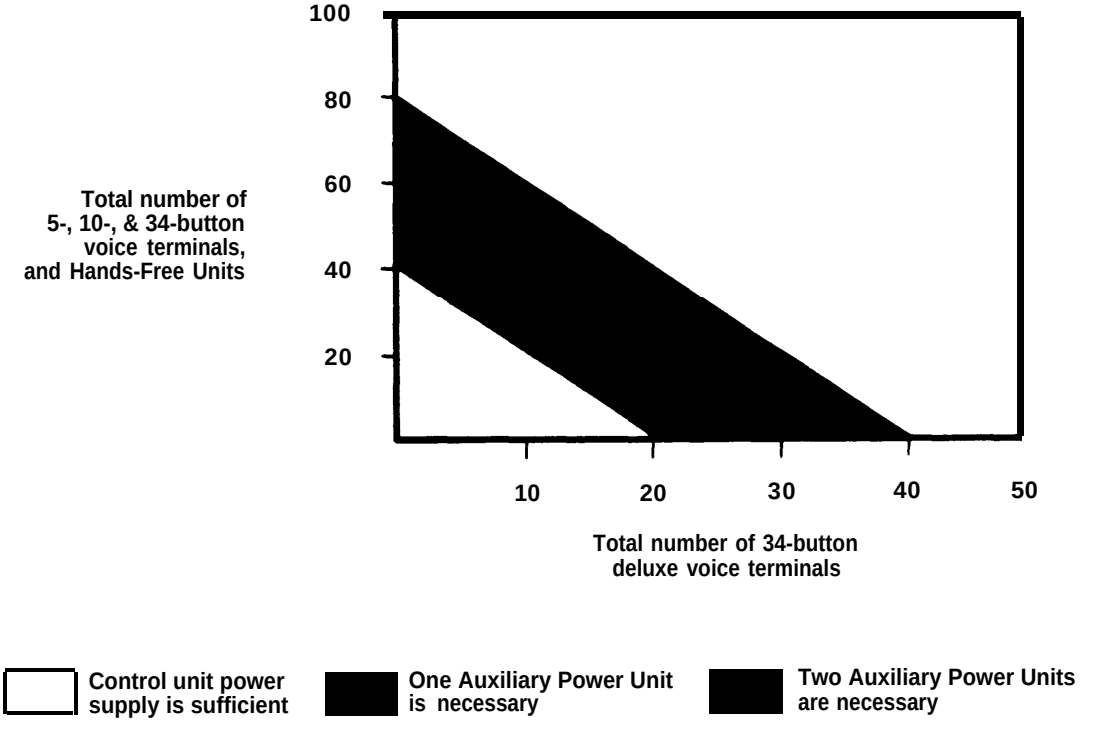
Aux Power jack: Connects via dc cord (supplied) to the Auxiliary Power jack on the Power Module of the control unit.

AC Output jack: Connects the ac power cord from the control unit.

AC Input connector: Connects power cord to an ac outlet.



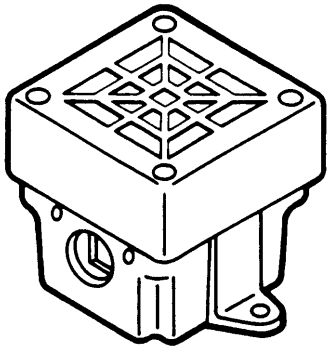
The graph below indicates when an Auxiliary Power Unit is necessary.



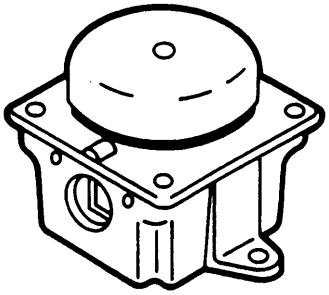
Extra Alerts

Extra alerts such as horns and bells provide signaling in large, open areas (for example, warehouses and parking lots) and especially noisy environments. Extra alerts connect either directly to the Services Module on the control unit or by the Extra Alert Switch.

Extra Alert Horn: Provides a loud signal in noisy environments where a unique, non-bell sound must be heard over a large area. It can be used indoors or out.

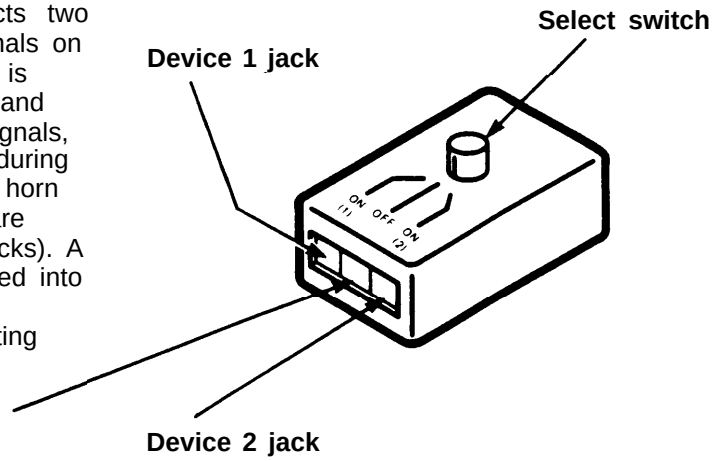


Extra Alert Bell: Alerts people that a telephone is ringing by providing a loud signal in remote or noisy areas. It can be used indoors or out.



Extra Alert Switch: Connects two extra alerts. Turns alert signals on and off (if an alerting device is connected to only one jack) and selects between alternate signals, for example an alert strobe during business hours and an alert horn at night (if alerting devices are connected to both device jacks). A Line Bridging Adapter inserted into either device jack permits connection of a second alerting device to that device jack.

Jack: Connects to Services Module of control unit.



Isolating and Correcting Troubles

To isolate and correct a trouble:

FIRST: Determine if more than one voice terminal or basic Touch-Tone or rotary telephone is experiencing the trouble.

SECOND: If the trouble appears on only one voice terminal or telephone, find the symptom in the list below titled "A. Trouble on One Telephone." The list includes examples of problems categorized under each symptom. Turn to the tab divider for the symptom and follow the procedures for your specific problem.

If the same problem appears on all or most telephones, find the symptom in the list titled "B. Trouble on Several Telephones." Turn to the tab divider for the symptom and follow the procedures for your specific problem.

For any problem common to several voice terminals or telephones, check for bent or broken pins on the control unit backplane. If any pins are damaged, contact your equipment supplier. Never reinsert a module in a slot with bent pins.

Refer to the functional overview or CIBs in this manual if you need more detail on any component. For more information on programming voice terminals, refer to the *User's Guide: Models 1030 and 3070* and *Administration Manual: Models 1030 and 3070* that come with the Feature Module.

The index will also help you find information on specific problems. If you cannot find your problem in the symptom list or index, contact your equipment supplier.

A. TROUBLE ON ONE TELEPHONE

Symptoms

1. Ringing (no ringing, constant ringing, etc.)
2. Dialing (no dial tone, trouble with Auto Dial buttons, etc.)
3. Hearing (user or outside caller cannot hear, etc.)
4. Lights (voice terminal has no lights or lights behave in peculiar ways)
5. Features (problems with holding calls, transferring calls, etc.)
6. Accessories (problems with Hands-Free Units)
7. Miscellaneous (voice terminal or accessory suddenly fails, etc.).

B. TROUBLE ON SEVERAL TELEPHONES

Symptoms

1. Ringing (no ringing on a particular outside line, peculiar ringing, etc.)
2. Dialing (cannot dial out on one or more outside lines, no dial tone, etc.)
3. Hearing (cannot hear outside party clearly, etc.)
4. Lights (dim lights, etc.)
5. Features (problems with transferring calls, holding calls, programming buttons, etc.)

6. Accessories (problems with music, paging, etc.)
7. Entire System Down (no lights on control unit and no voice terminals operative)
8. Miscellaneous (dropped calls, etc.).

NOTE: Pages within the individual trouble sections are numbered in an unusual way to make this manual easy to update. In page number A1-4, for instance, the A indicates the section—"A. Trouble on One Telephone." The 1 indicates the first trouble category within that section—Ringing. The 4 indicates the fourth page of ringing symptoms.

Refer to the letters and numbers on the tab dividers for help in finding page numbers listed in the index.

TROUBLE ON ONE TELEPHONE
Ringing Symptoms

NOTE: Use this section only if you have isolated the problem to one voice terminal or telephone (in other words, it is not a systemwide problem).

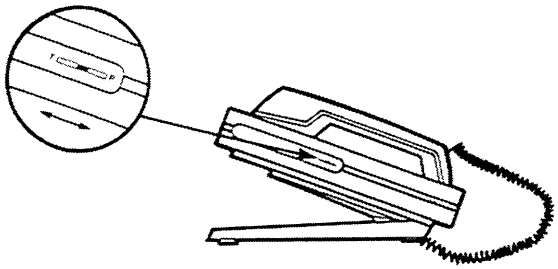
Symptom: A line rings but no caller is on the line. (The user attempts to answer a call but loses it and receives dial tone on a different line.)

Possible Cause	*Recommended Action*
User rocked the handset while lifting it.	Rocking the handset causes the voice terminal to go off hook, on hook, then off hook again. Instruct the user to lift the handset without rocking it to either side.

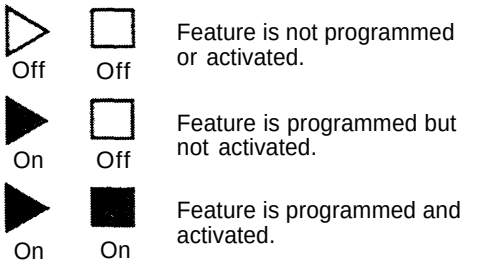
Symptom: 10-button voice terminals exhibit peculiar ringing and/or extra lights are lit.

Possible Cause	*Recommended Action*
A brief ac power outage occurred.	A brief ac power outage causes certain early production 10-button voice terminals to exhibit peculiar ringing. Extra lights also may be on. Momentarily removing ac power from the voice terminal will correct the problem. Do this by unplugging the voice terminal cord at the modular jack and plugging it in again.

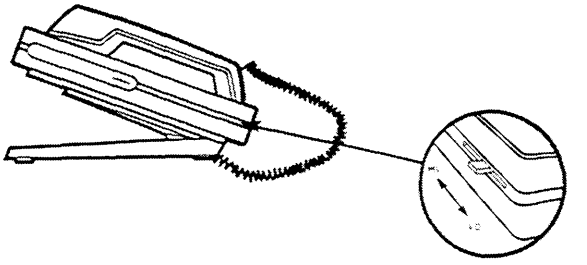
Symptom: Voice terminal rings constantly, whether on or off hook.

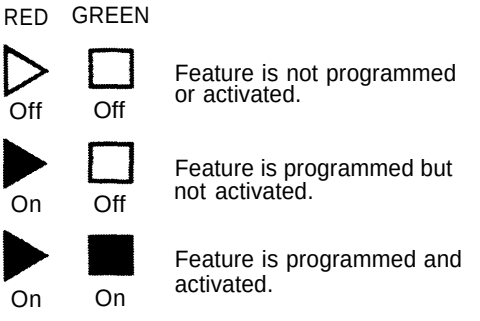
Possible Cause	***Recommended Action***
1. Voice terminal T/P switch is not in center position.	1. Make sure the T/P switch is in the center position. 
2. Voice terminal is defective.	2. When the ringing occurs only on incoming calls and continues even when the user picks up the handset, the switchhook may be sticking. If it is, replace the voice terminal.

Symptom: Voice terminal does not ring when a call is transferred to it.

Possible Cause	*Recommended Action*
1. The call is being transferred to a line not available to the user or not shown on the user's line buttons.	1. If the user does not have the line or line button, the person answering the call should transfer it by touching **Conference** instead of **Transfer.** See the *User's Guide: Models 1030 and 3070* for steps to establish an outside/intercom conference.
2. Do Not Disturb feature is activated.	2. If the green light is on next to a **Do Not Disturb** button, touch the button to deactivate the feature. Do Not Disturb may be programmed on a button without lights beside it, a mislabeled button, or an unlabeled button. Follow these steps to see if the feature is programmed and activated: a. Enter program mode by sliding the T/P switch to the *P* position. b. Touch **Intercom Ring.** c. Dial *71 from the dial pad. d. Look at the lights beside **Intercom Ring.** Their status (on or off) means the following:  e. To change the status of Do Not Disturb, touch **Intercom Ring** until the desired pattern of lights appears. Or, program Do Not Disturb on a button with lights (strongly recommended). This will remove the feature from its present position. Touch the button to deactivate the feature in its new position. Relabel buttons accordingly. f. Slide the T/P switch to the center position.

Symptom: Voice terminal does not ring on incoming outside calls.

Possible Cause	*Recommended Action*
1. Volume control setting is too low.	1. Slide volume control to a higher position and test by making a call to one of the user's outside lines from another voice terminal. 
2. User programming of line ringing options is incorrect.	2. See if voice terminal is programmed for "no ring." a. Slide T/P switch to *P* (program) position. b. Check red light associated with the line that doesn't ring. The red light indicates how the line is programmed for ringing:  On = ringing  Flashing = delayed ring  Off = no ring If the red light is off, the line is programmed for "no ring." Change it by touching the line button until the light is on or flashing. c. Slide T/P switch to center position.

3. Do Not Disturb feature is activated.	3. If the green light is on next to a **Do Not Disturb** button, touch the button to deactivate the feature. Do Not Disturb may be programmed on a button without lights beside it, a mislabeled button, or an unlableled button. Follow these steps to see if the feature is programmed and activated: a. Enter program mode by sliding the T/P switch to the *P* position. b. Touch **Intercom Ring.** c. Dial *71 from the dial pad. d. Look at the lights beside **Intercom Ring.** Their status (on or off) means the following:  e. To change the status of Do Not Disturb, touch **Intercom Ring** until the desired pattern of lights appears. Or, program Do Not Disturb on a button with lights (strongly recommended). This will remove the feature from its present position. Touch the button to deactivate the feature in its new position. Relabel buttons accordingly. f. Slide the T/P switch to the center position.
4. Voice terminal is defective.	4. Check the voice terminal as follows: a. Switch the suspect voice terminal with a voice terminal known to be working properly. b. Go to another voice terminal and make a call to the working voice terminal on an outside line. c. If the working voice terminal rings, the suspect voice terminal is defective. Replace it.

Symptom: Voice terminal rings but none of the light beside the line buttons are lit. (This problem will occur only on 10-button voice terminals designated as attendant consoles.)

Possible Cause	***Recommended Action***
The incoming call is on the ninth or tenth outside line. These lines do not have line buttons on 10-button voice terminals designated as attendant consoles.	This occurrence is normal. Instruct the user to answer the call as usual by lifting the handset. (It is advisable to use 34-button deluxe voice terminals as attendant consoles to take full advantage of message, Intercom Auto Dial, and other features.

Symptom: Off-premises telephone rings after user hangs up.

Possible Cause	***Recommended Action***
The user may accidentally have put the call on hold by briefly depressing the switchhook or rocking the handset.	Advise the user to depress the switchhook firmly or replace the handset when disconnecting a call.

Symptom: A particular outside line does not ring. Other lines do ring.

Possible Cause

User has programmed the line ringing option to "no ring."

Recommended Action

See if voice terminal is programmed for "no ring."

a. Slide T/P switch to *P* (program) position.

b. Check red light associated with the line that doesn't ring. The red light indicates how the line is programmed for ringing:


On = ringing


Flashing = delayed ring.


Off = no ring

If the red light is off, the line is programmed for "no ring." Change it by touching the line button until the light is on or flashing.

c. Slide T/P switch to center position.

TROUBLE ON ONE TELEPHONE
Dialing Symptoms

NOTE: Use this section only if you have isolated the problem to one voice terminal or telephone (in other words, it is not a systemwide problem).

Symptom: User hears dial tone but cannot dial out.

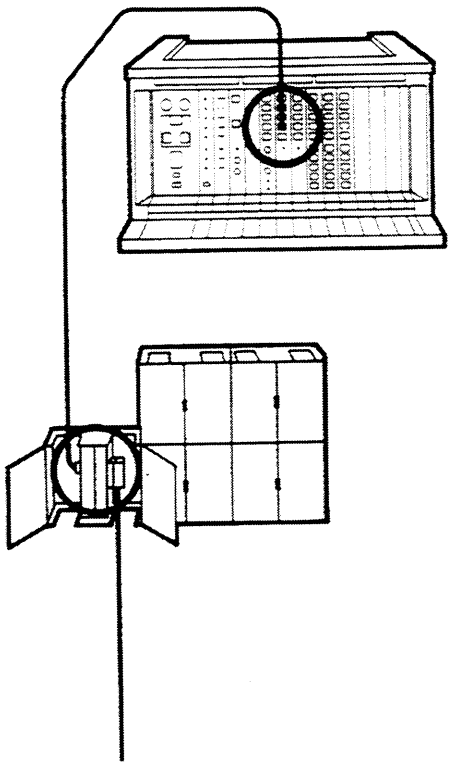
Possible Cause	***Recommended Action***
1. Voice terminal is toll call restricted.	1. The voice terminal may be intentionally restricted from dialing outside numbers. Ask the system administrator if the voice terminal should be restricted. The *Administration Manual: Models 1030 and 3070* contains instructions for placing or removing restrictions on outward calls.
2. Voice terminal is defective.	2. If the voice terminal is not restricted: a. Switch the suspect voice terminal with a voice terminal known to be working properly. b. Try to dial out on the working voice terminal. c. If you can dial out, the suspect voice terminal is defective. Replace it.

Symptom: When trying to access Centrex, PBX, or custom calling features, dialing # and a 2-digit feature code does not work.	
Possible Cause	***Recommended Action***
Dialing # and a 2-digit code is reserved for speed dialing numbers.	To access a Centrex, PBX, or custom calling feature dial ## then the feature code.
Symptom: User with off-premises telephone hears intercom dial tone but cannot place an intercom or ouside call.	
Possible Cause	***Recommended Action***
The MERLIN system is in administration mode. (Users with voice terminals or telephones *not* connected through the Off-Premises Telephone Interface hear an intermittent tone when the system is in administration mode.)	Instruct the user to wait and try again.

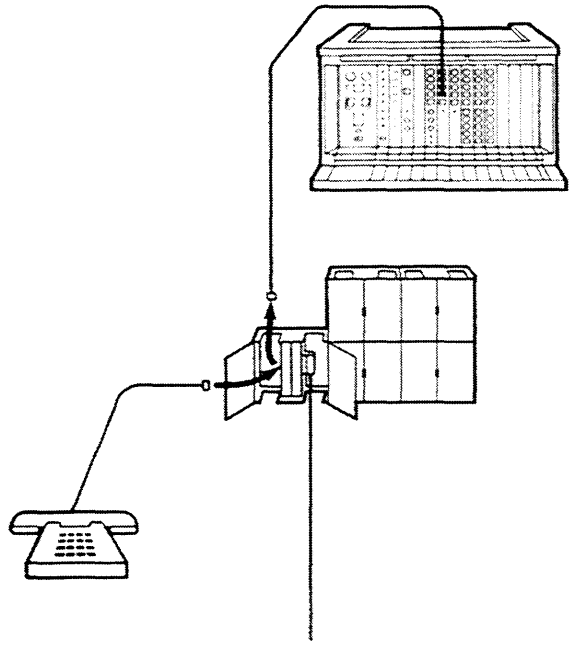
Symptom:	User with basic telephone hears intercom dial tone but cannot place an outside call.
Possible Cause	***Recommended Action***
User is not dialing the access number (for instance, 9).	Instruct the user to dial the access number before the ouside number.
Symptom:	User cannot program alternative long-distance or other computer-based services on Outside Auto Dial buttons.
Possible Cause	***Recommended Action***
Storage capacity of Outside Auto Dial feature has been exceeded.	A maximum of 16 digits or characters can be stored on an Ouside Auto Dial button. **Hold(Pause), Drop(Stop), Recall,** or **Transfer** (for Touch-Tone Enable) counts as a digit. Program the alternative service access and code numbers onto one button. Program the numbers you want to call using those alternative services onto other Outside Auto Dial buttons. To dial out, touch the access number button and wait for the computer tone to sound over the voice terminal speaker, then touch the next button. If a number sequence requires a time interval as a "wait for dial tone," touch **Hold (Pause)** or **Drop (Stop),** or split the number sequence at that point.

Symptom: User lifts handset and does not hear dial tone.

Possible Cause	***Recommended Action***
1. Voice terminal is outward call restricted.	1. The voice terminal may be intentionally restricted from making outside calls. If the system administrator wants the voice terminal unrestricted, refer to the procedures in the *Administration Manual: Models 1030 and 3070.*
2. All outside lines are busy. Green lights next to all line buttons will be lit. No red lights will be lit.	2. Instruct the user to hang up the handset and wait for a free line or use the Line Request feature (see the *User's Guide: Models 1030 and 3070).* If this happens often, adding more outside lines may be wise. See the *Installation Guide: Models 1030 and 3070* for more information.
3. Many users with basic Touch-Tone or rotary telephones are dialing at once.	3. A user with a basic telephone should wait 10 seconds or until dial tone is heard. The user does not have to hang up the handset while waiting for dial tone.
4. The voice terminal may be programmed for Manual Line Selection instead of Automatic Line Selection.	4. Instruct the user to touch a line button to get dial tone or reprogram the Automatic Line Selection feature. See the *User's Guide: Models 1030 and 3070* for instructions.

5. Wiring between the voice terminal and control unit is faulty.	5. Make sure wiring between network interface and control unit is not damaged. Make sure connectors are plugged in securely. 

Symptom: Off-premises telephone has no dial tone and cannot receive calls.

Possible Cause	*Recommended Action*
1. Wiring between the off-premises telephone and control unit is faulty.	1. Make sure wiring is not damaged and connectors are plugged in securely between these points: ● Between the off-premises telephone and network interface ● Between the network interface for the off-premises line and the Off-Premises Line Input jack on the Off-Premises Telephone Interface ● Between the To Voice Terminal Module jack on the Off-Premises Telephone Interface and a jack on a Voice Terminal Module
2. Local telephone company line is faulty.	2. Plug a basic telephone into the network interface or jack field line jack at the control unit. If there is no dial tone, have the local telephone company check the line. 

3. Off-premises telephone is defective.	3. Unplug the suspect off-premises telephone. Plug in a telephone known to be working properly. If the trouble does not appear, replace the suspect telephone.
4. Off-Premises Telephone Interface is defective.	4. If the trouble still exists, replace the Off-Premises Telephone Interface.
5. Control unit is defective.	5. If a new module does not solve the problem, the control unit probably needs repair.

Symptom: On a 10- or 34-button voice terminal, all ouside lines in the right column above the dial pad do not have dial tone.

Possible Cause	***Recommended Action***
This may have happened during testing if a 5-button voice terminal was plugged in in place of a 10-button voice terminal.	Instruct the administrator to readminister the outside lines to the voice terminal. To avoid this problem in the future, switch voice terminals with others of the same type during testing.

TROUBLE ON ONE TELEPHONE
Hearing Symptoms

NOTE: Use this section only if you have isolated the problem to one voice terminal or telephone (in other words, it is not a systemwide problem).

Symptom: Outside caller intermittently has trouble hearing a user.

Possible Cause	*Recommended Action*
Radio-frequency interference (RFI) is occurring.	Certain early production voice terminals may be susceptible to high RFI levels. Voice terminals manufactured beginning April 1983 have improved RFI immunity. If a radio transmitter is in the area, replace early production voice terminals with later vintage models. Make sure the system is connected to a third-wire (green wire) ground, not a conduit ground. Have an electrician check if necessary.

Symptom: User in a noisy room has trouble hearing outside or intercom calls or hears excessive breath noises from himself or herself.

Possible Cause	*Recommended Action*
1. User is holding the handset too near his or her mouth.	1. Instruct the user to hold the handset farther from his or her mouth.
2. User may need a Push-to-Listen Handset.	2. The user may need a Push-to-Listen Handset (R8-type). It is designed for environments with a noise level of 80 or more decibels.

Symptom: User with off-premises telephone has trouble hearing.

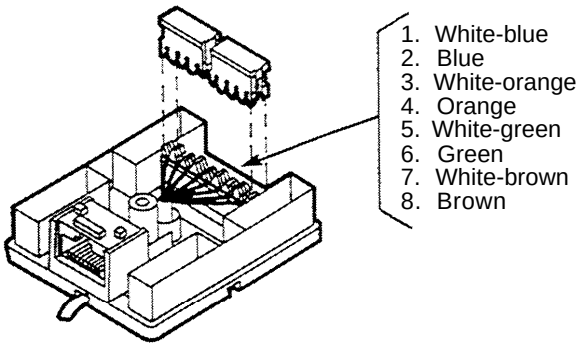
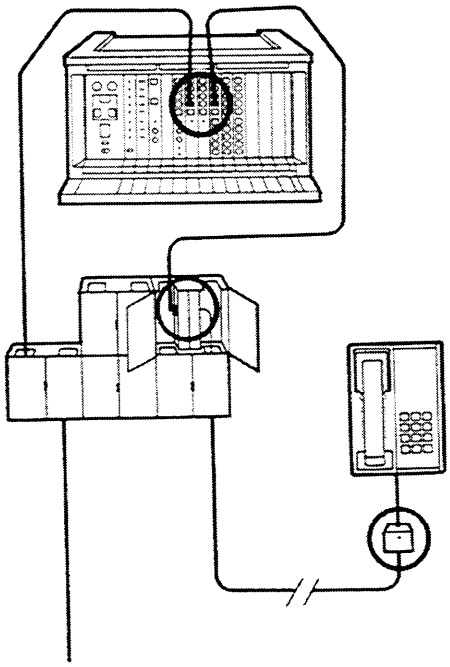
Possible Cause	***Recommended Action***
1. Off-premises telephone may be defective.	1. Switch the suspect off-premises telephone with a basic Touch-Tone or rotary telephone known to be working properly. Place an outside call. If you can hear clearly, replace the suspect off-premises telephone.
2. Off-Premises Telephone Interface may be defective.	2. At the control with location, plug the cord for the off-premises telephone into a different Off-Premises Telephone Interface. Have someone place an outside call from the off-premises telephone. If the user can hear clearly, replace the suspect Off-Premises Telephone Interface.
3. Line from the central office to the off-premises telephone should be upgraded.	3. Contact the local telephone company representative about upgrading the line between the central office and the off-premises telephone. Too much sound is being lost on the line. Notify the representative of these specifications for the off-premises telephones: • Standard jacks: USOC code SAY • Facility interface code: FIC OL 13C

TROUBLE ON ONE TELEPHONE
Light Symptoms

Voice terminal behaves abnormally in the test mode *(T* setting of T/P switch) A4-3

NOTE: Use this section only if you have isolated the problem to one voice terminal or telephone (in other words, it is not a systemwide problem).

Symptom: Voice terminal behaves abnormally in the test mode *(T* setting of T/P switch). Normally, when a voice terminal is in the test mode the red and green lights flash alternately and a tone sounds regularly.

Possible Cause	Recommended Action
1. Modular jack for the voice terminal is miswired.	1. Make sure the wires from the cable are terminated in this order from left to right: 
2. Wiring between the control unit and voice terminal is faulty.	2. Make sure the wiring between the voice terminal, jack field, and contol unit is not damaged. Make sure the connections are secure.  Make sure the control unit is connected to a third-wire (green wire) ground, not a conduit ground.

3. Voice terminal is defective.	3. Switch the suspect voice terminal with one known to be working properly. If the trouble does not appear on the working voice terminal, the suspect voice terminal is defective. Replace it. A surge of static electricity may have caused the voice terminal to fail. If there is new carpet near the voice terminal, spray the area with an antistatic spray or place a rubber mat under the voice terminal or user's chair.
4. Control unit Voice Terminal Module is defective.	4. **Make sure all cords are labeled before unplugging them from the voice terminal modules.** Unplug the cords from the voice terminal module, insert a spare voice terminal module, and plug the cords into it. See if the voice terminal operates normally in the test mode. If you don't have a spare voice module, unplug the cords from another voice terminal module and use it as a spare.
5. Control unit is defective.	5. The pins at the back of the control unit voice terminal module slot may be damaged or bent. If so, the control unit will probably require repair. **Never reinsert a module in a slot with bent pins. This could create worse problems, such as destroying the control unit Power Module or backplane.**

TROUBLE ON ONE TELEPHONE
Feature Symptoms

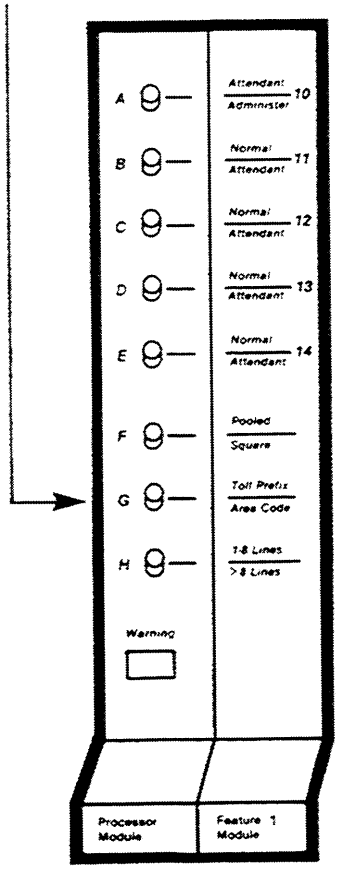
NOTE: Use this section only if you have isolated the problem to one voice terminal or telephone (in other words, it is not a systemwide problem).

Symptom: Voice terminal speaker squeals when user hangs up handset.	
Possible Cause	***Recommended Action***
The speaker is on and sets up a feedback path with the handset microphone when the distance between the two is small.	Instruct the user to turn the speaker off before hanging up the handset. Lowering the volume control setting will also help.

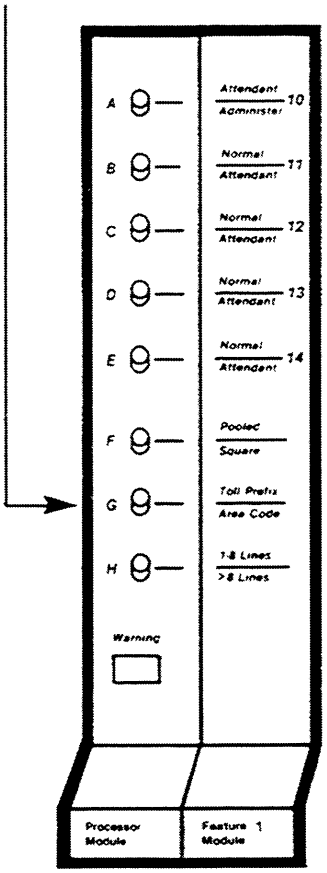
Symptom: User can dial out normally from dial pad but Outside Auto Dial button does not work.	
Possible Cause	***Recommended Action***
Recall can only be used as the first element in a stored number.	Reprogram the number on the Outside Auto Dial button.

Symptom: User attempts to retrieve a held call and loses it.	
Possible Cause	***Recommended Action***
User rocked the handset while lifting it.	Rocking the handset causes the voice terminal to go off hook, on hook, and then off hook again. Instruct the user to lift the handset without rocking it to either side.
Symptom: A call cannot be conferenced.	
Possible Cause	***Recommended Action***
1. User held the call with **Transfer** instead of **Hold.** Touching **Transfer** automatically puts a call on hold, but is incorrect for conferencing calls.	1. Instruct the user not to hold a call with **Transfer** when that call will be conferenced. The call should be held with **Hold.**
2. The conference limit may have been reached.	2. Instruct the user that only two outside and two intercom lines may be conferenced at once.

Symptom: Toll call restricted voice terminal is unable to make a local call.

Possible Cause	*Recommended Action*
1. Toll Prefix/Area Code switch (switch G on the control unit Processor Module) may be in wrong position. 	1. Check the setting of the Toll Prefix/Area Code switch. Set the switch to *Toll Prefix* if you must dial 0 or 1 before you dial an area code. Set the switch to *Area Code* if you begin with the area code when you dial a long distance number. If you change the position of this switch, reset the control unit by setting the On/Off switch on the control unit Power Module to *Off* then to *On.*
2. Toll call restriction may be misadministered.	2. The toll restriction may be misprogrammed. Refer to the *Administration Manual: Models 1030 and 3070* for programming instructions.

Symptom: Administrator cannot restrict outside calls at a voice terminal or basic telephone.

Possible Cause	*Recommended Action*
1. Toll Prefix/Area Code switch (switch G on the control unit Processor Module) may be in wrong position. 	1. Check the setting of the Toll Prefix/Area Code switch. Set the switch to *Toll Prefix* if you must dial 0 or 1 before you dial an area code. Set the switch to *Area Code* if you begin with the area code when you dial a long distance number. If you change the position of this switch, reset the control unit by setting the On/Off switch on the control unit Power Module to *Off,* then to *On.*
2. Toll call restriction may be misadministered.	2. The toll restriction may be misprogrammed. Refer to the *Administration Manual: Models 1030 and 3070* for programming instructions.
3. Telephone may be connected to a Multipurpose Adapter.	3. See if telephones are connected to a Multipurpose Adapter. Telephones connected to this accessory cannot be toll call restricted.

Symptom:	Attendant cannot program Intercom Auto Dial feature. This problem occurs only when switch H on the Processor Module is set to >8. (An attendant can be intercom 10 or intercoms 11 to 14 if switches B through E on the Processor Module are set to *Attendant.)*
Possible Cause	***Recommended Action***
In the >8 mode, an attendant must have an Attendant Intercom Selector to use Intercom Auto Dial.	Obtain an Attendant Intercom Selector. See the *Attendant's Guide: Models 1030 and 3070* for button defaults on the Attendant Intercom Selector.

Symptom:	When a call is transferred from a basic telephone, the person receiving the transferred call lifts the handset on the first ring but no caller is present. When the person hangs up, the voice terminal rings again.
Possible Cause	***Recommended Action***
The call was not transferred with voice announcement.	Instruct users with basic telephones to transfer calls with voice announcement. The *User's Guide for Basic Touch-Tone and Rotary Telephones* provides instructions.

Symptom: Do Not Disturb feature is activated but voice terminal still rings on certain calls.

Possible Cause	***Recommended Action***
User may be covering calls for another voice terminal. Calls to the voice terminal that is covered will override the Do Not Disturb feature.	Instruct user to program cover buttons to “no ring” when activating the Do Not Disturb feature. Refer to the *User’s Guide: Models 1030 and 3070* for instructions.

Symptom: User with a basic telephone cannot put a call on hold.

Possible Cause	***Recommended Action***
All intercom lines are busy. Intercom dial tone is necessary when holding a call.	Instruct the user to wait until an intercom line is available or ask the caller to put the call on hold on his or her system.

Symptom: Intercom calls to 5- or 10-button voice terminals get a busy signal but the user is not on another line. Outside calls do not ring on the voice terminal either.

Possible Cause

The Do Not Disturb feature is activated.

Recommended Action

If the green light is on next to a **Do Not Disturb** button, touch the button to deactivate the feature.

Do Not Disturb may be programmed on a button without lights beside it, a mislabeled button, or an unlabeled button. Follow these steps to see if the feature is programmed and activated:

a. Enter program mode by sliding the T/P switch to the *P* position.

b. Touch **Intercom Ring.**

c. Dial *71 from the dial pad.

d. Look at the lights beside **Intercom Ring.** Their status (on or off) means the following:

RED	GREEN	
 Off	 Off	Feature is not programmed or activated.
 On	 Off	Feature is programmed but not activated.
 On	 On	Feature is programmed and activated.

e. To change the status of Do Not Disturb, touch **Intercom Ring** until the desired pattern of lights appears.

Or, program Do Not Disturb on a button with lights (strongly recommended). This will remove the feature from its present position. Touch the button to deactivate the feature in its new position. Slide the T/P switch to the center position. Relabel buttons accordingly.

f. Slide the T/P switch to the center position.

Symptom: User with a basic telephone drops the first outside call while attempting to conferece a second outside call.

Possible Cause	***Recommended Action***
The user has put the first call on hold before dialing the second call.	Instruct the user to follow this procedure when conferencing calls: a. Place first call. b. Announce call. c. Press switchhook down firmly and then release it. *Intercorn dial tone will indicate the call is on hold.* d. Announce call. e. Press switchhook down firmly, then release it. Conference is now complete.

TROUBLE ON ONE TELEPHONE
Accessory Symptoms

Lights behave abnormally on a 34-button voice terminal with Hands-Free Unit A6-3

NOTE: Use this section only if you have isolated the problem to one voice terminal or telephone (in other words, it is not a systemwide problem).

Symptom: Lights behave abnormally on a 34-button deluxe voice terminal with Hands-Free Unit. This may occur at system installation or after a power failure.

Possible Cause	***Recommended Action***
Too much power load is being placed on the control unit.	Add a Voice Terminal Power Supply, or each time the power fails or the control unit is reset do the following: a. Unplug the HFU. b. Set the Power Module On/Off switch to *Off,* then to *On.* c. Plug in the HFU.

TROUBLE ON ONE TELEPHONE
Miscellaneous Symptoms

NOTE: Use this section only if you have isolated the problem to one voice terminal or telephone (in other words, it is not a systemwide problem).

Symptom: Outside lines added to the system do not appear at the attendant position.

Possible Cause	***Recommended Action***
The lines added to the system were not administered to the system.	Refer to the *Administration Manual: Models 1030 and 3070* for instructions on administering these lines to the system.

Symptom: Outside lines taken away from the system still appear at the attendant position.

Possible Cause	***Recommended Action***
These lines were not administered out of the system.	Refer to the *Administration Manual: Models 1030 and 3070* for instructions on administering these lines out of the system.

Symptom: A voice terminal or voice terminal accessory suddenly fails.

Possible Cause	***Recommended Action***
A surge of static electricity occurred.	If new carpeting is causing the static electricity, spray the area with an antistatic spray. Make sure the control unit is connected to a third-wire (green-wire) ground, not a conduit ground.

TROUBLE ON SEVERAL TELEPHONES
Ringing Symptoms

Symptom: A particular outside line does not ring. Other lines do ring.

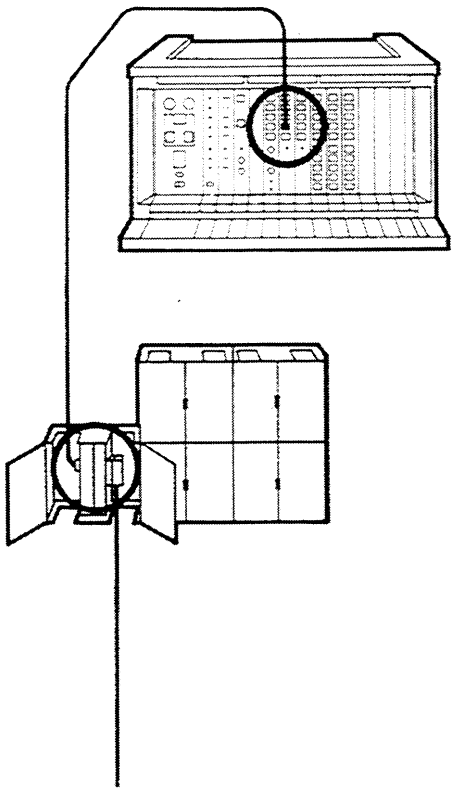
Possible Cause

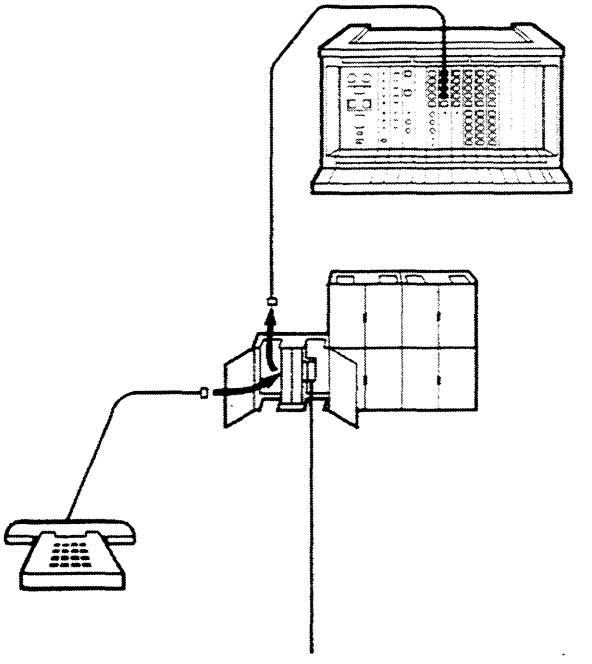
1. Wiring between the network interface and control unit is faulty.

Recommended Action

1. Make sure wiring between network interface and control unit is not damaged.

   Make sure connectors are plugged in securely.



2. Local telephone company line is faulty.	2. Verify local telephone company line operation by plugging in a basic telephone at the network interface or jack field line jack. If dial tone is not present, arrange for the local telephone company to repair the line. 
3. Control unit Line Module is defective.	3. **Make sure all cords are labeled before unplugging them from the line modules.** Unplug the cords from the Line Module, insert a spare Line Module, and plug the cords into it. See if the ouside line will ring. (If you don't have a spare Line Module, unplug the cords from another Line Module and use it as a spare.)
4. Control unit is defective.	4. The pins at the back of the control unit Line Module slot may be damaged or bent. If so, the control unit will require repair. **Never reinsert a module in a slot with bent pins. This could create worse problems, such as destroying the control unit Power Module or backplane.**

TROUBLE ON SEVERAL TELEPHONES
Dialing Symptoms

Symptom: Dial tone is present on all lines, but users cannot dial out on all lines.

Possible Cause	***Recommended Action***
1. The Tone/Pulse option for outside lines may be misadministered.	1. Refer to the *Administration Manual: Models 1030 and 3070* for readministering the Tone/Pulse option.
2. If the red Warning light on the Processor Module of the control unit is on: ● The control unit may need to be reset. ● Some cord or cable connections may be loose.	2. If the red Warning light is on: a. Set the Power Module On/Off switch to *Off.* Make sure all modules are firmly seated in the control until slots. Set the On/Off switch to *On.* Wait 5 minutes. b. If the red Warning light comes back on, check all cords and cables at the points illustrated. Secure any loose connections. If the red Warning light remains on, replace the control unit.

Symptom: Dial tone is not present on a particular line but is heard on other lines.

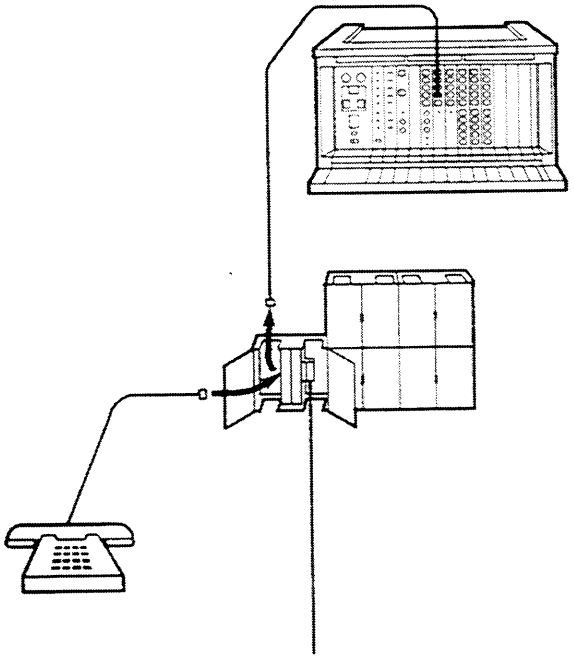
Possible Cause

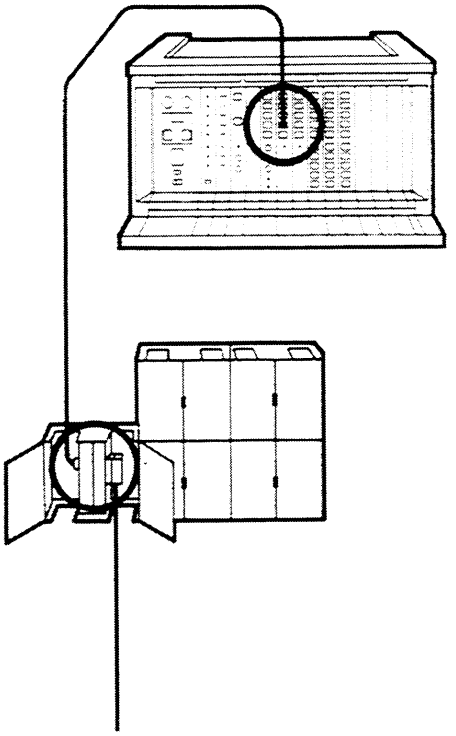
1. Local telephone company line is faulty.

Recommended Action

1. Verify local telephone company line operation by plugging in a basic telephone at the network interface or jack field line jack.

   If dial tone is not present, arrange for the local telephone company to repair the line.

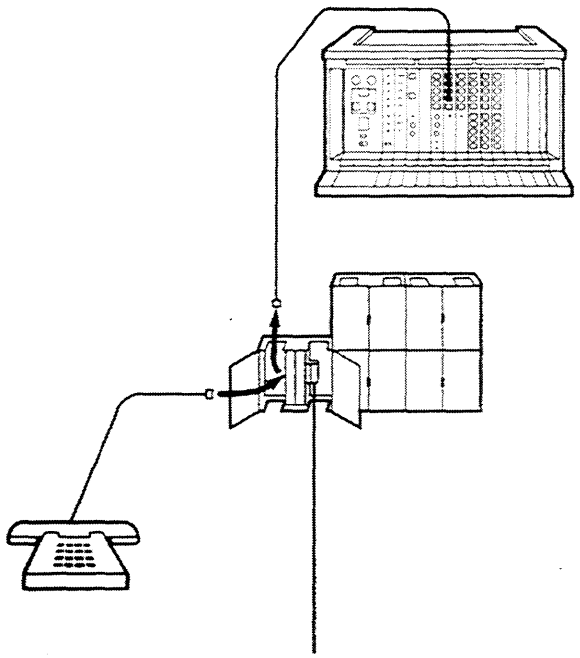


2. Wiring between the network interface and the control unit is faulty.	2. Make sure wiring between network interface and control unit is not damaged. Make sure connectors are plugged in securely. 
3. Control unit Line Module is defective.	3. **Make sure all cords are labeled before unplugging them from the line modules.** Unplug the cords from the Line Module, insert a spare Line Module, and plug the cords into it. See if the outside line will ring. (If you don't have a spare Line Module, unplug the cords from another Line Module and use it as a spare.)
4. Control unit is defective.	4. The pins at the back of the control unit Line Module slot may be damaged or bent. If so, the control unit will probably require repair. **Never reinsert a module in a slot with bent pins. This could create worse problems, such as destroying the control unit Power Module or backplane.**

Symptom: Users of 5- and 10-button sets wish to access the ninth and tenth outside lines. This is especially likely to occur on a square system with more than eight lines.	
Possible Cause	***Recommended Action***
Line buttons for the ninth and tenth outside lines do not appear on 5- and 10-button voice terminals.	If a 10-button voice terminal has been designated an attendant voice terminal, advise the user to dial #13 to access the ninth outside line and #14 to access the tenth outside line. If the voice terminal is not an attendant and the system is square with more than eight outside lines, the user cannot access any lines other than the first eight. If the system has more than eight outside lines, administering the system into pool mode is strongly recommended. Refer to the *Administration Manual: Models 1030 and 3070* for the pros and cons of pool mode.
Symptom: Users with basic Touch-Tone telephones hear each Touch-Tone signal twice while dialing.	
Possible Cause	***Recommended Action***
The telephone generates the first Touch-Tone signal, and the MERLIN system generates the second.	This occurrence is normal.

TROUBLE ON SEVERAL TELEPHONES
Hearing Symptoms

Symptom: Users cannot hear outside party clearly.

Possible Cause	*Recommended Action*
1. Local telephone company line is faulty.	1. Verify voice quality on local telephone company line by plugging in a basic telephone at the network interface or jack field line jack. If voice quality is unacceptable, contact the local telephone company. 
2. Users need special handsets.	2. Users may need Impaired-Hearing Handsets (R6-type) or Push-to-Listen Handsets (R8-type).

TROUBLE ON SEVERAL TELEPHONES
Light Symptoms

Symptom: Voice terminal lights are dim, especially when the voice terminal T/P switch is in the *T* position.

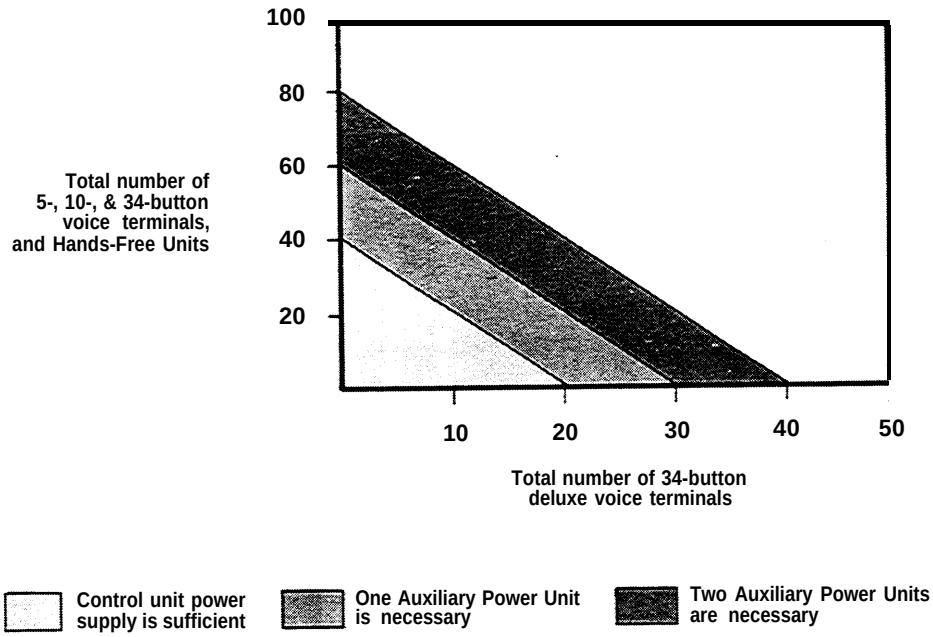
Possible Cause

The control unit is not supplying enough power. The system may need an Auxiliary Power Unit.

Recommended Action

To see if an Auxiliary Power Unit (or *another* Auxiliary Power Unit) is necessary, unplug three voice terminals from the *same* Voice Terminal Module at the control unit. (Auxiliary Power Units support voice terminals in groups.) If the lights at the remaining voice terminals are no longer dim, the system needs an Auxiliary Power Unit.

The graph below also indicates when an Auxiliary Power Unit is necessary.



Symptom: Voice terminal red and green lights do not flash alternately in the test mode (*T* setting of T/P switch).	
Possible Cause	***Recommended Action***
1. The red Warning light on the Power Module in the control unit may be on.	1. Reset the control unit by setting the Power Module On/Off switch to *Off,* then to *On.*
2. Control unit is defective.	2. If the problem persists, the control unit probably needs repair.

TROUBLE ON SEVERAL TELEPHONES
Feature Symptoms

Symptom: Last Number Redial and Saved Number Redial features do not work on a MERLIN system operating behind a PBX.

Possible Cause	***Recommended Action***
Some PBXs require a pause after the number (for example, 9) needed to access an outside line. The MERLIN system cannot put in the pause when saving a number.	These features will not work if the PBX does not return dial tone immediately after the access number is dialed.

Symptom: Users cannot program ninth and tenth ouside lines into the Automatic Line Selection feature.

Possible Cause	***Recommended Action***
When in square mode, Model 1030 and 3070 do not allow the ninth and tenth outside lines to be programmed into the Automatic Line Selection.	If the telephone numbers associated with the ninth and tenth lines must be programmed into the Automatic Line Selection feature, switch their cords to other line jacks at the control unit. Revise system and user directories accordingly. If the system has more than eight outside lines, administering the system into pool mode is strongly recommended. Refer to the *Administration Manual: Models 1030 and 3070* for the pros and cons of pool mode.

Symptom: Outside Auto Dial feature does not work.

Possible Cause	*Recommended Action*
1. The Tone/Pulse option has been misadministered. (In this case, users cannot dial out at all, even from the dial pad.)	1. Refer to the *Administration Manual: Models 1030 and 3070* for instructions on administering the Tone/Pulse option.
2. The MERLIN system is operating behind a local telephone company central office or PBX that is slow in providing dial tone.	2. Instruct users to program **Hold(Pause)** as the first digit on an Outside Auto Dial button.
3. The MERLIN system is operating behind a PBX and is outputting numbers too quickly for the PBX.	3. The MERLIN system is designed for use behind a PBX that outputs digits at the current standard (10 digits per second). See if the PBX meets this standard.

Symptom: Voice terminal receives calls transferred to it with intercom voice announcement as transfer rings.

Possible Cause	***Recommended Action***
The Voice Announcement Disable feature has been programmed and activated on the voice terminal.	Instruct the user to go into program mode by sliding the T/P switch into the *P* position. If the green light by **Intercom Voice** is *off,* the voice terminal is programmed *not* to receive intercom voice calls. To permit intercom voice calls, touch **Intercom Voice** until the green light goes on. Exit program mode by sliding the T/P switch to the center position.

Symptom: Users with basic telephones find that lines go on hold mysteriously.

Possible Cause	***Recommended Action***
Users are not allowing enough disconnect time. The switchhook presses are being interpreted as "flashes" instead of disconnects.	Instruct users to hang up the handset briefly or hold the switchhook down for several seconds between calls. To reconnect to a call held at a basic telephone, press the switchhook briefly. To clear the whole system of held calls, go to the administration position (intercom 10) and seize all held calls.

Symptom: User cannot pick up a call transferred from another user.

Possible Cause	*Recommended Action*
1. The call is being transferred to a line not available to the user. (This applies only to square systems.)	1. If the line is not available to the user, touching **Conference** instead of **Transfer** will enable the user to answer the call. See the *User's Guide: Models 1030 and 3070* for steps to establish an outside/intercom conference.
2. The Do Not Disturb feature may be activated on the voice terminal to which the call is directed.	2. If the green light is on next to a **Do Not Disturb** button, touch the button to deactivate the feature. Do Not Disturb may be programmed on a button without lights beside it, a mislabeled button, or an unlabeled button. Follow these steps to see if the feature is programmed and activated: a. Enter program made by sliding the T/P switch to the P position . b. Touch **Intercom Ring.** c. Dial *71 from the dial pad. d. Look at the lights beside **Intercom Ring.** Their status (on or off) means the following: RED / GREEN Off / Off — Feature is not programmed or activated. On / Off — Feature is programmed but not activated. On / On — Feature is programmed and activated.

	e. To change the status of Do Not Disturb, touch **Intercom Ring** until the desired pattern of lights appears. Or, program Do Not Disturb on a button with lights (strongly recommended). This will remove the feature from its present position. Touch the button to deactivate the feature in its new position. Relabel buttons accordingly. f. Slide the T/P switch to the center position.
3. The user may be lifting the handset before the voice terminal gives the transfer ring.	3. Instruct the user to wait for the transfer ring before picking up the handset. Otherwise, the call must be transferred again.

Symptom: Basic telephones appear to have been programmed when they have not been programmed.

Possible Cause

A Voice Terminal Module may have been inserted where the Basic Telephone Module is now installed. If so, the programming for the voice terminals was transferred to the basic telephones.

Recommended Action

Take a voice terminal with its cord attached and a spare Voice Terminal Module (if available) to the control unit and follow these steps:

a. Pull out the Basic Telephone Module.

b. Insert the Voice Terminal Module.

c. Plug the voice terminal into the first jack on the module.

d. Program the voice terminal with its initial feature assignments. (For a diagram of initial feature assignments, refer to the *Administration Manual: Models 1030 and 3070* that comes with the Feature Module.)

e. Plug the voice terminal into the remaining jacks and program the voice terminal with its initial feature assignments.

f. Remove the Voice Terminal Module.

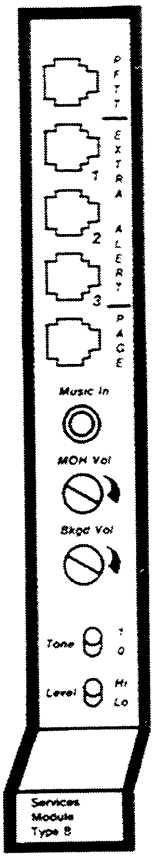
g. Reinsert the Basic Telephone Module and plug in the wiring runs for the basic telephones.

TROUBLE ON SEVERAL TELEPHONES
Accessory Symptoms

Symptom: Music-on-Hold, background Music, and/or Loudspeaker Paging are too loud or too soft.

Possible Cause

The music source level, paging amplifier level, or MOH Vol or Bkgd Vol screws on the Services Module are not adjusted properly.



Recommended Action

Follow the instructions for the numbered step that applies to your music and/or paging accessories.

NOTE: To hear Music-on-Hold as you adjust the volume, go to a voice terminal and dial one of the system's outside line numbers. Answer the call on another voice terminal. Go back to the first voice terminal and place the call on hold. You will be able to hear the Music-on-Hold at the second voice terminal.

1. If you have one music source:
   a. Set the Level switch on the Services Module to *Lo.*
   b. Adjust Music-on-Hold at the MOH Vol screw on the Services Module. Turn the screw fully clockwise, then counterclockwise until the music volume (as heard through a voice terminal) is acceptable.
   c. If the music is distorted, set the Level switch to *Hi* and readjust the music.
   d. Adjust paging speakers to the desired paging level.
   e. Adjust Background Music at the Bkgd Vol screw on the Services Module. Turn the screw fully counterclockwise, then clockwise until the music volume is acceptable.

2. If you have one music source for Music-on-Hold and a separate music source for Background Music (or two outputs from one source):
   a. Set the Level switch on the Services Module to *Lo.*
   b. Adjust Music-on-Hold at the MOH Vol screw on the Services Module. Turn the screw fully clockwise, then counterclockwise until the music volume (as heard through a voice terminal) is acceptable.
   c. If the music is distorted, set the Level switch to *Hi* and readjust the music.
   d. Adjust paging speakers to the desired paging level.
   e. Turn the Bkgd Vol screw on the Services Module fully counterclockwise (off).
   f. Adjust the Background Music volume at the music source.

3. If you have Music-on-Hold but *no* Background Music:
   a. Turn the Bkgd Vol screw on the Services Module fully counterclockwise (off).
   b. Set the Level switch on the Services Module to *Lo.*
   c. Adjust Music-on-Hold at the MOH Vol screw on the Services Module. Turn the screw fully clockwise, then counterclockwise until the music volume (as heard through a voice terminal) is acceptable.
   d. If the music is distorted, set the Level switch to *Hi* and readjust the music.

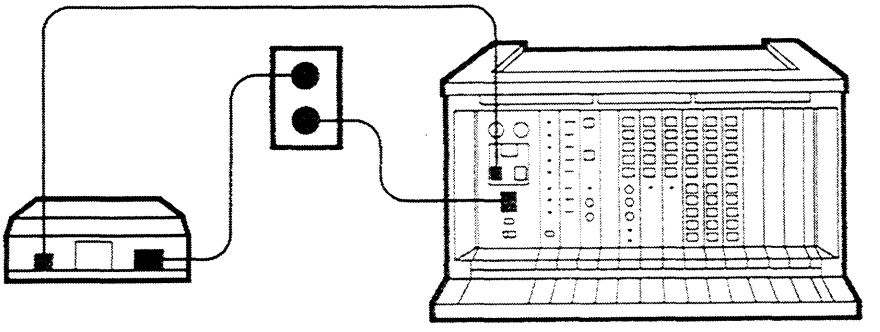
4. If you have Background Music but *no* Music-on-Hold:
   a. Turn the MOH Vol screw on the Services Module fully counterclockwise (off).
   b. Adjust paging speakers to the desired paging level.
   c. Adjust Background Music at the Bkgd Vol screw in the Services Module. Turn the screw fully counterclockwise, then clockwise until the music volume is acceptable.

5. If you have paging but *no* music features:
   a. Adjust paging speakers to the desired paging level.

TROUBLE ON SEVERAL TELEPHONES
Entire System Down Symptoms

Symptom: Entire system is down. Red and green lights on control unit are not lit. System is totally inoperative.

Possible Cause	*Recommended Action*
1. There is no ac power.	1. Make sure the control unit is not connected to an outlet controlled by a switch. Check the connections between the control unit, any Auxiliary Power Units, and the ac outlet.
2. The ac outlet is defective.	2. Test the outlet by plugging in a lamp or radio.
3. One or more Power Modules are defective.	3. Replace the Power Module(s) if ac power is present, the connections are correct, and the system is still down.
4. Control unit is defective.	4. If the system is still down, replace the control unit.



AC power hookup

Symptom: The green Power light on the control unit Power Module is off, but there is no power failure.

Possible Cause	***Recommended Action***
1. One or more modules are inserted improperly.	1. Set the Power Module On/Off switch to *Off.* Remove and securely replace each module in the control unit. Set the On/Off switch to *On.*
2. Control unit is defective.	2. If the green Power light remains off, replace the control unit.

TROUBLE ON SEVERAL TELEPHONES
Miscellaneous Symptoms

Symptom: MERLIN system interferes with television reception.

Possible Cause

The television is too close to the control unit.

Recommended Action

Follow these steps to improve television reception:

a. Reorient the television antenna.

b. Plug the control unit and the television receiver into different outlets so they are on different branch circuits. The control unit should be connected to a third-wire (green wire) ground, not a conduit ground.

c. Increase the distance between the control unit and the television, antenna, and lead-in wires. Place the control unit in a remote location, such as the basement. Use the sheet metal of the building heating system as a shield between the control unit and television receiver.

d. If necessary, consult the equipment supplier, television dealer, or an experienced radio/television technician for additional suggestions. This booklet by the Federal Communications Commission may help: "How to Identify and Resolve Radio-TV Interference Problems." It is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

Symptom: An outside call is dropped during conversation.

Possible Cause	*Recommended Action*
1. A user made an error.	1. Another user may have joined the call and touched **Recall.** Instruct the user to redial the call.
2. MERLIN system is not well grounded.	2. Calls may be dropped if the communications system is not connected to a good building ground via the ac outlet. Verify that the system is connected to a third-wire (green wire) ground, not a conduit ground.

Customer Instruction Booklets

CIB 2852: (7302 H01) 5-Button Voice Terminal (3160)
CIB 2853: (7303 H01) 10-Button Voice Terminal (3161)
CIB 2854: (10A) 5- and 10-Button Voice Terminal Fixed Desk Stand (32004)
CIB 2855: (11A) 10-Button Voice Terminal Adjustable Desk Stand (32002)
CIB 2856: (201A) 10-Button Voice Terminal Wall Mount (32001)
CIB 2858: (103A Connecting Block) Customer-Installable Jack (32601)
CIB 2859: (742D) Connecting Block
CIB 2860: (700A8) Modular Plug
CIB 2861: (451A) Modular Extension Adapter
CIB 2863: (267C) Two-Line Adapter (61400)
CIB 2864: (S102A) Hands-Free Unit (3163)
CIB 2865: (7305 H01) 34-Button Voice Terminal (3162)
CIB 2867: (502A) Headset Adapter (3164)
CIB 2885: (14A) 5-Button Voice Terminal Fixed Desk Stand and Wall Mount (32000)
CIB 2886: (11C) 34-Button Voice Terminal Adjustable Desk Stand (32003)
CIB 2887: (203A Stand) 34-Button Voice Terminal Wall Mount (32006)
CIB 2888: (267A2 and D4CE-50) Line Bridging Adapter Kit (61401)
CIB 2903: (349A) Acoustic Coupler Adapter
CIB 2924: (D181233) Line-Powered Extra Alert Ringer and Parts (61211)
CIB 3000: (7305 H02) 34-Button Deluxe Voice Terminal (3166)
CIB 3006: Wiring Installation Instructions
CIB 3007: Adjunct Power Supply for 34 Button-Deluxe Voice Terminal (D181282) (32811)
CIB 3009: (Z187A) Off-Premises Telephone Interface (3173)
CIB 3013: (183A) 10-Voice Terminal Module for Models 1030 and 3070 (61310)
CIB 3014: (184A) 5-Line Module for Models 1030 and 3070 (61305)
CIB 3015: (Z1A) Automatic Multipurpose Adapter (2301-ATR)
CIB 3016: (183B) Services Module for Models 1030 and 3070 (61320)
CIB 3017: Models 1030 and 3070 Control Unit Installation Kit
CIB 3018: (186C) Diagnostics Module for Models 1030 and 3070 (61340) *(included under Diagnostics Module tab divider)*
CIB 3019: (Z129A) Ring Generator Unit (61351)
CIB 3021: (510C) Model 1030 Expansion Unit (61301)
CIB 3026: (ZH802A) Attendant Intercom Selector Kit (31642)
CIB 3028: (601A) Power Module for Model 3070
CIB 3031: (Z116A) Control Unit Wall-Mounting Kit for Models 1030 and 3070 (61360)

CIB 3032: (Z7308 H01B) Attendant Console for Models 1030 and 3070 (3162)

CIB 3038: Z609A 4-Way Modjack Adapter

CIB 3039: (Z185A1) Feature Module 1

CIB 3040: (Z183C1) 5-Basic Telephone Module (61312)

CIB 3041: (Z186A) Processor Module

CIB 3042: (Z200A1) 2-Line/5-Voice Terminal Module for Model 820 (61219)

(7302 HO1) 5-BUTTON VOICE TERMINAL (3160)

The 5-Button Voice Terminal provides access to intercom and outside lines, and to programmable and other button features shown in Figure 1 which may be provided in your communications system.

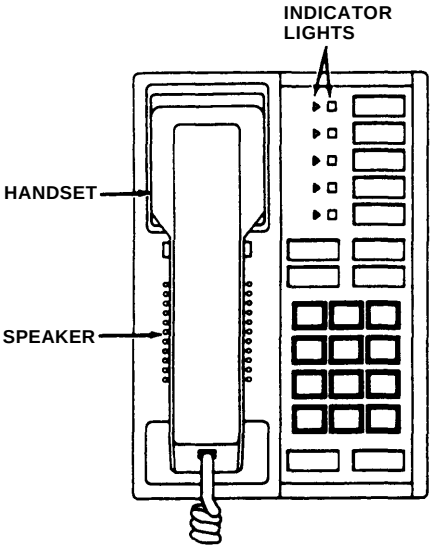


Figure 1

ASSEMBLING YOUR VOICE TERMINAL

1. Unpack voice terminal and coiled handset cord.
2. Turn voice terminal upside down and plug one end of handset cord into jack labeled with the drawing of the handset beside it (see Figure 2).

   Warning: ***Do not plug the handset cord into the jack labeled "LINE".***
3. Plug the loose end of the handset cord into the handset (see Figure 2).

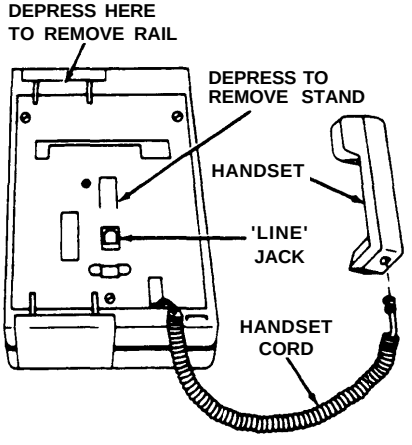


Figure 2

4. Mount the voice terminal on the desk stand or wall mount.
5. To convert the 5-Button Voice Terminal from a desk terminal to a wall-mounted terminal, follow the instructions packed with the wall mount (CIB 2885).

SPEAKER/RINGING AND TEST CONTROL

Test/Program (T/P) Control

The T/P switch is located on the left side of the voice terminal (see Figure 3). It has three positions: T (spring loaded and must be held in the T position), center (indicated by a "dot"), and the P position. It is set to the center position for normal operation of the voice terminal. After connection to the control unit, the voice terminal can be put into the test mode by holding the switch in the T position. The voice terminal can be put into the program mode by placing the switch in the P position.

Speaker/Ring Volume Control

The volume control is located on the left side of the voice terminal (see Figure 3). Sliding the switch away from you increases the volume while sliding it toward you decreases the volume.

Note: The volume control changes the volume of alerting rings, speaker, and button clicks.

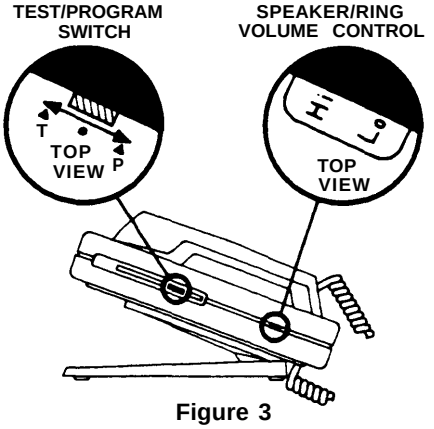


Figure 3

REMOVING AND REPLACING LABELS

The labels on five of the buttons on your voice terminal can be changed.

Removal

1. To remove the voice terminal rail (located above the touch-sensitive buttons):
   - Place your index finger at the center of the rail; slide your finger beneath the set until you feel the ridge immediately in back of the rail.
   - Press this ridge with your finger while cupping the rail in the palm of your hand, pull up to remove the rail (see Figure 4).

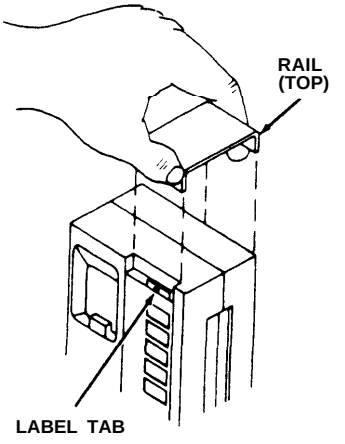


Figure 4

2. Remove the label by pulling the end of the label. (see Figure 5).

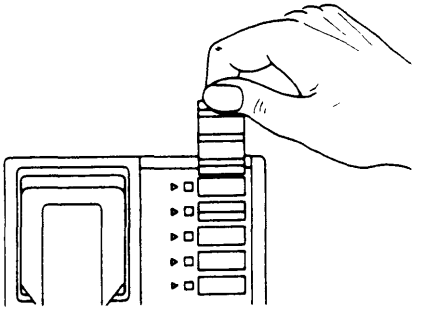


Figure 5

3. Labels may now be typed or handwritten in pencil or ink, and can be erased (if necessary). Be sure the ink is dry before inserting label.

Replacing

1. Insert the bottom of the label into the label slot above the column of touch-sensitive buttons.
2. Slide the label all the way into the slot until the desired typed label appears next to the proper button. (Note that the label slides into the slot and behind a thin top graphics overlay.)
3. Replace the rail.

Equipment manufactured by AT&T Technologies in the U.S.A.

(7303 HO1) 10-BUTTON VOICE TERMINAL (3161)

The 10-Button Voice Terminal provides access to intercom and outside lines, and to programmable and other button features shown in Figure 1 which may be provided in your communications system.

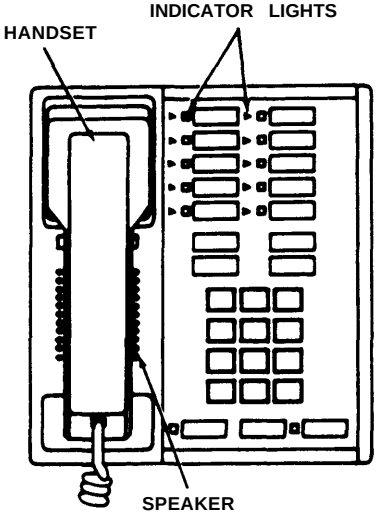


Figure 1

ASSEMBLING YOUR VOICE TERMINAL

1. Unpack voice terminal and coiled handset cord.
2. Turn voice terminal upside down and plug one end of handset cord into jack with the drawing of the handset beside it (see Figure 2).

   Warning: ***Do not plug the handset cord into the jacks labeled "LINE" or "OTHER".***
3. Plug the loose end of the handset cord into the handset (see Figure 2).
4. Mount the voice terminal on the desk stand or wall mount.
5. To convert the 10-Button Voice Terminal from a desk terminal to a wall-mounted terminal, follow the instructions packed with the wall mount (CIB 2856).

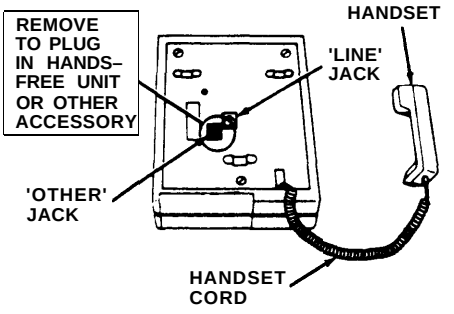


Figure 2

SPEAKER/RINGING AND TEST CONTROL

Test/Program (T/P) Control

The T/P switch is located on the left side of the voice terminal (see Figure 3). It has three positions: T (spring loaded and must be held in the T position), center (indicated by a "dot"), and the P position. It is set to the center position for normal operation of the voice terminal. After connection to the control unit, the voice terminal can be put into the test mode by holding the switch in the T position. The voice terminal can be put into the program mode by placing the switch in the P position.

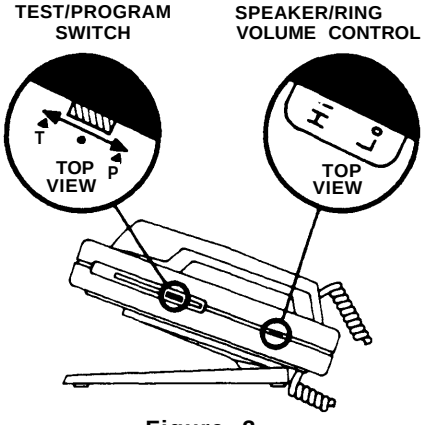


Figure 3

Speaker/Ring Volume Control

The volume control is located on the left side of the voice terminal (see Figure 3). Sliding the switch away from you increases the volume while sliding it toward you decreases the volume.

Note: The volume control changes the volume of alerting rings, speaker and button clicks.

REMOVING AND REPLACING LABELS

Removal

1. Grasp the silver tab above the touch-sensitive buttons, and pull the label out of the label slot (see Figure 4).
2. Labels may now be typed or handwritten in pencil or ink, and can be erased (if necessary). Be sure ink is dry before inserting label.

Replacing

1. Insert the bottom of the label into the label slot above each column of the touch-sensitive buttons.
2. Slide the label all the way into the slot until the label appears next to the proper button. (Note that the label slides into the slot and behind a thin top graphics overlay.)

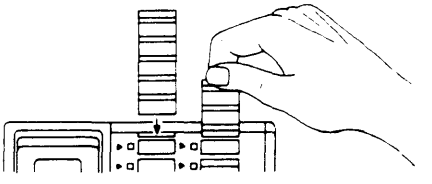


Figure 4

Equipment manufactured by AT&T Technologies in the U.S.A.

(10A) 5- AND 10-BUTTON VOICE TERMINAL FIXED DESK STAND (32004)

This stand is a fixed mounting base for the 7103, 7302, and 7303 Voice Terminals.

INSTALLATION INSTRUCTIONS

1. Set the handset to one side and turn the voice terminal over.
2. Position the stand on the back of the voice terminal so that the stand's mounting slots fit just below the mounting tabs of the voice terminal (see Figure 1).
3. Install the rubber feet on the stand.

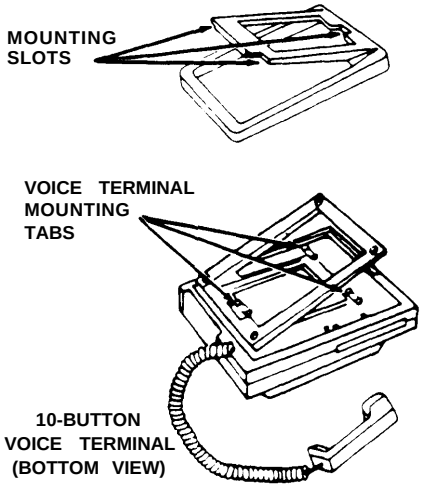


Figure 1

4. Gently slide the stand upward so that the slots fit securely in the three mounting tabs.

REMOVAL INSTRUCTIONS

1. Turn the voice terminal over.
2. Depress the locking tab of the 5-Button Voice Terminal (see Figure 2).

   Note: The 10-Button Voice Terminal does not have a locking tab.

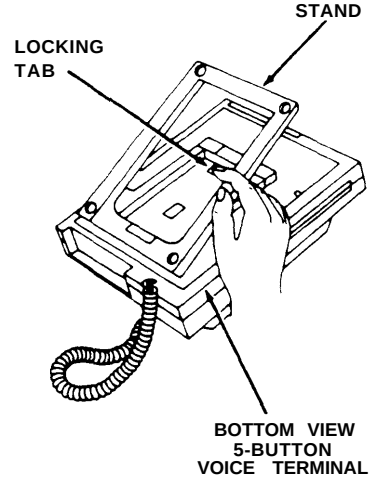


Figure 2

3. Slide the stand downward from the voice terminal mounting tabs.

Instructions For

10A 5- and 10-Button Voice Terminal Fixed Desk Stand (32004)

CIB 2854
ISSUE 3

Equipment manufactured by AT&T Technologies in the U.S.A.

(11A) 10-BUTTON VOICE TERMINAL ADJUSTABLE DESK STAND (32002)

This desk stand is an adjustable mounting base for the 7103 and 7303 Voice Terminals and provides three angular positions: 8-degree (low), 18-degree (middle), and 28-degree (high).

INSTALLATION INSTRUCTIONS

Note: To avoid pinching your fingers, make certain the adjustable portion of the desk stand is in the lowest position before attempting to install the voice terminal.

1. Set the handset to one side and turn the voice terminal over.

2. Position the stand on the back of the voice terminal so that the voice terminal mounting tabs fit into the mounting slots on the stand (see Figure 1).

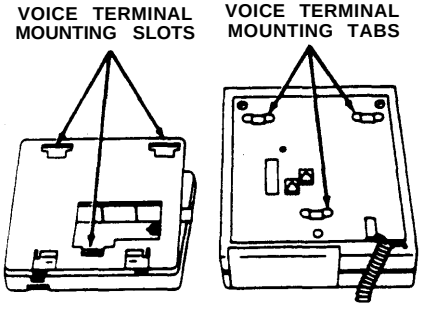


Figure 1

3. Gently slide the stand upward so that the voice terminal tabs fit firmly into the smaller part of the three mounting slots (see Figure 2).

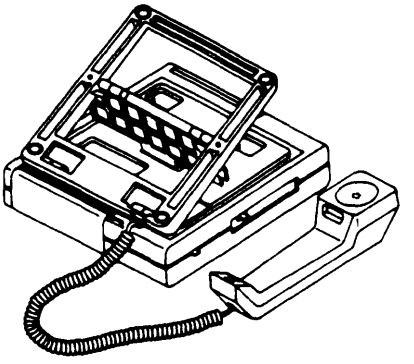


Figure 2

4. The angle of the stand can be adjusted (see Figure 3) by performing the following:

   - Use the forefinger of your left hand to hold the back of the stand firmly to the desk top.

     To RAISE — Using the right hand, slowly lift the rear of the voice terminal until a desired position is reached.

     To LOWER — Using the right hand, lift the rear of the voice terminal to release the locking tension. With the thumb of your left hand, carefully depress the side lever and allow the stand to lower to a desired position.

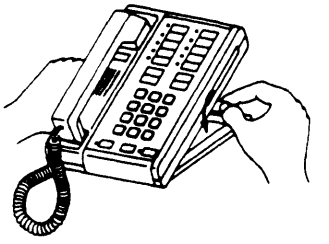


Figure 3

REMOVAL INSTRUCTIONS

To remove the stand from the 10-Button Voice Terminal, slide the stand out of the mounting tabs by pushing the voice terminal upward.

(201A) 10-BUTTON VOICE TERMINAL WALL MOUNT (32001)

This bracket is used to mount 7103 or 7303 Voice Terminals on a wall surface.

INSTALLATION INSTRUCTIONS

Note: Be sure to select a location for intallation at least as large as the voice terminal; the 201A Wall Mounting is slightly smaller than the terminal itself.

1. Select the wall mounting location: using the wall mount as a template, mark the four mounting hole locations (two upper slots and two lower holes). See Figure 1.

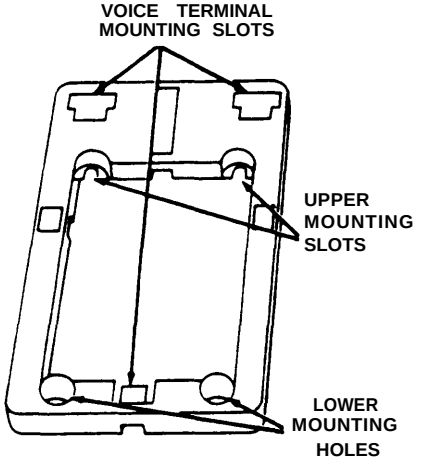


Figure 1

2. Select proper toggler for wall thickness or wall type:
   - For walls 3/8- to 1/2-inch thick, select the smaller of the two sizes provided.
   - For walls 5/8- to 3/4-inch thick, select the larger of the two sizes provided.
   - For solid walls, either of the two sizes may be used.
3. Drill four holes at the four toggler mounting locations, using a 5/16-inch diameter drill.
4. Fold toggler (see Figure 2A).
5. Insert a toggler in each of the mounting locations, and tap each toggler flush to wall (see Figure 2B).
6. Pop the anchor open with the red key — do not hammer the key (see Figure 2C).
7. Insert and partly thread the top two screws into the starter holes of the togglers (see Figure 2D).
8. Position the two upper mounting slots onto the screws and slightly tighten (see Figure 2E).
9. Insert the two remaining screws into the lower mounting holes (see Figure 2E).
10. Tighten all four screws securely.

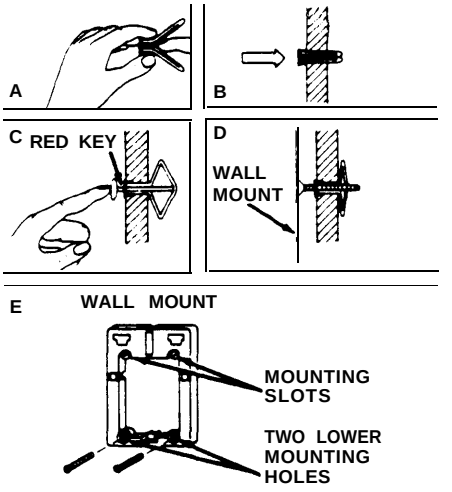


Figure 2

11. Convert the 10-Button Voice Terminal from a desk terminal to a wall-mounted terminal by following the substeps below:
    - Remove the desk stand.
    - Remove the number card retainer and the number card (see Figures 3 and 4).
    - Remove the screw under the number card and lift out the handset retainer from the upper housing. (see Figure 5).
    - Rotate the handset retainer 180 degrees end-over-end (see Figure 6).
    - Replace the handset retainer into upper housing. If properly inserted, a portion of the handset retainer should be projecting into the handset well of the upper housing (see Figure 7).
    - Replace screw.
    - Replace number card and number card retainer.

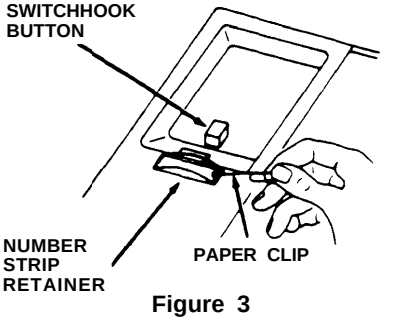


Figure 3

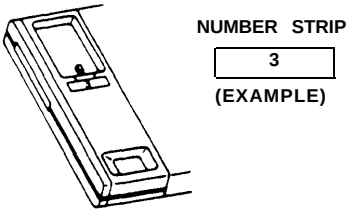


Figure 4

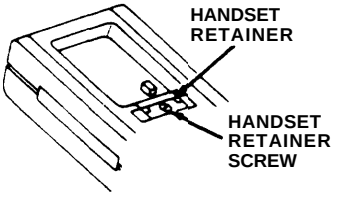


Figure 5

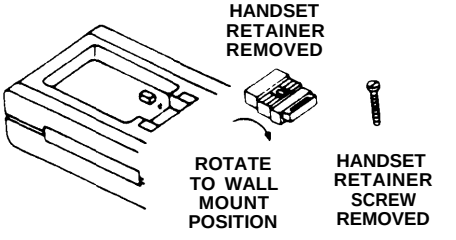


Figure 6

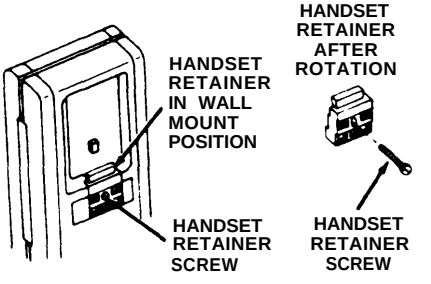


Figure 7

12. Thread one end of the D8W Modular Cord up through the cord slot in the wall mount, and plug the cord into the jack labeled "LINE" on the back of the voice terminal (see Figure 8).

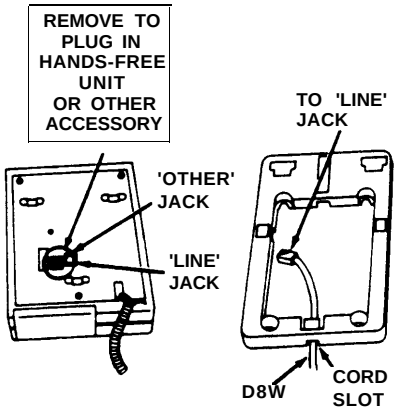


Figure 8

13. Position the back (or bottom) of the voice terminal so the three terminal mounting tabs (Figure 9) fit into the terminal mounting slots.

14. Gently slide the voice terminal downward so the three tabs fit into the smaller part of the corresponding mounting slots (see Figure 10).

15. Plug the loose end of the handset cord into the handset.

16. The installation is complete.

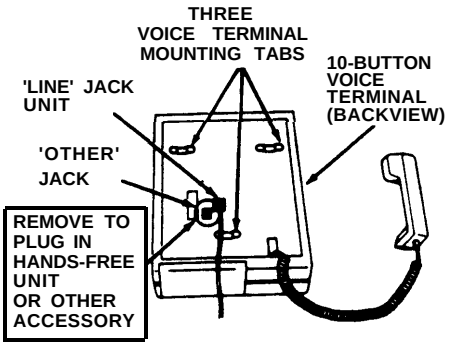


Figure 9

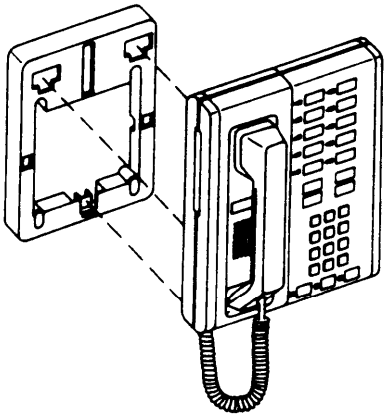


Figure 10

Equipment manufactured by AT&T Technologies in the U.S.A.

Instructions For

201A 10-Button Voice Terminal Wall Mount (32001)

CIB 2856
ISSUE 2

(103A) CUSTOMER-INSTALLABLE JACK (32601)

The customer-installable jack is used to connect 4-pair DIW cable to a D8-type modular cord.

INSTALLATION INSTRUCTIONS

1. Remove the cover from the customer-installable jack by loosening the screw (see Figure 1). Do not remove the screw from the cover. Set the cover aside until the installation is complete.

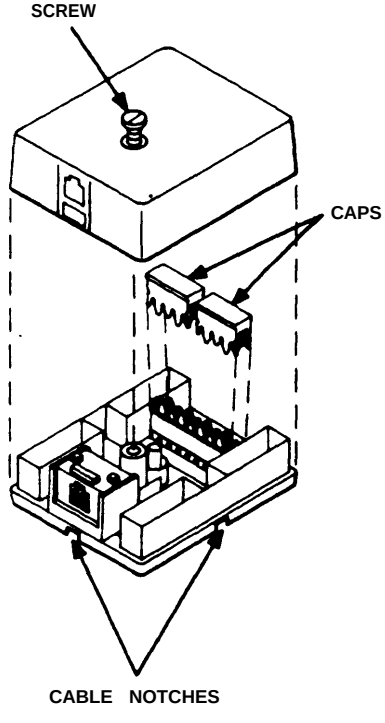


Figure 1

2. Using the cable stripping tool, or equivalent, remove 2 inches of the cover from one end of an 8-conductor cable.

3. From beneath the customer-installable jack base, insert the wire ends of the cable through the hole in the center of the base until about a quarter of an inch of the cable cover extends above the hole (Figure 2).

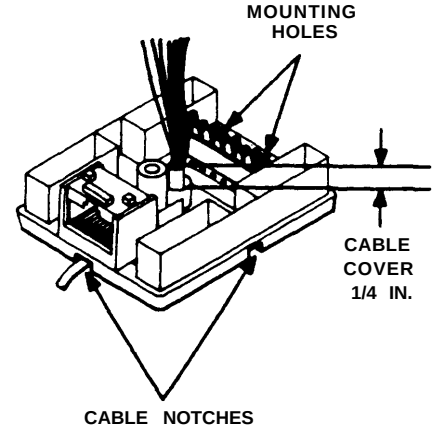


Figure 2

4. Remove the two white plastic caps by pulling them away from the jack; set them aside until Step 6.

5. Insert the wires in the notches in the color sequence shown in Figure 3.

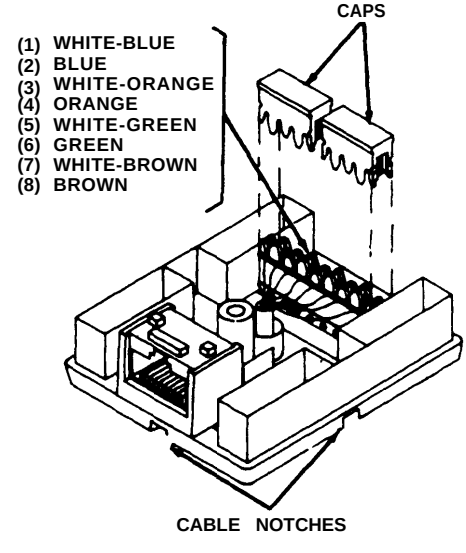


Figure 3

6. Replace each cap by aligning it in position and pressing tightly to make electrical connections.

7. Cut off the loose wire ends with scissors or wire cutters, near the plastic caps, ensuring that the wire ends are not touching each other (Figure 4).

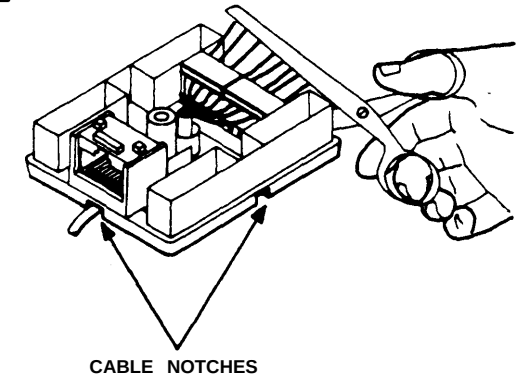


Figure 4

8. Align the cable in one of the notches in the base of the customer-installable jack depending on the direction you want the cable to leave the block (Figure 4).

9. Position the customer-installable jack and mount with appropriate fasteners.

10. Replace the cover on the jack and tighten the screw.

Equipment manufactured by AT&T Technologies in the U.S.A.

(742D) CONNECTING BLOCK

This connecting block joins 8-conductor, 22-24 gauge, inside wire (DIW) cables quickly and easily.

INSTALLATION INSTRUCTIONS

1. Loosen the center screw on the block's cover; remove the cover (see Figure 1).

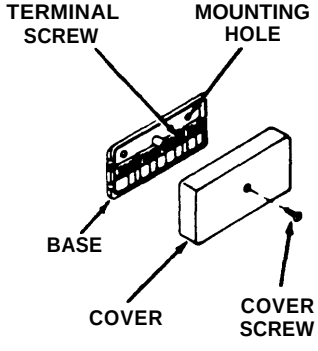


Figure 1

2. Mount the connecting block to the baseboard or wall with appropriate fasteners (screws, adhesive, magnets, etc.).

3. With a pair of pliers, remove a breakout from each side of the connecting block to allow the cables to pass into and out of the connecting block in the directions you want (see Figure 2).

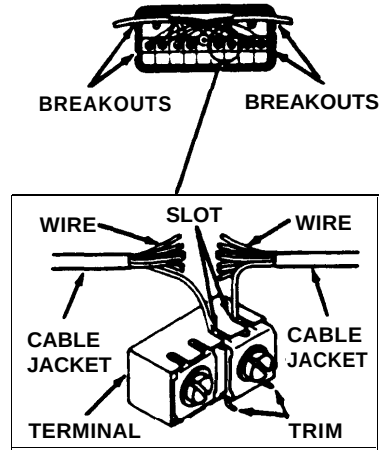


Figure 2

4. Remove about 3 inches of the cable jacket from the end of each cable. Be careful not to damage the insulation on the wires inside the cable jacket. (A special tool for this purpose is available, the 953A Cable Stripper.)

5. Loosen the eight terminal screws.

6. Notice that each terminal has two slots, one for a wire from each cable.

7. Take one of the cables and insert each wire into one slot of the terminal. Bend each wire up to prevent it from slipping out (see Figure 3).

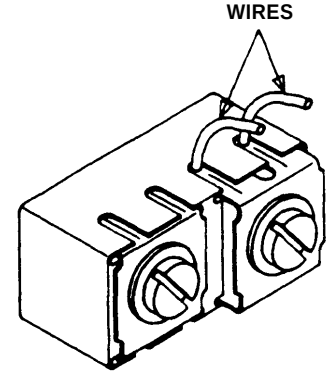


Figure 3

8. Repeat Step 7 for the other cable with the same color wire.

9. Tighten each terminal screw. Trim off excess wire using a wire cutter or scissors.

10. Place the cables in the breakout openings.

11. Replace the cover; tighten the center screw.

Equipment manufactured by AT&T Technologies in the U.S.A.

(700A8) MODULAR PLUG

The modular plug permits an 8-conductor, 22-24 gauge, inside wire (DIW) cable to be plugged into a modular jack.

INSTALLATION INSTRUCTIONS

1. Remove about 3 inches of the cable cover from the cable.

2. Hold the top piece of the plug so that you see the numbers 1 through 8 as shown in Figure 1.

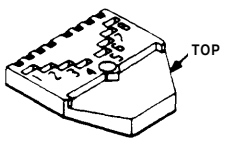


Figure 1

3. Insert the white-orange wire in channel number 1, and bend the wire up in the notch so that the wire does not slide out (see Figure 2).

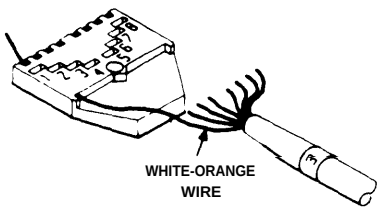


Figure 2

Note: There are two threads among the colored wires (a red one and a white one). You may cut these off to get them out of the way.

4. Insert and bend the remaining wires in their respective channels as you did in Step 3. The sequence of wire colors is coded by number:

   (1) White-Orange
   (2) Orange
   (3) White-Green
   (4) Blue
   (5) White-Blue
   (6) Green
   (7) White-Brown
   (8) Brown.

5. When you have all eight wires in their correctly numbered holes, ***push*** and ***pull*** *on* them so that the outer cable cover is close to the sharp plastic edge as shown in Figure 3.

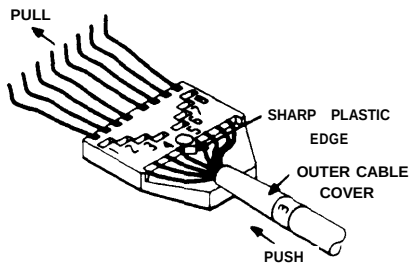


Figure 3

6. While holding the outer cable cover close to the sharp plastic edge, bend all eight wires up again (at the end of each notch) and cut them off close to the edge (see Figure 4).

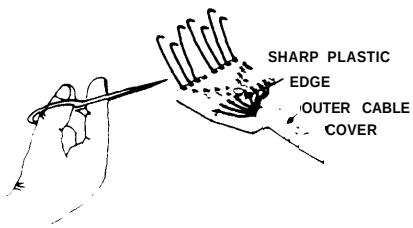


Figure 4

7. Place the bottom piece on a flat surface. Position the top piece on the bottom piece; insert the screw and tighten a few turns to hold the pieces together (see Figure 5).

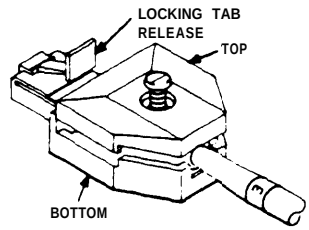


Figure 5

8. Using a pair of pliers, squeeze the two parts together to make both physical and electrical connections (see Figure 6).

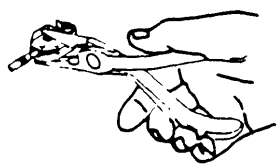


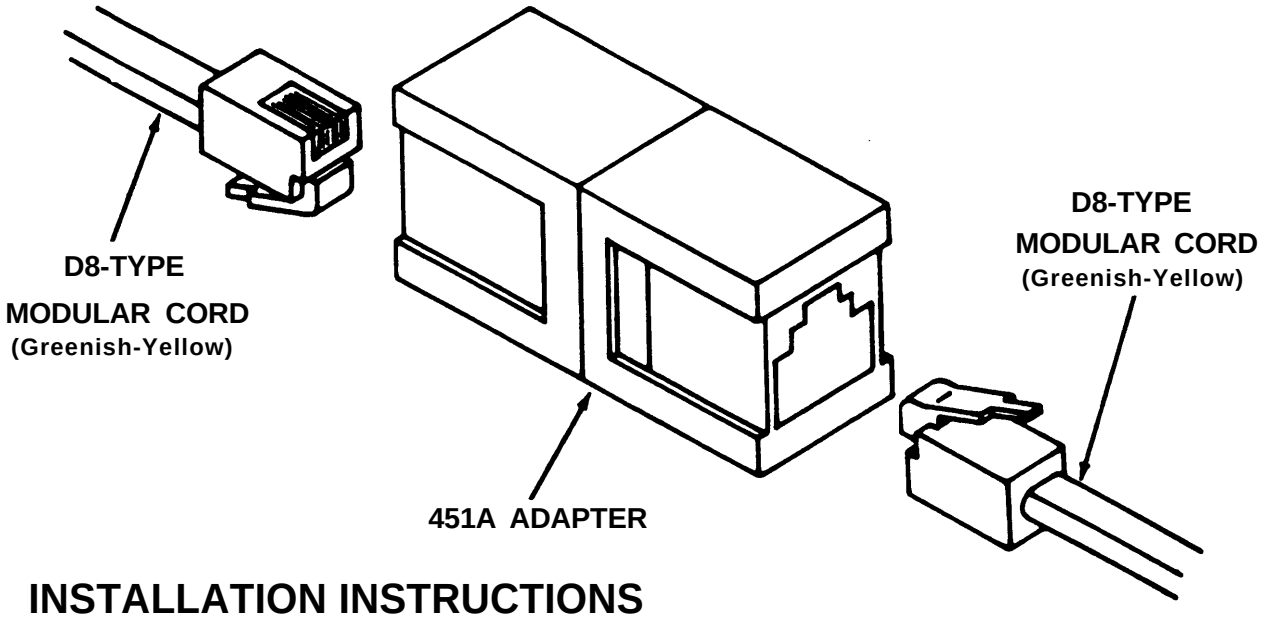
Figure 6

9. Finish tightening the screw to hold the parts together.

CIB 2861

(451A) ADAPTER

The adapter is used to connect a voice terminal cord (D8W) to another voice terminal cord (D8W) or to a voice terminal extension cord (D8AF).



INSTALLATION INSTRUCTIONS

1. Plug one end of each D8-type voice terminal cord into either end of the adapter.

   Caution: Used only with voice terminal cords (D8-type). Do not use with line cords (D4-type) since this may cause an interruption of service.

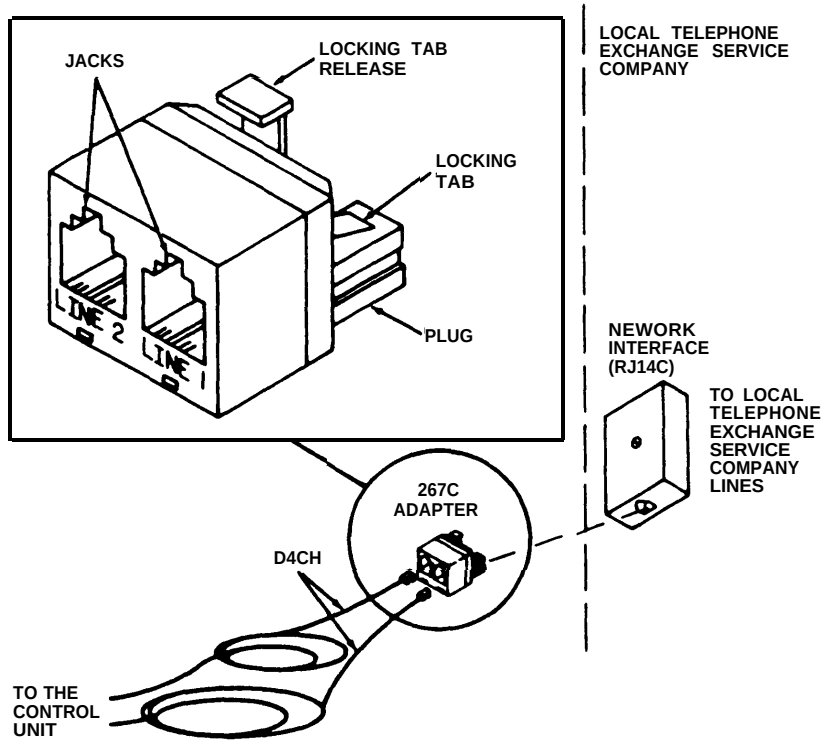
Equipment manufactured by AT&T Technologies in the U.S.A.

(267C) TWO-LINE ADAPTER (61400)

The two-line adapter is used to connect two line (D4CH) cords to a single network interface (RJ14C) where ***two*** outside telephone lines enter the premises. If you do not know whether you have two outside telephone lines entering at a single network interface, you can ask your Local Telephone Exchange Service Company.

INSTALLATION INSTRUCTIONS

1. Position the adapter so that its plug matches the jack of the network interface. Insert the adapter plug firmly. It should lock with a slight "click".



2. The two jacks of the adapter now provide connecting points for two individual modular line (D4CH) cords.

REMOVAL INSTRUCTIONS

1. Hold down the locking tab release and pull the adapter out of the jack of the network interface.

Equipment manufactured by AT&T Technologies in the U.S.A.

Instructions For
S102A Hands-Free Unit (3163)

(S102A) HANDS-FREE UNIT (3163)

Operation of the Hands-Free Unit (HFU) or speakerphone makes it possible to place and answer both outside and intercom calls without using the handset of the associated voice terminal. The HFU can only be used with 10- and 34-Button Voice Terminals.

INSTALLATION INSTRUCTIONS

1. Place the HFU on the desk or table near the voice terminal to which it will be connected.
2. Using the D8AC Cord supplied with the HFU, connect one end to the rear of the HFU; remove the protective label covering the "OTHER" jack and connect the opposite end to the "OTHER" jack on the bottom of the voice terminal (see Figure 1).

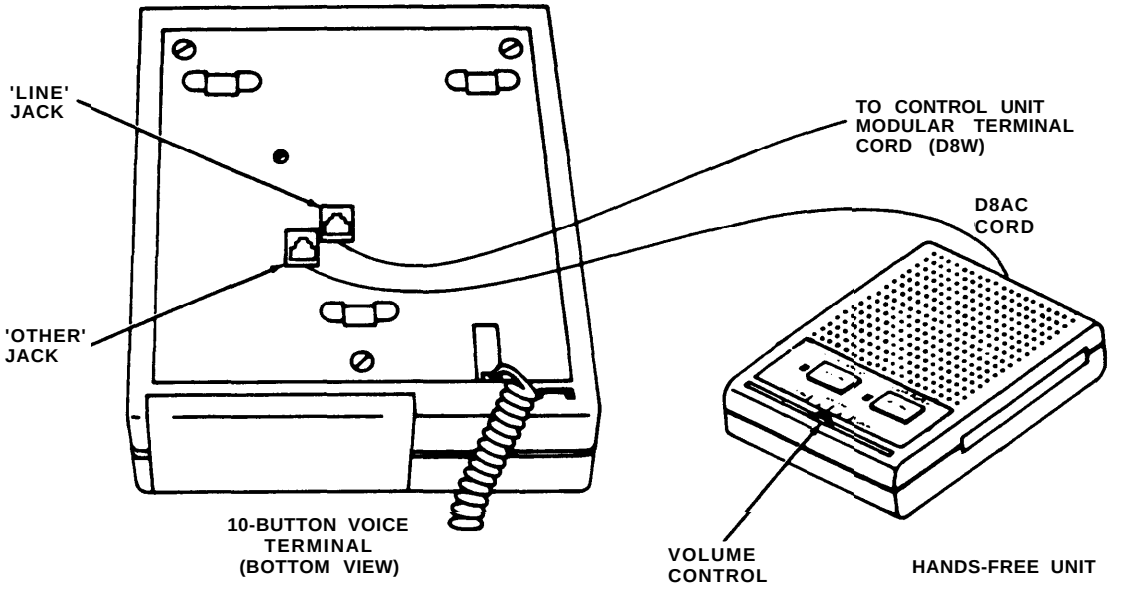


Figure 1

OPERATING INSTRUCTIONS

1. Leave the handset on the voice terminal.
2. Press the SPEAKERPHONE ON/OFF button. The speakerphone and microphone lights come on (see Figure 2) and you will hear dial tone.
3. Dial the number if placing a call.
4. Begin your conversation.
5. Slide the Volume Control lever for a comfortable listening level (see Figure 2).

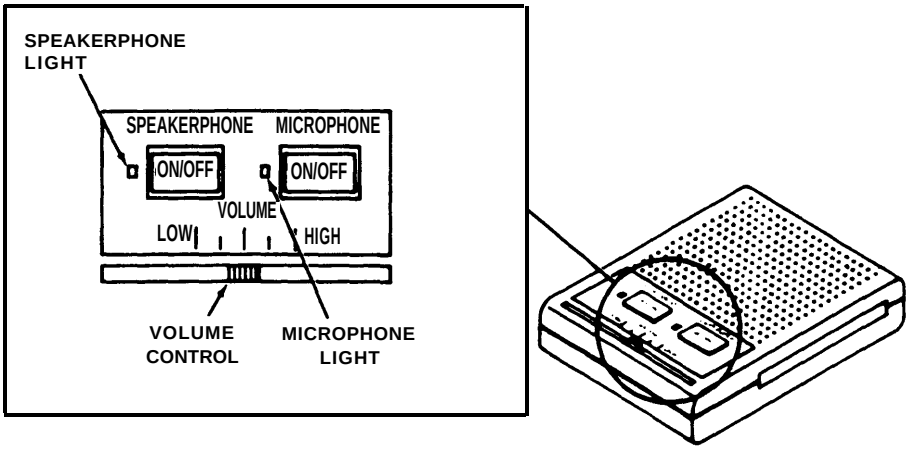


Figure 2

Deactivating Microphone

1. Press the MICROPHONE ON/OFF button. This will prevent the other party from hearing conversation at your end of the call. The microphone light goes off.
2. Press the Microphone ON/OFF button when you again wish to converse with the other party. The microphone light comes on.

Terminating the Call

1. Press the SPEAKERPHONE ON/OFF button.
2. The speakerphone and microphone lights go off.

Equipment manufactured by AT&T Technology in the U.S.A.

PRINTED IN U.S.A.

(7305 H01) 34-BUTTON VOICE TERMINAL (3162)

The 34-Button Voice Terminal provides access to intercom and outside lines, and to programmable and other button features shown in Figure 1 which may be provided in your communications system.

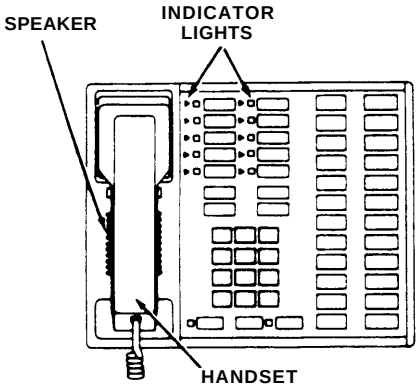


Figure 1

ASSEMBLING YOUR VOICE TERMINAL

1. Unpack voice terminal and coiled handset cord.
2. Turn voice terminal upside down and plug one end of handset cord into jack with the drawing of the handset beside it (see Figure 2).

   Warning: ***Do not plug the handset cord into the jacks labeled "LINE" or "OTHER".***

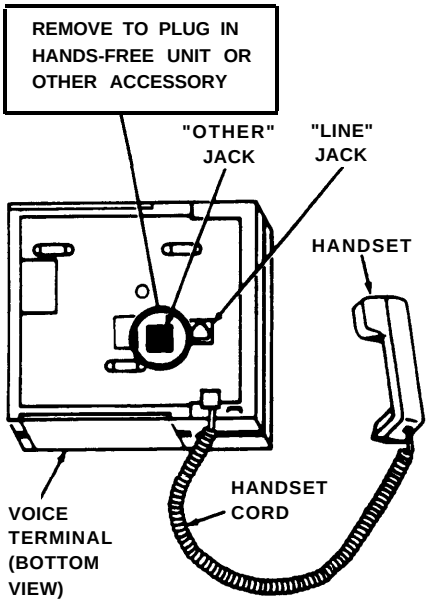


Figure 2

3. Turn the voice terminal right side up.
4. Plug the loose end of the handset cord into the handset (see Figure 2).
5. Position the voice terminal on the desk stand or wall mount.
6. To convert the 34-Button Voice Terminal from a desk terminal to a wall-mounted terminal, follow the instructions packed with the wall mount (CIB 2887).

SPEAKER/RINGING AND TEST CONTROL

Test/Program (T/P) Control

The T/P switch is located on the left side of the voice terminal (see Figure 3). It has three positions: T (spring loaded and must be held in the T position), center (indicated by a "dot"), and the P position. It is set to the center position for normal operation of the voice terminal. After connection to the control unit, the voice terminal can be put into the test mode by holding the switch in the T position. The voice terminal can be put into the program mode by placing the switch in the P position.

Speaker/Ring Volume Control

The volume control is located on the left side of the voice terminal (see Figure 3). Sliding the switch away from you increases the volume while sliding it toward you decreases the volume.

Note: The volume control changes the volume of alerting rings, speaker, and button clicks.

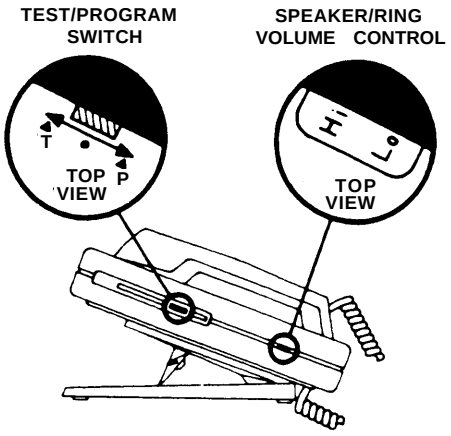


Figure 3

REMOVING AND REPLACING LABELS

Removal

1. Above the touch-sensitive buttons, grasp the silver tab and pull the label out of the label slot (see Figure 4).
2. Labels may now be typed or handwritten in pencil or ink and can be erased (if necessary).

Replacing

1. Insert the bottom of the label into the label slot above each column of the touch-sensitive buttons.
2. Slide the label all the way into the slot until the desired typed label appears next to the proper button. (Note that the label slides into the slot and behind a thin top graphics overlay.)

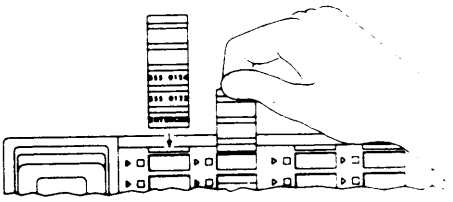
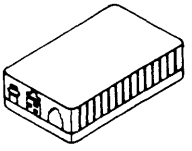


Figure 4

Equipment manufactured by AT&T Technologies in the U.S.A.

(335A) AUXILIARY POWER UNIT (3165)

In auxiliary power unit must be added to your control unit if the total number of voice terminals and voice terminal accessories (hands-free unit, and headset adapters) is greater than the system's capacity. Your system Model 206 supports a total of eight units while Model 410 supports up to fourteen units. The auxiliary power unit kit consists of a 335A Power Unit and parts to provide additional power to the system (see Figure 1).

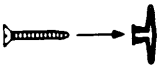


AUXILIARY POWER UNIT

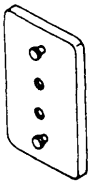
AC LINE CORD

MODULAR PLUG

AUXILIARY POWER CORD



SCREW (2) SCREW ANCHOR SMALL (2) LARGE (2)



MOUNTING HOLES

MOUNTING STUDS

MOUNTING PLATE

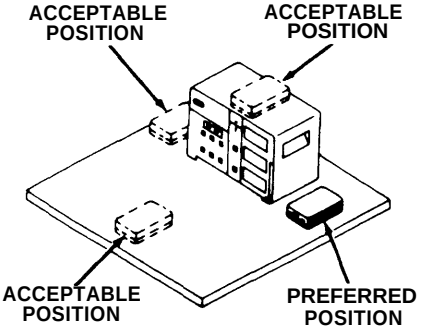
WOOD SCREW (2)

Figure 1

INSTALLATION INSTRUCTIONS

The auxiliary power unit may be surface mounted on a shelf or desk next to the control unit or it may be wall mounted (see Figures 2 and 3). The maximum distance between the power unit and the control unit is determined by the length of the auxiliary power cord (approximately 2 feet) which connects the two units.

SHELF OR DESK MOUNTED



NOTE:
MOUNTING PLATE, SCREWS, AND SCREW ANCHORS NOT REQUIRED.

Figure 2

WALL MOUNTED

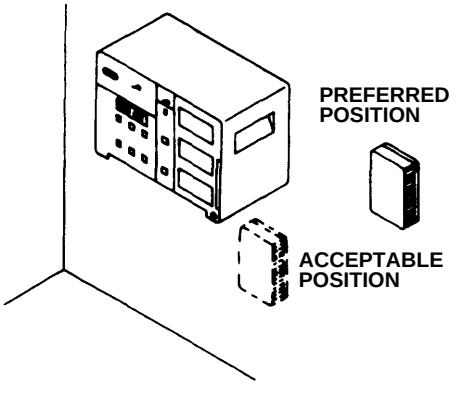


Figure 3

Shelf or Desk Mounting

1. Place the auxiliary power unit in position (Figure 2) on the shelf or desk.
2. Make the necessary connections (see Connections and Figure 5).

WALL MOUNTING INSTRUCTIONS

Mounting on a Wood Surface

1. Locate and mark (using the mounting template) the position of mounting holes.
2. Drill 1/16-inch holes.
3. Install mounting plate in position (Figure 3) using wood screws provided. Tighten screws securely.
4. Align keyholes and studs. Push auxiliary power unit forward and down.

Mounting on a Hollow Wall

1. Locate and mark (using the mounting template) the position of mounting holes.
2. Drill 5/16-inch holes.
3. For 3/8- to 1/2-inch thick wall, use small screw anchor.
4. For 5/8- to 3/4-inch thick wall, use larger screw anchor.
5. Fold screw anchor (see Figure 4A).
6. Insert screw anchor in wall and tap flush (see Figure 4B).
7. Pop the anchor open with the red key — do not hammer key (see Figure 4C).
8. Install the mounting plate in position (Figure 3) using the screws provided. Tighten screws securely (see Figure 4D).
9. Align keyholes of the auxiliary power unit on the mounting plate studs. Push auxiliary power unit forward and down (see Figure 4E).

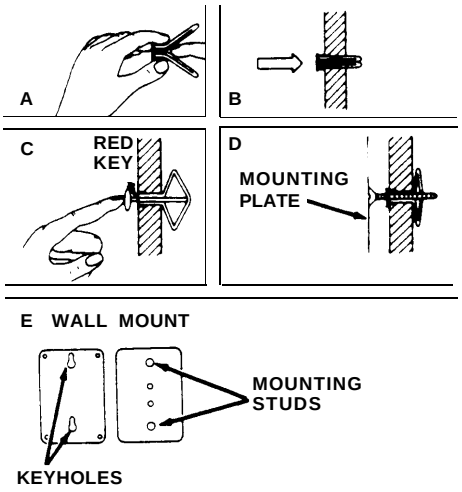


Figure 4

Connections

1. Unplug the control unit power cord from the wall outlet.

2. Plug the control unit power cord into the "AC Output" outlet on the auxiliary power unit.

3. Insert one end of the auxiliary power cord into the jack labeled "Auxiliary Power" on the control unit, and insert the other end into the jack labeled "Auxiliary Power" on the auxiliary power unit.

4. Plug one end of the ac line cord into the opening labeled "AC Input" on the auxiliary power unit, and then plug the other end into the ac wall outlet (see Figure 5).

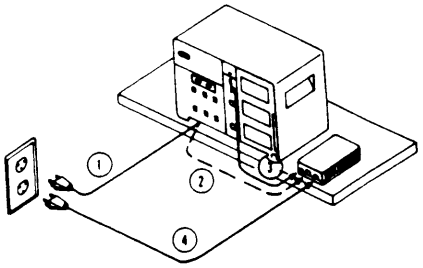


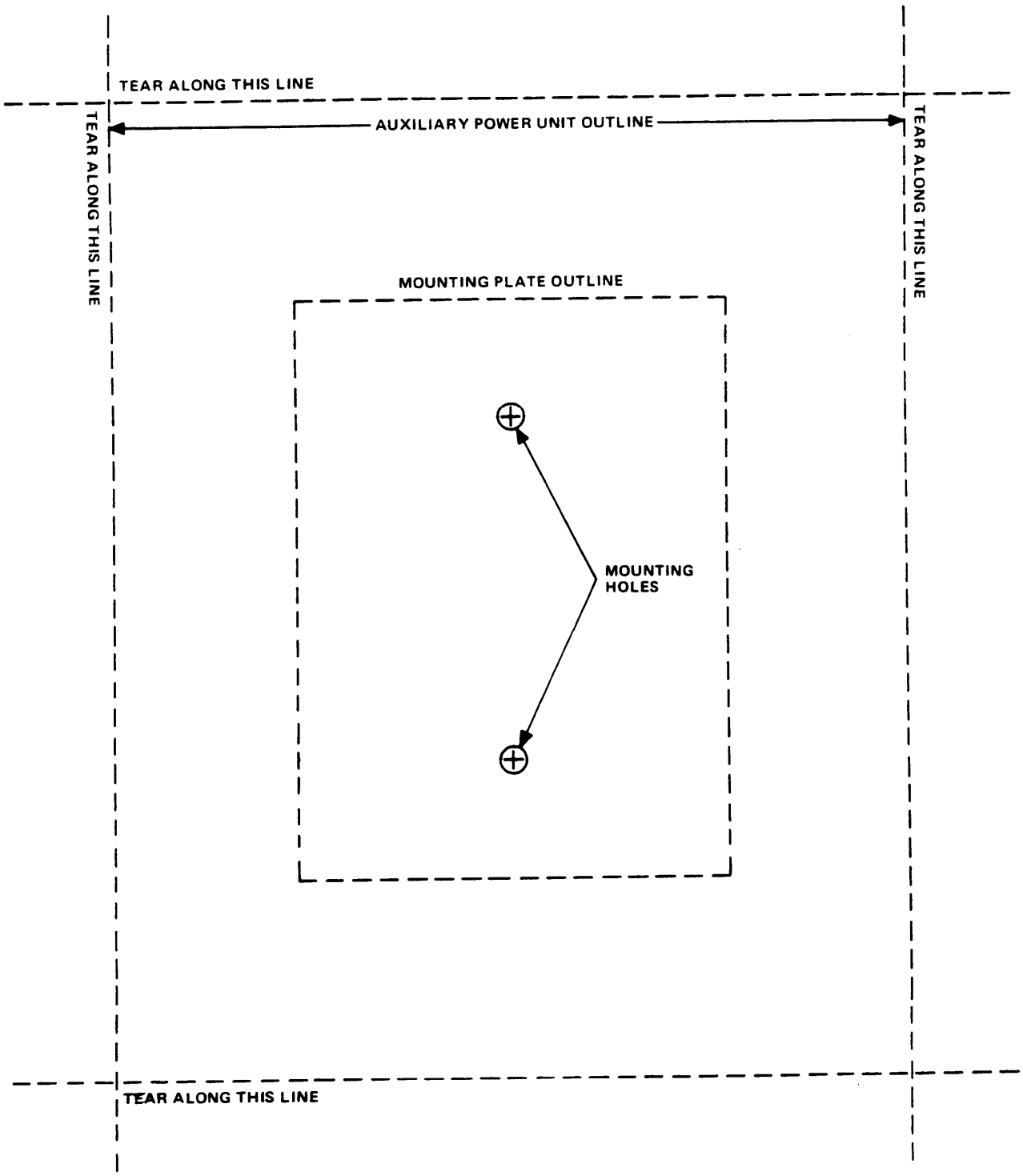
Figure 5

Instructions For

335A Auxiliary Power Unit (3165)

CIB 2866
ISSUE 1

Equipment manufactured by AT&T Technologies in the U.S.A.


TEAR ALONG THIS LINE
TEAR ALONG THIS LINE
AUXILIARY POWER UNIT OUTLINE
TEAR ALONG THIS LINE
MOUNTING PLATE OUTLINE
MOUNTING
HOLES
TEAR ALONG THIS LINE

(502A) HEADSET ADAPTER (3164)

The headset adapter makes it possible to use a headset with the 10- and 34-Button Voice Terminals.

INSTALLATION INSTRUCTIONS

1. Place the adapter near the voice terminal to which it will be connected (see Figure 1).

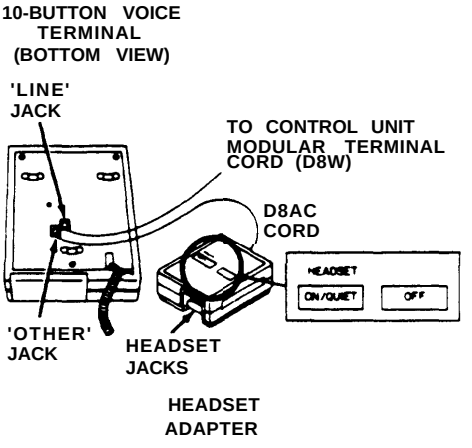


Figure 1

2. If your headset has a modular plug, insert it into the smaller keyed jack on the rear of the adapter (see Figure 2).

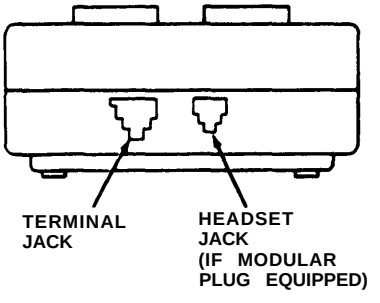


Figure 2

3. If your headset has a 2-prong plug, insert it into the headset jack on the front of the adapter (see Figure 3).

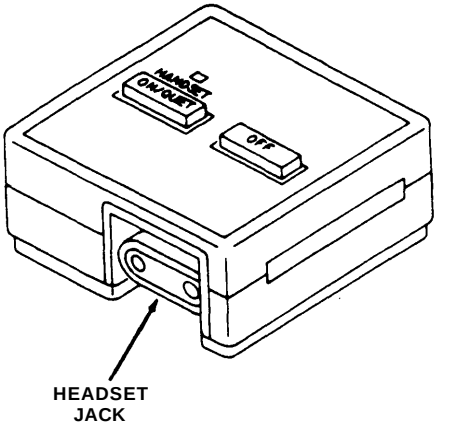


Figure 3

4. On the rear of the adapter, plug one end of the D8AC Cord into the larger keyed jack on the left of the headset.

5. Using the D8AC Cord supplied with the adapter, connect the adapter to the "OTHER" jack on the bottom of the voice terminal (see Figure 4).

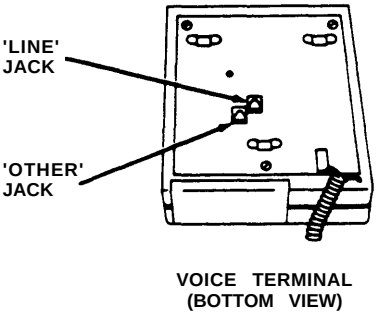


Figure 4

OPERATING INSTRUCTIONS

1. To place a call: press the headset adapter "ON" button and dial the number.

2. To answer a call: press the headset adapter "ON" button.

3. To disconnect (end) a call: press the headset adapter "OFF" button.

4. To switch from handset to headset: press the headset adapter "ON" button and hang up the handset.

5. To switch from headset to handset: pick up handset (headset will automatically go off).

Equipment manufactured by AT&T Technologies in the U.S.A.

(14A) 5-BUTTON VOICE TERMINAL FIXED DESK STAND AND WALL MOUNT (32000)

This bracket supports a 7302 Voice Terminal either on a desk or mounted on a wall.

The original package contains:

- The desk stand/wall mount (unassembled).
- Fasteners and screws appropriate for wall mounting.

The pieces of the desk stand/wall mount come attached to a disposable runner (see Figure 1). The WALL SUPPORT and DESK SUPPORT designations are imprinted on the appropriate plastic part. Separate assembly instructions are provided for each application. Skip to the appropriate "Instruction" section and proceed.

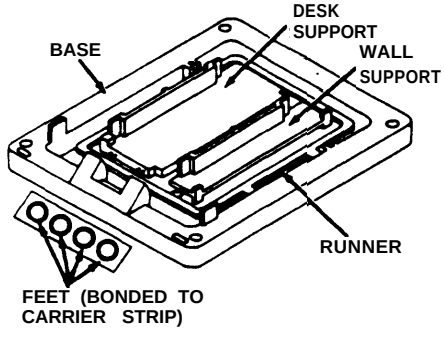


Figure 1

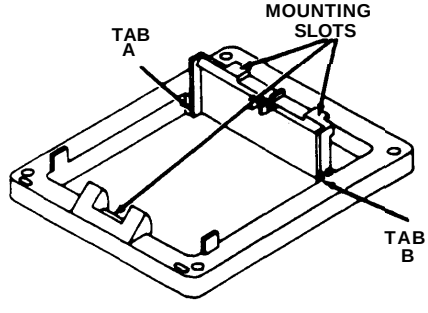


Figure 2

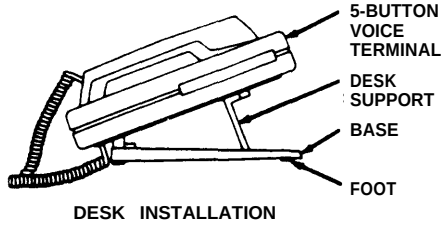
DESK STAND ASSEMBLY AND INSTALLATION

1. Break the pieces away from the runner.
2. Locate the DESK SUPPORT and BASE pieces. File the rough edges off the pieces where they were attached to the runner.
3. Peel the self-stick feet off the carrier strip, and press them into position at the corners of the base.
4. Set the base on its feet.
5. Insert Tabs A and B of the desk support into Slots A and B of the base (see Figure 2).
6. Turn the voice terminal over and rest it on a desk or table.
7. Position the stand on the voice terminal so that the stand's mounting slots fit just below the mounting tabs of the voice terminal.
8. Gently slide the stand upward so that the voice terminal tabs fit securely in the three mounting slots on the stand. Press down on the stand to depress the locking tab.
9. Turn the voice terminal over and place on desk or table (see Figure 3).

WALL MOUNT ASSEMBLY AND INSTALLATION

Assembly Instructions

1. Break the pieces away from the runner.
2. Locate the WALL SUPPORT and BASE pieces. File the rough edges off the pieces where they were attached to the runner.
3. Place the base upside down on a table or desk.
4. Insert Tabs A and B of the wall support into Slots A and B on the base.
5. Lift base and push wall support through slots until it clicks into place (see Figure 4).



DESK INSTALLATION

Figure 3

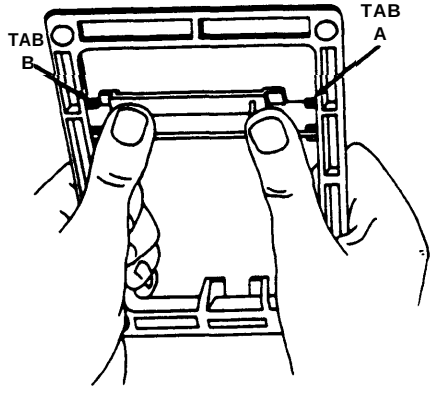


Figure 4

Installation Instructions

Note: Be sure to select a location for installation at least as large as the voice terminal.

1. Select the installation location; using the bracket as a template, mark the four mounting screw locations.
2. Select proper toggler for wall thickness or wall type:
   - For walls 3/8-inch to 1/2-inch thick, select the smaller of the two sizes provided.
   - For walls 5/8-inch to 3/4-inch thick, select the larger of the two sizes provided.
   - For solid walls, either of the two sizes may be used.
3. Drill four holes at the four toggler mounting locations, using a 5/16-inch diameter drill.
4. Fold and insert a toggler (Figure 5A) in each of the mounting locations. Tap each toggler flush to wall (Figure 5B).

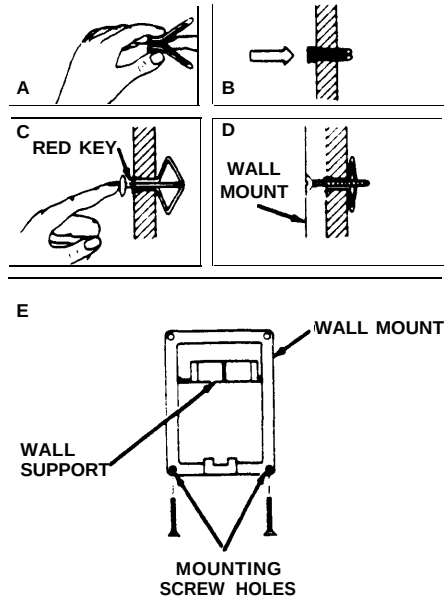


Figure 5

5. Pop the anchor open with the red key — do not hammer the key (see Figure 5C).
6. Using a small drill bit, enlarge the four mounting holes in the wall mount.
7. Insert the top two screws into the wall mount and partially thread the screws into the starter holes of the togglers (Figure 5D).
8. Insert the two remaining screws into the lower mounting holes (see Figure 5E).
9. Tighten all four screws securely.

10. Convert the 5-Button Voice Terminal from a desk terminal to a wall-mounted terminal by following these steps:
    - Remove the number card retainer and the number card (see Figure 6).
    - Remove the screw under the number card and lift out the handset retainer from the upper housing (see Figure 7).
    - Rotate the handset retainer 180 degrees end-over-end (see Figure 8).
    - Replace the handset retainer into the upper housing. If properly inserted, a portion of the handset retainer should be projecting into the handset well of the upper housing (see Figure 9).
    - Replace screw.
    - Replace number card and number card retainer.

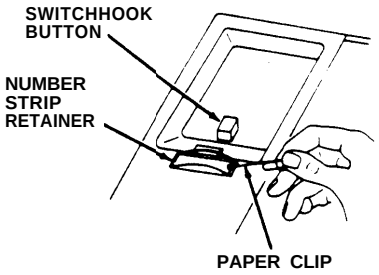


Figure 6

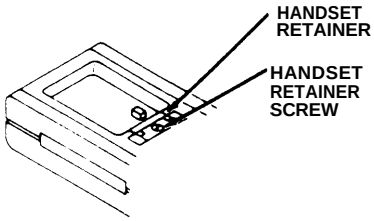


Figure 7

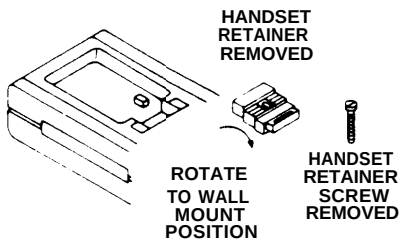


Figure 8

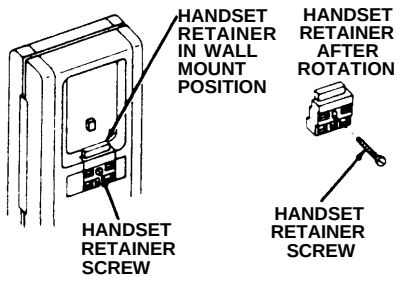


Figure 9

11. Thread one end of the D8W Modular Terminal Cord up through the cord slot of the wall mount, and plug into the jack labeled "LINE" on the back of the voice terminal.

12. Position the back (or bottom) of the voice terminal so the mounting slots of the voice terminal fit just above the wall mount's mounting tabs.

13. Gently slide the voice terminal down so the voice terminal tabs fit securely in the three mounting slots (see Figure 10). Forward pressure must be applied to the voice terminal so the terminal's locking tab is depressed.

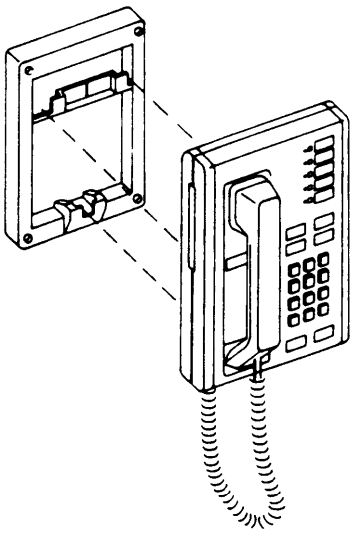


Figure 10

Instructions For

14A 5-Button Voice Terminal Fixed Desk Stand and Wall Mount (32000)

CIB 2885
ISSUE 2

(11C) 34-BUTTON VOICE TERMINAL ADJUSTABLE DESK STAND (32003)

This desk stand is an adjustable mounting base for the 7205, 7305, and 7405 Voice Terminals and provides three angular positions: 8-degree (low), 18-degree (middle), and 28-degree (high).

INSTALLATION INSTRUCTIONS

Note: To avoid pinching your fingers, make certain the adjustable portion of the desk stand is in the lowest position before attempting to install the voice terminal.

1. Set the handset to one side and turn the voice terminal over.

2. Position the stand on the back (or bottom) of the voice terminal so that the voice terminal mounting tabs fit into the "A" mounting slots on the stand (see Figure 1).

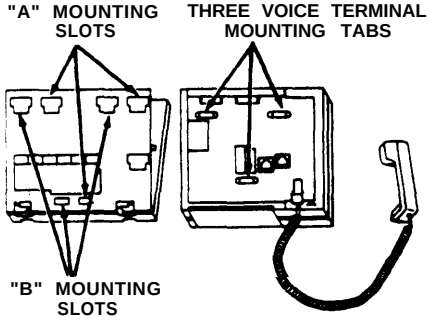


Figure 1

3. Gently slide the stand upward so that the voice terminal tabs fit firmly into the smaller part of the three mounting slots (see Figure 2).

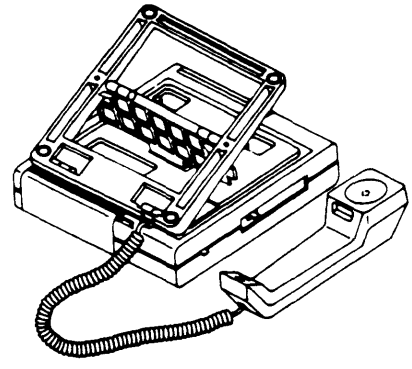


Figure 2

4. The angle of the stand can be adjusted (see Figure 3) by performing the following:

   - Use the forefinger of your left hand to hold the back of the stand firmly to the desk top.

     To RAISE — Using the right hand, slowly lift the rear of the voice terminal until a desired position is reached.

     To LOWER — Using the right hand, lift the rear of the voice terminal to release the locking tension. With the thumb of your left hand, carefully depress the side lever and allow the stand to lower to a desired position.

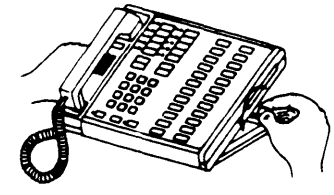


Figure 3

REMOVAL INSTRUCTIONS

To remove the stand from the 34-Button Voice Terminal, slide the stand out of the mounting tabs by pushing the voice terminal upward.

Equipment manufactured by AT&T Technologies in the U.S.A.

(203A) 34-BUTTON VOICE TERMINAL WALL MOUNT (32006)

This bracket is used to mount 7205, 7305, and 7405 Voice Terminals on a wall surface.

INSTALLATION INSTRUCTIONS

Note: Be sure to select a location for installation at least as large as the voice terminal, the wall mounting is slightly smaller than the terminal itself.

1. Select the wall mounting location, using the wall mount as a template, mark the four mounting hole locations (two upper slots and two lower holes (see Figure 1).

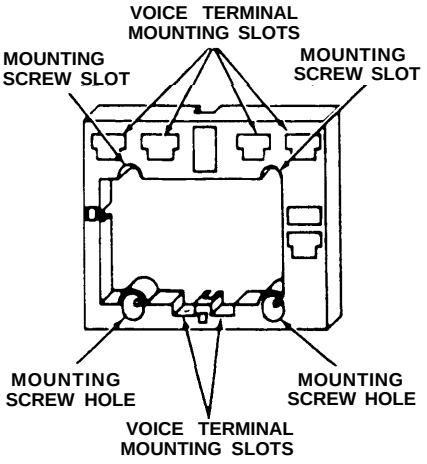


Figure 1

2. Select proper toggler for wall thickness or wall type:
   - For walls 3/8- to 1/2-inch thick, select the smaller of the two sizes provided.
   - For walls 5/8- to 3/4-inch thick, select the larger of the two sizes provided.
   - For solid walls, either of the two sizes may be used.
3. Drill four holes at the four toggler mounting locations using a 5/16-inch diameter drill.
4. Fold toggler (see Figure 2A).
5. Insert a toggler in each of the mounting locations and tap each toggler flush to wall (see Figure 2B).
6. Pop the anchor open with the red key — do not hammer the key (see Figure 2C).
7. Insert and partly thread the top two screws into the starter holes of the togglers (see Figure 2D).
8. Position the two upper mounting slots onto the screws and slightly tighten (see Figure 2E).
9. Insert the two remaining screws into the lower mounting holes (see Figure 2E).
10. Tighten all four screws securely.

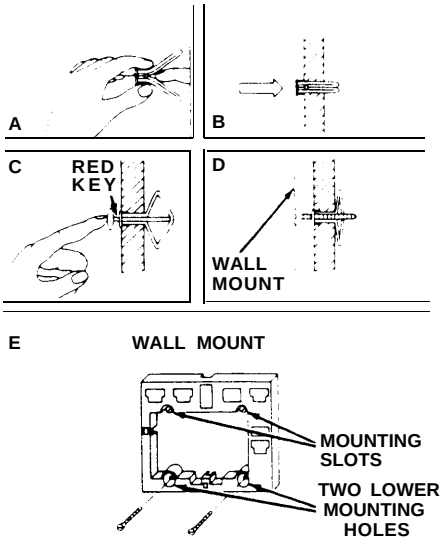


Figure 2

11. Convert the 34-Button Voice Terminal from a desk terminal to a wall mounted terminal by following the substeps below:
    - Remove the desk stand.
    - Remove the number card retainer and the number card (see Figures 3 and 4).
    - Remove the screw under the number card and lift out the handset retainer from the upper housing (see Figure 5).
    - Rotate the handset retainer 180 degrees end-over-end (see Figure 6).
    - Replace the handset retainer into upper housing. If properly inserted a portion of the handset retainer should be projecting into the hand set well of the upper housing (see Figure 7).
    - Replace screw.
    - Replace number card and number card retainer.

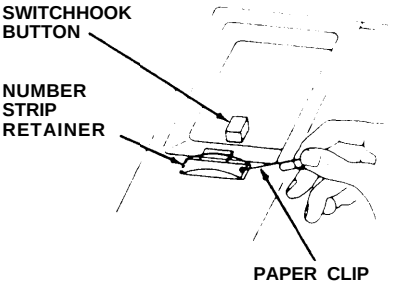


Figure 3

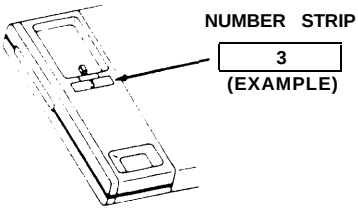


Figure 4

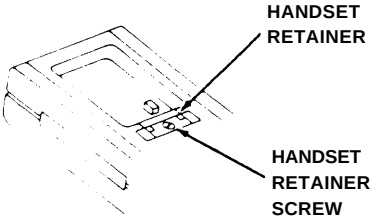


Figure 5

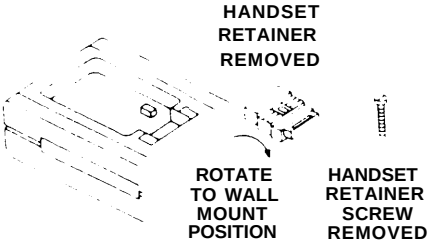


Figure 6

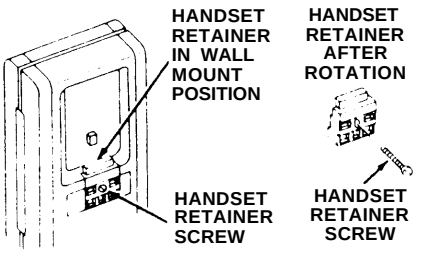


Figure 7

12. Thread one end of the D8W Modular Cord up through the cord slot in the wall mount, and plug the cord into the jack labeled "LINE" on the back of the voice terminal (see Figure 8).

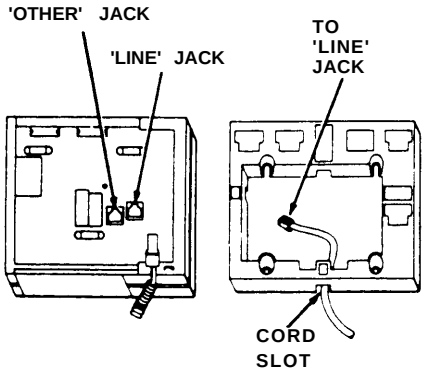


Figure 8

13. Position the back (or bottom) of the voice terminal so the three terminal mounting tabs (Figure 9) fit into the terminal mounting slots.

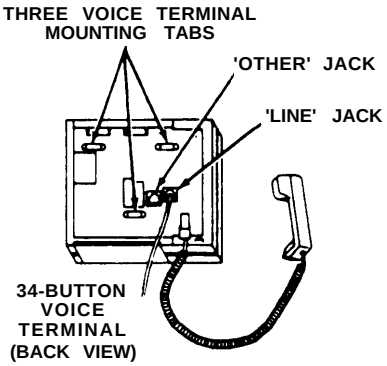


Figure 9

14. Gently slide the voice terminal downward so the three tabs fit into the smaller part of the corresponding mounting slots (see Figure 10).

15. Plug the loose end of the handset cord into the handset.

16. The installatlon is complete.

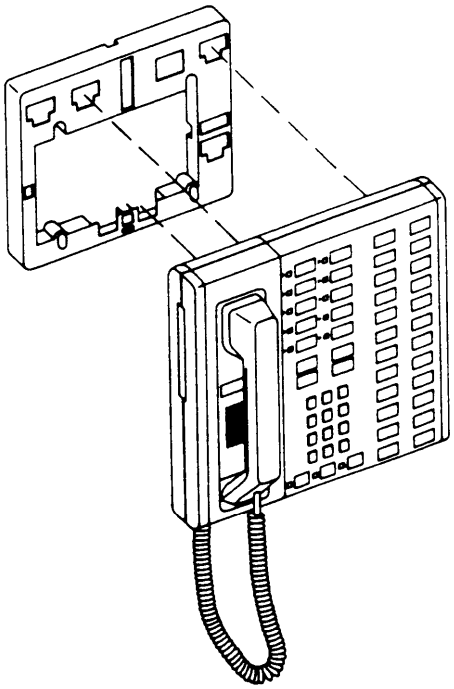


Figure 10

Instructions For

203A 34-Button Voice Terminal Wall Mount (32006)

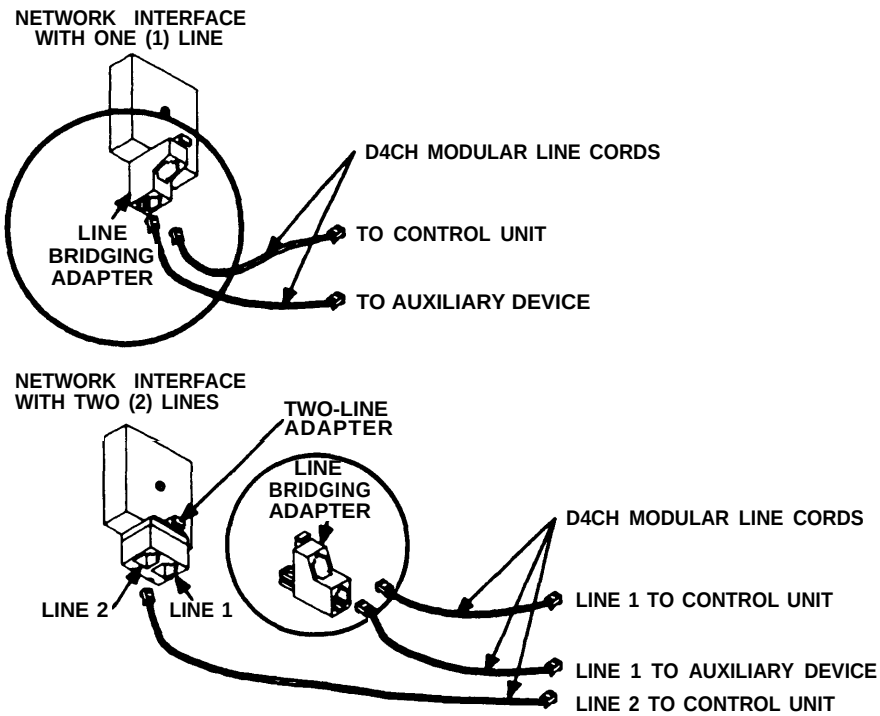
CIB 2887
ISSUE 2

(267A2) LINE BRIDGING ADAPTER (61401)

This adapter kit contains a 267A2 Adapter. The adapter connects to a single modular jack network interface to provide two-jack access to the same line. This allows auxiliary devices such as telephone answering machines to be connected to the line.

INSTALLATION INSTRUCTIONS

The adapter may be used in any of the following configurations:



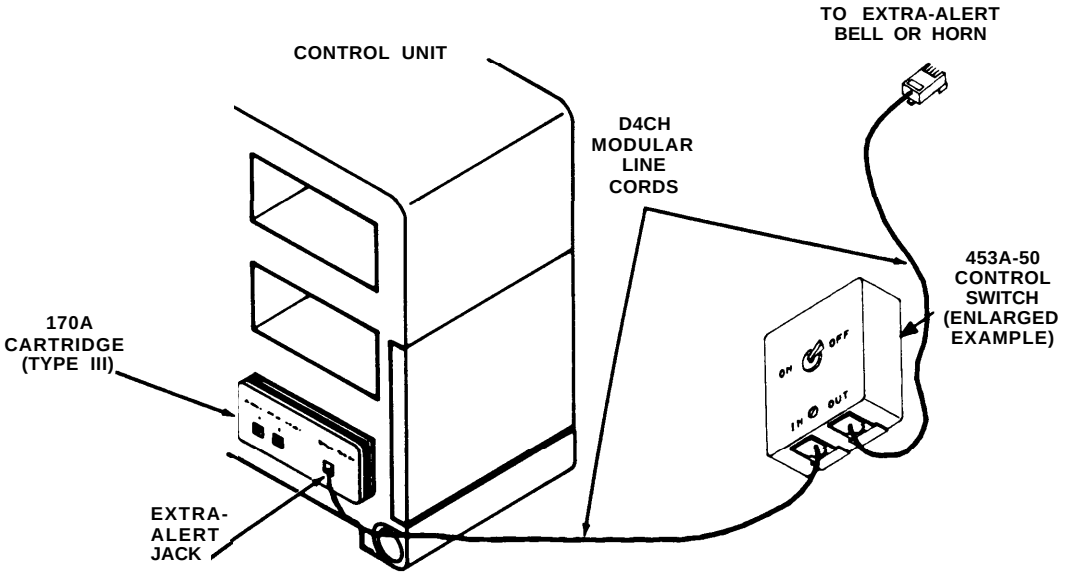
1. Position the adapter so that its plug matches the jack of the network interface connecting block. Insert the adapter plug firmly. It should lock with a slight "click".

2. The two jacks of the adapter now provide convenient connecting points for modular line cords.

Equipment manufactured by AT&T Technologies in the U.S.A.

(452A-50) EXTRA-ALERT CONTROL SWITCH (32630)

This switch provides ON/OFF control, and is required for the proper installation of certain older extra-alert devices.



INSTALLATION

1. Insert one end of a D4CH Modular Line Cord into the OUT jack of the 452A-50 Switch and the opposite plug end into an extra-alert device or other appropriate apparatus (e.g., relay box, bell, horn, etc.).

2. Remove the plastic hole plug from the “Extra-Alert” jack on the 170A or (Type III) Cartridge and plug one of the modular cords (D4CH) into the “Extra-Alert” jack.

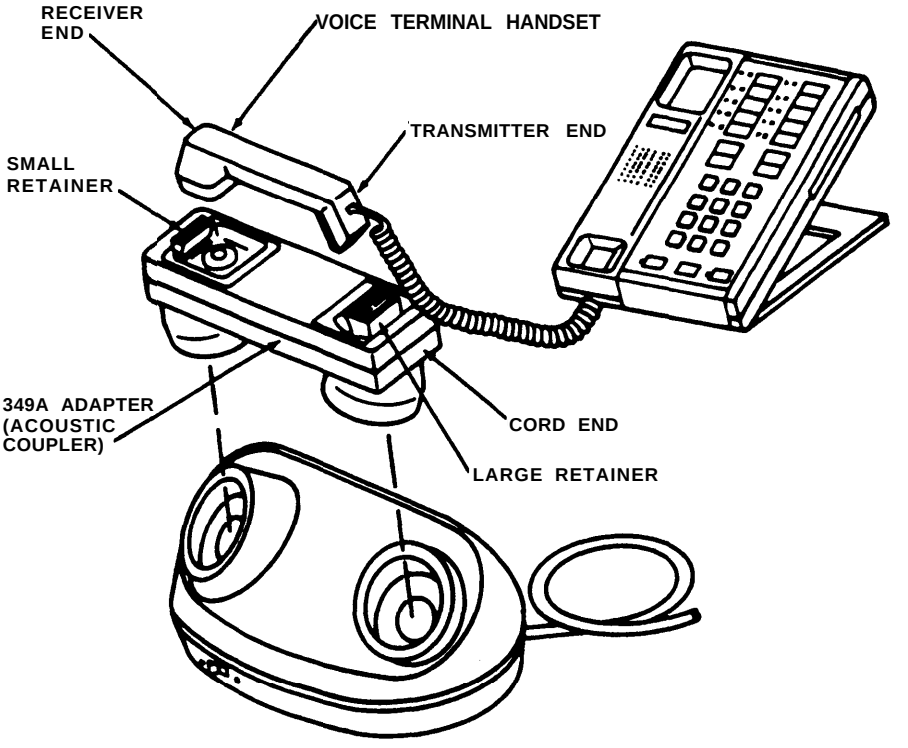
3. Insert one plug end of a second D4CH Modular Line Cord into the IN jack of the 452A-50 Switch and the opposite plug end into the “Extra-Alert” jack of the 170A or Cartridge (Type III).

4. Attach the 452A-50 Switch to the wall.

5. Place the switch in the ON position. (Your extra-alert device will now sound each time you receive a call from outside your system.)

(349A) ACOUSTIC COUPLER ADAPTER

This adapter provides a means of mechanically connecting the voice terminal handset to the handset interface of existing acoustic modems.



INSTALLATION INSTRUCTIONS

1. Align the 349A Adapter's transmitter (large retainer) and receiver (small retainer) ends in the appropriate cups of the modem and lower the adapter until fully seated.

2. Place the handset over the adapter as shown in the illustration.

3. Bend the large retainer out of the way and insert the handset transmitter into the adapter cup until it is fully seated.

4. Move the adapter's small retainer out of the way and press the handset receiver downward into the cup unit it is fully seated.

(D181233) LINE-POWERED ALERT RINGER AND PARTS (61211)

The D181233 Line-Powered Alert Ringer and Parts (see Figure 1) consists of an E1CM Ringer with a 290A Adapter, a 1049A Mounting Plate, and a 25-foot Modular Line Cord (D4CH).

Note: If you have two lines entering at the network interface (off one jack), you will need a Two-Line Adapter (267C) to separate the lines.

This audible ringer can be used as an auxiliary ringer near the network interface or can be installed to provide audible ringing at a remote location. A volume control lever permits continuous adjustment of ringing volume from OFF to LOUD.

Note: Before installation, inform your Local Telephone Exchange Service Company of your Ringer Equivalence Number (1.0-A) for the ringer.

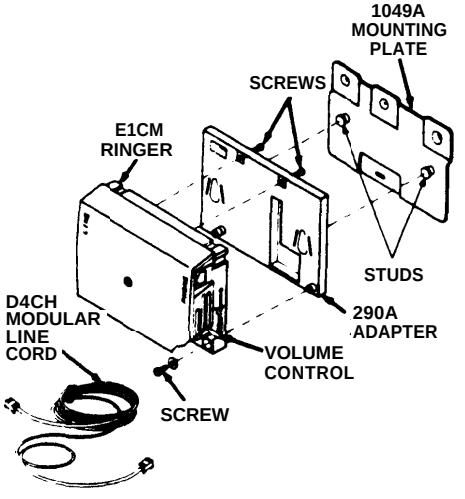


Figure 1—D181233 Line-Powered Alert Ringer and Parts (61211)

INSTALLATION

The ringer assembly can be installed on the line going from the network interface to the control unit (see figure 2) or bridged directly onto the line to provide ringing at a remote location (see Figure 3). For installation at a remote location, a Line Bridging Adapter Kit (267A2 Adapter and D4CE-50 Line Extension Cord) is required.

IN-LINE INSTALLATION (Figure 2)

Note: This installation should be used when the ringer is to be placed between the network interface and the control unit.

1. Secure the 1049A Mounting Plate to the mounting surface using the appropriate fasteners (screws or togglers).

2. Remove the rubber grommets from the base of the ringer and secure the 290A Adapter to the ringer using the screws provided with the adapter.

   Note: Two screws are placed through the top of the adapter and into the ringer. One screw is placed through the ringer and into the adapter.

3. Align the slotted holes in the 290A Adapter with the studs on the mounting plate and push in and down to secure the ringer assembly in place.

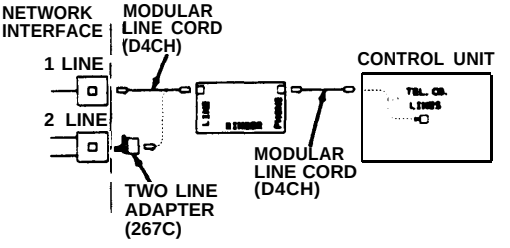


Figure 2—In-Line Installation

Connections

4. At the network interface, connect the ringer by Methods A or B (described below) as applicable:

   Method A. At the network interface jack with single line appearance, plug one end of a Modular Line Cord (D4CH) into the network interface jack. Plug the other end into the LINE jack on the ringer.

   Method B. At the network interface jack with two-line appearances, plug a Two-Line Adapter (267C) into the line jack. Then plug one end of a Modular Line Cord (D4CH) into the line jack on the two-line adapter that is to have auxiliary ringing. Plug the other end of the modular line cord into the LINE jack on the ringer.

5. Plug one end of another Modular Line Cord (D4CH) into the PHONE jack on the ringer. Plug the other end of the cord into the appropriate Tel. Co. Lines jack on the control unit.

Test and Adjust Ringing

6. Place a call to the line number with the ringer installed. When ringing occurs, adjust the volume control lever for the desired loudness.

REMOTE INSTALLATION (Figure 3)

Note: This installation is used when you want to place the ringer in a remote location (25 feet or even further if you purchase a D4CE-50 Line Extension Cord), and the ringer has to be bridged (via 267A2 Adapter) onto the line going from the network interface to the control unit.

1. Secure the 1049A Mounting Plate to the mounting surface using the appropriate fastener (screws or togglers).

2. Remove the rubber grommets from the base of the ringer and secure the 290A Adapter to the ringer using the screws provided with the adapter.

   Note: Two screws are placed through the top of the adapter and into the ringer. One screw is placed through the ringer and into the adapter.

3. Align the slotted holes in the 290A Adapter with the studs on the mounting plate and push in and down to secure the ringer assembly in place.

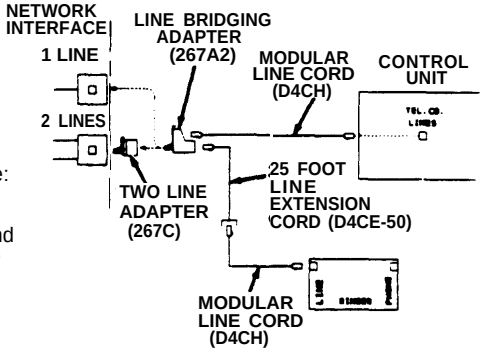


Figure 3—Remote Ringing Installation

Connections

4. At the network interface, connect the ringer by Methods A or B (described below) as applicable:

   Method A. At the network interface jack with single-line appearance, plug a Line Bridging Adapter (267A2) into the network interface jack.

Method B. At the network interface jack with two-line appearances, plug a Two-Line Adapter (267C) into the line jack. Plug the Line Bridging adapter (267A2) into the line jack of the two-line adapter that is to have remote ringing.

5. Insert the plug end of a Line Extension Cord (D4CE-50) into one jack on the line bridging adapter.

6. Plug one end of a Modular Line Cord (D4CH) into the jack end of the Line Extension Cord (D4CE-50) and plug the other end of the cord into the LINE jack on the ringer.

7. Plug one end of another Modular Line Cord (D4CH) into the unoccupied jack on the line bridging adapter and plug the other end into the appropriate Tel. Co. Lines jack on the control unit.

Test and Adjust Ringing

8. Place a call to the line number with the ringer installed. When ringing occurs, adjust the volume control lever for the desired loudness.

Instructions For

D181233 Line-Powered Extra-Alert E1CM Ringer and Parts (61211)

CIB 2924
ISSUE 1

Equipment manufactured by AT&T Technologies in the U.S.A.

(7305 H02) 34-BUTTON DELUXE VOICE TERMINAL (3166)

The 34-Button Deluxe Voice Terminal (Figure 1) provides access to intercom and outside lines, and to programmable and other button features which may be provided in your communcations system.

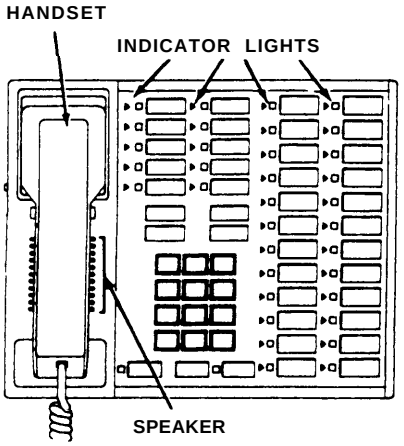


Figure 1

ASSEMBLING YOUR VOICE TERMINAL

Unpack voice terminal and coiled handset cord.

2. Turn voice terminal upside down and plug one end of handset cord into jack with the drawing of the handset beside it (see Figure 2).

Warning: ***Do not plug the handset cord into the jacks labeled "LINE" or "OTHER".***

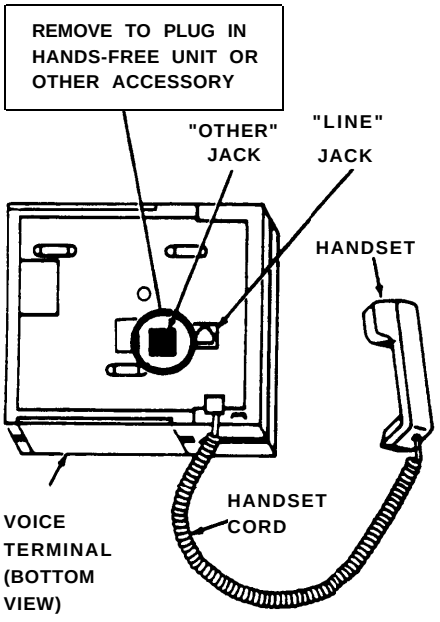


Figure 2

3. Turn the voice terminal right side up.

4. Plug the loose end of the handset cord into the handset (see Figure 2).

5. Position the voice terminal on the desk stand or wall mount.

6. To convert the voice terminal from a desk terminal to a wall-mounted terminal, follow the instructions packed with the wall mount (CIB 2887).

SPEAKER/RINGING AND TEST CONTROL

Test/Program (T/P) Control

The T/P switch is located on the left side of the voice terminal (see Figure 3). It has three positions: T (spring loaded and must be held in the T position), center (indicated by a "dot"), and the P position. It is set to the center position for normal operation of the voice terminal. After connection to the control unit, the voice terminal can be put into the test mode by holding the switch in the T position to test the lights and ringer (all red and green lights will flash and the set will ring if it is working properly). The voice terminal can be put into the program mode by placing the switch in the P position.

Speaker/Ring Volume Control

The volume control is located on the left side of the voice terminal (see Figure 3). Sliding the switch away from you increases the volume while sliding it toward you decreases the volume.

Note: The volume control changes the volume of alerting rings, speaker, and button clicks.

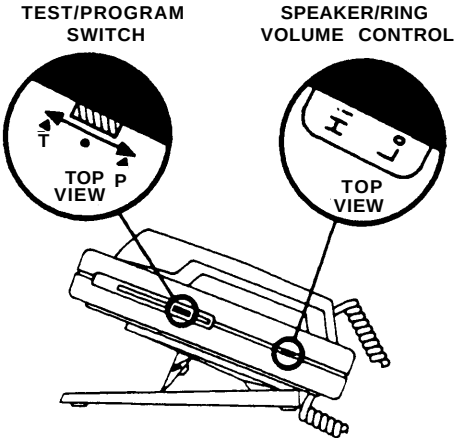


Figure 3

REMOVING AND REPLACING LABELS

Removal

1. Above the touch-sensitive buttons, grasp the silver tab and pull the label out of the label slot (see Figure 4).

2. Labels may now be typed or handwritten in pencil or ink and can be erased (if necessary).

Replacing

1. Insert the bottom of the label into the label slot above each column of the touch-sensitive buttons.

2. Slide the label all the way into the slot until the desired typed label appears next to the proper button. (Note that the label slides into the slot and behind a thin top graphics overlay.)

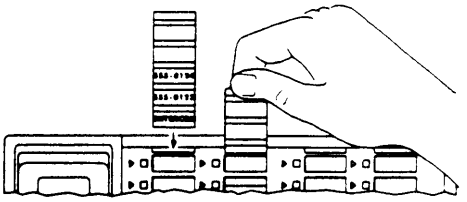
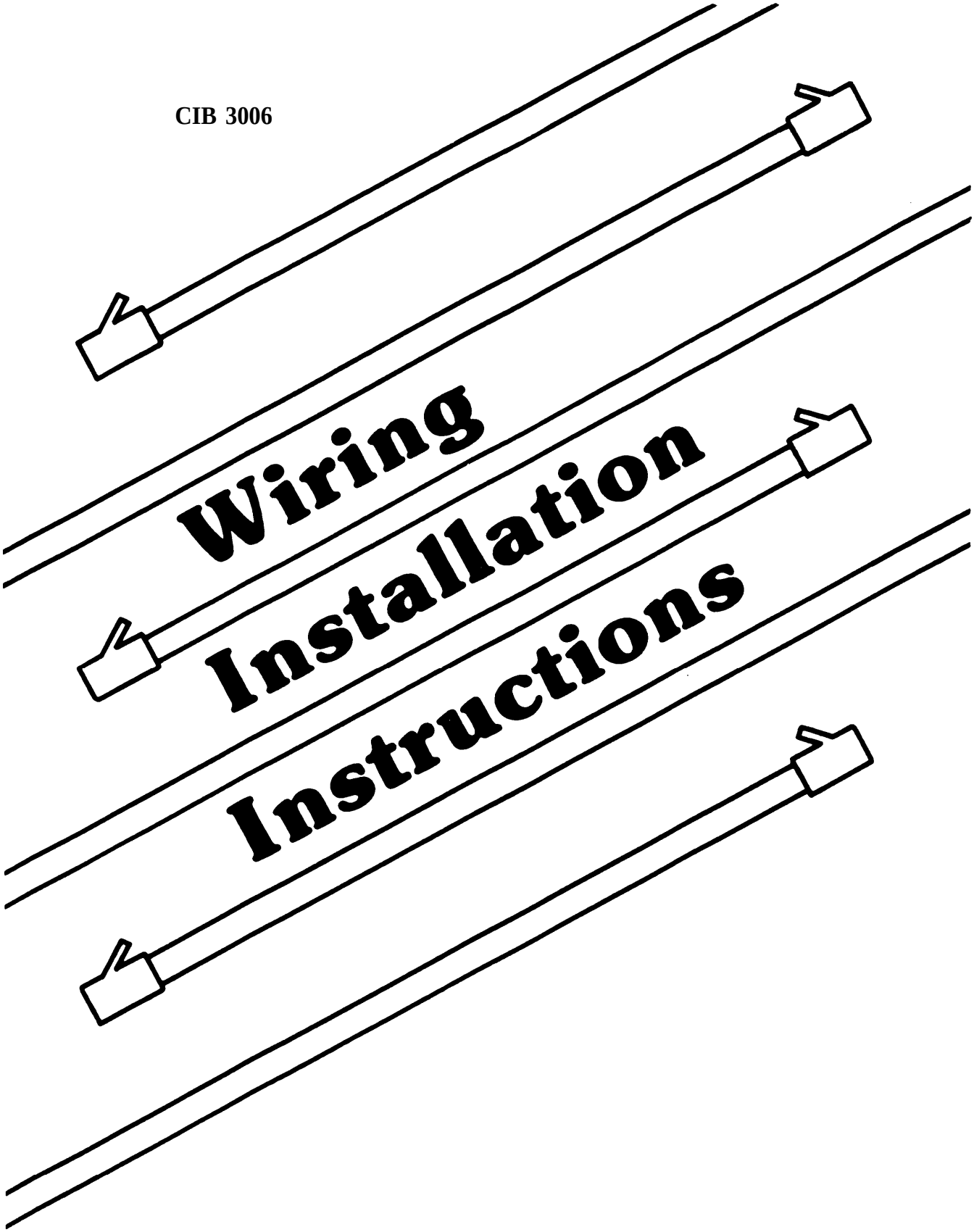


Figure 4

Equipment manufactured by AT&T Technologies in the U.S.A.

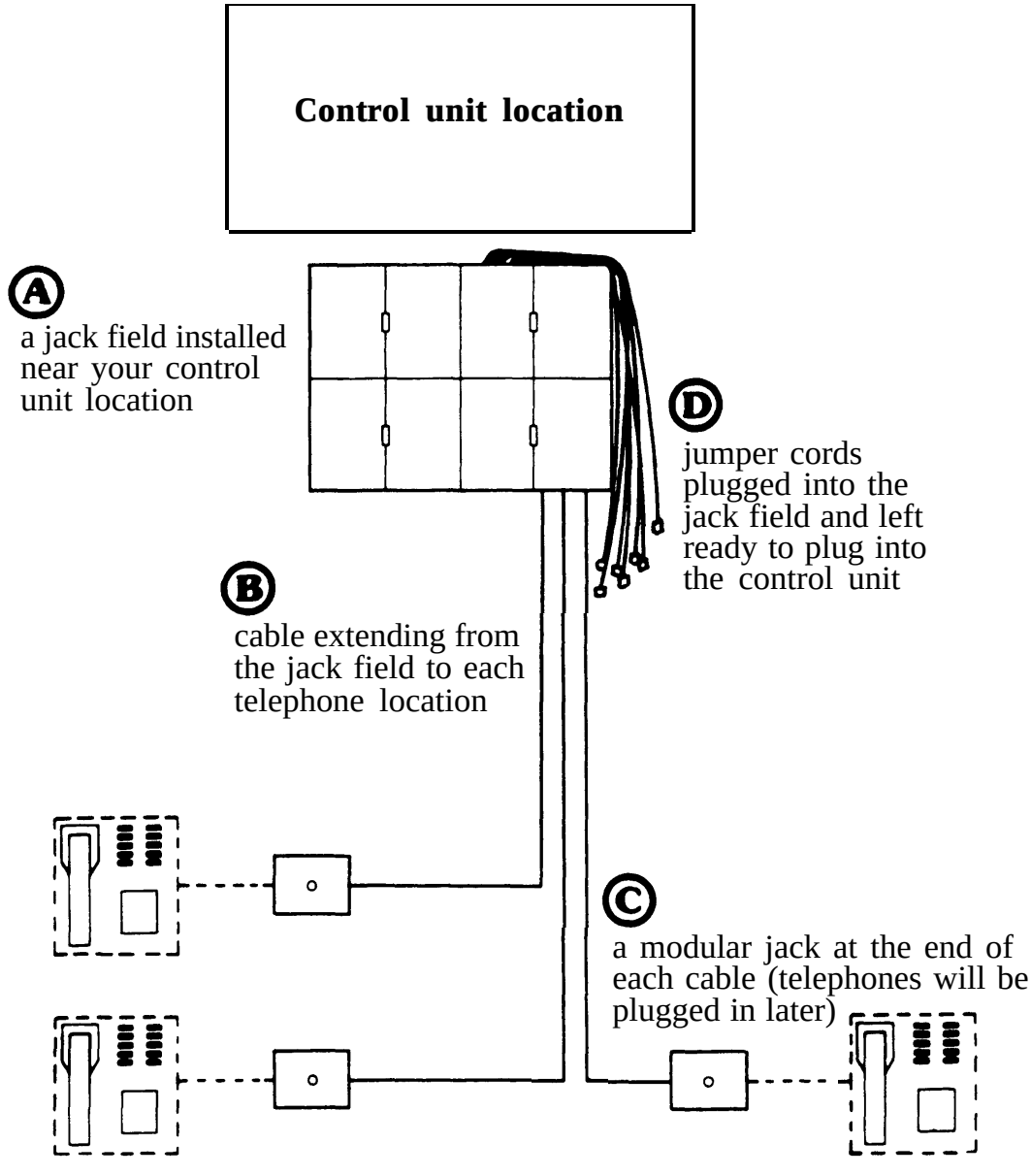
CIB 3006



WIRING INSTALLATION INSTRUCTIONS

These instructions explain how to install building wiring for telephones. The instructions are intended for someone familiar with building construction.

When you finish these procedures, you will have:



Installing your wiring involves these four steps:

1. Getting started
2. Mounting the jack panels
3. Running cable and installing modular jacks
4. Connecting jumper cords.

WARNING: National and local building codes and fire regulations forbid routing flammable wiring inside or on top of air plenums or ducts or along hot pipes. Consult your local ordinances and regulations for routing flammable wiring through walls or floors. The manufacturers, distributors, and their agents will not be responsible for damage due to improperly installed wiring.

1. You will need these materials:

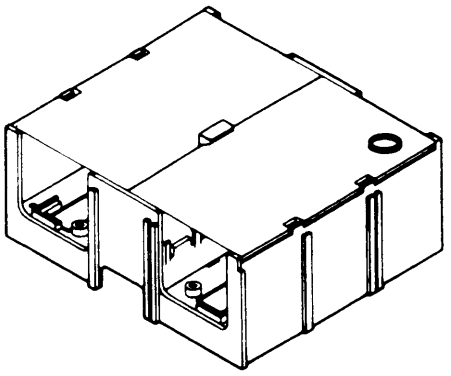
   - a floor plan of your building that shows telephone locations and cable routes between these locations and your communications system control unit
   - a screwdriver
   - scissors
   - drill and bits appropriate for 3/16-inch cable.

   Small cable clips are provided, but you may also want bigger clips, cable ties, and a stapler and staples for fastening cables.

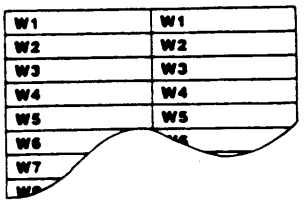
2. The other materials you will need come in three oderable kits. Examine their contents using these figures. Make sure you have the right number of kits for your communications system.

WIRING INSTALLATION KIT

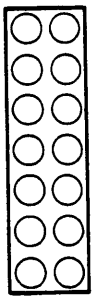
(one per communications system)



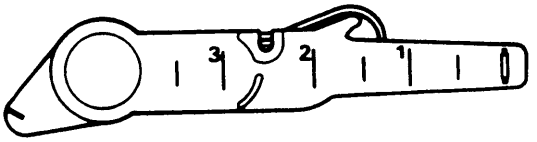
Jack panel box
(Number required depends on number of telephones. You will need one jack panel box per six telephones.)



Wiring run labels



Blue stickers

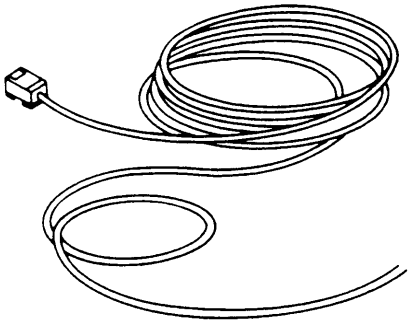


Cable installation tool

Telephone location stickers

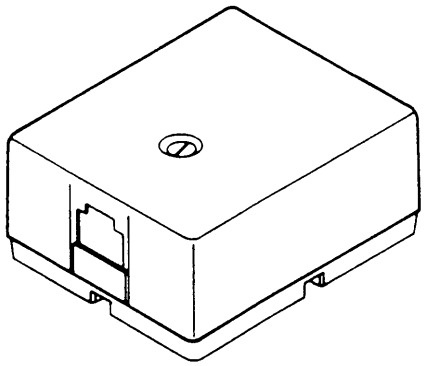
CABLE EXTENSION KIT

(one per telephone more than 10 feet from the control unit)

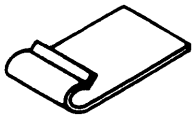


100- or 200-foot length of cable

(Length depends on distance between control unit and telephone.)



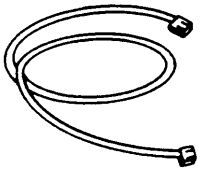
Modular jack



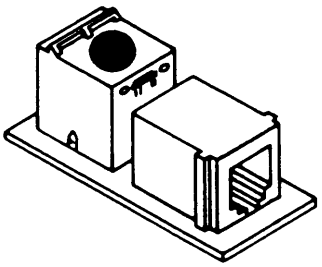
Cable clips

WIRING TERMINATION KIT

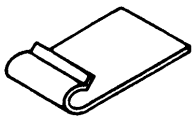
(one per telephone)



Jumper cord



Modjack-to-modjack adapter

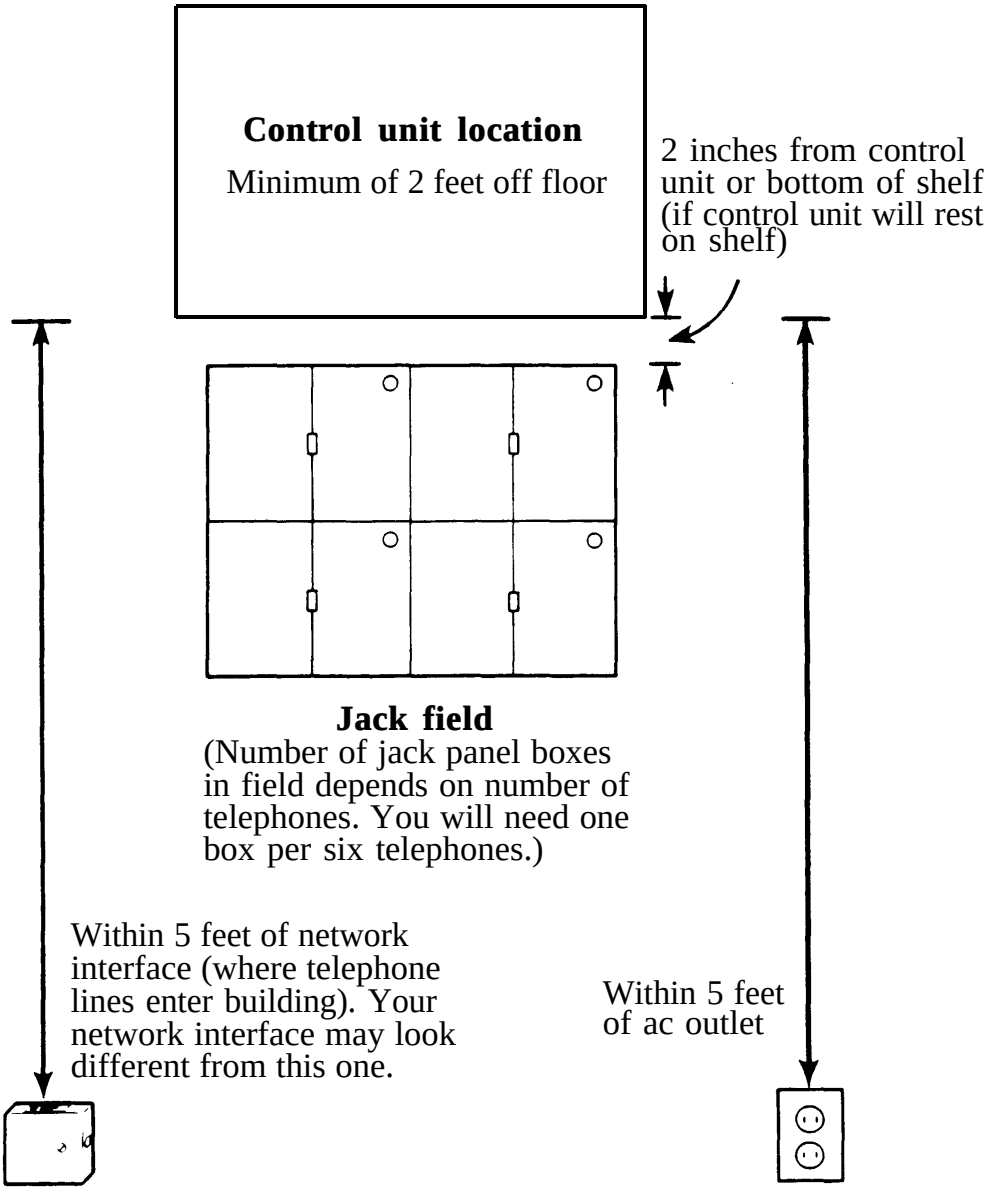


Cable clips

3 Look for the telephone locations on your building floor plan. Affix a telephone location sticker to the wall at each telephone location.

MOUNTING THE JACK PANEL BOXES

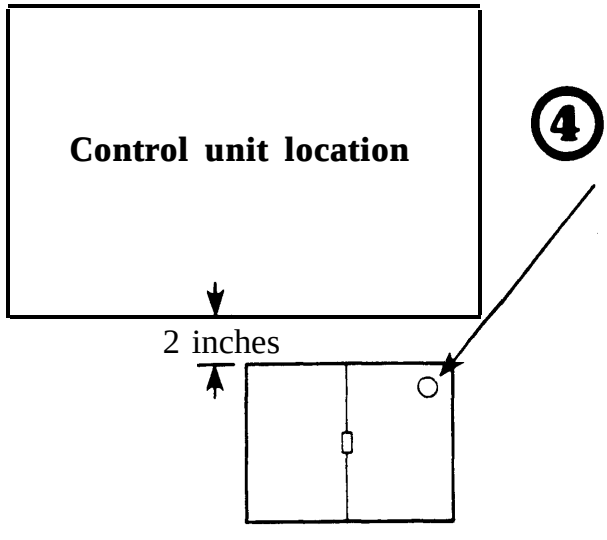
1 On your building floor plan, pencil in the control unit location. The location must comply with the measurements shown in the figure.



2 On the wall, mark where the bottom of the control unit or shelf (if the control unit will rest on a shelf) will be.

3 Screws 1-1/4 inches long come with the jack panel boxes. Choose one of the following methods for mounting the boxes (don't mount the boxes yet):

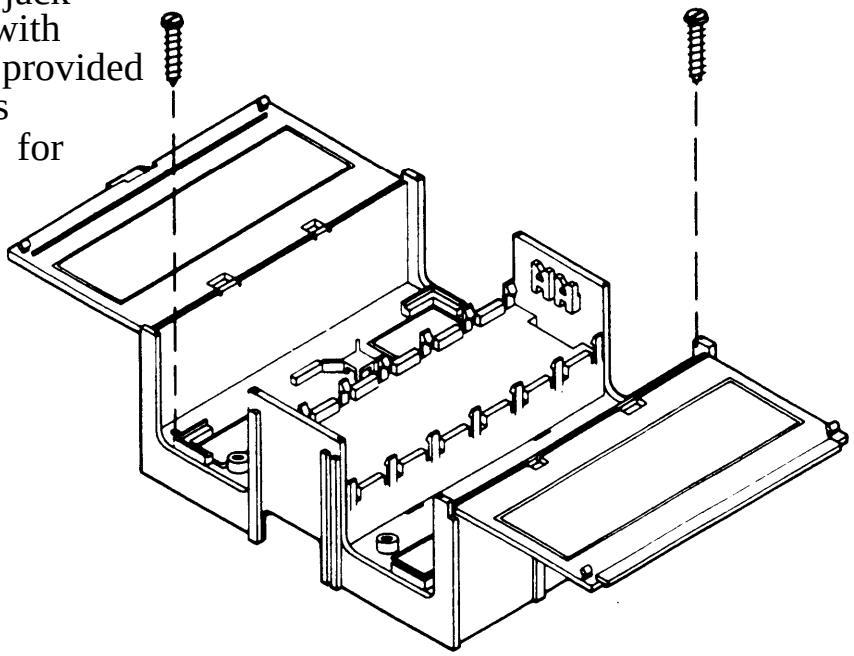
- For walls with a sturdy supporting structure (studs or cross members): Attach boxes directly with the screws provided.
- For hollow walls: Find a board about 3/8 inch thick and about 2 inches bigger on all sides than the jack field. (Each jack panel box is 5-1/2 inches long and 6-1/2 inches wide.) Mount the jack panel boxes on the board then fasten the board to the wall.

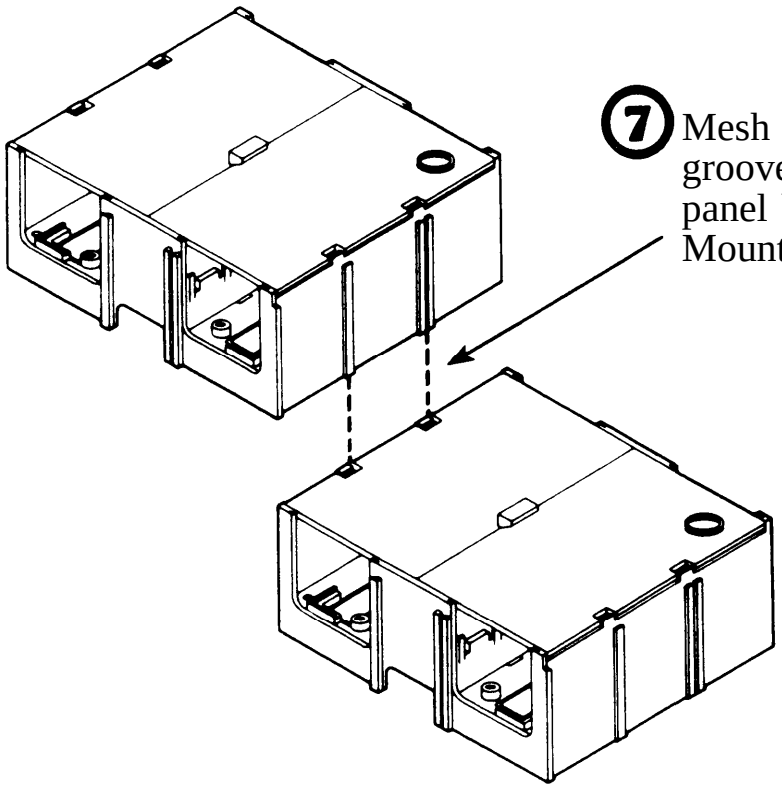


4 Stick a blue dot in the circle on each jack panel box. The blue dot distinguishes boxes for wiring to telephone locations from jack panel boxes for other uses (for example, green dot for line adapters, yellow dot for auxiliary equipment adapters).

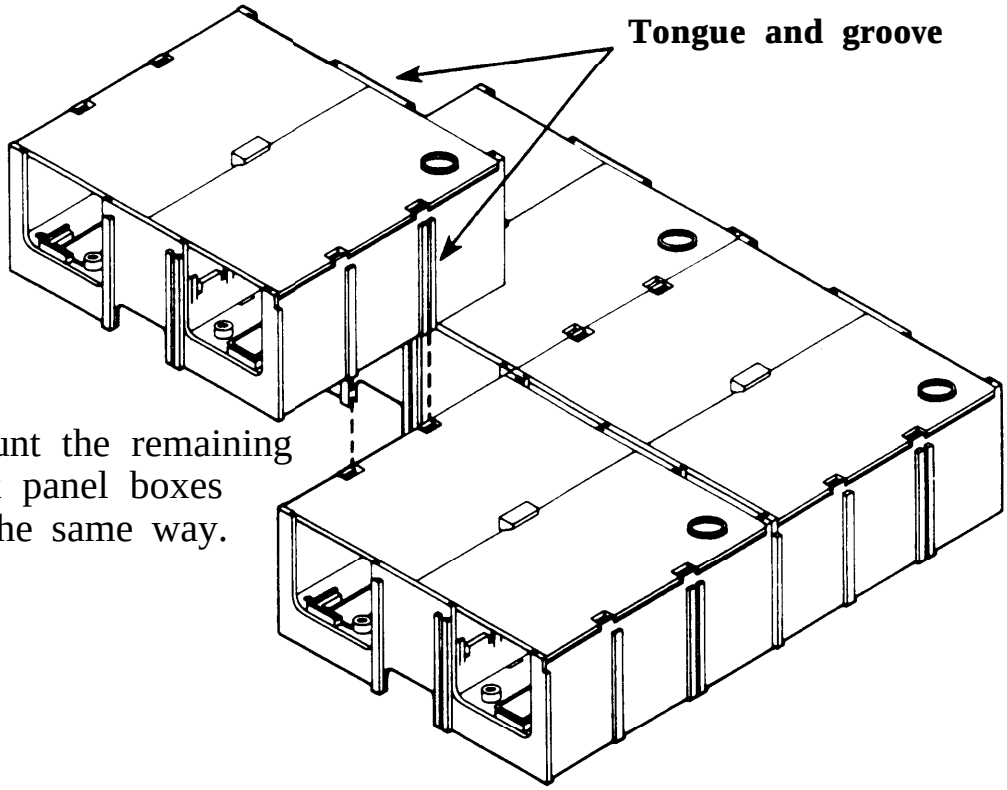
5 Mark the position of the first jack panel box.

6 Mount the jack panel box with the screws provided or fasteners appropriate for your walls.

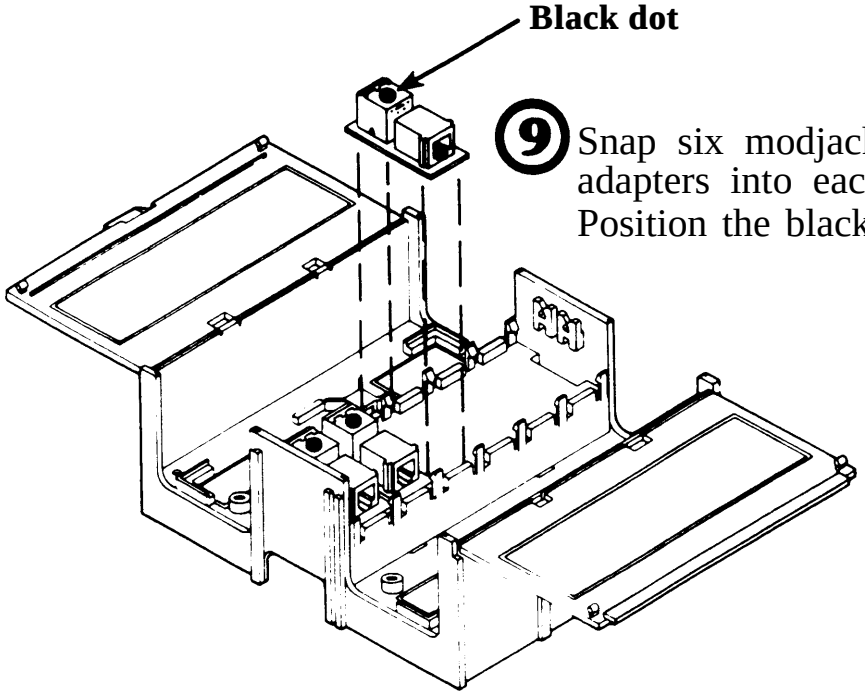




7 Mesh the tongue and groove of another jack panel box with the first. Mount the second box.

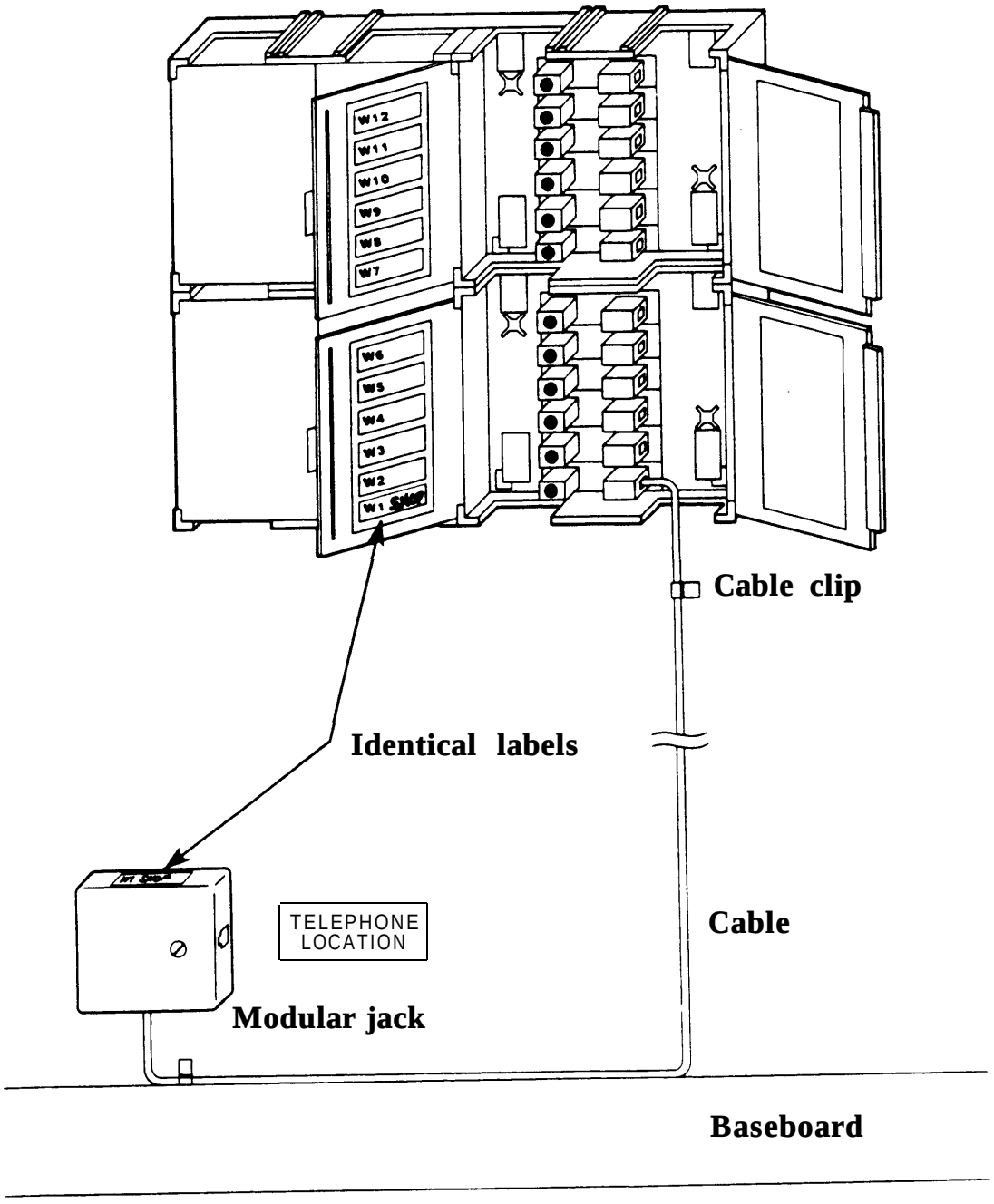


8 Mount the remaining jack panel boxes in the same way.

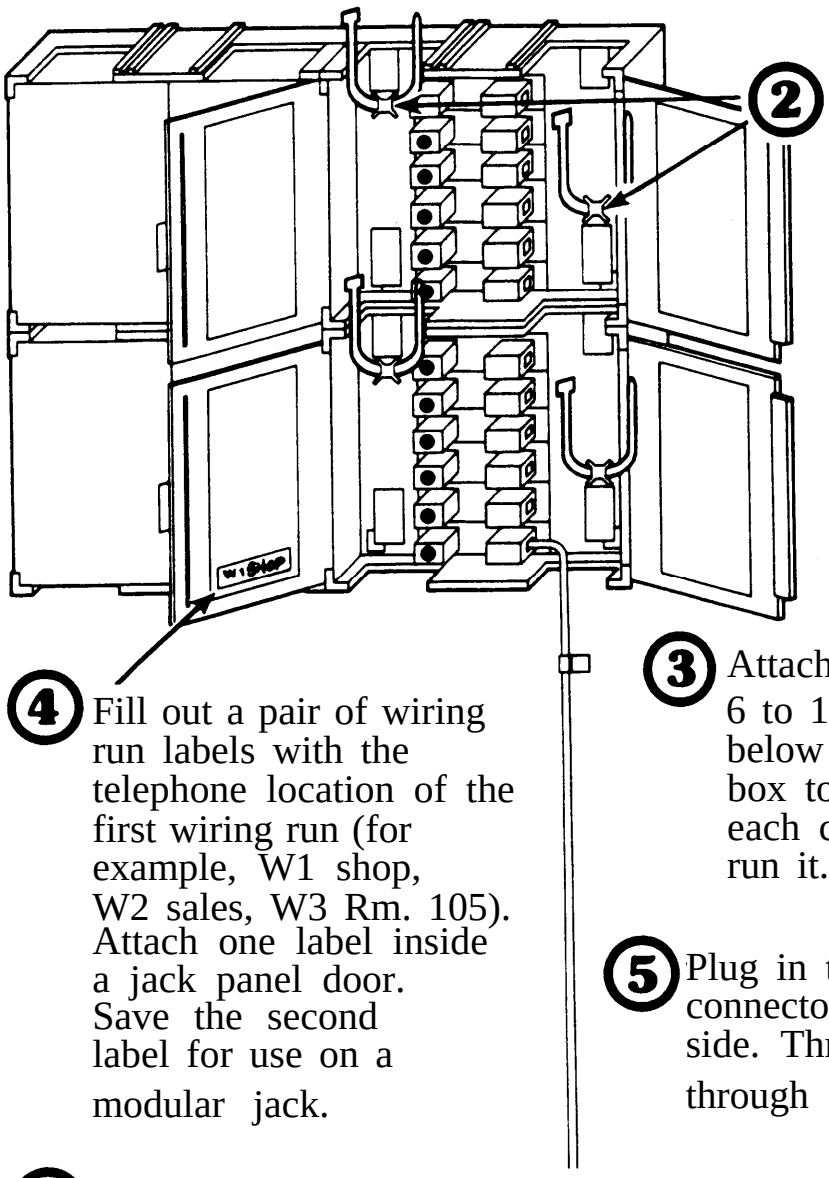


9 Snap six modjack-to-modjack adapters into each jack retainer. Position the black dot on the left.

When completed, a typical cable run will look like this. Special types of cable such as flat under-carpet cable, plenum wiring, flameproof wiring, and 25-pair cable may be available from your dealer.



1. Select a Cable Extension Kit with the right length of cable (100 or 200 feet) for one cable run. For runs over 200 feet, you will have to run a 200 foot cable, terminate it in a modular jack, and plug in another cable. The maximum length of any cable run is 1000 feet.



2. If there is no plastic cable loop in place, slide a cable tie under the two "spiders" in each box.

3. Attach a cable clip 6 to 12 inches below the lowest box to support each cable as you run it.

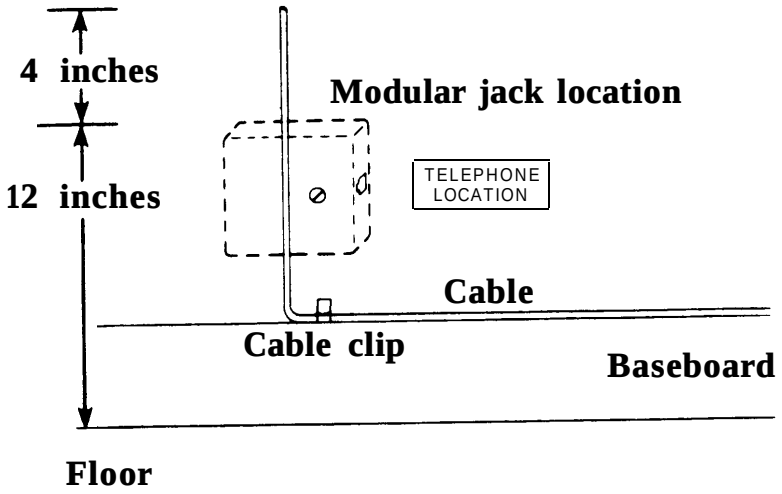
4. Fill out a pair of wiring run labels with the telephone location of the first wiring run (for example, W1 shop, W2 sales, W3 Rm. 105). Attach one label inside a jack panel door. Save the second label for use on a modular jack.

5. Plug in the cable connector on the right side. Thread the cable through the clip.

6. Run the cable out to the telephone location. Avoid sharp kinks or twists. Use cable clips or staples to dress the cable neatly along wall baseboards, molding, etc. Be careful not to damage the cable with staples.

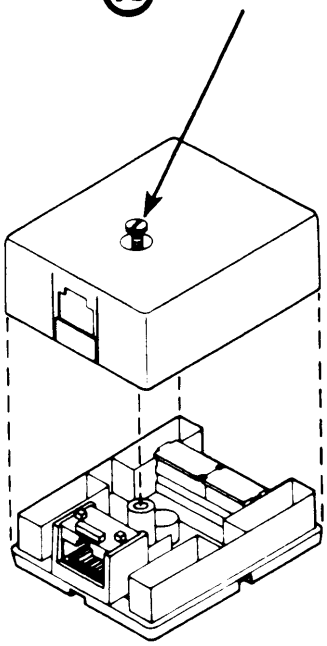
⑦ Find the modular jack from the Cable Extension Kit and the cable installation tool from the Wiring Installation Kit.

⑧ Choose the location for the jack according to the figure. Cut the cable, making sure you allow at least 4 inches extra.

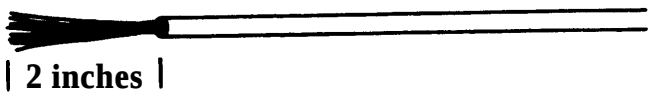


⑨ Fasten the cable to the jack as follows:

Ⓐ Loosen screw. Remove cover and set aside.



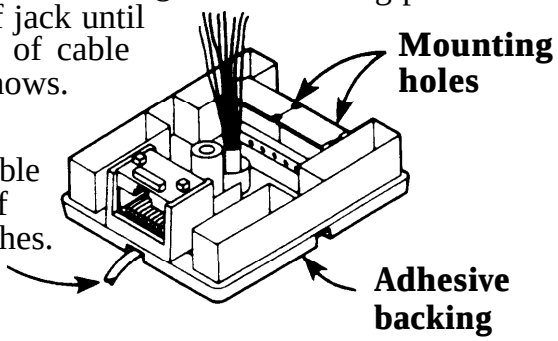
Ⓑ Use cable stripping part of cable installation tool to remove 2 inches of cable cover.

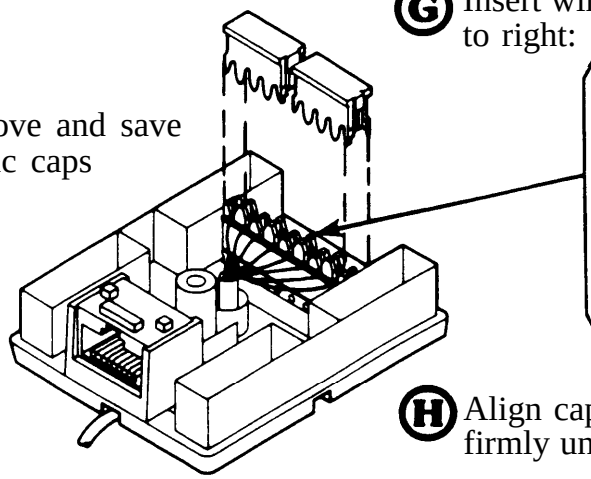


Ⓒ Thread cable through center of jack until 1/4 inch of cable cover shows.

Ⓓ Align cable in one of the notches.

Ⓔ Mount jack with screws or adhesive backing provided.



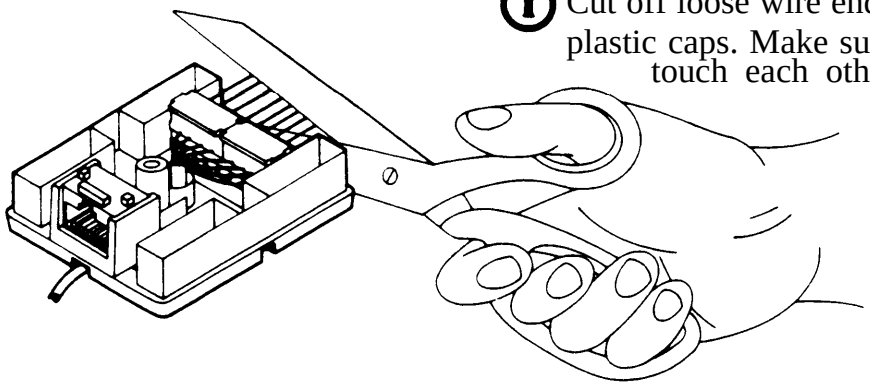


Ⓕ Remove and save plastic caps

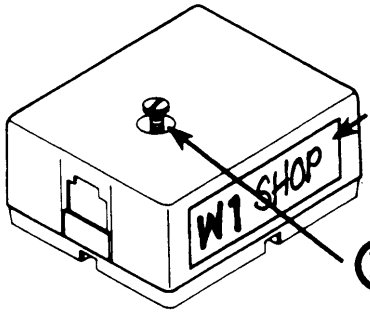
Ⓖ Insert wires in this order left to right:

1 white-blue
2 blue
3 white-orange
4 orange
5 white-green
6 green
7 white-brown
8 brown

Ⓗ Align caps and press them down firmly until they snap in place.



Ⓘ Cut off loose wire ends near plastic caps. Make sure no wires touch each other.

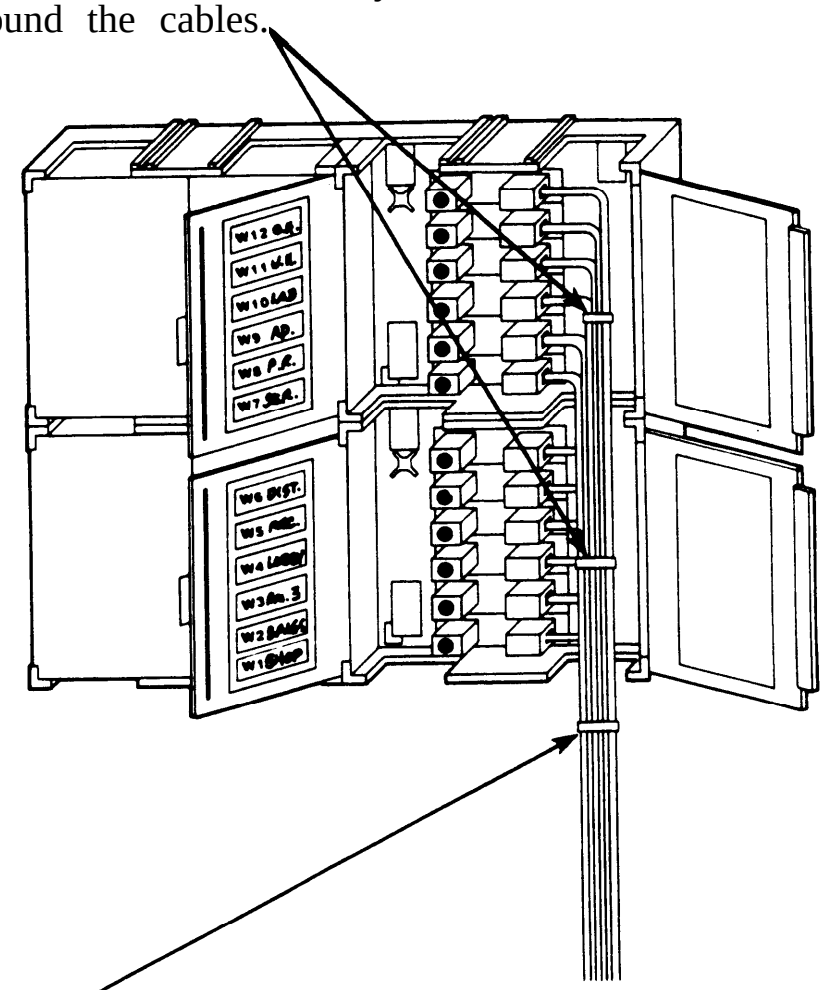


Ⓙ Attach appropriate wiring run label to jack.

Ⓚ Replace cover and tighten screw.

10 Route your other cables and terminate each one in a modular jack. Be sure to label both ends of each cable run identically.

11 Dress the cables and, if you used cable ties, secure them around the cables.

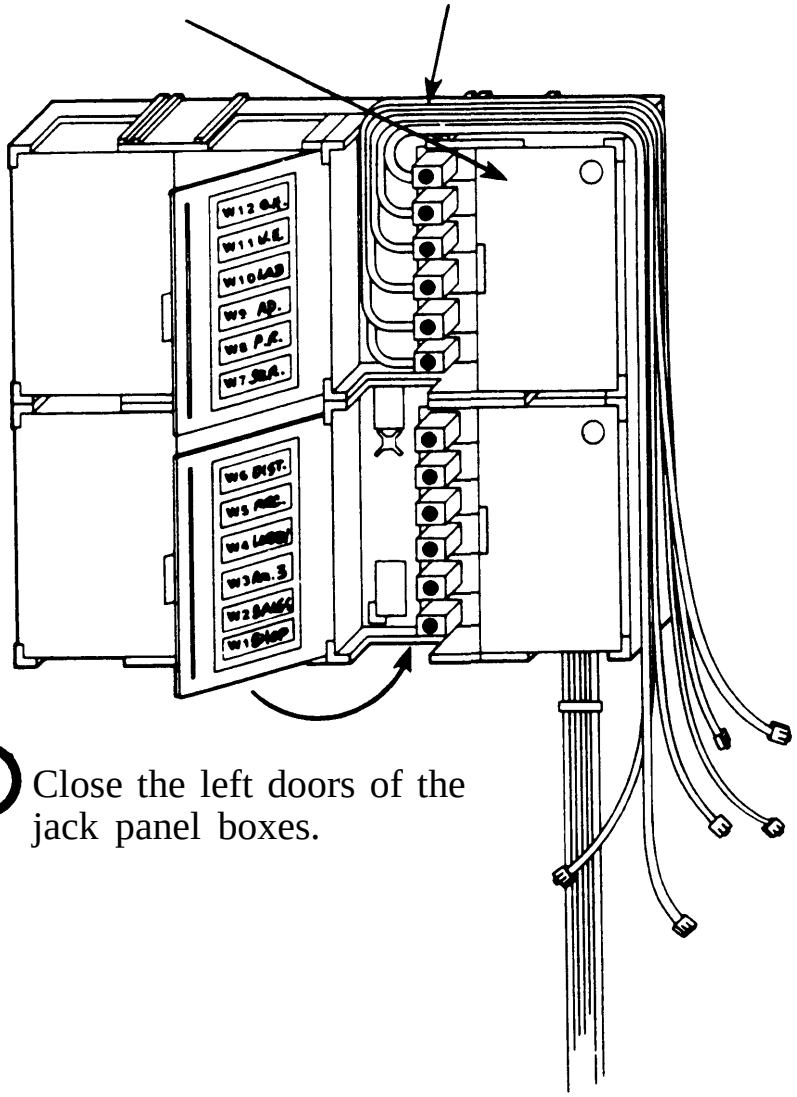


12 Dress the cables neatly through the lower openings and secure them with cable clips or ties.

CONNECTING JUMPER CORDS

2 Plug a jumper cord (from a Wiring Termination Kit) into each left modjack. Drape the cords as shown. They will later be connected to the control unit.

1 Close the right doors of the jack panel boxes.



3 Close the left doors of the jack panel boxes.

CONGRATULATIONS! You have now installed the telephone wiring for your communications system.

ADJUNCT POWER SUPPLY FOR 34-BUTTON DELUXE VOICE TERMINAL (D181282) (32811)

The Adjunct Power Supply (Figure 1) for the 34-Button Deluxe Voice Terminal comes packed with a Z400F Adapter and a 7-foot cord (D6AP). The power supply converts 117-volt ac input power to an output of 48-volt dc power.

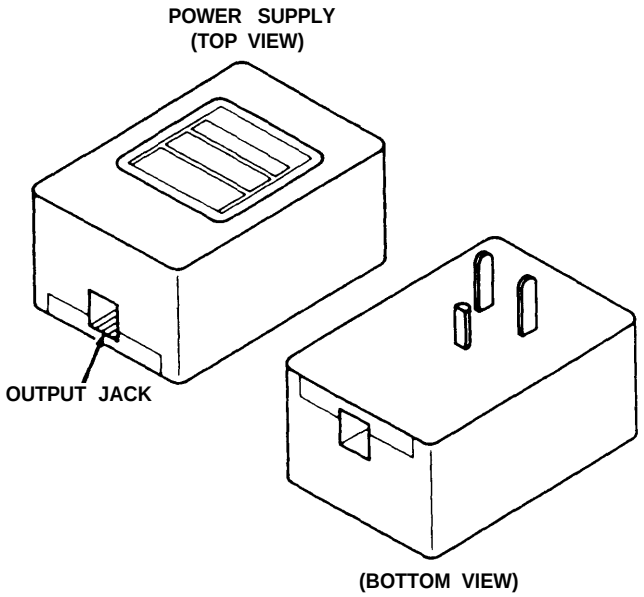


Figure 1

INSTALLATION

1. Disconnect the modular terminal cord (D8W) from the modular terminal jack (103A) or the extension cord leading to the control unit (see Figure 2).

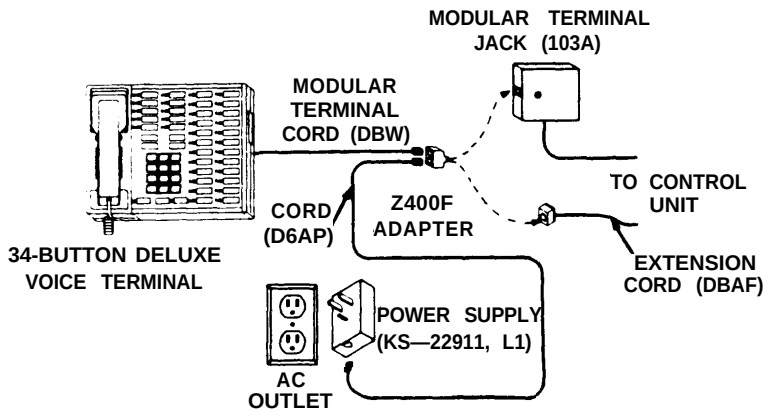


Figure 2

2. Plug the Z400F Adapter into the modular terminal jack or extension cord from which the modular terminal cord was disconnected in Step 1 (see Figure 2).

3. Plug the modular terminal cord into the voice terminal jack on the Z400F Adapter (Figure 3).

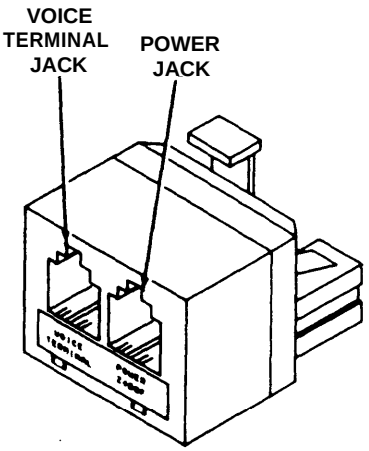


Figure 3

4. Plug one end of the D6AP Cord into the power jack (Figure 3) on the Z400F Adapter. Plug the other end into the output jack on the power supply.

5. Plug the power supply into a 117-volt ac outlet.

   Note: The 117-volt ac outlet should not be controlled by a switch.

Equipment manufactured by AT&T Technologies in the U.S.A.

CIB 3009
(Z187A) OFF-PREMISES TELEPHONE INTERFACE (3173)

CIB 3009
(Z187A) Off-Premises Telephone Interface (3173)

The Off-Premises Telephone Interface provides service to a basic Touch-Tone telephone at a remote location via an outside telephone line (Figure 1).

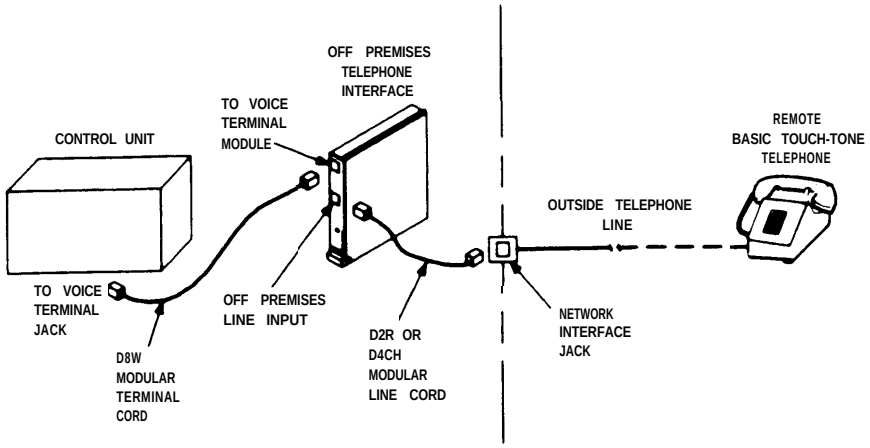


Figure 1.
Off-Premises Telephone Interface Installation

This module permits you to access many of the advanced features of your on-premises communication system using dial codes and switchhook flashes from the off-premises telephone. A *User's Guide* describing operation is included with this module.

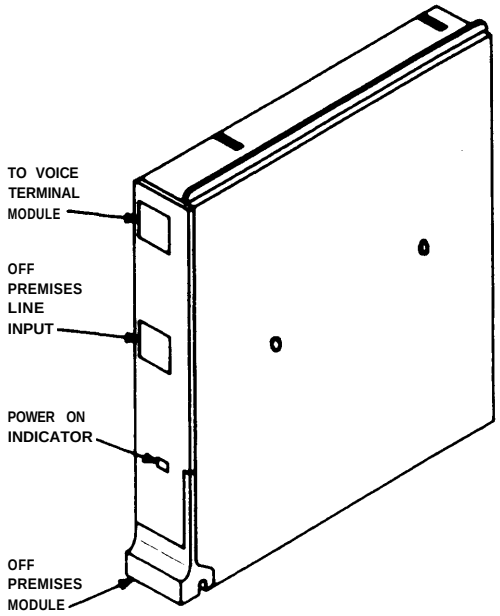


Figure 2.
Off-Premises Telephone Interface

Installer Instructions

WARNING: Before installing the Off-Premises Telephone Interface, have an electrician check the ac outlet ground connection of the control unit to be sure that it is properly grounded. Improper grounding could result in a serious safety hazard. This unit should be professionally installed.

The Off-Premises Telephone Interface (Figure 2) can be mounted externally to your communications system's control unit using hardware provided.

1. To install the Off-Premises Telephone Interface, mount it on the wall within 3 feet of the control unit, using the hardware provided.
2. Using the template provided, align it horizontally on the wall at the place in which you want to mount the module.

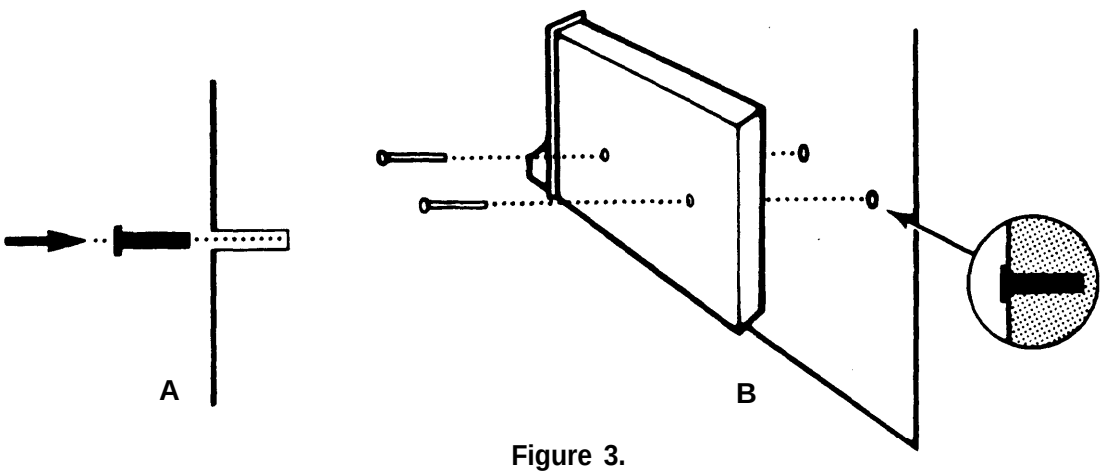


Figure 3.
Mounting the Off-Premises Telephone Interface on the Wall

3. Use the 5/16" drill bit provided to drill a hole through each of the crosses marked on the template.
4. Insert one of the black rubber raul nuts into each of the holes (Figure 3A).
5. Slide one of the white plastic screws through each of the holes on the module, align the screws with the raul nuts, and turn the screws until tight (Figure 3B).
6. Using a short, D8W-type modular cord, connect the assigned voice terminal jack on the control unit to the voice terminal jack on the Off-Premises Telephone Interface. The number of the voice terminal jack on the control unit is the intercom number of the off-premises telephone.

NOTE: The green power on indicator on the Off-Premises Telephone Interface should come on five to ten seconds after power is applied to the control unit.

7. Using a (D2R or D4CH) modular line cord, connect the off-premises line input jack on the Off-Premises Telephone Interface and the network interface jack of the outside telephone line assigned to the off-premises telephone.

NOTE: Before installing your off-premises telephone, notify your telephone company of the following specifications for lines connecting your control unit with your off-premises telephones:

- Standard jacks (USOC RJ11C)
- Facility Interface Code (FIC OL13C)

Administrator Instructions

Arrange to have the *User's Guide for Off-Premises Telephones,* provided with this package, forwarded to the off-premises telephone.

If you have a feature cartridge and do not want the off-premises telephone to ring on every line, perform the following procedure to assign specific lines to the off-premises telephone:

1. Plug a voice terminal into the voice terminal jack on the control unit into which the Off-Premises Telephone Interface will be plugged.
2. Slide the T/P (Test/Programming) switch on the left side of the voice terminal towards you to the *P* position.
3. Program the desired Automatic Line Selection. (See your system's *User's Guide.)*
4. Select and program the lines you want to have ring at the off-premises telephone.
5. Slide the T/P switch back to the center position.
6. Unplug the voice terminal from the voice terminal jack on the control unit and plug the Off-Premises Telephone Interface into that same jack.

NOTE: Be sure to program Automatic Line Selection only on those lines assigned to the off-premises telephone.

AT&T
Information Systems

Issue 2

(183A) 10-VOICE TERMINAL MODULE FOR MODELS 1030 AND 3070 (61310)

When installed in the appropriate slot (color-coded blue) in your communcations system Models 1030 and 3070 control units or in the expansion unit (optional) this module (Figure 1) permits the addition of up to ten voice terminals to the system. Install the module in the leftmost unoccupied slot (9, 10, or 11) in the control unit or slot 21, 22, 23, or 24 in the expansion unit. Only jacks 0 and 5 are numbered on the module. Voice terminal module positions on the control unit and expansion unit are labeled INTERCOM 10-19 through INTERCOM 70-79. The intercom number is determined by both the slot in which the module is located in the control unit and expansion unit, and the jack that the voice terminal is plugged into on the module. For example, the terminal connected to the third jack from the top of the module in position 9 (intercoms 10-19) would be intercom number 12. The ten 4-pair modular jacks on the faceplate provide connections for up to ten voice terminals.

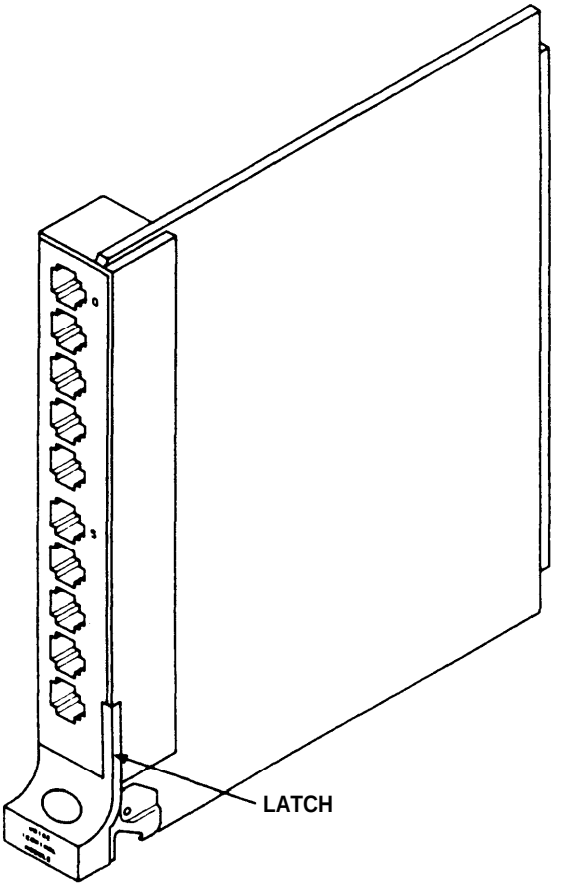


Figure 1

Equipment manufactured by AT&T Technologies in the U.S.A.

INSTALLATION

1. Locate the leftmost unoccupied slot (9, 10, or 11 on the control unit or 21, 22, 23, or 24 on the expansion unit).

   NOTE: If the leftmost slot of the expansion unit is 21 or 22, a power supply is required in slot 16, or if the leftmost slot is 23 or 24, an additional power supply is required in slot 27.

2. Unlatch and remove the protective cover from the slot before installing the module.

   NOTE: Do not use excessive force when installing the module.

3. Align the module in the slot (Figure 2) making sure the edges of the circuit board are in the top and bottom grooves of the slot. Slide the module into the slot until the latch on the module locks into place.

4. Refer to the instructions in the Installation Manual to connect the voice terminal.

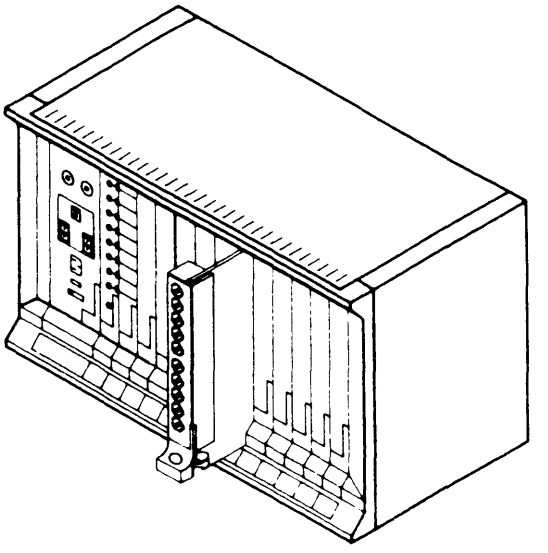


Figure 2

(184A) 5-LINE MODULE FOR MODELS 1030 AND 3070 (61305)

When installed in the appropriate slot (color-coded green) in your communications system Models 1030 and 3070 control units or in the expansion unit this module (Figure 1) permits the addition of up to five outside lines to the system. The line module positons on the control unit and expansion unit are labeled with the letters A through F in addition to position numbers. The jacks on each module are numbered 0 through 4. Line designations are determined by both position letters and jack numbers.

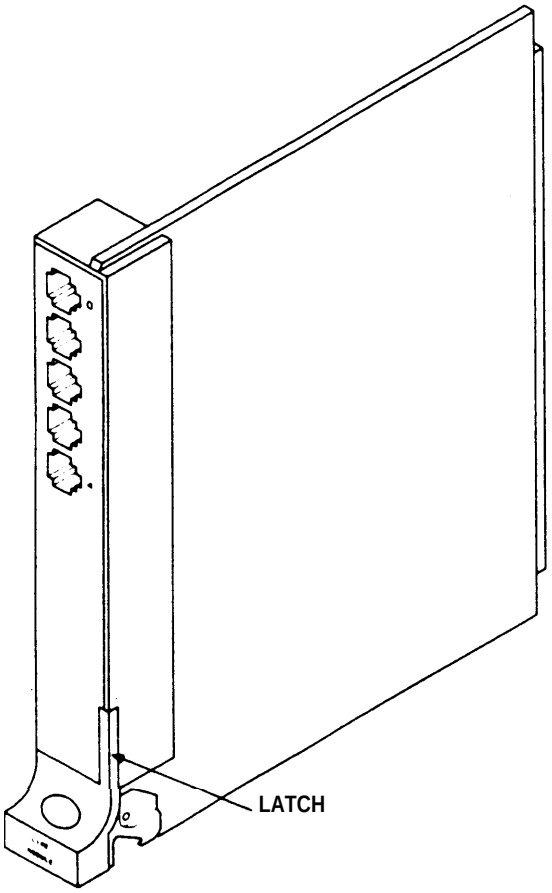


Figure 1

INSTALLATION

1. Locate the leftmost unoccupied slot (position 7 or 8 on the control unit or 17, 18, 19, or 20 on the expansion unit).
2. Unlatch and remove the protective cover from the slot before installing the module.

   NOTE: Do not use excessive force when installing the module.

3. Align the module in the slot (Figure 2), making sure the edges of the circuit board are in the top and bottom grooves of the slot. Slide the module into the slot until the latch on the module locks into place.
4. If lines are to be connected at this time, refer to the instructions in the Installation Manual.
5. Advise the system administrator that new lines have been added and the system should be reprogrammed in accordance with the instructions in the Administration Manual.

   NOTE: If trouble is encountered, remove the module and check the connectors on the back of the module and at the back of the slot. Check for bent pins or other damage that prevents the connectors from matching properly. If you do find bent or broken pins, contact your equipment supplier.

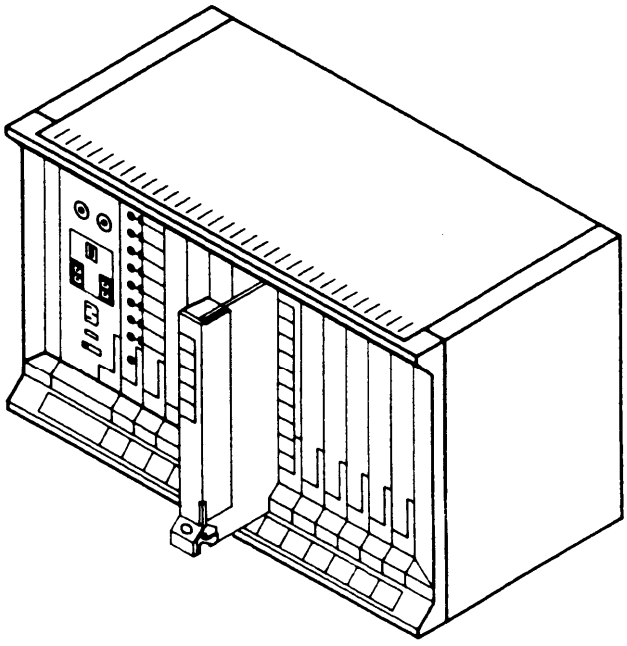


Figure 2

Equipment manufactured by AT&T Technologies in the U.S.A.

The Automatic Multipurpose Adapter (Figure 1) allows you to connect answering machines directly to your communications system voice terminal. This adapter works with Models 1030 and 3070 control units and supports Modems, Touch-Tone, and Cordless telephones, Touch-Tone autodialers, speakerphones and FAX machines. The adapter connects to the OTHER jack on the bottom of the voice terminal and is powered by the control unit.

NOTE: The Automatic Multipurpose Adapter does not work with Feature Packages 1 or 2 for Models 206, 410, and 820 control units.

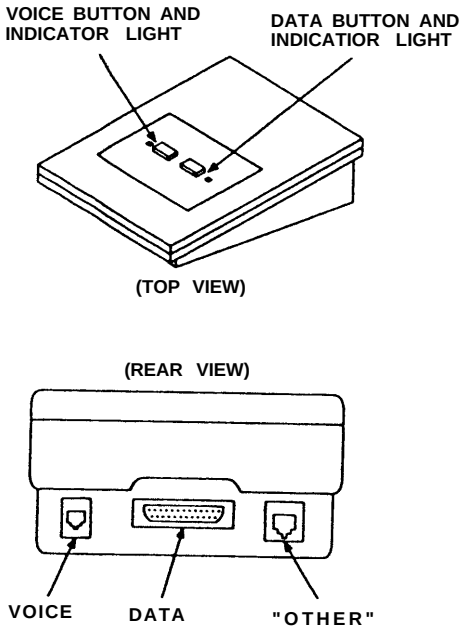


Figure 1

INSTALLATION

Connect the modular adjunct cord (D8AC) between the OTHER jack on the bottom of the voice terminal and the OTHER jack on the back of the adapter.

Application I: Answering Machines

NOTE: To use answering machines you must first program the Auto Answer Outside feature in your voice terminal. (Refer to the Administration Manual for 1030 and 3070 control units.)

Answering Machines Connected to Voice Jack

1. Connect the cord (D4CH) from the answering machine to the VOICE jack on the adapter (answering machine turns on).

2. Press the **Voice** button on the adapter (ringing directed to the answering machine).

Answering Machine Connected to Data Plug

3. Connect one end of the 25-pin cable (RS232) to the plug on the 212A modem, which normally connects to the data phone. Connect the other end of this cable to the DATA plug on the adapter.

4. Press the **Data** button on the adapter (Voice button should be in up position) to direct ringing to the answering machine.

Application II: Standard Modular Modems

1. Connect the modular cord (D4CH) from the modem to the VOICE jack on the back of the adapter (Figure 2).

NOTE: Make sure both the **Voice** and **Data** buttons are in the "up" position by depressing the **Data** button and releasing it.

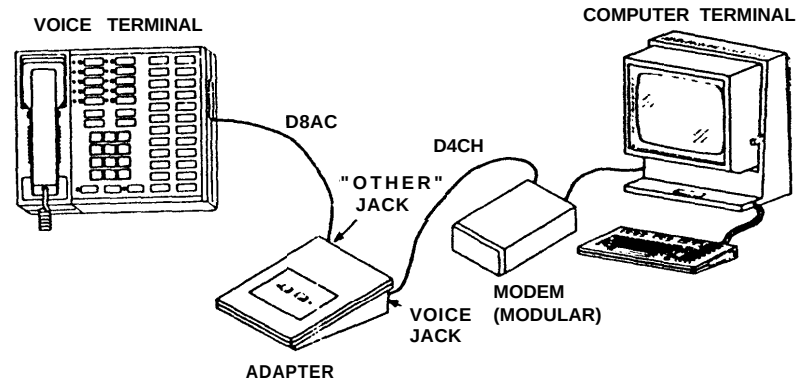


Figure 2

2. Lift the handset on the voice terminal and dial the computer access telephone number.

3. When the computer answers, press the **Voice** button on the adapter (the indicator next to it should come on) and hang up the handset. You should now be connected to the computer.

   NOTE: Some modems allow you to dial directly from the computer terminal keyboard or to use an alternative dialing feature provided by the modem. To use this type of modem, first press the **Voice** button and then dial the computer access telephone number using the procedure given in the instructions for the modem.

4. To disconnect the computer, press the **Data** button on the adapter.

Application III. 212A Modems (AT&T) or Equivalent

1. Connect the modular cord (D4CH) from the 330A Adapter that comes with the data phone modem (Figure 3) to the VOICE jack on the back of the adapter.

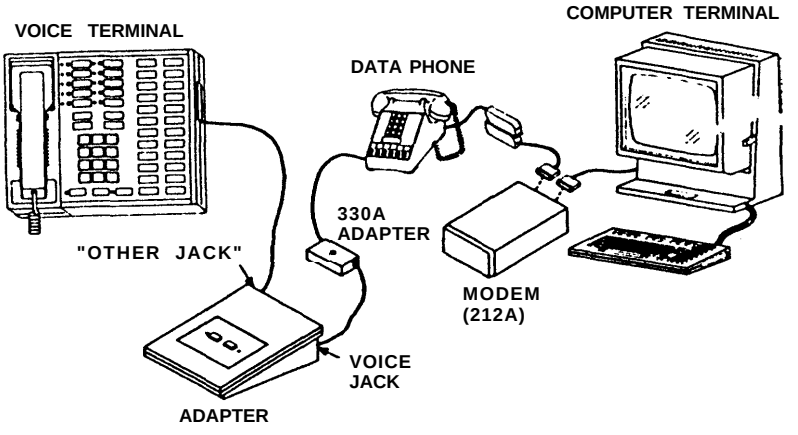


Figure 3

2. Press the **Voice** button on the adapter.

3. Lift the handset on the data phone (2565HRM key telephone set) and dial the computer access telephone number.

4. When the computer answers, press the DATA button on the data phone (the indicator next to it should come on).

5. To disconnect the computer, press **Data** button on the adapter or hang up the data phone.

Alternate Installation of 212A Modems (AT&T) or Equivalent

NOTE: This method eliminates the need for a separate data phone normally associated with the 212A modem. It does require, however, a 25-pin male-to-female (RS232) cable with at least wires 1, 4, 5, 7, 8, 21, 22, and 25 connected.

1. Connect one end of the 25-pin cable (RS232) to the plug on the 212A modem, which normally connects to the data phone. Connect the other end of this cable to the DATA jack on the adapter (Figure 4).

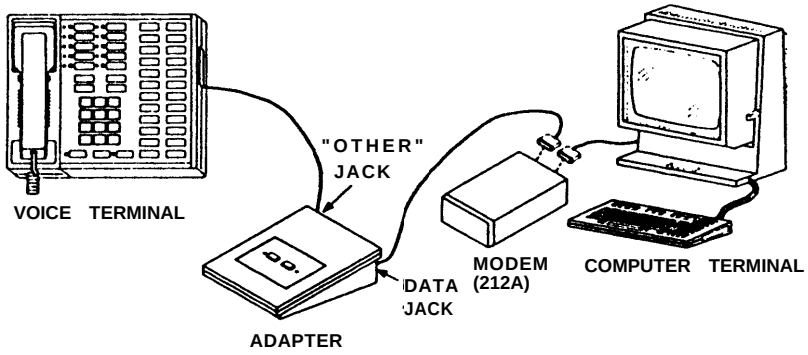


Figure 4

2. Lift the handset of your voice terminal and dial the computer access telephone number.

3. When the computer answers, press the **Data** button on the adapter and hang up the handset. The Data light should come on.

4. When finished, depress the **Data** button again to disconnect the computer. The "Data" light should go off.

Application IV: Optional Modular Telephone Equipment (Touch-Tone, or Cordless telephones, Touch-Tone autodialers, speakerphones, and FAX machines)

1. Connect a modular cord (D4CH) from the VOICE jack on the adapter to the optional device.

2. Press the **Voice** button on the adapter before using the optional device.

3. When finished using the optional device, press the **Data** button on the adapter.

NOTES: It is not possible to restrict a Touch-Tone telephone from making outside calls or toll calls when it is connected to the adapter.

Rotary telephones and other telephones that output dial pulses cannot be used to dial out when connected to the adapter. (They can only receive calls.) Numbers must be dialed from the voice terminal.

Equipment manufactured by AT&T Technologies in the U.S.A.

CIB 3015
Issue 1

PRINTED IN U.S.A.

Instructions For
(Z1A) AUTOMATIC MULTIPURPOSE ADAPTER (2301-ATR)

CIB 3015
Issue 1

Equipment manufactured by AT&T Technologies in the U.S.A.

This Services Module (Figure 1) is optional and not essential for basic system operation. When installed in position 6 (color coded yellow) of the communications system. Model 1030 control unit , it provides connections for auxiliary equipment as follows:

- Up to four power failure transfer telephones
- Extra alerts (3 jacks)
- Single or multizone paging system
- Music source (input jack)

In addition, the module provides:

- Background music volume control
- Music-on-hold volume control
- Page signal ON/OFF switch for paging alert
- Level HI/LO switch for control of music input signal.

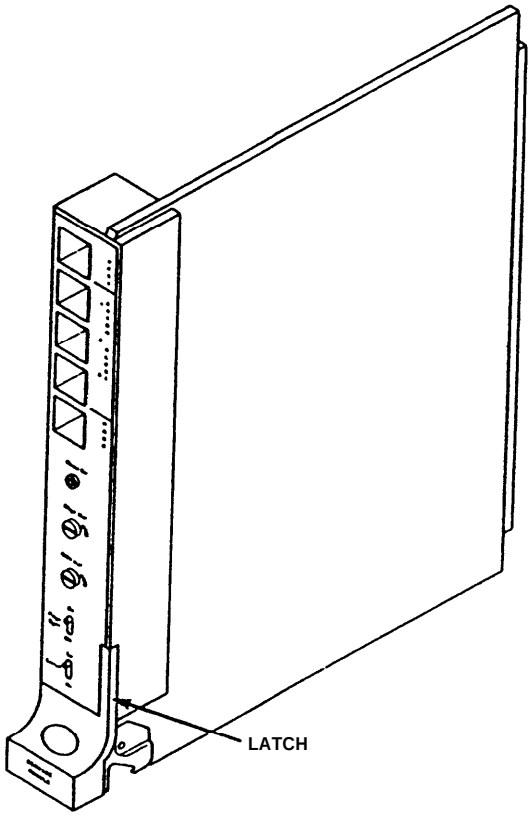


Figure 1. Service Module

INSTALLATION (See Figure 2)

1. Find slot 6 (color coded yellow), labeled Module Type B in control unit.
2. Unlatch and remove protective slot cover from slot 6.
3. Align the Services Module in grooves (top and bottom) of slot 6 slot and slide module into the slot.

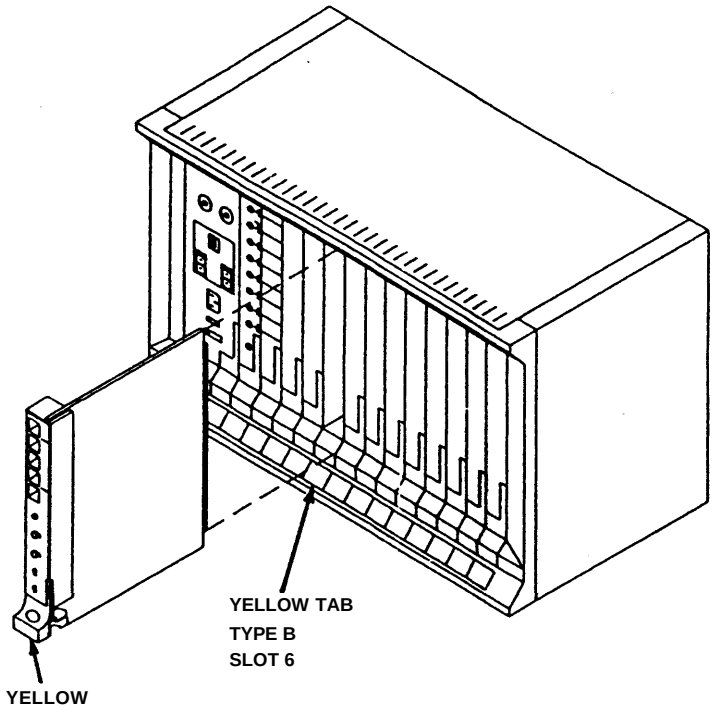


Figure 2. Installing Module in Slot

SERVICE CONNECTIONS

Power Failure Transfer Telephone (PFTT) jack: This jack is a 4-pair modular jack. (See Figure 3.) Either a single standard telephone, or, with the use of a 4-way adapter Z609A, four standard telephones may be connected. A single standard telephone connected to the PFTT jack will be automatically connected to line A0 in case power to the control unit is interrupted. When the 4-way adapter is used, the telephones will be connected to lines A0. A1. B0 and B1. as indicated in Figure 3.

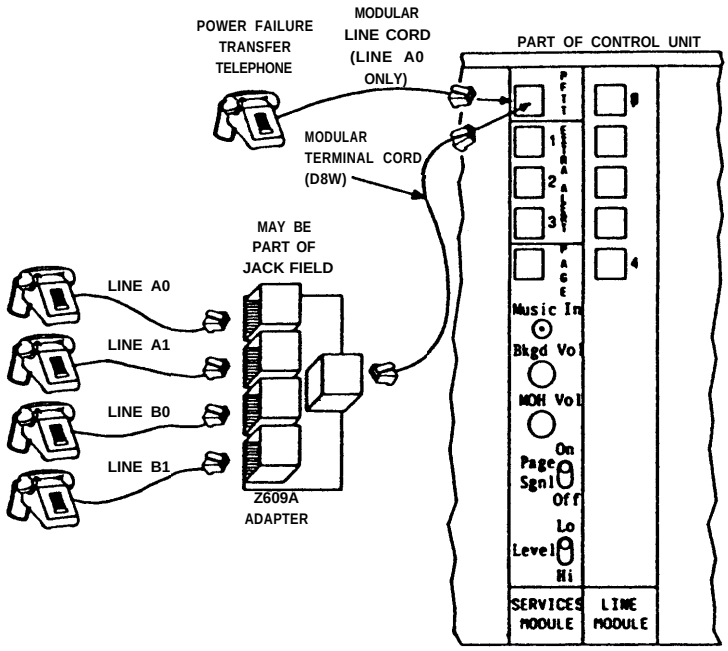


Figure 3. PFTT Connections With and Without a Z609A Modular Adapter

EXTRA ALERT 1, 2, 3 jacks: Each jack accepts a moudlar line (D4CH) or equivalent and provides a -48 volt output signal for operation of an external alert device. (See Figure 4.) These external alerting devices can be used to provide Night Service when there is no one available to answer calls. The night service feature is programmable by assigning individual lines to ring at any of the three extra-alerting devices. (Refer to the Administering Your System At The Administration/Attendant Console section of the Administration Manual.)

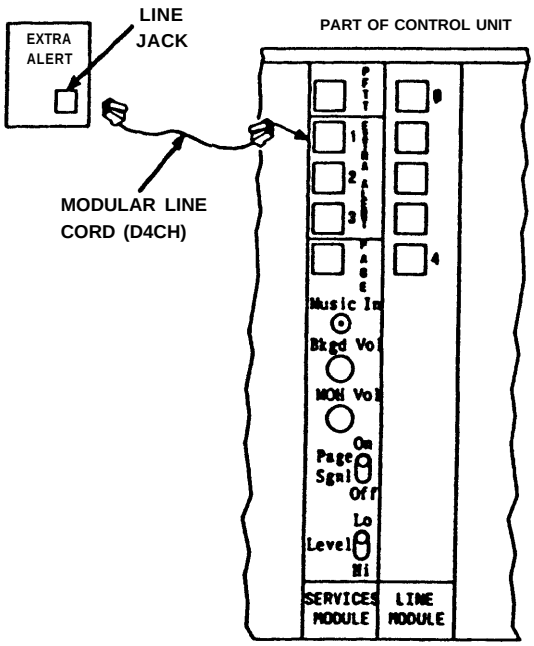


Figure 4. Extra Alert Jacks

PAGE Jack: This jack is a 4-pair modular jack for connecting an external paging system. Pin assignments are shown in Figure 5. Pins 5(T) and 4(R) make up a balanced 600-ohm bidirectional voice pair. The remaining pins are paired and provide 3 sets of relay contact closures for paging zone selection as shown in Table A.

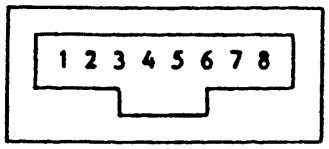


Figure 5. Page Jack Locking Into Jack with Tab Opening Down

TABLE A

SIGNAL NAME	PIN NUMBER	CONTACT SET NO.
Page T	5	
Page R	4	
Zone 1 C1	3	1
Zone 1 C2	6	1
Zone 2 C1	1	2
Zone 2 C2	2	2
Zone 2 C1	7	3
Zone 2 C2	8	3

MUSIC IN Jack: This jack accepts a standard phonotype plug from an 8-ohm music source output.

CONTROLS AND SWITCHES

Bkgd Vol Control: Potentiometer for controlling the volume of background music provided on paging system during periods of non-paging. The background music is disabled when any paging zone is selected.

MOH VOL Control: Potentiometer for controlling the volume of music-on-hold signal.

Page Signal ON/OFF Switch: When set in the ON position, a paging signal alert tone is generated at the initiation of any paging access. There is a slight delay between paging access activation and beginning of paging tone.

Level HI/LO Switch: When set to HI position, inserts approximately 20 dB of at attenuation in music source input signal. When set to LO position there is no attenuation.

NOTE: When high levels of music source input signals are coming in, the level HI/LO switch should be set to HI position.

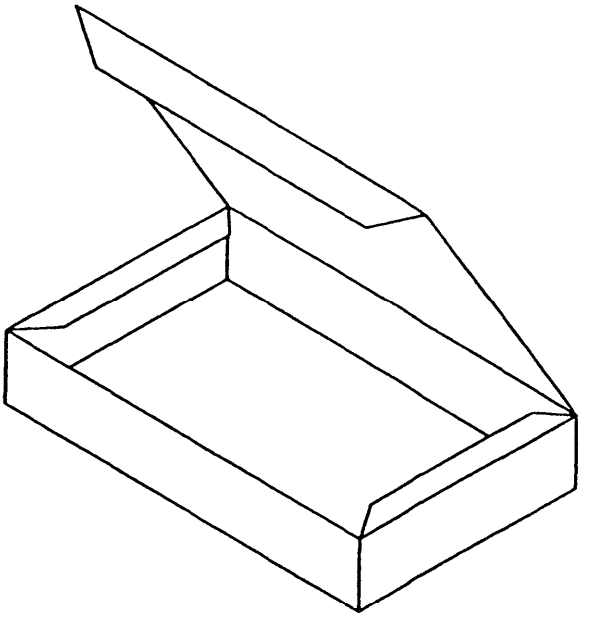
CIB 3016
ISSUE 1

PRINTED IN U.S.A.

Instructions For (183B) SERVICES MODULE FOR MODEL 1030 AND 3070 (61320)

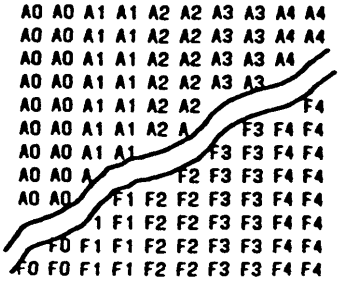
CIB 3016
Issue 1

This kit contains items needed to install Models 1030 and 3070 control units. You may not use all these items during your initial installation. SAVE unused items in the storage box for later changes or growth in your system. The kit includes:



- Storage box for storing unused items

LINE CORD LABELS

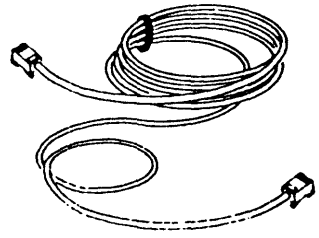


PLEASE DO NOT DISCARD

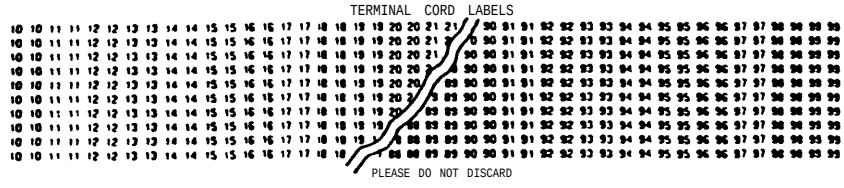
- 6 line cord letter pairs (A0 through F4) to label line cords

- 70 TELEPHONE LOCATION stickers to mark each location where voice terminals will be (strips of 10)

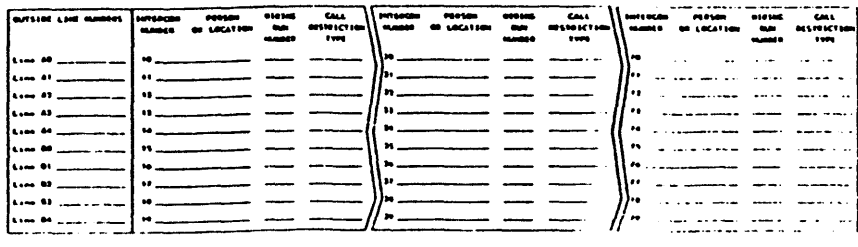
(Z113A) MODELS 1030 AND 3070 CONTROL UNIT INSTALLATION KIT



- 5 line cords to connect the network interface jacks to the control unit jacks



- 4 voice terminal cord label pairs (10 through 99) to label voice terminal cords



- 2 adhesive-backed system directory labels (one for, Mixed 1030 with 10 lines and 30 voice terminals and one for Model 3070 with an additional 20 lines and 40 voice terminals) to be out with essential system and user information and attached to the control unit door(s).

NOTE: Instructions for using these items are included in your ***Installation Manual Model 1030 and 3070.***

CIB 3017
Issue 1

PRINTED IN U.S.A.

Instructions For (Z113A) MODELS 1030 AND 3070 CONTROL UNIT INSTALLATION KIT

CIB 3017
Issue 1

AT&T

(186C) DIAGNOSTICS MODULE (61340)

CIB 3018
ISSUE 1

CIB 3018

(186C) DIAGNOSTICS MODULE (61340)

The Diagnostics Module provides field health check and trouble isolation capabilities for the Models 1030 and 3070. The Diagnostics Module tests these control unit modules:

- Processor Module
- Diagnostics Module
- Feature Module
- Line Modules
- Voice Terminal Modules
- Basic Telephone Modules.

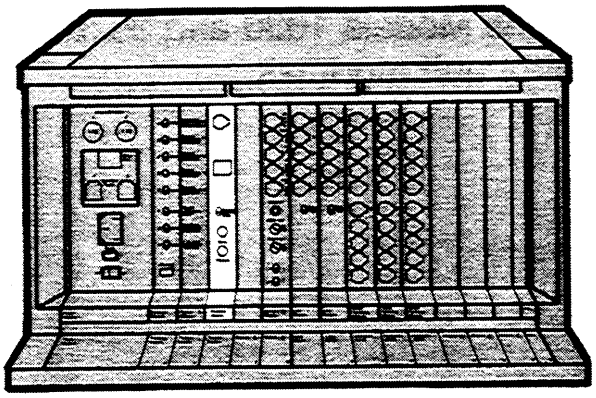
The Diagnostics Module does *not* test the Power Module, outside lines, voice terminals, telephones, or cords and cables, although they may be connected during testing. The module indicates suspected faults on an alphanumeric display on the front of the module or on a data terminal.

This Customer Instruction Booklet consists of the following sections:

- PHYSICAL FEATURES explains the jack, alphanumeric display, switches, and buttons on the Diagnostics Module faceplate.
- USING THE DIAGNOSTICS MODULE explains how to install the module and test the communications system with or without a data terminal. A command menu for the data terminal is included.
- WHEN DIAGNOSTICS WILL NOT START describes how to clear problems that prevent the diagnostic software from running.
- DIAGNOSTIC DISPLAY MESSAGES alphabetically lists and explains the messages that appear in the alphanumeric display on the Diagnostics Module faceplate.

PHYSICAL FEATURES

The Diagnostics Module, color-coded orange, occupies slot 4 in the control unit. (When the Diagnostics Module is not used, a plastic cover protects slot 4.)



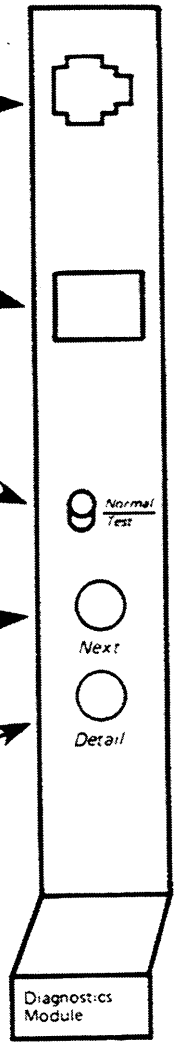
EIA RS-232c jack: Permits connection of a data terminal.

4-character alphanumeric display: Provides diagnostic messages during testing.

Normal/Test switch: Permits normal call processing when set to *Normal;* permits diagnostic testing when set to *Test.*

Next pushbutton: Pressed to resume testing when diagnostics are interrupted to indicate a fault.

Detail pushbutton: Pressed to request further information when "*" appears in the alphanumeric display, signaling detection of a problem.



USING THE DIAGNOSTICS MODULE

The Diagnostics Module can be used alone, with suspected faults indicated on the front-panel display, or used interactively with a data terminal. The preparation for both methods of testing is the same. Separate instructions are provided for each method when actual diagnostic testing begins.

Preparing for Diagnostics

1. Get a pencil and paper.

You may want to record diagnostic messages while the tests are running.

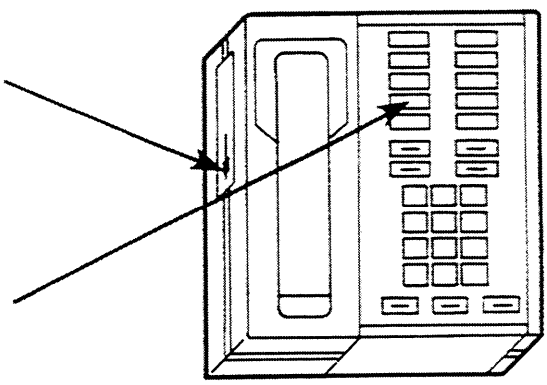
2. Clear users from the system.

Before testing the system, make sure there are no active calls. To do so:

A. At the control unit, set the *Administer/Attendant* switch on the Processor Module to *Administer.*

B. Go to the voice terminal designated intercom 10 (the Administrator/Attendant console) and set its T/P switch to P (program mode).

C. Enter line administration mode by pressing the button beside the upper pair of flashing lights (the fourth button in the left column as shown by the arrow).



D. If the green light by the button you pressed is flashing, one or more calls are active. When the green light is on steadily, the system is idle and ready for testing.

E. Slide the T/P switch to center position.

F. Set the *Administer/Attendant* switch on the Processor Module in the control unit to *Attendant.*

3. Check system configuration.

The following modules should be in the control unit and at least partly functional for the diagnostics to be fully effective:

- Power Module (must be fully functional)
- Processor Module
- Feature Module
- Line Module in slot 7 (Line Modules may be present in other slots as well.)
- at least 1 Voice Terminal Module or Basic Telephone Module.

Remove any other types of modules (except the Diagnostics Module, if it is installed). Set the Power Module *On/Off* switch to *Off* when removing a module.

4. Check backplane pins.

Check for bent or broken pins in the control unit backplane. Damaged pins can cause incorrect fault indications or signals. Contact your equipment supplier if you have any faulty pins.

Be sure each module is firmly seated in the control unit.

5. Install Diagnostics Module.

If the Diagnostics Module is not already in place, set *Normal/Test* switch on the module to *Normal* and slide the module firmly into slot 4.

6. If you are *not* using a data terminal, proceed with "Using the Diagnostics Module Alone," page 5. If you are connecting a terminal, proceed with "Using the Diagnostics Module with a Data Terminal," page 7.

USING THE DIAGNOSTICS MODULE ALONE

1. **Set the** *Normal/Test* **switch to** *Test.*

   "DIAG" followed by the firmware version number should appear momentarily in the front-panel display. If it does not, see "Diagnostics Will Not Start" on page 13. When the problem is cleared, return to step 2 of this section.

2. **Diagnostics begin.**

   Slot numbers will appear on the Diagnostics Module display in turn as each module is tested. If a module is present yet its slot number never appears, the module may have failed. In that case, diagnostics are not aware of its presence. First, make sure the module is firmly seated. If the slot number does not appear on the next test sweep, check for bent or broken backplane pins behind the module. If the pins are undamaged, replace the module.

   After all possible tests have either been executed or skipped, the "DIAG" message reappears to indicate the beginning of a new sweep of tests. Since the proper operation of some tests depends on the successful completion of others, possible tests will vary with the nature of the faults encountered. For example, Feature, Line, Voice Terminal, and Basic Telephone Modules will not be tested if a fault is indicated in the Processor Module, because a working processor is a prerequisite of Line, Voice Terminal, and Basic Telephone Module tests.

   Test sweeps will repeat continually until a fault is indicated or the *Normal/Test* switch is set to *Normal.*

3. Resolve diagnostics messages.

If an asterisk ("*") appears on the left side of the display, follow these steps:

A. Write down the slot number next to "*". The slot number indicates the module that is the most likely source of trouble. The "*ALL" message indicates the trouble cannot be isolated to a particular slot. The "*INT" message indicates an unexpected interrupt.

B. Hold down the *Detail* button and write down the message.

C. Look up the slot number and detail message in the "Diagnostic Display Messages" section and perform the recommended action. **Check for bent or broken backplane pins before replacing any module.** If you find faulty pins, contact your equipment supplier.

D. Press the *Next* button to continue testing.

E. If you wish to begin a new sweep of tests (from the "DIAG" message onward), press the *Detail* button while no "*" is present on the display.

F. It is possible to skip some module tests and go on to others. If you wish to skip a particular module test, press the *Next* button while no "*" message is present in the display. The message "STEP" will appear after you press *Next* and testing will begin.

The Processor Module test (listed in the display as "CPU"), the Diagnostics Module test ("DGM"), and the "ALL" test cannot be skipped.

4. Repeat diagnostics.

When "DIAG" and the firmware version number reappear on the display, a new sweep of testing begins. Testing continues until you exit test mode.

5. Exit test mode.

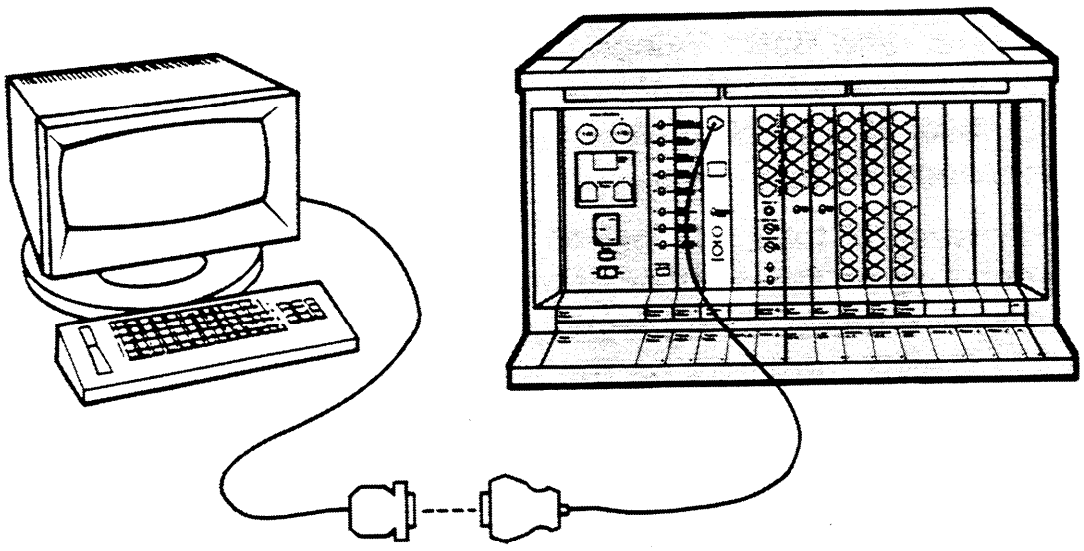
Set the *Normal/Test* switch to *Normal.* The system will resume normal call processing. Diagnostic testing is complete.

USING THE DIAGNOSTICS MODULE WITH A DATA TERMINAL

Begin these steps after you complete steps 1 through 5 in "Preparing for Diagnostics," page 3.

1. **Connect the data terminal.**

   Connect the data terminal to the EIA RS-232c jack on the Diagnostics Module using the adapter provided and a D8W-type modular voice terminal or jumper cord as shown.



2. **Set the** *Normal/Test* **switch to** *Test.*

   "DIAG" followed by the firmware version number should appear momentarily in the front-panel display. If it does not, go to "When Diagnostics Will Not Start" on page 13. When the problem is cleared, return to step 3 of this section.

3. **Wait for "REMT" and "DIAG V[number] >" messages.**

   When the Diagnostics Module is in interactive mode (ready for commands), "REMT" (remote interface active) appears on the front panel display. The prompt "DIAG V[number]>" appears on the terminal screen.

4. **Display the command menu.**

   Type "help" or "?" and press **RETURN** to display a list of commands. (A list of commands is included on page 10.)

5. Execute a diagnostic test sweep.

To execute a single sweep of tests on the system, type "sweep" and press **RETURN.** Slot numbers will appear on the Diagnostics Module display in turn as each slot is tested. If a module is present yet its slot number never appears, it may have failed. In that case, diagnostics are not aware of its presence.

Since the proper operation of some tests depends on the successful completion of others, possible tests will vary with the nature of the faults encountered. For example, Line, Voice Terminal, and Basic Telephone Modules will not be tested if a fault is indicated in the Processor Module, because a working processor is a prerequisite of Line, Voice Terminal, and Basic Telephone Module tests.

The sweep of tests will last 45 seconds to 3.5 minutes, depending on the number of modules present. The system exits interactive mode during testing. When the prompt "DIAG V[number]>" appears on the terminal screen, the test sweep is complete and the system is again in interactive mode.

6. Interrupting a test sweep.

If you wish to interrupt testing and return to interactive mode, press **RETURN.** (You may have to press it more than once.) The prompt "DIAG V[number]>" will appear after the current diagnostic test is completed. The maximum wait for a test to complete is 30 seconds. To exit interactive mode and resume the interrupted sweep of tests, type "resume" and press **RETURN.**

7. Display test results and resolve diagnostics messages.

To display a table of faults collected during the test sweep, type "errors" and press **RETURN.** For each fault recorded, the listing indicates:

- *last occurrence:* the test sweep in which the fault most recently occurred.

- *physical slot:* slot number in which the fault occurred. (An "ALL" entry indicates the trouble cannot be isolated to a particular slot. An "INT" entry indicates an unexpected interrupt during the most recent sweep.)
- *module type:* the type of module found in the suspected slot:

00 or FF	-	no module
01 or FC	-	Diagnostics Module
02	-	Processor Module
03 or B9	-	Feature Module
04 or F9	-	Services Module
05 or F0	-	Voice Terminal Module
06 or F7	-	Basic Telephone Module
07 or E0	-	Line Module
08	-	other
09	-	other
0A	-	other.

- *total occurrences:* the number of test sweeps in which the fault has occurred.
- *display detail:* detailed information about the fault. Each message is explained in the "Diagnostic Display Messages" section.

Resolve the trouble as indicated in "Diagnostic Display Messages." **Check for bent or broken backplane pins before replacing any module.** If you find faulty pins, contact your equipment supplier.

8. Exit test mode

Set the *Normal/Test* switch to *Normal.* The system will resume normal call processing. Disconnect the data terminal if desired.

COMMAND MENU

A menu of available commands can be listed by typing "help" or "?" while in interactive mode. Among the commands available are:

autolog — Enables automatic error logging mode, in which sweeps of diagnostic tests repeat continually without need for user intervention. Data about any faults that occur is accumulated in the diagnostic error table, which may be listed via the "errors" command in interactive mode. When the system is in autolog mode, "AUTO" appears in the front panel display after the "DIAG" message. Autolog mode is disabled by the "manual" command.

errors — Lists the contents of the diagnostic error table. For each fault recorded, the listing indicates:

- *last occurrence:* the test sweep in which the fault most recently occured.
- *physical slot:* slot number in which the fault occured.
- *module type:* the type of modue found in the suspected slot:

00 or FF - no module
01 or FC - Diagnostics Module
02 - Processor Module
03 or B9 - Feature Module
04 or F9 - Services Module
05 or F0 - Voice Terminal Module
06 or F7 - Basic Telephone Module
07 or E0 - Line Module
08 - other
09 - other
0A - other.

- *test segment* and *details:* data for use of factory service center staff.
- *total occurrences:* the number of test sweeps in which the fault has occurred.
- *display detail:* detailed information about the fault. Each message is explained in the "Diagnostic Display Messages" section.

help (or ?)	Lists the menu of available commands.
manual	Disables the automatic error logging mode (see the "autolog" command).
record	Causes the contents of the diagnostic error table to be listed automatically at the end of each diagnostic test sweep. The "silent" command disables this feature.
restart	Initiates a "cold start" of diagnostics. The content of the diagnostic error table is erased, automatic error logging mode is disabled, and automatic error table dumps are disabled.
resume	Exits interactive mode and continues a diagnostic test sweep. This command is useful if you have interrupted interactive mode during a diagnostic test sweep and wish to resume that sweep rather than begin a new one.
silent	Disables automatic listing of the diagnostic error table at the end of each test sweep (see the "record" command).
sweep	Exits the interactive mode and performs a single sweep of diagnostic tests on the

	system. This command takes from 45 seconds to 3.5 minutes to complete, depending upon the number and type of modules present in the system.
tdmp	Dumps the contents of translation memory to the RS-232c port in S-record format for backup of translation memory. This command is used when a personal computer is connected to the system to save user programming when a Feature Module is changed.
tld	Enables the RS-232c port to receive data in S-record format for placement in translation memory. This command is used when user programming, saved in a personal computer, is loaded into the system again after changing a Feature Module.
tsktbl	Lists the contents of the diagnostic task table, which indicates which modules are present in which slots and which tests will be run on each module.

WHEN DIAGNOSTICS WILL NOT START

1. Be sure the system is securely connected to a *live* ac power outlet and the power cord is not damaged.
2. Verify that the Power Module(s) is fully functioning:
   A. Make sure the green light on the Power Module is lit.
   B. Place several voice terminals in test mode (slide the T/P switch to the T position). A tone should sound and the red and green lights will flash alternately. If *no* voice terminals react properly in test mode, the Power Module is defective.
   C. Set *On/Off* switch to *Off* and remove the Power Module. Check for bent or broken backplane pins.
   D. Reinsert the Power Module and set the *On/Off* switch to *On.* Check the output voltages of the control unit with a voltmeter. Measure the digital voltages with respect to digital ground and the analog voltages with respect to analog ground. Take these measurements from the backplane side of the Power Module slot. The table lists what voltages should be present at specific pins. If any of the output voltages are not within those listed in the table, replace the Power Module.

Output Voltages of Model 1030 or 3070 Power Module

Pin No.	Typical	Minimum	Maximum
056, 156	+5V	+4.75V	+5.25V
052, 152	+5Va	+4.75V	+5.25V
045, 145	-4Va	-3.8V	-4.2V
047, 147	+12V	+11.4V	+12.6V
026, 126	-48V	-43.0V	-53.0V

3. Set the *Normal/Test* switch on the Diagnostics Module to *Normal.* Wait for the warning light on the Processor Module to go out, then see if normal call processing is functioning by placing an intercom call from a voice terminal.

   If you cannot place a call and the Diagnostics Module is installed, remove it. Try to make an intercom call. If you can complete the call, the Diagnostics Module is probably defective. Check for bent or broken backplane pins.

If you remove the Diagnostics Module and still *cannot* make a call, reinsert the module and proceed with step 4.

NOTE: In the following steps you will be removing and inserting modules. The Power Module *On/Off* switch must be set to *Off* when you remove or insert the Power, Feature, or Processor Modules. It is recommended but not essential that you set the *On/Off* switch to *Off* when removing or inserting other modules.

4. Isolate essential modules as follows:

   A. Remove all modules from the system *except:*

      - Power Module(s)
      - Processor Module
      - Feature Module
      - Diagnostics Module.

   B. Set the *Normal/Test* switch to *Test.*

   C. If the "DIAG" message appears on the front panel of the Diagnostics Module, skip to step 6.

5. Test essential modules as follows:

   A. *Set the Power Module On/Off switch to Off.* Remove these modules and check the slots for broken or bent pins:

      - Power Module(s)
      - Processor Module
      - Feature Module
      - Diagnostics Module.

   B. Reinsert the Power, Processor, and Diagnostics Modules. Set the *On/Off* switch on the Power Module to *On.* Set the *Normal/Test* switch on the Diagnostics Module from *Normal* to *Test* two or three times. If the "DIAG" message appears, skip to step D. If the message does not appear, set the *On/Off* switch to *Off* and replace the Processor Module.

   C. After you replace the Processor Module, set the *On/Off* switch to *On* and set the *Normal/Test* switch from *Normal to*

Test two or three times. If the "DIAG" message does not appear, replace the Diagnostics Module.

D. Once diagnostics are running with the Processor and Diagnostics Modules installed, set the *On/Off* switch to *Off* and reinsert the Feature Module. Set the *On/Off* switch to *On.* Set the *Normal/Test* switch to *Normal* then to *Test.* If the "DIAG" message does not appear, replace the Feature Module.

E. When diagnostics are running with the Power, Processor, Feature, and Diagnostics Modules in place, go to step 6.

6. Test Line, Voice Terminal, and other modules as follows:

A. With only the Power, Processor, Feature, and Diagnostics Modules in place, run several sweeps of tests. When the "*MSG" message appears, press the *Next* button to continue testing. If any other messages appear, refer to the explanation of the message in the "Diagnostic Display Messages" section.

B. Check for bent or broken backplane pins in the empty slots.

C. Reinsert single modules, *in the order listed below,* and restart the sweep of test after installing each module. (To restart the sweep press *Next,* then *Detail.)* If diagnostics will not run after a particular module is installed, that module is suspect. Reinsert the modules in this order:

- slot 7 (Line Module)
- slot 9 (Voice Terminal or Basic Telephone Module)
- slot 8 (Line, Voice Terminal, or Basic Telephone Module)
- slot 10 (Line, Voice Terminal, or Basic Telephone Module)
- slot 11 (Line, Voice Terminal, or Basic Telephone Module)
- any other module.

D. If you are using the Diagnostics Module alone, go back to step 2, page 5.

If you are using a data terminal, go back to step 3, page 7.

DIAGNOSTIC DISPLAY MESSAGES

The diagnostic display messages are listed alphabetically. Explanations and actions are included where necessary. **Check for bent or broken backplane pins before replacing any module.**

NOTE: In the following steps you may be removing and inserting modules. The Power Module On/Off switch must be set to *Off* when you remove or insert the Power, Feature, or Processor Modules. It is recommended but not essential that you set the *On/Off* switch to *Off* when removing or inserting other modules.

MESSAGE	DETAIL	MEANING
***ALL**	**I/O**	**I/O Bus Error** The system input/output bus is not functioning properly. 1. To verify the existence of the problem, repeat the sweep (press *Next,* then *Detail).* 2. If the problem persists, remove a Line or Voice Terminal Module from any slot, check the slot for bent or broken pins in the backplane, and repeat the test. If the problem clears, the module you removed or the pins behind it may be defective. If the problem persists, repeat this step until all control unit slots labeled *Lines* or *Intercom* are empty. 3. If the problem persists, check for bent or broken pins behind the Processor Module. If the pins are undamaged, replace the module. Repeat diagnostics. 4. If the problem persists, check the pins behind the Diagnostics Module. If the pins are undamaged, replace the Diagnostics Module.
***ALL**	**LSHF**	**Tone Detector Error** The test apparatus used to check the system's analog voice network and tone plants is malfunctioning. If this error persists, the network and tone plants will not be tested.

MESSAGE	DETAIL	MEANING
		1. Repeat the sweep (press *Next,* then *Detail)* to verify the existence of the problem. 2. If the problem persists, check for bent or broken pins in the backplane at the Line Module in slot 7. If the pins are undamaged, replace the module. Repeat the sweep. 3. If the problem persists, check for bent or broken pins behind the Diagnostic Module. If the pins are undamaged, replace the module. Repeat the sweep. 4. If the problem persists, diagnostics may still be executed, but the system's analog voice network and tone plants will not be tested.
***ALL**	**NETW**	**Voice Network Failure** A voice network failure has occurred on one or more links in the system, but the fault could not be isolated to a particular module. 1. Repeat the sweep (press *Next,* then *Detail)* to verify the existence of the problem. 2. If the problem persists, remove a Line, Voice Terminal, or Basic Telephone Module from any slot *other than slot 7 or slot 9.* Check the slot for bent or broken backplane pins and repeat the sweep. If the problem clears, that module is suspect. If the problem persists, repeat this step until all Line and Voice Terminal Module slots (other than slots 7 and 9) are empty. 3. If the problem persists when only slots 7 and 9 contain modules, remove the Voice Terminal or Basic Telephone Module from slot 9. Check the slot for bent or broken backplane pins, and insert a Voice Terminal Module from another slot into slot 9. Repeat the sweep. 4. If the problem still persists, remove the Line Module from slot 7 and check the slot for bent or broken backplane pins. Insert a Line Module from another slot into slot 7. Repeat the sweep.

MESSAGE	DETAIL	MEANING
AUTO	**none**	**Autolog Mode Enabled** The automatic error logging mode has been enabled at the data terminal.
***CPU**	**EXPT**	**Exception Failure** 1. Repeat the sweep (press *Next,* then *Detail)* to verify the existence of the problem. 2. If the problem persists, check for bent or broken pins in the backplane behind the Processor, Diagnostics, Module A (slot reserved for future use), Voice Terminal Module, or Basic Telephone Modules. 3. If the problem persists, set the *Normal/Test* switch to *Normal* and test each Voice Terminal Module in the system for the presence of "scanning." To test a module for scanning, connect a voice terminal to it and put the voice terminal in "test" mode (slide the T/P swithc to T). The module is said to be "scanning" if the voice terminal lights alternately flash red and green in the test mode. Replace any voice Terminal Modules that do not appear to scan. Set the *Normal/Test* switch to *Test* and repeat the sweep. 4. If the problem persists, replace the Processor Module.
***CPU**	**PROC**	**Processor Failure** 1. Repeat the sweep (press *Next,* then *Detail)* to verify the existence of the problem. 2. If the problem persists, check for bent or broken pins behind the Processor Module. If the pins are undamaged, replace the module. Repeat the sweep. 3. If the problem persists, check the pins behind the Diagnostics Module. If the pins are undamaged, replace the module.

MESSAGE	DETAIL	MEANING
***CPU**	**SAN**	**Sanity Time Dead** 1. Repeat the sweep (press *Next,* then *Detail)* to verify the existence of the problem. 2. If the problem persists, check for bent or broken pins behind the Processor Module. If the pins are undamaged, replace the module.
***CPU**	**TIMR**	**PSC Timer Failure** 1. Repeat the sweep (press *Next,* then *Detail)* to verify the existence of the problem. 2. If the problem persists, check for bent or broken pins behind the Processor Module. If the pins are undamaged, replace the module. Repeat the sweep. 3. If the problem persists, check the pins behind the Diagnostics Module. If the pins are undamaged, replace the module.
***DGM**	**ROM**	**Program ROM Failure** 1. Repeat the sweep (press *Next,* then *Detail)* to verify the existence of the problem. 2. If the problem persists, check the pins behind the Diagnostics Module. If the pins are undamaged, replace the module.
***DGM**	**SHDW**	**Shadow Memory Fault** The ROM bank switch on the Diagnostics Module is malfunctioning. 1. Repeat the sweep (press *Next,* then *Detail)* to verify the existence of the problem. 2. If the problem persists, check for bent or broken pins behind the Diagnostics Module. If the pins are undamaged, replace the module.

MESSAGE	DETAIL	MEANING
***DGM**	**TRAM**	**Transient RAM Failure** 1. Repeat the sweep (press *Next,* then *Detail)* to verify the existence of the problem. 2. If the problem persists, check for bent or broken pins behind the Diagnostics Module. If the pins are undamaged, replace the module.
***DGM**	**UART**	**Serial Interface Failure** The serial communications port for the data terminal is malfunctioning. If this fault occurs on the first diagnostic sweep, the data terminal user interface will not be enabled, although diagnostics may still be executed through the front panel. 1. Repeat the sweep (press *Next,* then *Detail)* to verify the existence of the problem. 2. If the problem persists, check for bent or broken pins behind the Diagnostics Module. If the pins are undamaged, replace the module.
***DGM**	**SOFT**	**Software Error** A diagnostic software error has occurred. 1. Repeat the sweep (press *Next,* then *Detail)* to verify the existence of the problem. 2. If the problem persists, carefully note the system configuration and events leading up to this message, including any other system operating difficulties, and report them to your supervision. Replace the Diagnostics Module.
DIAG	**none**	**Begin Diagnostics** A sweep of diagnostic tests is about to commence. It will be followed by a number which indicates the version of diagnostic firmware being executed. No user action is necessary.

MESSAGE	DETAIL	MEANING
ERTB	**none**	**Error Table Dump** The diagnostics error table is currently being dumped to the data terminal. No user action is necessary.
***INT**		**Unexpected Exception** An unexpected interrupt has occurred during testing. Perform the action appropriate to the detail message here only if the interrupt persists when diagnostics are repeated several times. Repeat the sweep of tests after performing the recommended action. Check for bent or broken pins at the backplane before replacing modules.
	RST	Unexpected reset. Check for loose power connections. Check that all modules are firmly seated.
	CPU	Unexpected Processor Module interrupt. Replace the Processor Module.
	DGM	Unexpected Diagnostics Module interrupt. Replace the Diagnostics Module.
	S[number]	Unexpected slot interrupt. Replace the module in the indicated slot.
	EXP	Unexpected expansion interrupt. Check the expansion system in slot marked Module A).
MAN	**none**	**Autolog Mode Disabled** The automatic error logging mode has been disabled at the data terminal user interface. No action necessary.
***MEM**	**CRPT**	**Translation Memory Corrupted** Translation memory has been corrupted. Users may have to reprogram their voice terminals.

MESSAGE	DETAIL	MEANING
***MEM**	**BRAM**	**Battery RAM Failure** 1. Repeat the sweep (press *Next,* then *Detail)* to verify the existence of the problem. 2. Check for the pins behind the Feature Module. If the pins are undamaged, replace the Feature Module. System translations will be lost when this module is replaced.
***MEM**	**ROM**	**Program ROM Failure** 1. Repeat the sweep (press *Next,* then *Detail)* to verify the existence of the problem. 2. If the problem persists, check the pins behind the Feature Module. If the pins are undamaged, replace the module. System translations will be lost when this module is replaced.
***MEM**	**TRAM**	**Transient RAM Failure** 1. Repeat the sweep (press *Next,* then *Detail)* to verify the existence of the problem. 2. If the problem persists, check the pins behind the Feature Module. If the pins are undamaged, replace the module. System translations will be lost when this module is replaced. The system must be reprogrammed.
***MSG**		**Message to User**
	# 1	Slot 7 does not contain a Line Module appropriate for testing the analog voice network and tone plants in the system, so these items will not be tested. Insert a Line Module in slot 7.
	# 2	The system does not contain a Voice Terminal Module or Basic Telephone Module, so the analog voice network will not be tested. Insert a Voice Terminal or Basic Telephone Module in a slot labeled *Intercom.*

MESSAGE	DETAIL	MEANING
REMT	**none**	**Remote Interface Active** This message indicates that diagnostics are ready for a keyboard command.
***S[number]**	**DLNC**	**DLNC Circuit Failure** 1. Repeat the sweep (press *Next,* then *Detail)* to verify the existence of the problem. 2. If the problem persists, check for bent or broken pins in the slot listed. If the pins are undamaged, replace the module.
***S[number]**	**IMPR**	**Improper Module Type** The module in slot [number] is recognized by diagnostics as an improper type for that slot. Slot 7 may only contain Line Modules, and slot 9 may contain a Voice Terminal or Basic Telephone Module.
***S[number]**	**LCC**	**Line Circuit Controller Failure** 1. Repeat the sweep (press *Next,* then *Detail)* to verify the existence of the problem. 2. If the problem persists, check for bent or broken pins in the slot listed. If the pins are undamaged, replace the module.
***S[number]**	**NETW**	**Voice Network Failure** 1. Repeat the sweep (press *Next,* then *Detail)* to verify the existence of the problem. 2. If the problem persists, disconnect all cords from the module in the slot listed. Repeat the sweep. 3. If the problem persists, check for bent or broken pins in the backplane of the slot. 4. Replace the module in the slot.

MESSAGE	DETAIL	MEANING
*S[number]	PH	**Protocol Handler Failure** 1. Repeat the sweep (press *Next,* then *Detail)* to verify the existence of the problem. 2. If the problem persists, disconnect all cords from the module in the slot listed. Repeat the sweep. 3. If the problem persists, check for bent or broken pins in the slot listed. If the pins are undamaged, replace the module.
*S[number]	TONE	**Tone Plant Failure** 1. Repeat the sweep (press *Next,* then *Detail)* to verify the existence of the problem. 2. If the problem persists, check for bent or broken pins in the slot listed. If the pins are undamaged, replace the module.
*S[number]	UC	**Station Controller Failure** 1. Repeat the sweep (press *Next,* then *Detail)* to verify the existence of the problem. 2. If the problem persists, check for bent or broken pins in the slot listed. If the pins are undamaged, replace the module.
*S[number]	UNKN	**Unknown Module Type** The type of the module in the slot listed is not recognized by diagnostics. The Diagnostics Modules firmware may be an old version, incapable of testing this module type. To run diagnostics on the remaining modules, remove the unknown module and press *Next.* If the diagnostic firmware is known to be capable of testing the module type in the slot listed, proceed as follows: 1. Check for bent or broken pins in the backplane of the slot. 2. If the pins are undamaged, replace the module in the slot.

MESSAGE	DETAIL	MEANING
TDMP	**none**	**Translation Data Dump** System translation data is being dumped to the data terminal in S-record format. No user action is necessary.
TLD	**none**	**Translation Data Load** The system is ready to load translation data from the data terminal in S-record format. No user action is necessary.
TTBL	**none**	**Task Table Dump** The daignostics task table is currently being dumped to the data terminal. No user action is necessary.
V[number]	**none**	**Firmware Version Number** This message indicates the version of diagnostic firmware being executed. It is displayed at the beginning of each test sweep, immediately after the "DIAG" message. No user action is necessary.

(Z129A) RING GENERATOR UNIT (61351)

The ring generator (Figure 1) converts the 117-volt 60-Hz input power to 117-volt 30-Hz ringing current. The ringing current output is connected to the RING GEN. jack on the Power Module in the Models 1030 and 3070 control units. This ringing current is used for ringing basic telephones connected to the Basic Telephone Module.

An ac power cord is included in the package with the ring generator. The ring generator unit is identified on the label as a 125H Frequency Generator.

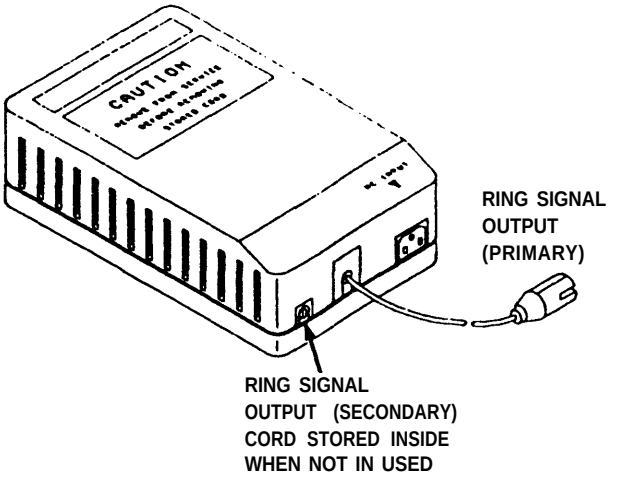


Figure 1

INSTALLATION

The ring generator unit has protective feet on the base for mounting on a horizontal surface. Keyhole slots in the base permit vertical mounting using a wall mounting bracket. For Model 1030 and 3070 applications, the unit is mounted on hangers on the back cover of the control unit. (See Figure 2.)

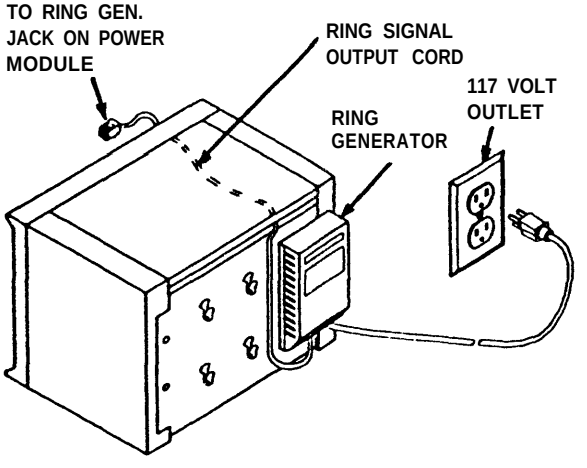


Figure 2

1. Align keyhole slots and hang ring generator unit on hangers on back cover of control unit.
2. Run the ring signal output cord through and out the opening under the top front rail of control unit. (See Figure 2.)
3. Connect ring signal output cord into RING GEN. jack on the Power Module. (See Figure 3.)

   Note: When the expansion unit also contains a Basic Telephone Module in slots 21, 22, 23, or 24, connect the secondary output to the RING GEN. jack on the Power Module in slot 16. Never connect the two outputs from the ring generator to both power modules in the expansion unit.
4. Connect the power cord to the ac input connector on the ring generator unit.
5. Connect the power cord to a 117-Vac outlet.

Operational Check

To test the ring generator, a Basic Telephone Module must be installed in the control unit and at least one basic telephone connected into the module.

Dial the intercom number of the basic telephone and confirm that ringing occurs.

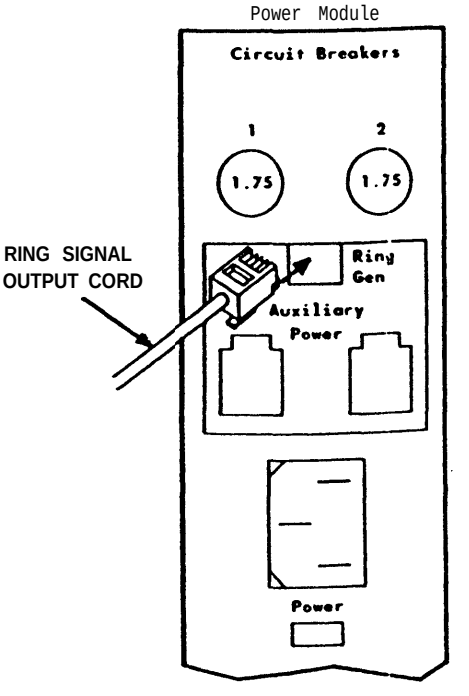


Figure 3

Equipment manufactured by AT&T Technologies in the U.S.A.

CIB 3019
Issue 1

PRINTED IN U.S.A.

Instructions for (Z129A) RING GENERATOR UNIT (61351)

CIB 3019
Issue 1

(510C) MODEL 1030 EXPANSION UNIT (61301)

When installed and equipped with appropriate modules, this expansion unit increases the capacity of your communications system Model 1030 from 10 lines and 30 voice terminals to 30 lines and 70 voice terminals.

Materials included with expansion unit are two braces for holding the control unit and expansion unit together, and two cable assemblies—Nework Bus, and Ground Bus—for interconnecting the two units.

INSTALLATION

1. Unplug the ac power cord to your Model 1030 control unit, and ring generator unit (if connected).
2. Arrange your Model 1030 control unit so that you have at least 6 inches working access to back of control unit.
3. Remove top cover from your Model 1030 control unit. (See Figure 1.)

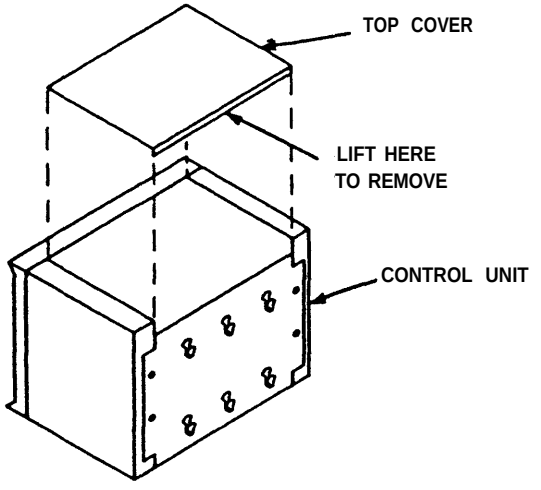


Figure 1

4. Place the Model 1030 expansion unit on top of your Model 1030 control unit align front, back, and sides (See Figure 2.)

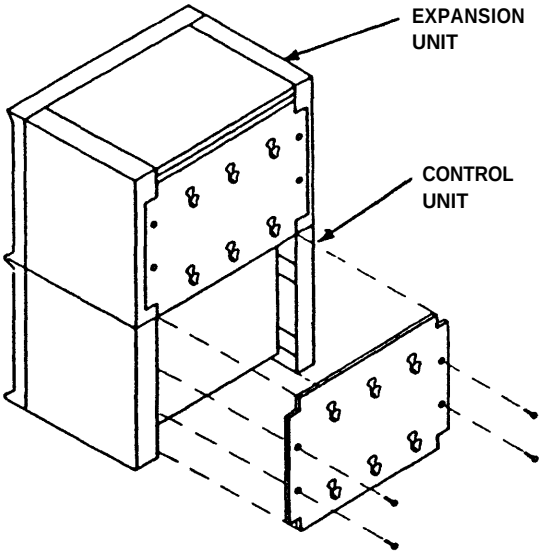


Figure 2

5. Loosen screws and remove back protective panels from both the control unit and the expansion unit.
6. On right side of the control unit remove the screw from top bracket and on expansion unit from bottom bracket. (See Figure 3.)

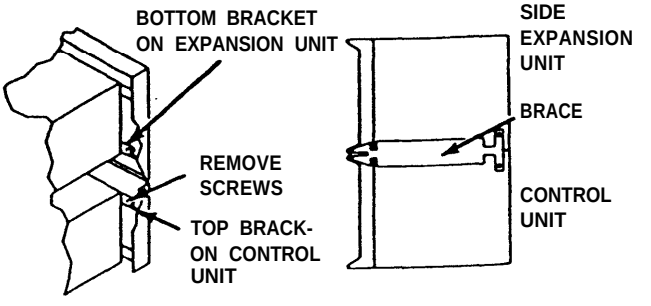


Figure 3

CIB 3021
Issue 2

PRINTED IN U.S.A.

Instructions For
(510C) MODEL 1030 EXPANSION
(61301)
(403777204)

CIB 3021
Issue 2

7. Find one of the braces shipped with the expansion unit. Insert the forked end of the brace into the slots of the two units. (See Figure 3.)

8. At the back end of brace align the holes and install screws in both units and tighten securely.

9. In same manner (Steps 6, 7, and 8) install other brace on left side of assembly.

CABLE CONNECTIONS BETWEEN CONTROL UNIT AND EXPANSION UNIT

CAUTION: ***When installing cable connector on backplane pins (located in the back of the control unit or expansion unit) be very careful not to bend the pins.***

10. Find the ribbon cable connector assembly labeled "Network Bus".

11. On the backplane of the Model 1030 control unit and the set of pins labeled "Network Bus". (See Figure 4.)

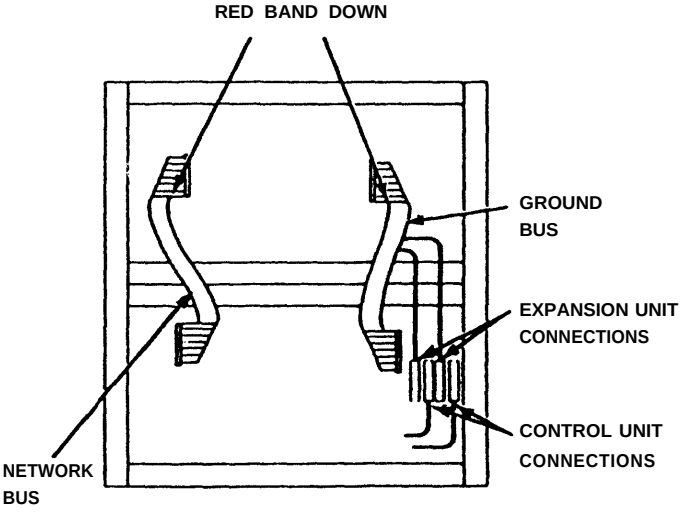


Figure 4

12. Arrange one connector so that the red band is at the bottom and carefully insert connector on the backplane pins.

13. Connect the other connector (red band down) to network bus pins on the 510C expansioin unit.

14. In the same manner (Steps 10 through 13) connect Ground Bus Cable (with red band down).

15. Connect the two cable connectors on the control unit with the two cable connectors on the expansion unit (see Figure 4).

16. Reinstall the back panels on Model 1030 control and 510C expansion units and secure with screws.

17. Plug the ac power cord to the control unit.

18. If current modules are to be installed, install them per instructions included with the modules.

Equipment manufactured by AT&T Technologies in the U.S.A.

When installed on your communcations system voice terminal (administration/attendant console), the ZH802A module (Figure 1) increases the capacity of the 34-button deluxe voice terminal from 10 lines and 30 voice terminals to 30 lines and 90 voice terminals. The Attendant Intercom Selector Kit includes:

- ZH802 Attendant Intercom Selector Module
- Front and Back Rails
- Adapter Plate
- Voice Terminal Power Supply Kit (D-181282).

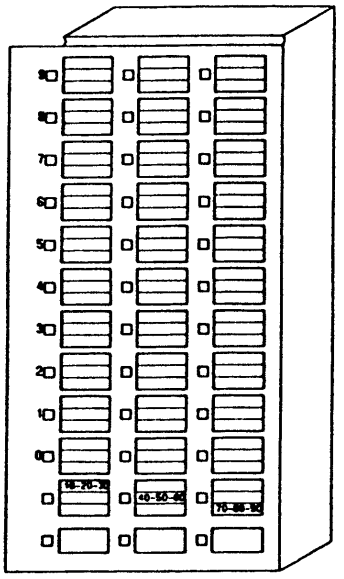


Figure 1

INSTALLATION

1. Disconnect the modular voice terminal cord from the LINE jack on the 34-button deluxe voice terminal.
2. Disconnect handset cord from voice terminal base and set the handset aside.
3. Turn voice terminal and stand assembly over so that the stand is up.
4. Slide the stand toward the front of the voice terminal and lift to remove it from the base.
5. Turn the voice terminal back over so it rests on its base.
6. Remove End Cap by rotating bottom edge of End Cap out and up. (See Figure 2.)

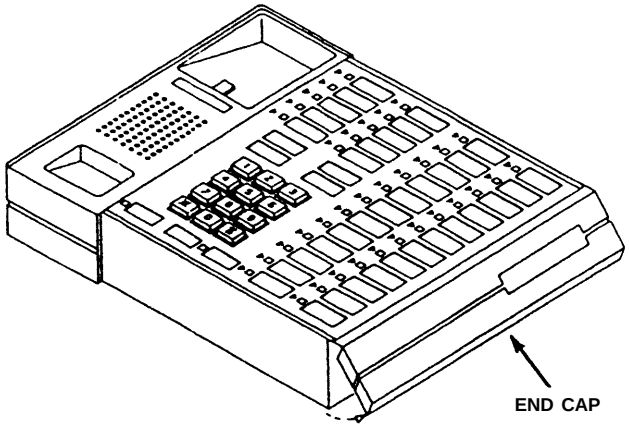


Figure 2

7. Remove back rail by sliding rail to right (Figure 3).
8. Remove front rail by sliding rail to right (Figure 3).

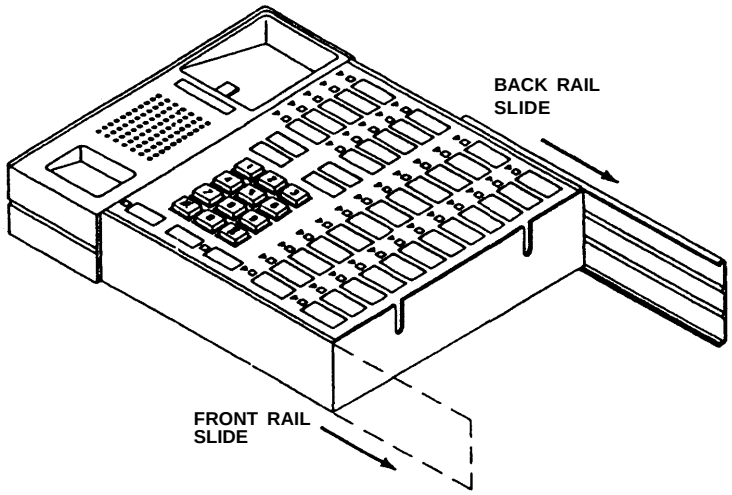


Figure 3

9. Align the mounting tabs on left side of the Attendant Intercom Selector with slots on right side of voice terminal base and press down into place (Figure 4).

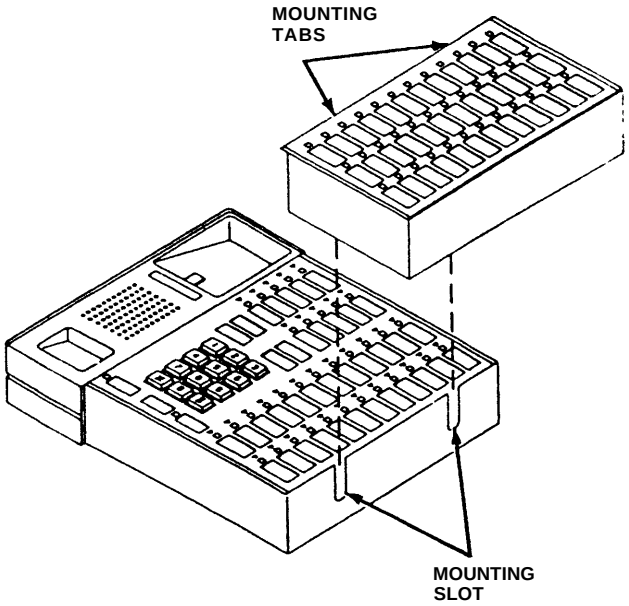


Figure 4

10. Get one of the new rails, turn it so that the rounded edge is up, and slided onto the back of the assembly (Figure 5).

11. Get the other new rail, turn it so that the square edge is up and slide onto the front of the assembly (Figure 5).

12. Install end cap on right side of ZH802A module following directions inside the end cap (Figures 5).

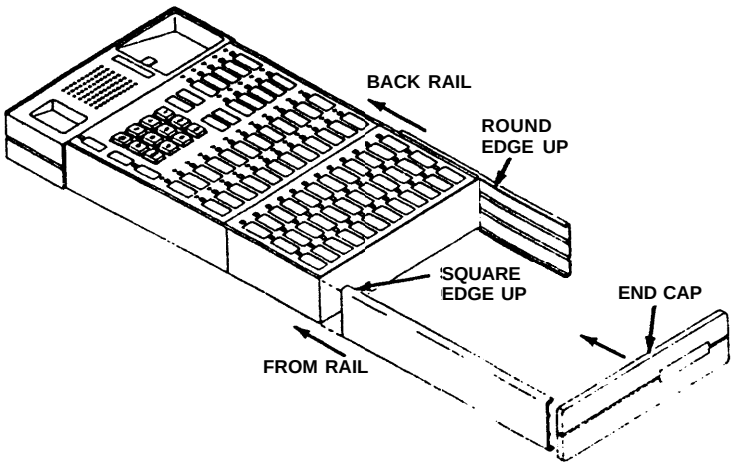


Figure 5

13. Turn the voice terminal over (bottom side up).

14. Remove the jack hole cover on the 34-button deluxe voice terminal base (Figure 6).

15. Plug the ZH802A cable assembly into the jack on the 34-button deluxe voice terminal base (Figure 6).

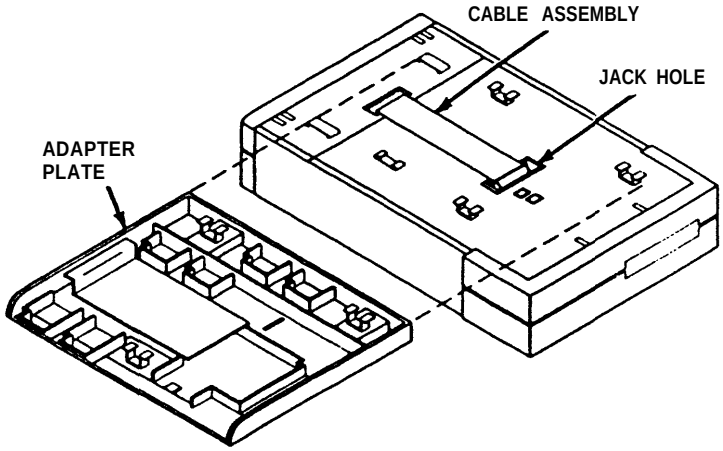


Figure 6

16. Place the adapter plate on the base assembly, align mounting slots on the adapter plate with mounting tabs on the base. Slide the adapter plate upward until it locks into place.

17. Align mounting slots on stand with tabs on adapter plate and slide stand upward until it locks into place.

18. Reconnect the modular voice terminal cord to LINE jack on 34-button deluxe voice terminal base.

    Note: Make sure stand will not rest on the cord when voice terminal is turned back over.

19. Reconnect handset cord.

20. Turn voice terminal back over (top side up), and place handset on base.

    Note: When the Attendant Intercom Selector is used with a 34-button deluxe voice terminal, an adjunct power supply (D-181282) is needed.

To install the Voice Terminal Power Supply (D-181282), follow these steps:

21. Disconnect the terminal cord (D8W) from the modular terminal jack (103A) or the extension cord leading to the control unit (Figure 7).

22. Plug the Z400F adapter into the jack left vacant when the modular voice terminal cord was disconnected in Step 21 (See Figure 7).

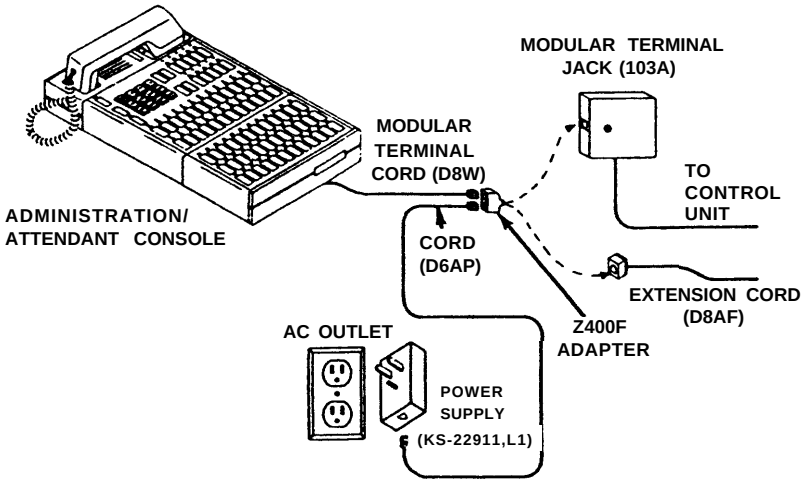


Figure 7

23. Connect the modular voice terminal cord into VOICE TERMINAL jack on the Z400F adapter.

24. Connect one end of the D6AP cord into the POWER jack on the Z400F adapter and the other end into the output jack on the power supply unit.

25. Plug the power supply into a 117-volt ac outlet that is not controlled by a switch.

26. On left side of the voice terminal, set the T/P switch to the T position. The red and green lamps on the 34-button deluxe voice terminal should flash alternately and the green lamps on the ZH802A expansion module should flash with the green lamps on the base.

27. Set the T/P switch to normal (center) position.

CIB 3026
Issue 1

Printed in U.S.A.

Instructions For (ZH802A) ATTENDANT INTERCOM SELECTOR KIT (31642)

CIB 3026
Issue 1

CIB 3028
(601A) POWER MODULE
FOR MODEL 3070

CIB 3028
(601A) Power Module for Model 3070

When installed in the rightmost slot in a Model 1030 Expansion Unit, the (601A) Power Module supplies power for the last 10 lines and last 10 voice terminals used with the system.

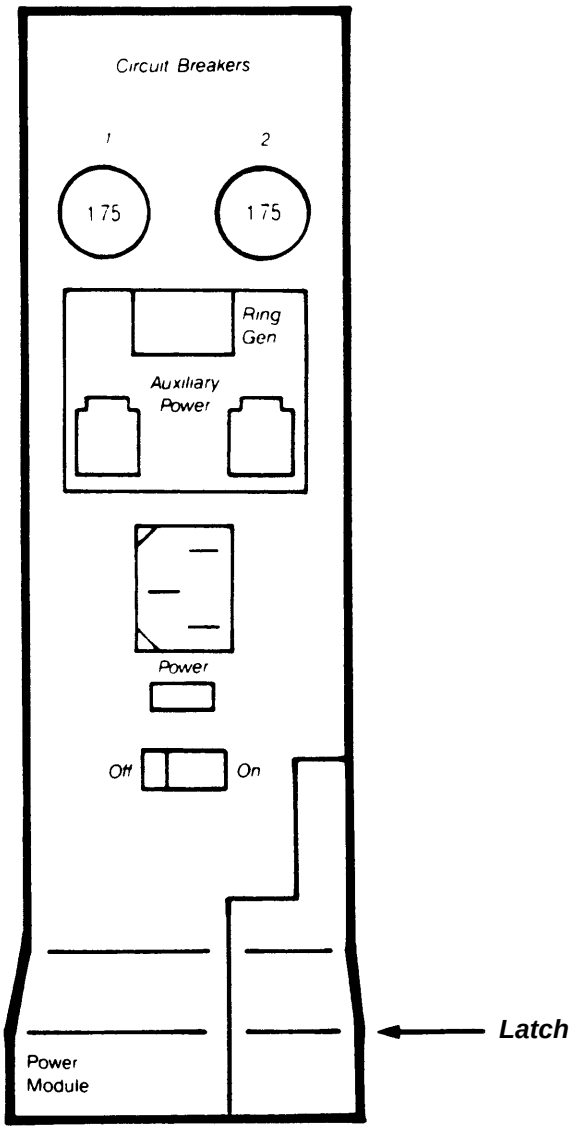


Figure 1.
(601A) Power Module

Installation

1. Remove the front panel from the Expansion Unit.
2. Locate the rightmost slot on the Expansion Unit.
3. Unlatch and remove the protective cover from the slot before installing the module.
4. Align the module in the slot (Figure 2), making sure the edges of the circuit board are in the top and bottom grooves of the slot.

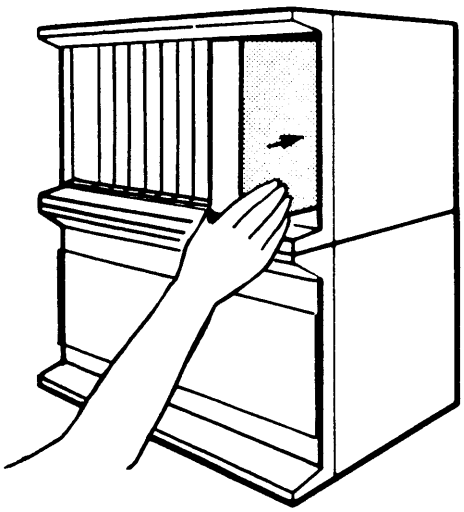


Figure 2.
Installing the Module

5. Slide the module into the slot until the latch at the bottom of the module catches at the base of the slot. With one hand, press firmly on the front of the module while using the other hand to snap the latch into place.

NOTE: If you have any difficulties, remove the (601A) Power Module and check the connectors on the back of the module and at the back of the slot. Check for bent pins or other damage that could prevent the connectors from matching properly.

Removal

To remove the module from the Expansion Unit, press down firmly on the latch at the base of the module until it releases. Slowly slide the module out of its slot in the Expansion Unit.

CIB 3031:
(Z116A) CONTROL UNIT WALL-MOUNTING KIT
FOR MODELS 1030 AND 3070 (61360)

CIB 3031:
(Z116A) Control Unit Wall-Mounting Kit for Models 1030 and 3070 (61360)

This wall-mounting kit provides you with the hardware you need to mount a Model 1030 or a Model 3070 control unit on a wall. The kit contains the following:

- Two 1” x 3” wood slats
- Two steel standards
- Two steel shelf brackets
- Two steel shelf rests
- Four rubber cushions
- Eight toggle bolts and wing nuts
- Eight sheetmetal screws
- Eight plastic anchor plugs
- Two plastic cable ties
- One ¼” masonry drill bit

The standards used in this kit have either four or six holes for screws. The standards with four holes have the bottom two holes spaced 10 inches apart. (The other holes are spaced 12 inches apart.) (See Figure 1.) The standards with six holes (of which you will use only four) have those holes spaced 6 inches apart (Figure 1).

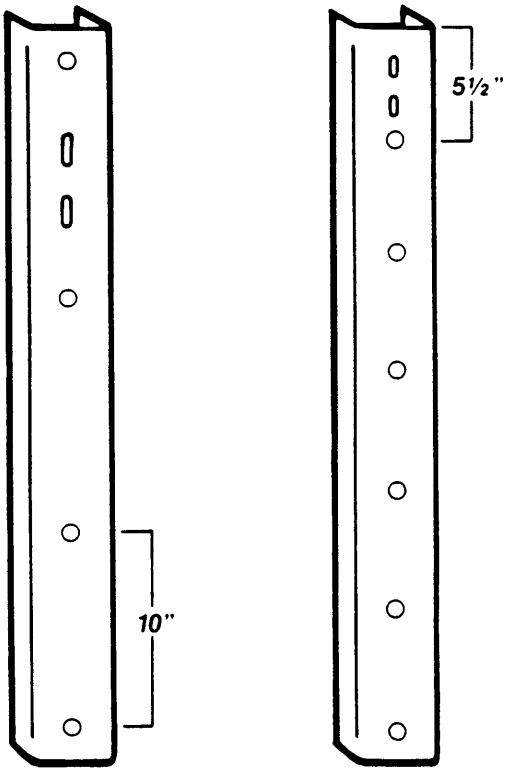


Figure 1.
Standards Provided with Z116A Wall-Mounting Kit

Installation

1. Determine the wall type for mounting the standards: plywood, sheetrock, or masonry.
2. Find a spot on the wall where at least one of the stanards will be screwed into a stud and which meets the positioning and environmental requirements stated in the *Installation Guide: Models 1030 and 3070.*
3. Determine whether your standards have four holes or six holes.

NOTE: For the 4-hole standards, the two holes spaced 10 inches apart must be at the **bottom** of the standard. For the 6-hole standards, the hole that is 1 inch from the end of the standard must be at the **bottom.**

4. Align a standard straight down the center of one of the wood slats. Using a 3/16" drill bit, drill a hole through the wood slat at the top hole of the standard.

NOTE: Drill all four holes for the 4-hole standards. For the 6-hole standards, drill the top hole, the third hole, and the fifth and six holes. (See Figure 2).

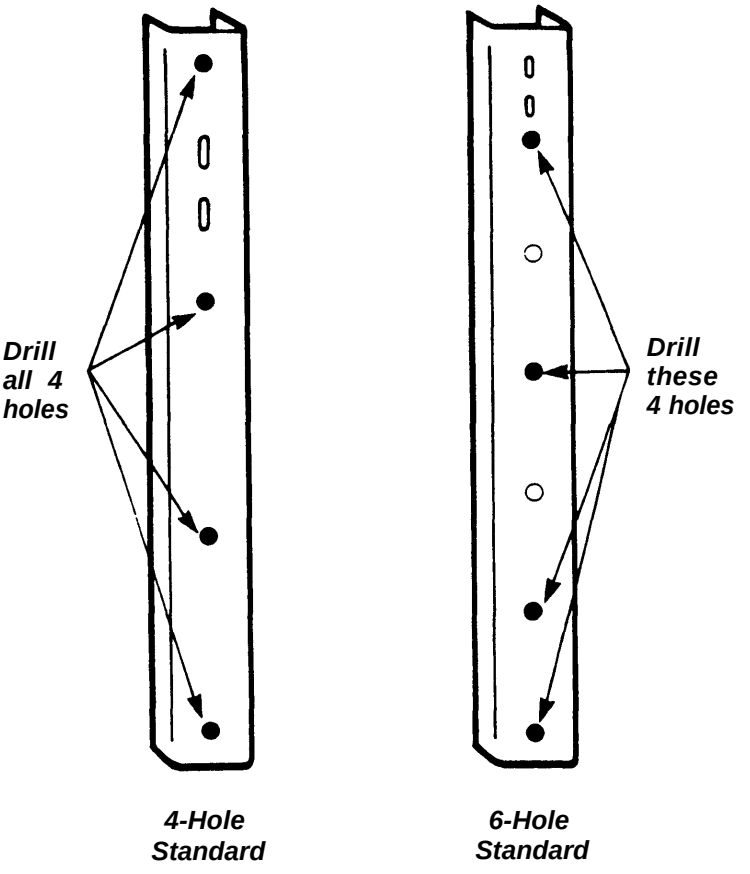


Figure 2.
Holes to be Drilled in Standards

5. Insert the top screw to help keep all the holes aligned and drill the remaining holes.
6. Align the slat on the wall so that the bottom screw hole is located 3½ feet from the floor.
7. Using one of the screws as a center punch, place it in each of the holes and tap it lightly with a hammer to mark the wall.
8. Measure 15 inches center-to-center for the second standard.
9. Repeat steps 4 through 8 for the second standard.

10a. If you are mounting the standards on a **plywood** wall, use a 1/8" drill bit to drill all eight holes. Align the slats and standards and secure to the wall with the screws.

b. If you are mounting the standards on a **sheetrock** wall, use a ½" drill bit to drill all eight holes. Insert a toggle bolt through each of the holes of one standard and slat and thread a wing nut onto the ends of the bolts. Fold the wings of the nuts together and push the bolts through the holes in the wall until the wings spring open. Pull the slat and the standard back toward you to hold the nuts against the inside wall; tighten the bolts. Repeat this procedure with the other slat and standard (Figure 3).

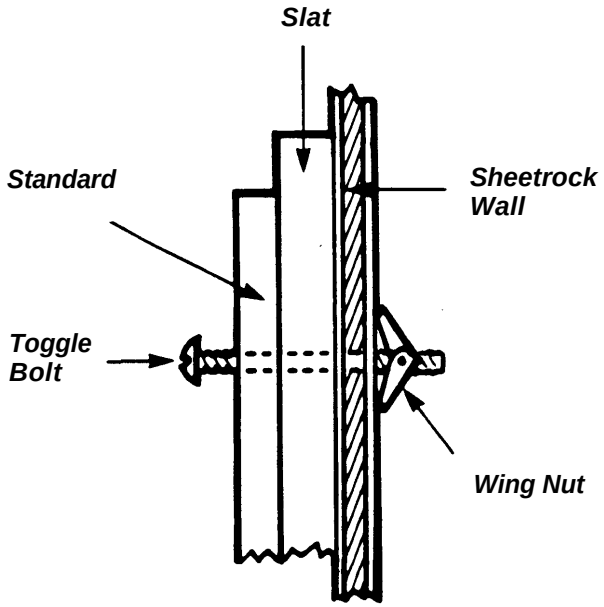


Figure 3.
Mounting the Standards on a Sheetrock Wall

c. If you are mounting the standards on a **masonry** wall, use the ¼" masonry drill bit provided with the kit to drill all eight holes 1½" deep. Insert one of the plastic anchor plugs into each of the holes and tap them lightly with a hammer until the flange at the end of the plug is flush with the surface of the wall. Align the slats and standards and secure them with the screws (Figure 4).

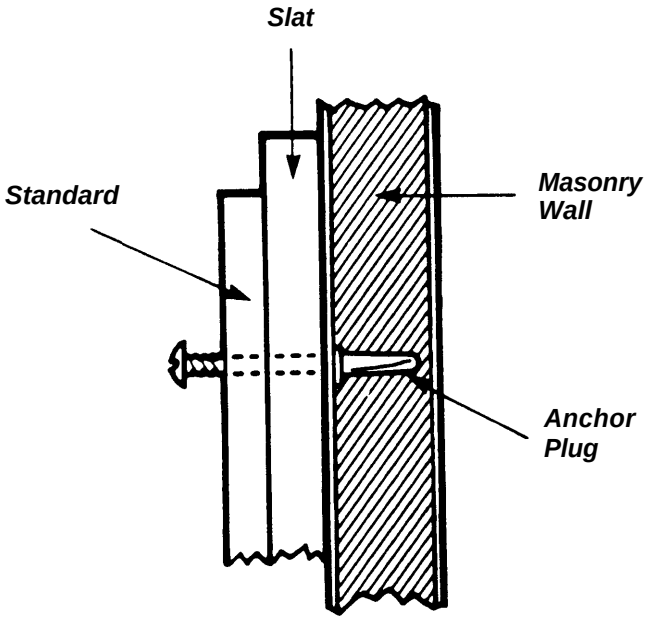


Figure 4.
Mounting the Standards on a Masonry Wall

11. Install the shelf rests onto the end of the brackets:

    - For the 4-hole standards, insert the four rubber cushions into the holes on the shelf rests. Align the holes on the bottom of a shelf rest with the hole at the end of a bracket and attach the shelf rest with one of the small self-tapping screws (Figure 5). Repeat with the other shelf rest.
    - For the 6-hole standards, the rubber cushions are already in place. Insert the small rectangular tab on a shelf rest into the hole on the end of a bracket. Turn the shelf rest in a clockwise direction until the clip on the bottom of the shelf rest latches onto the sides of the bracket (Figure 5). Repeat with the the other shelf rest.

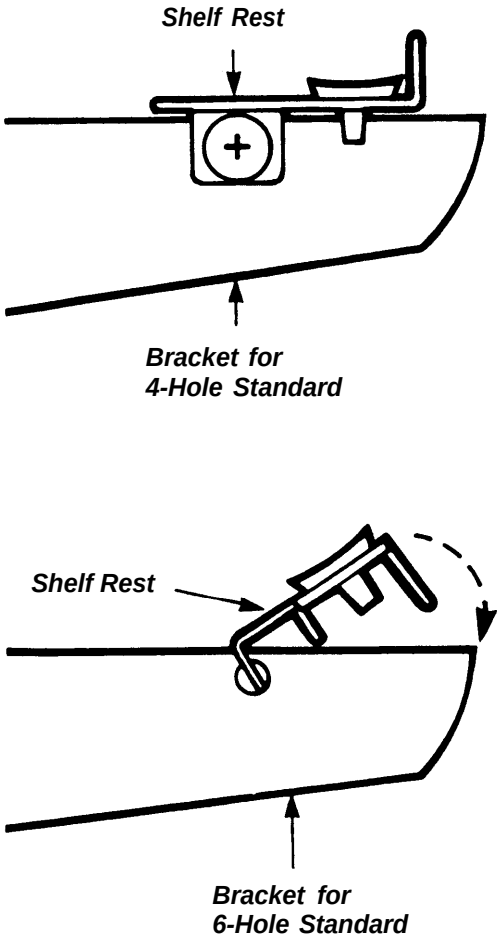


Figure 5.
Attaching a Shelf Rest to a Bracket

12. Insert the metal tabs on the end of the brackets into the slots in the standards so that when the control unit is set on them, it will be approximately 4 feet from the floor. Tap down lightly on the brackets with a hammer until the tabs are locked firmly into place.

Mounting the Control Unit

1. Remove the Power Module from the control unit cabinet, by pressing down firmly on the latch at the base of the module until it releases. Slowly slide the module out of its slot in the control unit.
2. Remove the rightmost faceplate from the cabinet by pressing down on the rib at the top of the faceplate with the tip of a screwdriver and pulling out on the faceplate (Figure 6).

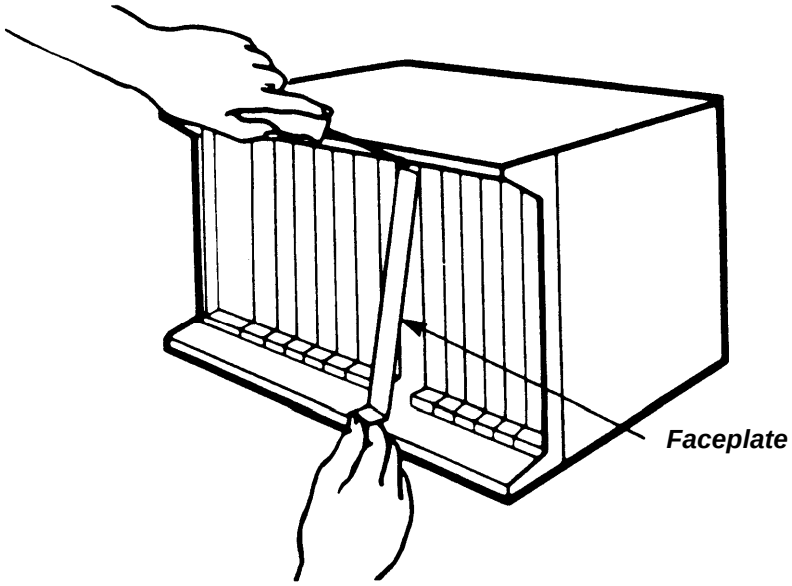


Figure 6.
Removing Faceplate from Control Unit

3. Set the control unit cabinet on the brackets so that the metal front stiffener rests on the rubber cushions (Figure 7).

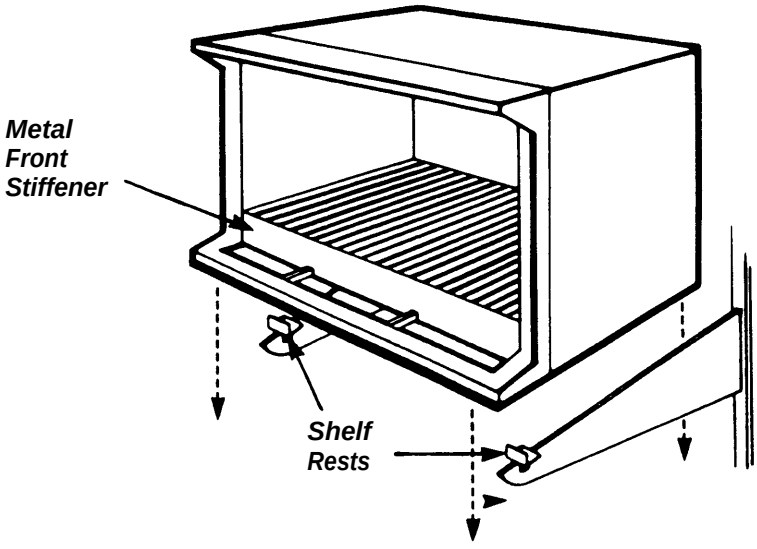


Figure 7.
Mounting the Control Unit on the Brackets

4. Insert a cable tie around each bracket and the second plastic rib in from each side of the control unit cabinet. Slide the tips of the cable ties through the loops at the other end. Pull on the tips to tighten the cable ties, anchoring the cabinet into place (Figure 8).

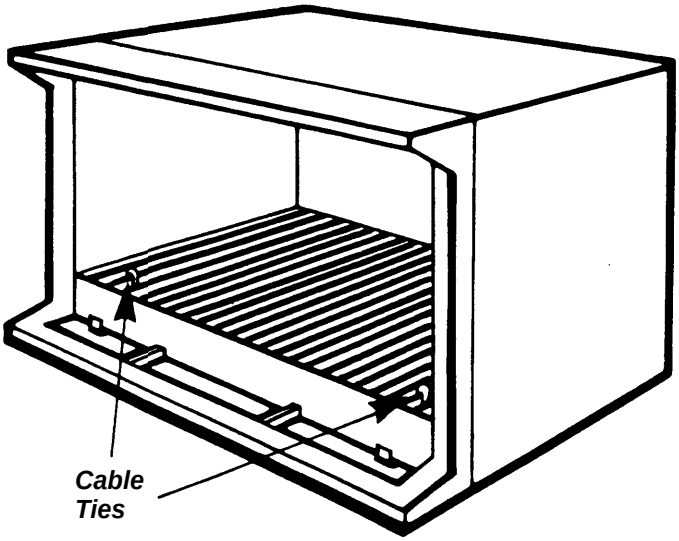


Figure 8.
Attaching Cable Ties to the Control Unit

CAUTION: Once the control unit has been mounted and secured, do not lean on it or use it as a shelf.

AT&T
Information Systems

Issue 1

CIB 3032
(Z7308 H01B) ATTENDANT CONSOLE (3162)

CIB 3032
(Z7308 H01B) Attendant Console (3162)

The attendant console (Figure 1) is a console for a large communications system. Up to 30 outside lines and 70 voice terminals may be accessed by this attendant console.

Assembling Your Attendant Console

1. Unpack the attendant console. The console has the following components:

   - attendant console body
   - handset, with handset cord attached
   - modular voice terminal cord
   - adapter plate
   - desk stand
   - power supply kit, which includes:
     - voice terminal power supply
     - power supply cord
     - Z400F adapter

   See Figure 1 to identify these components.

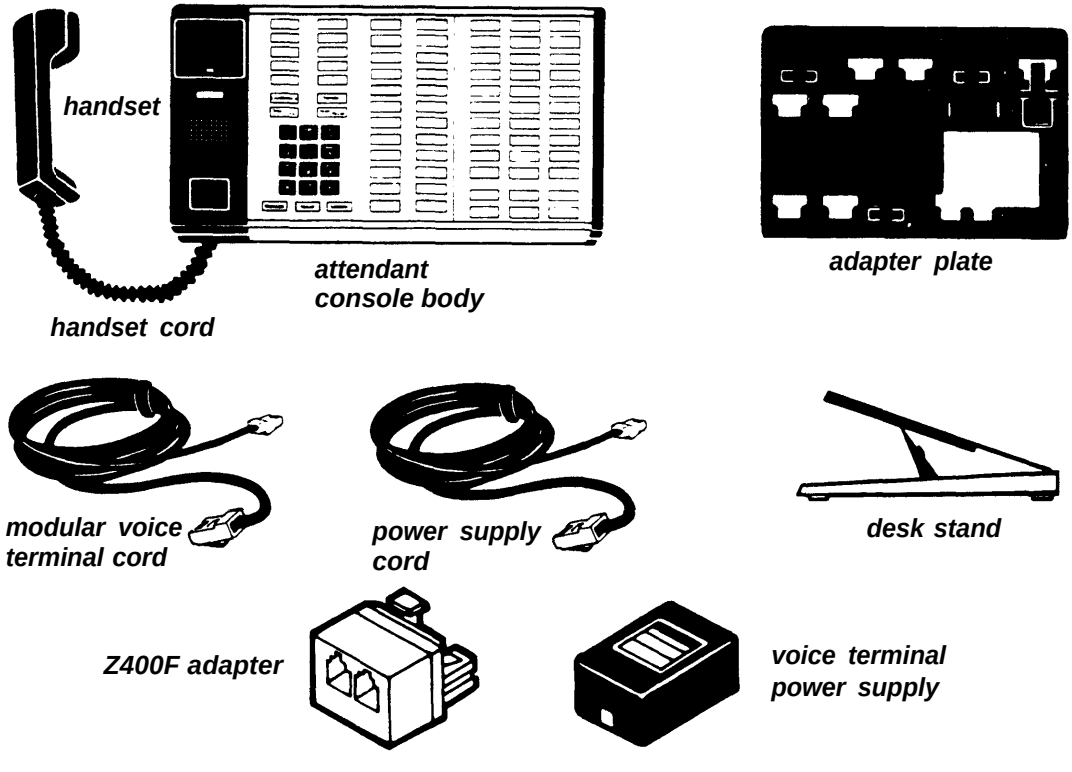


Figure 1.
Attendant Console Components

Attaching Adapter Plate

1. Turn the attendant console over.
2. Attach the adapter plate to the bottom of the console by sliding the adapter plate's mounting slots under the attendant console's mounting tabs (see Figure 2). Make sure the largest opening on the adapter plate is over the area for the "OTHER" and "LINE" jacks.

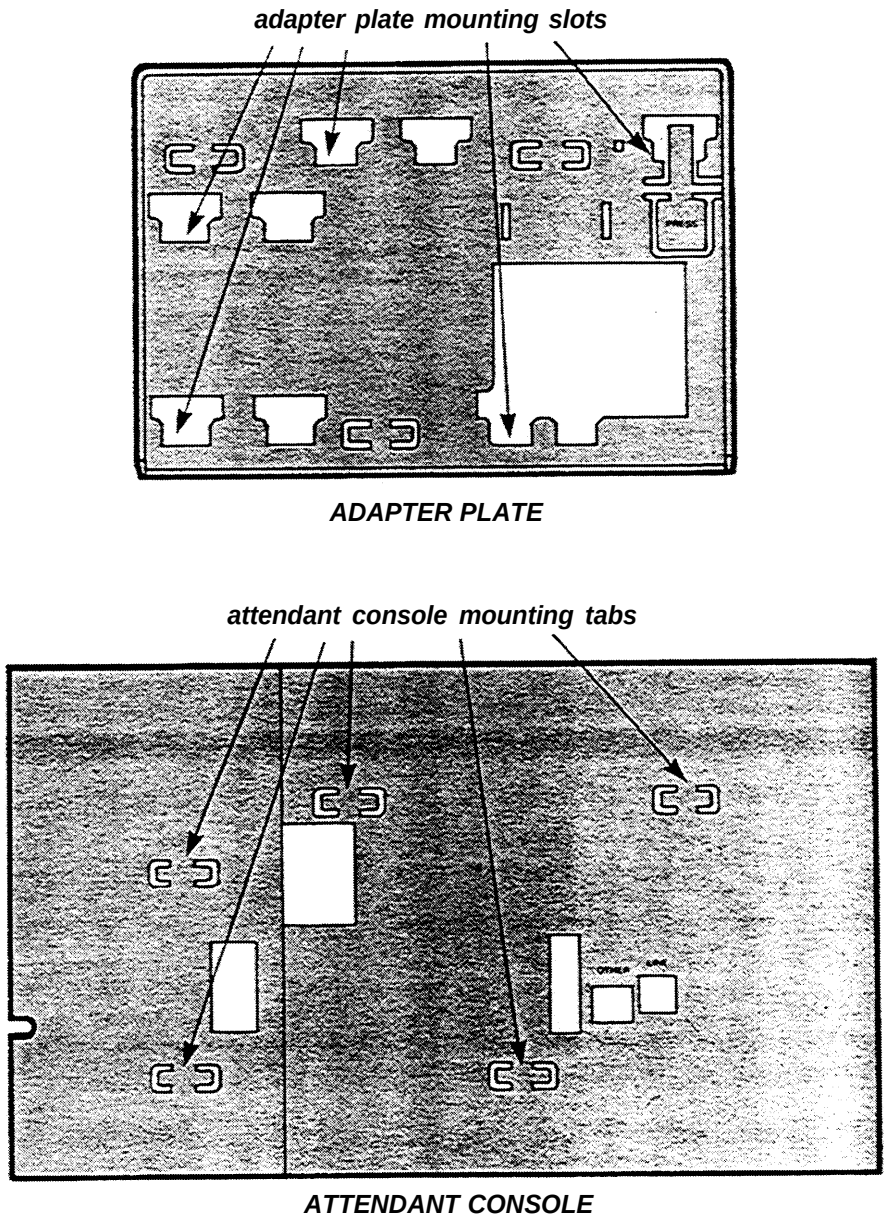


Figure 2.
Mounting Tabs and Slots

NOTE: To remove the adapter plate press the tab marked "PRESS" and, keeping the tab pressed, slide the adapter plate down until the attendant console's mounting tabs are dislodged from the adapter plate's mounting slots.

Mounting Your Attendant Console

1. Check to see that your desk stand is adjusted to the lowest position. The support bar (see Figure 3) should be in the groove for the lowest position (see Figure 4). If it is not in the lowest position, adjust it now by following the instructions in the next section, “Adjusting the Desk Stand”.

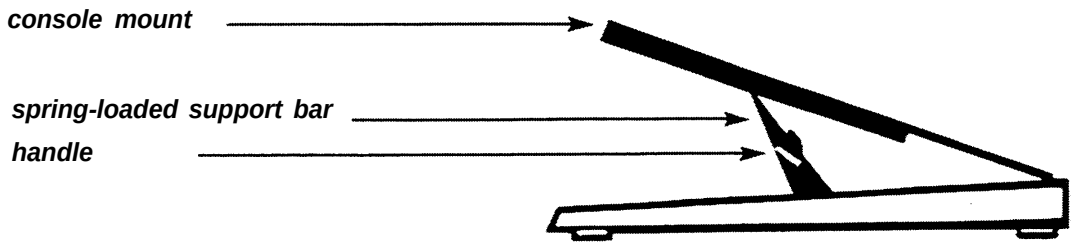


Figure 3.
Desk Stand

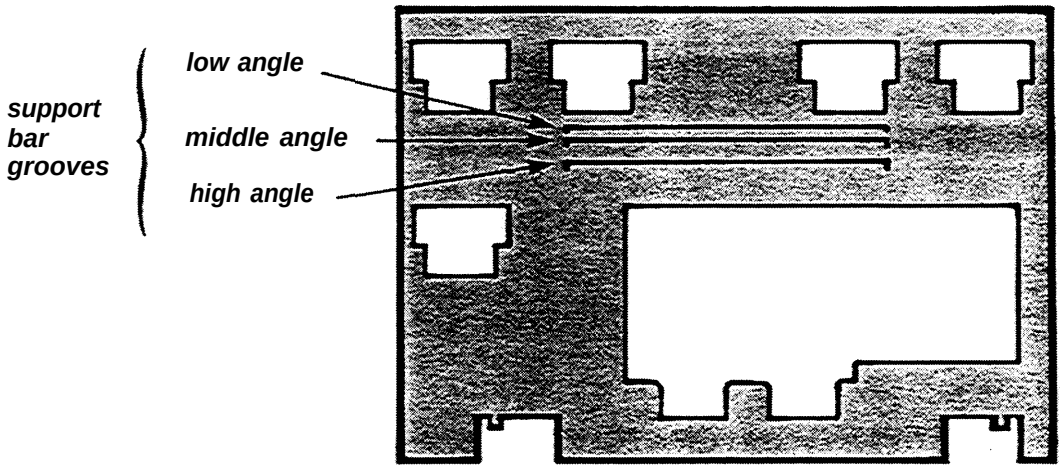


Figure 4.
Console Mount
(Bottom View)

2. Position the top of the desk stand on the bottom of the attendant console so that the mounting tabs on the adapter plate (see Figure 5) fit into the “A” mounting slots on the stand (see Figure 6).

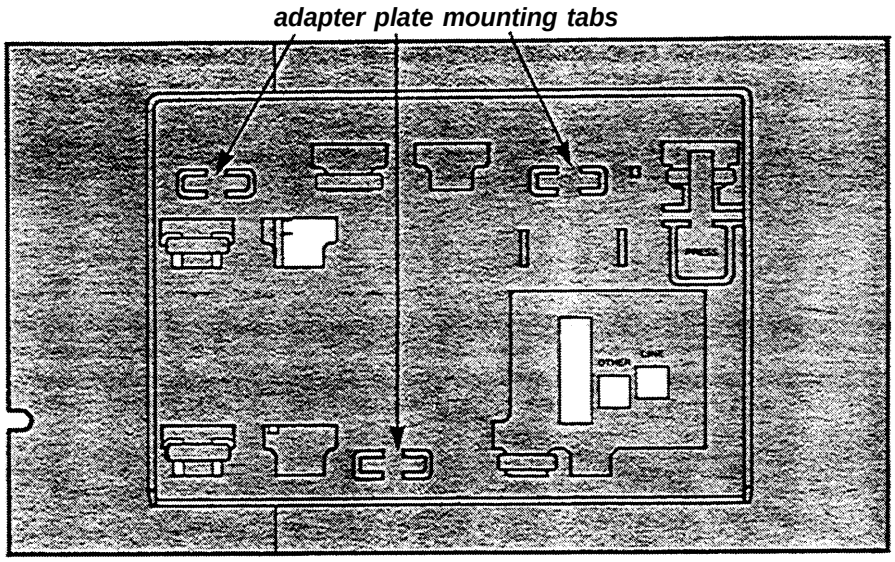


Figure 5.
Attendant Console with Adapter Plate
(Bottom View)

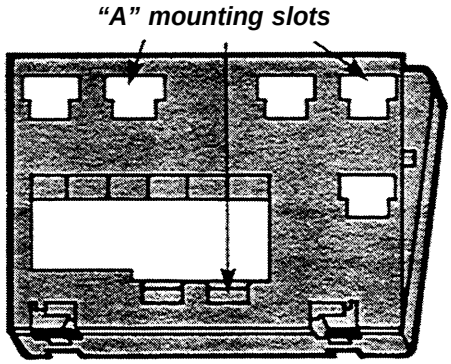


Figure 6.
Desk Stand Mounting Slots

3. Gently slide the stand upward so that the mounting tabs on the adapter plate fit firmly into the smaller part of the three mounting slots on the desk stand.

NOTE: To remove the desk stand from the console, slide the desk stand down until the adapter plate's mounting tabs are dislodged from the desk stand's mounting slots.

Adjusting the Desk Stand

1. Grasp the handle on the spring-loaded support bar (see Figure 3).
2. Lift the console mount slightly (see Figure 3).
3. Put the bar underneath the groove for the appropriate position (see Figure 4).
4. Lower the console mount and let the support bar slide into the groove.

Attaching Cords to Console Body

1. Check to see that one end of the handset cord is attached to the handset. If it is not attached, plug one end into the handset now.
2. Plug the other end of the handset cord into the jack on the bottom right corner of the console (see Figure 7).

WARNING: Do not plug the handset cord into the jacks labeled “LINE” or “OTHER”.

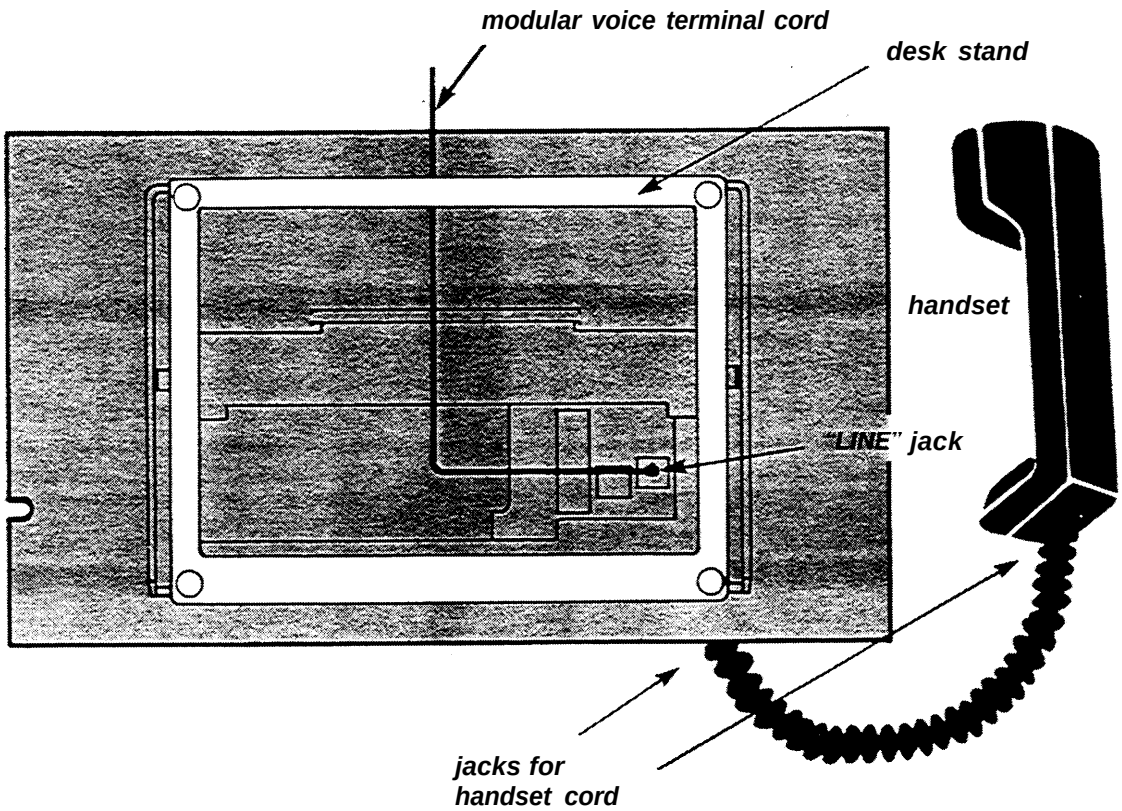


Figure 7.
Attaching Cords to Console Body

3. Place one end of the modular voice terminal cord (marked D8W on its jack) under the desk stand’s support bar and over the base of the desk stand (see Figure 7). Plug it into the “LINE” jack on the bottom of the attendant console.

Attaching Voice Terminal Power Supply

1. Plug the modular voice terminal cord (marked D8W on its jack) into the voice terminal jack on the Z400F adapter (see Figure 8).

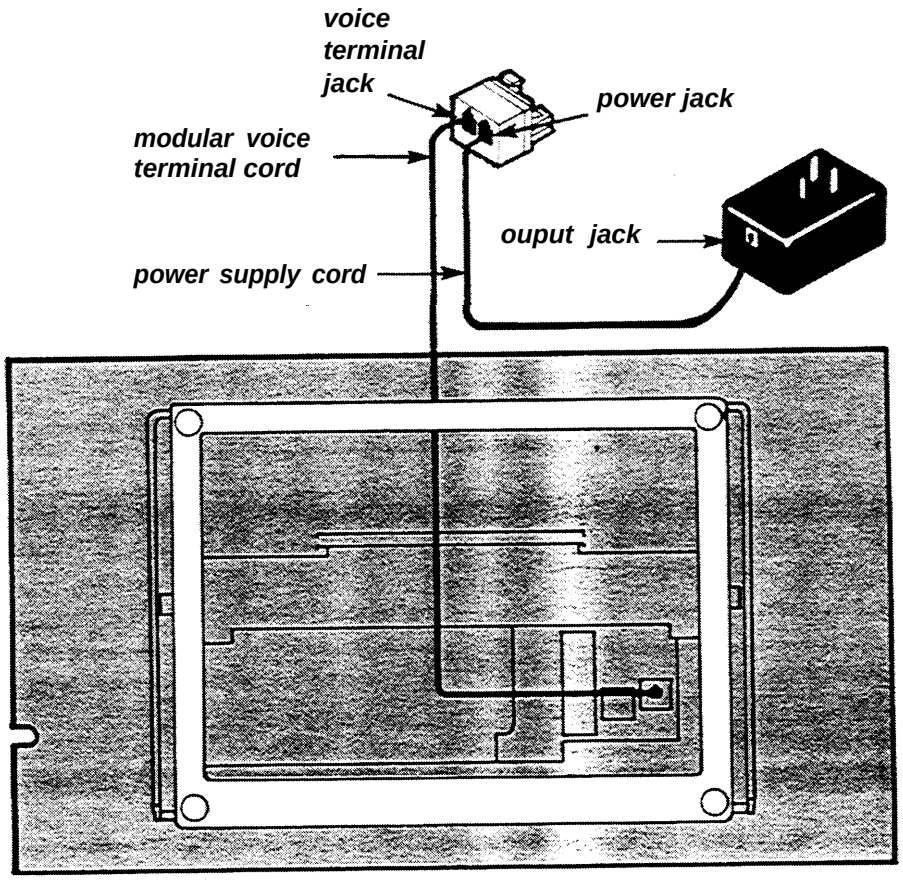


Figure 8.
Attaching Cords to Adapter

2. Plug one end of the power supply cord (marked D6AP on its jack) into the power jack on the Z400F adapter. Plug the other end into the output jack on the power supply (see Figure 8).
3. Plug the Z400F adapter into the building wiring connection (see Figure 9). This connection may be a modular terminal jack or a modular voice terminal extension cord (marked D8AF on its jack).

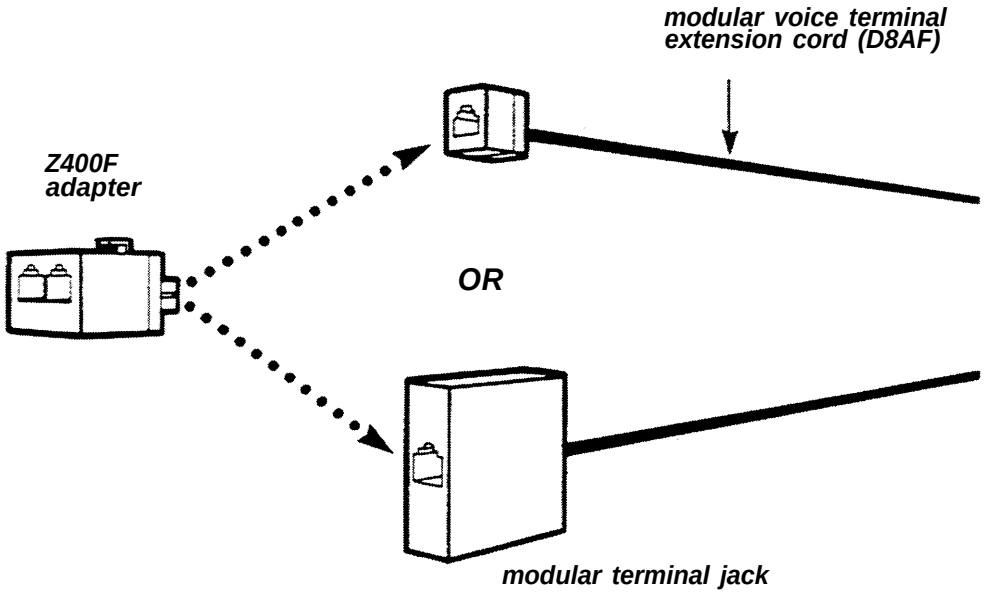


Figure 9.
Attaching Adapter to Building Wiring

4. Refer to the exploded view in Figure 10 to make sure all the components are installed correctly.

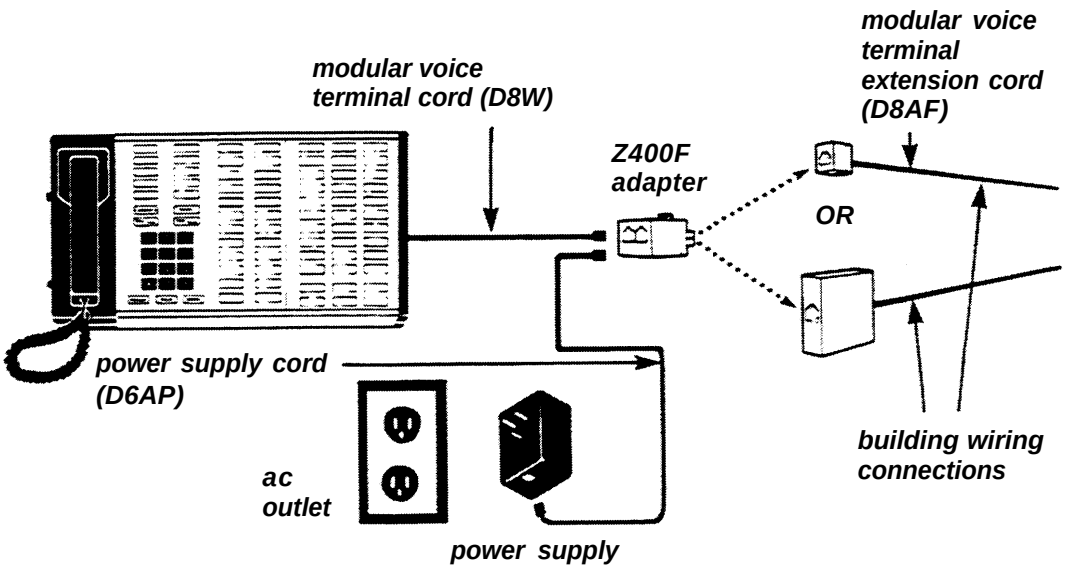


Figure 10.
Completed Power Supply Installation

5. Plug the power supply into a 117-volt ac outlet.

NOTE: The 117-volt ac outlet should not be controlled by a switch.

Testing Your Attendant Console

The test/program (T/P) switch on the left side of the attendant console (see Figure 11) can be used to test the lights and the ringer. It has three positions:

- T– test position
- center (dot)– normal operating position
- P– programming position.

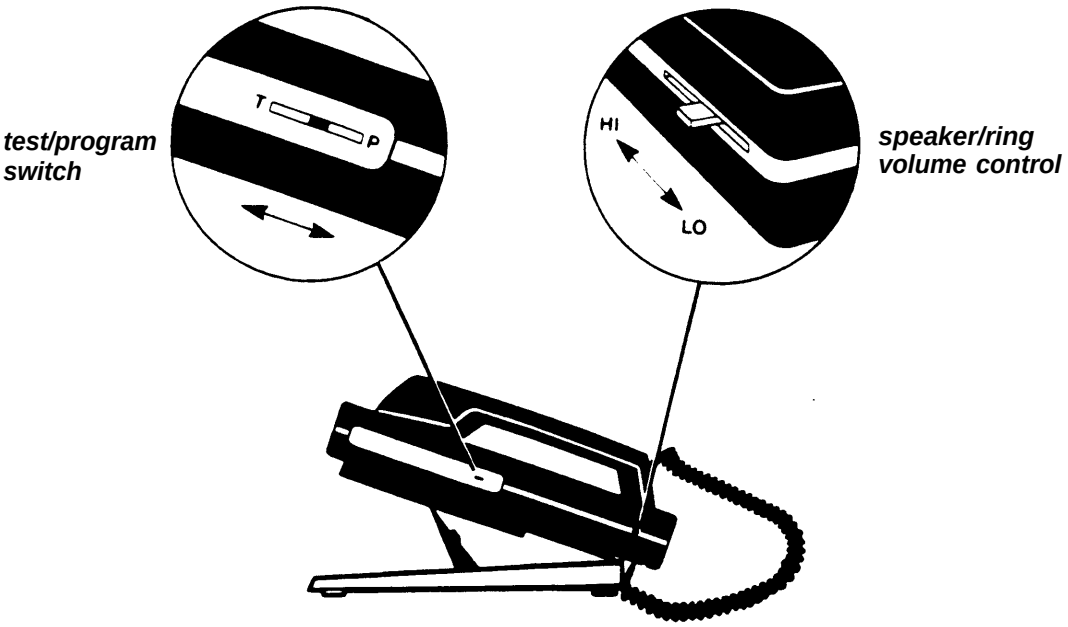


Figure 11.
T/P and Volume Control Switches

After connecting the attendant console to the system, test it by moving the switch to the T position. This tests the lights and the ringer. If the console is working properly the red and green lights will flash and the set will ring.

Setting Volume Control

The volume control switch, located on the left side of the attendant console (see Figure 11), changes the volume of the alerting rings, speaker, and button clicks.

- Sliding the switch away from you increases the volume.
- Sliding the switch towards you decreases the volume.

Inserting and Removing Labels

Inserting

1. Refer to Figure 12 to see which labels go with which columns.

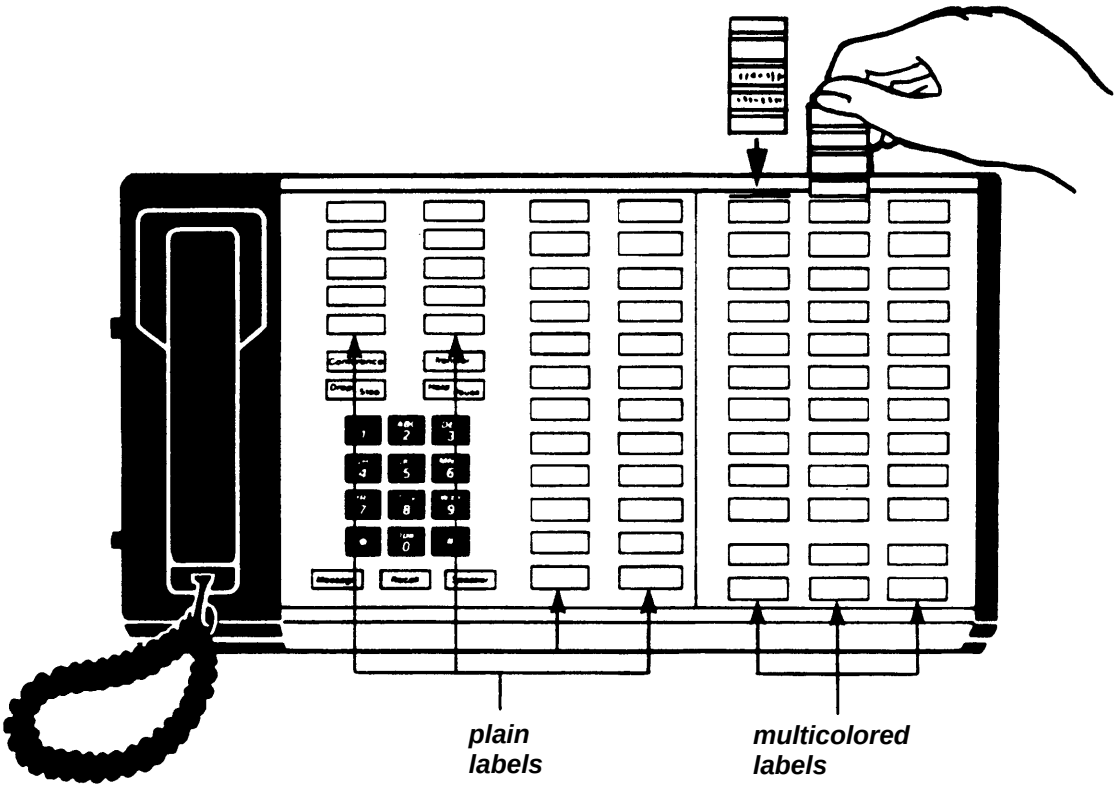


Figure 12.
Labels

2. Insert the bottom of the label into the label slot above each column of touch-sensitive buttons (see Figure 12).
3. Slide the label all the way into the slot until the appropriate box appears next to the proper button.

Removing

1. Grasp the silver tab above the touch-sensitive buttons and pull the label out of the label slot (see Figure 12).

Handsets for the Hearing Impaired and Noisy Locations

All 3162 attendant consoles come with a handset that is hearing-aid compatible. Two other types of handsets are also available.

The R6 impaired-hearing handset (PEC 31753) has an extra amplifier to provide greater volume in the earpiece. A thumbwheel volume control on the handset allows the volume to be turned up or down, as needed.

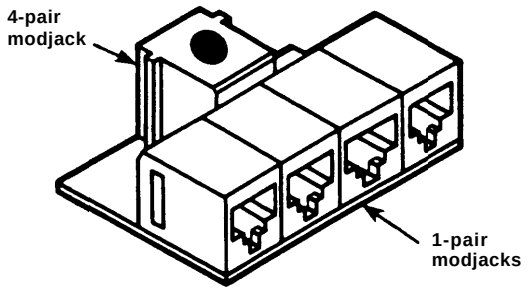
The R8 push-to-listen handset (PEC 31754) is for use in noisy locations. Like the impaired-hearing handset, the push-to-listen handset has an extra amplifier and a thumbwheel volume control. It also has a push-button on the handset that increases the volume in the earpiece and mutes background noise transmitted through the mouthpiece.

CIB 3038

Z609A 4-WAY MODJACK ADAPTER

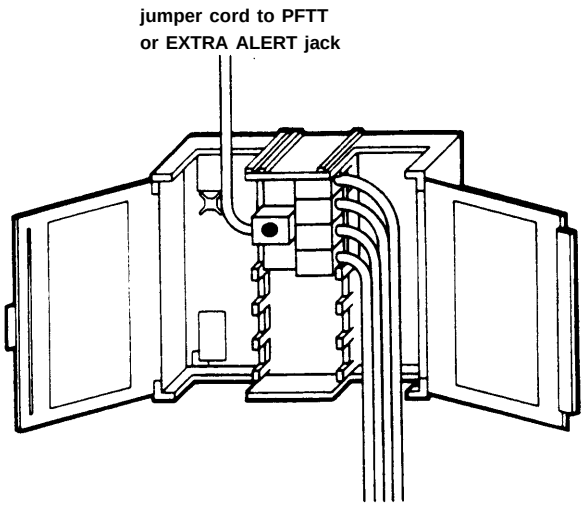
Description

The 4-Way Modjack Adapter consists of one 4-pair modjack and four 1-pair modjacks attached to a printed circuit board.



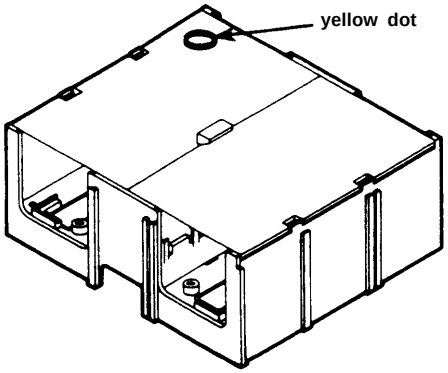
4-Way Modjack Adapter

The adapter fits into a jack panel box as shown below. Wiring runs for four power failure transfer telephones (PFTTs) or four extra alerts can be connected to the four 1-pair modjacks. One end of a jumper cord is connected to the 4-pair modjack. The other end of the jumper cord is connected to the PFTT or EXTRA ALERT jack in the Feature Cartridge or Feature Module in the control unit.

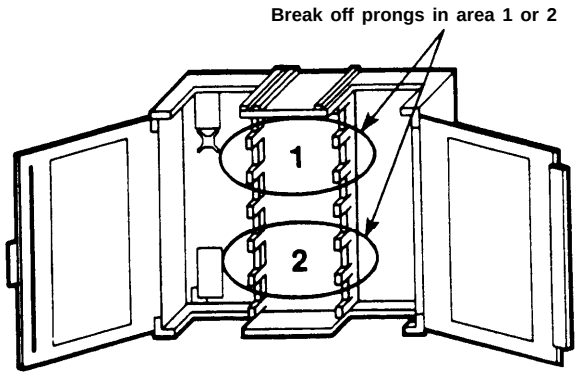


Installation Instructions

1. In the jackfield, find a jack panel box with a yellow dot (for auxiliary equipment adapters).

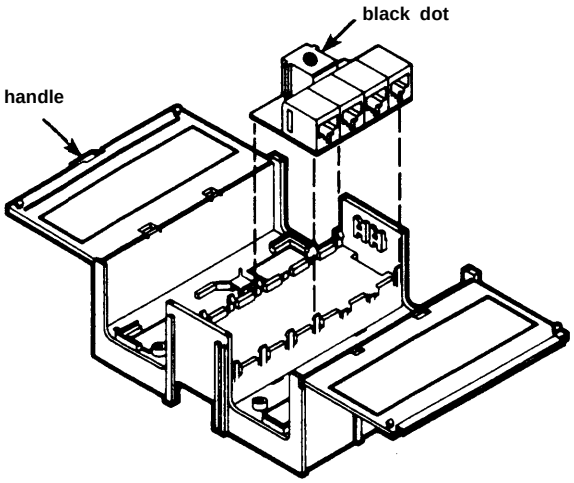


2. The 4-Way Modjack Adapter requires three jack retainer positions in the jack panel box. To make room, remove the second and third pairs of retainer prongs from the top *or* bottom of the box. With your fingers or pliers, bend the prongs back and forth until they break.



Continued on other side

3. Snap in the adapter so the black dot is on the side with the door handle.



4. Connect wiring to the adapter according to the instructions in *CIB 3006: Wiring Installation Instructions.*

Instructions For
Z609A 4-Way Modjack Adapter

CIB 3038
ISSUE 1

CIB 3039
(Z185A1) FEATURE MODULE 1

CIB 3039
(Z185A1) Feature Module 1

When installed in the appropriate slot (color-coded orange on the control unit label) in a Model 1030 control unit, Feature Module 1 allows access to all programs for the system's features. Install this module in the slot labeled 3 on the control unit. The (6800-type) microprocessor in the Processor Module (installed in the slot labeled 2 and color-coded violet on the control unit label) runs the programs stored in Feature Module 1. Labels on the Feature Module indicate the functions of the corresponding switches on the Processor Module in the slot labeled 2. (See Figure 1.)

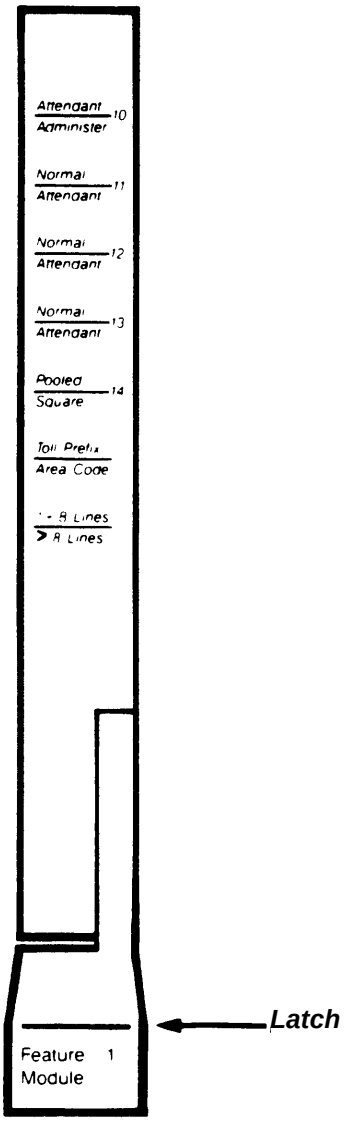


Figure 1.
Feature Module 1

Installation

1. Remove the front panel from the control unit.
2. Locate the slot labeled 3 on the control unit.
3. Unlatch and remove the protective cover from the slot before installing the module.
4. Align the module in the slot (Figure 2), making sure the edges of the circuit board are in the top and bottom grooves of the slot.

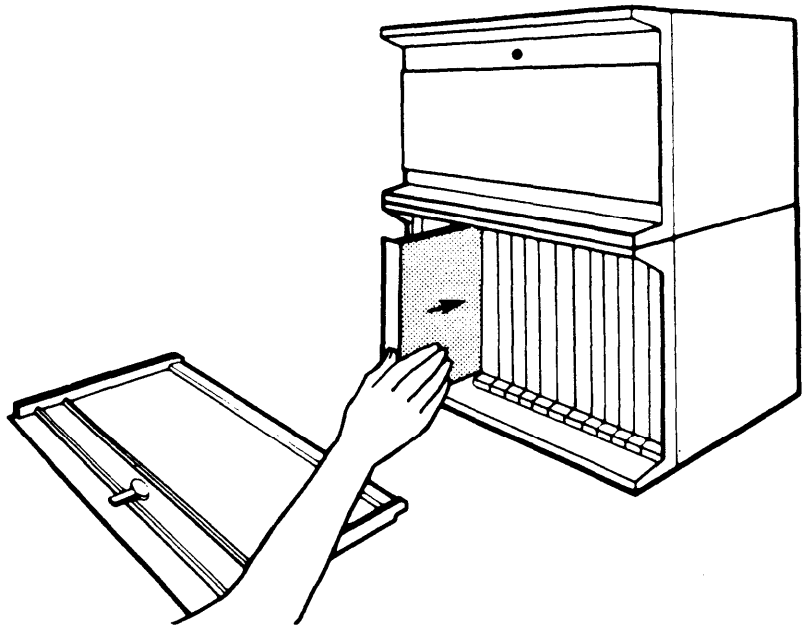


Figure 2.
Installing the Module (Typical)

5. Slide the module into the slot until the latch at the bottom of the module catches at the base of the slot. With one hand, press firmly on the front of the module while using the other hand to snap the latch into place.

NOTE: If you have any difficulties, remove Feature Module 1 and check the connectors on the back of the module and at the back of the slot. Check for bent pins or other damage that could prevent the connectors from matching properly.

Removal

To remove the module from the control unit, press down firmly on the latch at the base of the module until it releases. Slowly slide the module out of its slot in the control unit.

CIB 3040
(Z183C1) 5-BASIC TELEPHONE MODULE (61312)

CIB 3040
(Z183C1) 5-Basic Telephone Module (61312)

The 5-Basic Telephone Module (Figure 1) permits the connection of standard Touch-Tone telephones to your Model 1030 control unit or Model 1030 Expansion Unit. To use this module, you must connect a ring generator to the Power Module to provide current to the telephone ringers. By using dial codes with your basic Touch-Tone telephones, you have access to the advanced features of the system. (See the *User's Guide for Basic Touch-Tone or Rotary Telephones.)* Basic telephones connected to this module should be used only in a *pooled* environment and all lines administered to these phones should be of the same type, such as all regular telephone lines or all WATS lines. These phones will ring for intercom calls and calls on personal lines; calls that come in on pooled lines are answered first by the attendant and then transferred to the basic telephone These telephones can be administered in the same way as voice terminals, although no programming can be done. (See the *Administration Manual: Models 1030 and 3070 with Feature Module 1.)*

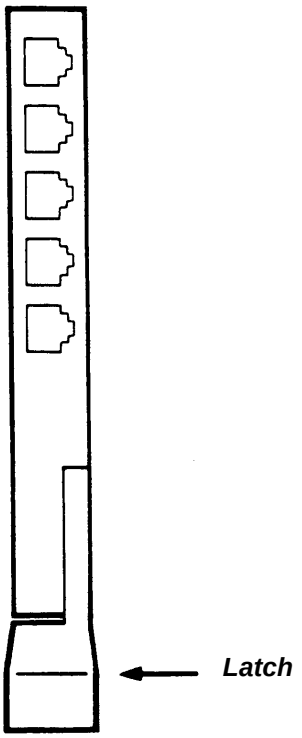


Figure 1.
5-Basic Telephone Module

Installation

This module can be mounted in slots labeled 10 or 11 in the control unit or slots labeled 21, 22, 23, or 24 in the Expansion Unit. The slot labeled 9 in the control unit must be equipped with a Voice Terminal Module. (If you use the slot labeled 24, you will also need an additional power supply.)

1. Remove the front panel of the control unit or Expansion Unit.
2. Set the power switches on the control unit and the Expansion Unit to *OFF.*

WARNING: **DO NOT INSERT MODULES IN THE CONTROL UNIT OR EXPANSION UNIT WHEN THEY ARE RECEIVING AC POWER.**

3. Locate the leftmost unoccupied slot (color-coded blue on the unit label) in the control unit or Expansion Unit.
4. Remove the protective cover from the slot by pressing down on the rib at its top with the tip of a screwdriver and pulling out on the cover (Figure 2).

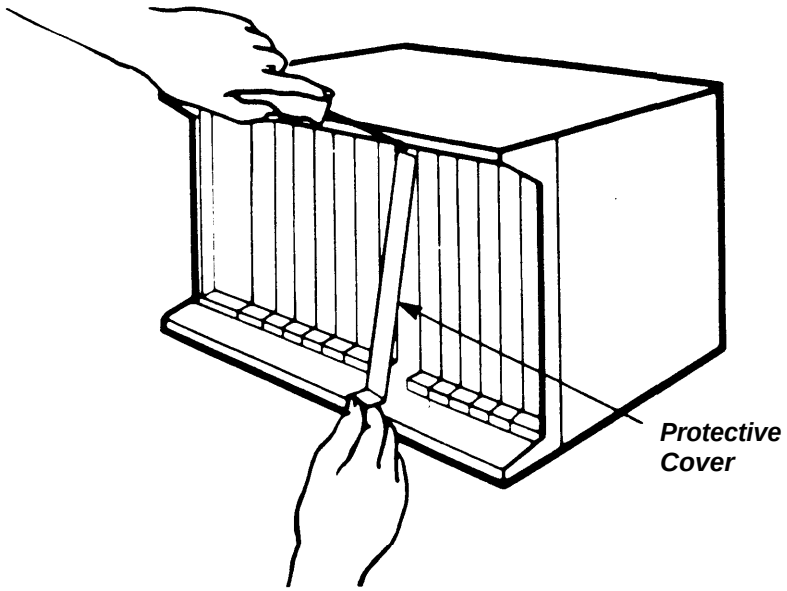


Figure 2.
Removing the Protective Cover

5. Align the module in the slot (Figure 3), making sure the edges of the circuit board are in the top and bottom grooves of the slot.

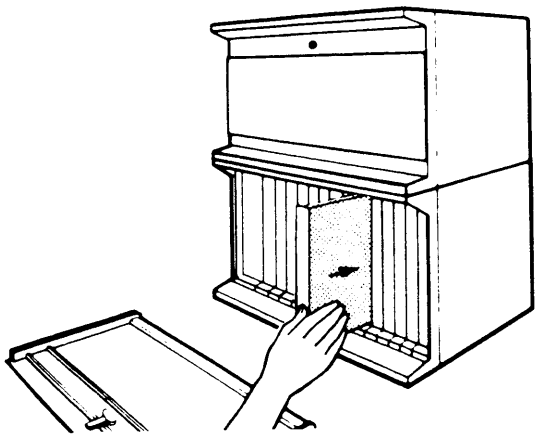


Figure 3.
Installing the Module (Typical)

6. Slide the module into the slot until the latch at the bottom of the module catches at the base of the slot. With one hand, press firmly at the front of the module while using the other hand to snap the latch into place.

7. The five front panel jacks accept 4-pair modular cords, which are used to connect the jacks on the module with the appropriate jacks in the jack field. System wiring is used between the jack field and the telephones. Refer to the *Installation Guide: Models 1030 and 3070* for details.

To connect basic telephones to the module once it has been installed, refer to the *Installation Guide: Models 1030 and 3070.*

NOTE: If you have any difficulties, remove the 5-Basic Telephone Module and check the connectors at the back of the module and at the back of the slot. Check for bent pins or other damage that prevents the connectors from matching properly. If you find any damaged pins, contact your equipment supplier.

Removal

1. To remove the module from the control unit or Expansion Unit, disconnect modular cords from the 5-Basic Telephone Module and press down firmly on the latch at the base of the module until it releases. Slowly slide the module out of its slot in the unit.

AT&T
Information Systems

Issue 1

CIB 3041
(Z186A) PROCESSOR MODULE

CIB 3041
(Z186A) Processor Module

When you receive your Model 1030 control unit, the Processor Module will already be installed in the slot labeled 2 and color-coded violet on the control unit label. The Processor Module allows access to the microprocessor that runs all the programs stored in the Feature Module(s) of your system. Titles on the Feature Module in the slot labeled 3 (color-coded orange on the control unit label) indicate the functions of the corresponding switches on the Processor Module. (Instructions for setting the switches on the Processor Module are included in the *Administration Manual: Models 1030 and 3070* that you received with your system.) The red **Warning** light near the bottom of the Processor Module will come on whenever there is a problem while the system is running. (See Figure 1.)

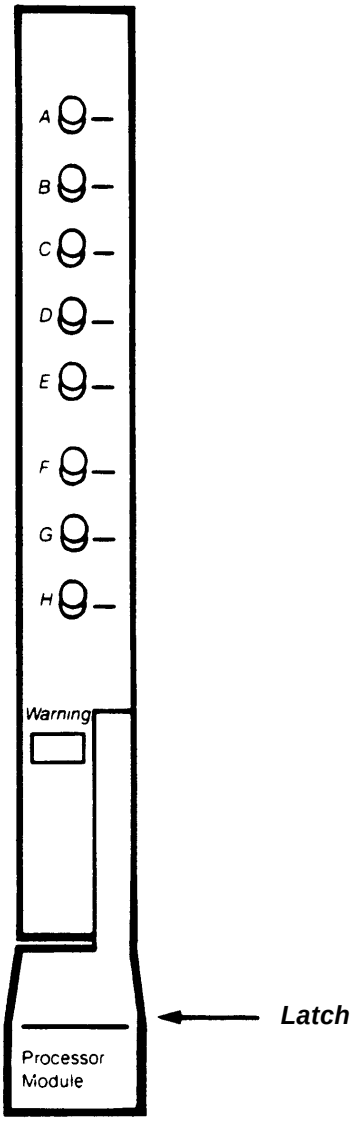


Figure 1.
Processor Module

Removal

1. Remove the front panel from the control unit.
2. Locate the slot labeled 2 on the control unit.
3. Remove the old Processor Module from the control unit by pressing down firmly on the latch at the base of the module until it releases. Slowly slide the module out of its slot in the control unit.

Installation

1. Align the new module in the slot color-coded violet and labeled 2 in the control unit (Figure 2), making sure the edges of the circuit board are in the top and bottom grooves of the slot.

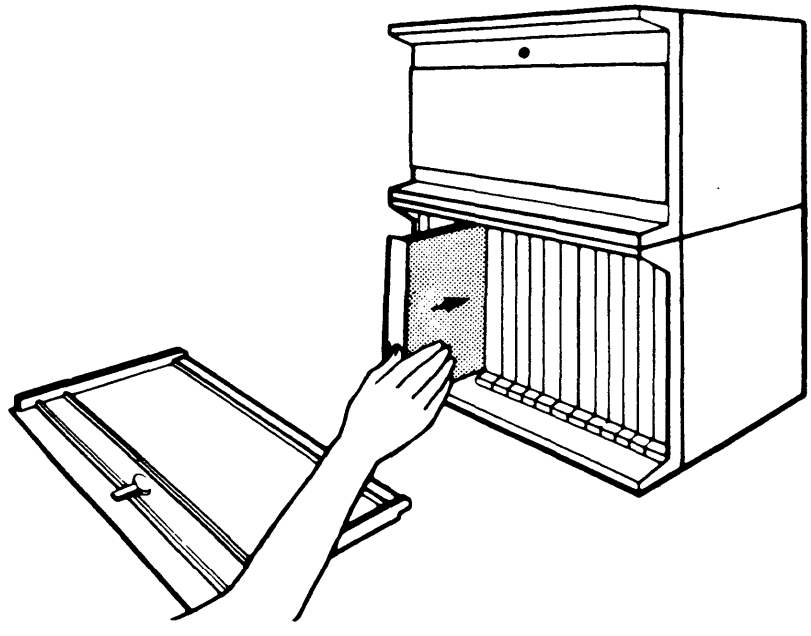


Figure 2.
Installing the Module

2. Slide the module into the slot until the latch at the bottom of the module catches at the base of the slot. With one hand, press firmly on the front of the module while using the other hand to snap the latch into place.

NOTE: If you have any difficulties, remove the Processor Module and check the connectors on the back of the module and at the back of the slot. Check for bent pins or other damage that prevents the connectors from matching properly. If you find any bent or broken pins, contact your equipment supplier.

CIB 3042
(Z200A1) 2-LINE/5-VOICE TERMINAL MODULE
FOR MODEL 820 (61219)

CIB 3042
(Z200A1) 2-Line/5-Voice Terminal Module for Model 820 (61219)

When installed in the appropriate slot in the Model 820 control unit, the 2-Line/5-Voice Terminal Module allows you to connect two outside lines and five voice terminals to your system. This module is packaged with your control unit and comes with two 7-foot line cords and a (287C) 2-Line Adapter. (See Figure 1.)

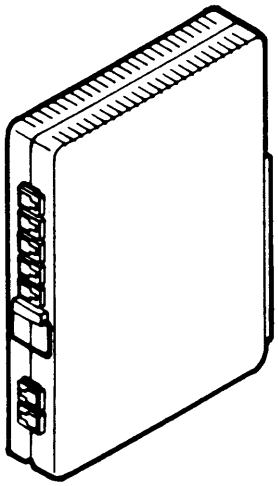


Figure 1.
2-Line/5-Voice Terminal Module

Installation

1. Open and remove the control unit door (Figure 2).

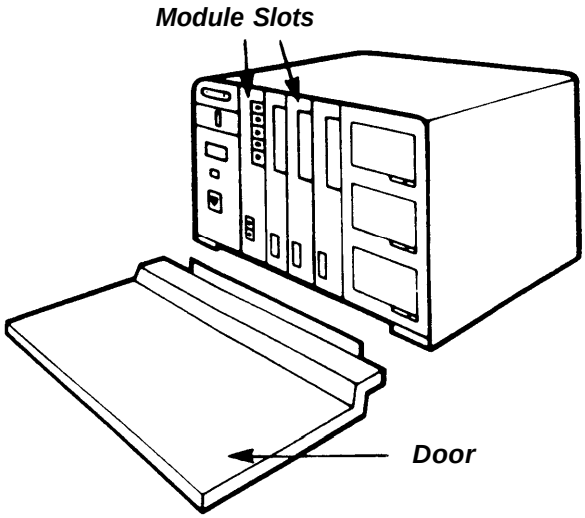


Figure 2.
Removing the Control Unit Door

WARNING: DO NOT INSERT THIS MODULE INTO THE CONTROL UNIT WITH THE AC POWER ON.

2. Turn the control unit power **off.** If you have an auxiliary power supply, unplug the auxiliary power cord from the control unit before inserting the 2-Line/5-Voice Terminal Module (Figure 3).

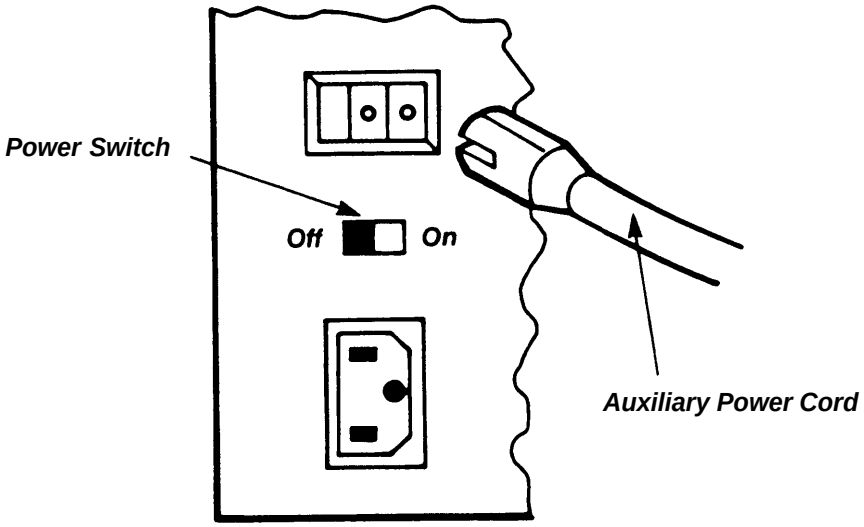


Figure 3.
Removing the Auxiliary Power Cord

3. Locate the leftmost available module slot.
4. Grasp the handle on the faceplate of the module slot and pull it open (Figure 4). Do not remove the faceplate.

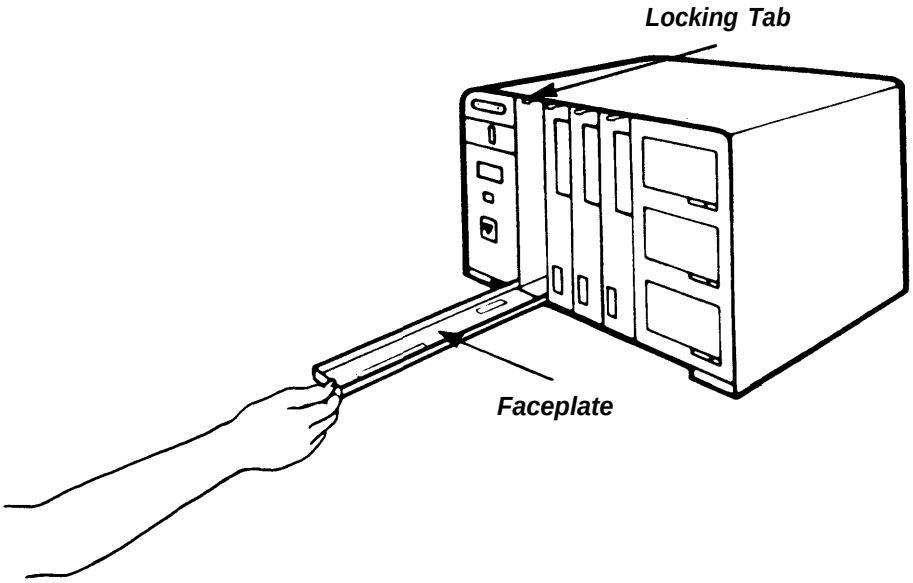


Figure 4.
Opening the Faceplate

5. Slide the 2-Line/5-Voice Terminal Module slowly into the slot until it is properly seated (Figure 5).

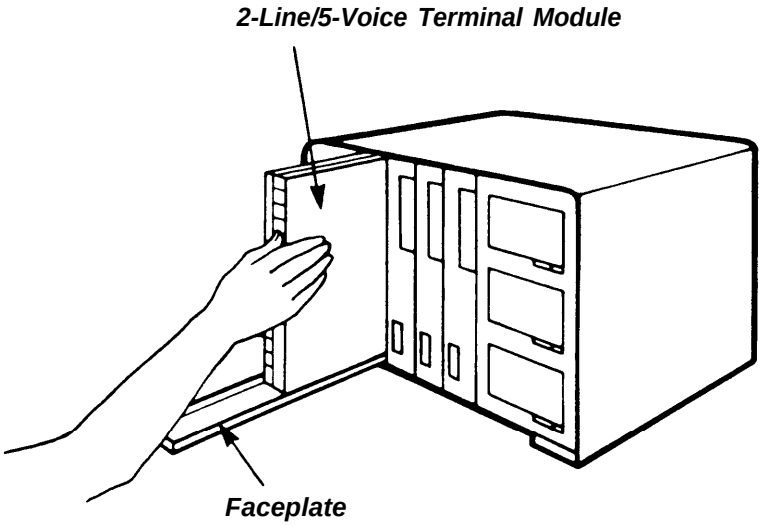


Figure 5.
Inserting the Module

6. Close the faceplate.
7. Install the two 7-foot line cords and the 3-1/2 foot terminal cords supplied with the control unit. Arrange the cords underneath the control unit.
8. Reconnect the auxiliary power cord to the control unit and turn the control unit power **on.**

NOTE: When you supply AC power, the red *WARNING* light on the control unit should come on momentarily and then go off. The green light should come on and stay on.

9. Reinstall the control unit door.

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Issue 1

Index

NOTE: Pages within the individual trouble sections are numbered in an unusual way to make this manual easy to update. In page number A1-4, for instance, the A indicates the section—"A. Trouble on One Telephone." The 1 indicates the first trouble category within that section—Ringing. The 4 indicates the fourth page of ringing symptoms.

Refer to the letters and numbers on the tab dividers for help in finding page numbers listed in the index.

A

C

CIBs *(listed in numerical order behind CIBs tab divider)*

2852: (7302 H01) 5-Button Voice Terminal (3160)

2853: (7303 H01) 10-Button Voice Terminal (3116)

2854: (10A) 5- and 10-Button Voice Terminal Fixed Desk Stand (32004)

2855: (11A) 10-Button Voice Terminal Adjustable Desk Stand

2856: (201A) 10-Button Voice Terminal Wall Mount (32001)

2858: (103A Connecting Block) Customer-Installable Jack (32601)

2859: (742D) Connecting Block

2860: (700A8) Modular Plug

2861: (451A) Modular Extension Adapter

2863: (267C) 2-Line Adapter (64100)

2864: (S102A) Hands-Free Unit (3163)

2865: (7305 H01) 34-Button Voice Terminal (3162)

2866: (335A) Auxiliary Power Unit (3165)

2867: (502A) Headset Adapter (3164)

2885: (14A) 5-Button Voice Terminal Fixed Desk Stand and Wall Mount (32000)

2886: (11C) 34-Button Voice Terminal Adjustable Desk Stand

2887: (203A) 34-Button Voice Terminal Wall Mount (32006)

2888: (267A2) Line Bridging Adapter Kit (61401)

2893: Extra-Alert Control Switch (452A-50)

2903: (349A) Acoustic Coupler Adapter

2924: (D181233) Line-Powered Extra Alert Ringer and Parts

3000: 34-Button Deluxe Voice Terminal

3006: Wiring Installation Instructions

3007: Adjunct Power Supply for 34 Button-Deluxe Voice Terminal (D181282) (32811)

3009: (Z187A) Off-Premises Telephone Interface (3173)

3013: (183A) 10-Voice Terminal Module for Models 1030 and 3070 (61310)

3014: (184A) 5-Line Module for Models 1030 and 3070 (61305)

3015: (Z1A) Automatic Multipurpose Adapter (2301-ATR)

3016: (183B) Services Module for Models 1030 and 3070 (61320)

3017: Models 1030 and 3070 Control Unit Installation Kit

3018: Diagnostics Module for Models 1030 and 3070 *(included under Diagnostics Module tab divider)*

3019: (Z129A) Ring Generator Unit (61351)

3021: (510C) Model 1030 Expansion Unit (61301)

3026: (ZH802A) Attendant Intercom Selector Kit (31642)

3028: (601A) Power Module for Model 3070

D

E

M

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P

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V