COMDIAL

ExecuTech

XE Key System

System Manual

This publication is applicable for the following common equipment:

MODEL	MANUFACTURING CODE
NO308	REV J and later
N0308-AT	REV J and later
NO61 6	REV J and later
NO61 6-AT	REV J and later
NO820	REV M and later
N0820-AT	REV M and later
N1024	REV M and later
N **1024-AT**	REV M and later

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CHAPTER 1
SYSTEM DESCRIPTION

SECTION 1
INTRODUCTION

MANUAL SCOPE

This publication contains a complete description of the ExecuTech model XE electronic key system. The manual is divided into:

- System Description
- Feature Description
- Installation
- System Programming
- System Operation
- Maintenance

This issue of publication IMI 66-064 supersedes all previous issues and includes information previously discussed in the following Technical Advisory Bulletins:

TAB036A - Software Enhancements

N0308 Revision C and later
N0616 Revision C and later
N0820 Revision D and later
N1024 Revision D and later

- Automatic dialing with DSS/BLF consoles
- OHVA and DSS/BLF with DB32S-xx adjunct feature module
- OHVA signalling enhancements
- Unscreened call transfer
- Extended DTMF tones
- Idle line preference through an OPX port
- Auto-save feature

TAB047 - Programming Clarifications

All models, all revisions

- Expanded explanation of line assignment and button mapping

TAB048A- Software Enhancements

N0308 Revision H and later
N0616 Revision H and later
N0820 Revision K and later
N1024 Revision K and later

- System speed dial toll restriction override
- SOHVA groups

TAB059A-Software Enhancement

N0308	REV J and later	Software Issue 8
N0308-AT	REV J and later	Software Issue 8
N0616	REV J and later	Software Issue 8
N0616-AT	REV J and later	Software Issue 8
N0820	REV M and later	Software Issue 11
N0820-AT	REV M and later	Software Issue 11
N1024	REV M and later	Software Issue 11
N1024-AT	REV M and later	Software Issue 11
K0308	REV J and later	Software Issue 8
K0616	REV J and later	Software Issue 8
K0820	REV M and later	Software Issue 11
K1024	REV M and later	Software Issue 11

Product codes for software upgrade kits:
PSUXE-1 REV 8
NO308, N0308-AT, NO616, N0616-AT, K0308, K0616
PSUXE-2 REV 11
NO820, N0820-AT, N1024, N1024-AT, K0820, K1024

- Programmable Feed-Back Tone

RELATED PUBLICATIONS

Related publications, which contain additional information applicable to this electronic key system, are available from the manufacturer.

They are as follows:

GENERAL INFORMATION

- IMI 01-001 Compliance Requirements To FCC Rules and Regulations Part 68 and 15
- IMI 01-005 Handling Of Electrostatically Sensitive Components

USER INFORMATION

- GCA 70-110 Attendant Guide
- GCA 70-111 Station User Guide

INSTALLER INFORMATION

- IMI 66-065 Class Of Service Programming Chart

SECTION 2
SYSTEM SPECIFICATIONS

SPECIFICATION	MODEL NUMBER			
SYSTEM CAPACITY	N0308	N0616	N0820	N1024
LINES:	3	6	8	10
STATIONS:	8	16	20	24
DSS/BLF CONSOLES:	4	8	10	12
INTERCOM PATHS:	1	3	3	2
MAXIMUM SIMULTANEOUS INTERCOM CONVERSATIONS:	1	3	3	2
POWER REQUIREMENTS (Fully loaded system)				
AC POWER:	117V +/- 10 % Singlephase - all models			
	.4 A	.5 A	.8 A	.8A
	25 W	45 W	65 W	65W
	40 VA	60 VA	80 VA	80VA
DIMENSIONS (approximate)				
COMMON EQUIPMENT:				
WIDTH (inches):	10.4	13.1	15.6	15.6
HEIGHT(inches):	14.9	19.4	21.1	21.1
DEPTH (inches):	3.0	3.0	3.0	3.0
WEIGHT (pounds):	9.0	14.0	16.5	17.0
STATIONS:				
FOOTPRINT (inches):	6.5 x 8.5			
WEIGHT (pounds):	1.9			
STATION CABLE REQUIREMENTS				
TYPE:	Twisted, non-shielded, #24AWG			
MAXIMUM LENGTH:	1500 feet for multiline stations			
SWITCHING PRINCIPLE:	Solid-state, space-division analog switching with stored program control			
OPERATING ENVIRONMENT				
TEMPERATURE:	32-122 degrees F (0-50 degrees C)			
HUMIDITY:	90 percent relative, non-condensing			
TERMINATIONS				
LINE:	Standard, 6-conductor minijack (USOC RJ14C)			
STATION:	Standard 50-pin female connectors for connection to external distribution field on models N0616, N0820, and N1024.			
	Standard 6-conductor minijack (USOCRJ14C) for model N0308.			

MUSIC INTERFACE

INPUT LEVEL:	3 Volts peak-to-peak maximum
INPUT IMPEDANCE:	Approximately 500 Ohms
CONNECTOR:	RCA phono jack

CENTRAL OFFICE LIMITS

LOOP LIMITS:	1900 Ohms maximum loop
CABLE INSULATION LEAKAGE:	15000 Ohms minimum

INDUSTRY/REGULATORY STANDARDS:

FCC Certified, part 15 (Class A)
FCC registered (fully protected)
UL listed (power supply only)
EIA RS478
Bell publication 48002 guidance
Hearing aid compatible handset

MEMORY RETENTION AFTER POWER LOSS: 30 hours minimum (typically 200 hours)

FCC REGISTRATION NUMBER: CVW7WC-12829-KF-E

RINGER EQUIVALANCE NUMBER: 0.4B

PRODUCT CODE:

Common Equipment

N0308	3-line, 8-station
N0616	6-line, 16-station
N0820	8-line, 20-station
N1024	10-line, 24-station

Telephones

6702X	2-line monitor
6706X	6-line monitor
6714X	14-line monitor with SOHVA

Optional Telephones

6614E	10 x 14 monitor with SOHVA (Rev. D and later)
6614T	10 x 14 speaker with SOHVA (Rev C and later)
6620E	5 x 20 monitor with SOHVA (Rev D and later)
6620T	5 x 20 speaker with SOHVA (Rev I and later)

Consoles

EB32X	32-button console
DB32S	32-button console with call announce speaker

LCD Conversion

PCCXE	Conversion kit
6600E	LCD speakerphone with SOHVA (Rev B and later)

Software Upgrade Kit

PSUXE-1	N0308 and N0616
PSUXE-2	N0820 and N1024

SECTION 3
GENERAL INFORMATION

CONFIGURATION

The model XE electronic key telephone system consists of an electronic Key Service Unit (KSU), also referred to as common equipment, dedicated electronic key telephones, and interconnecting wiring consisting of small, 4- or 6-conductor, twisted-pair cable.

The station and line capacity of the various family members are per the following chart.

MODEL NO.	CO/PBX CAPACITY	STATION CAPACITY
N0308	3	8
N0616	6	16
N0820	8	20
N1024	10	24

The model XE telephone system is full featured, and supports a specially designed group of key telephones (model 67xxx-xx series) described below. In addition, it also supports the following ExecuTech multiline telephone models 6614E, 6614T, 6620E, 6620T, 6414 and 6414S. (If a model 6414S-xx is used, a moderate volume setting may be required to avoid the possibility of a squeal being sounded through the station speaker during call announce and/or background music operations.)

An optional kit supplied clock/chip socket assembly can be added to allow the model XE system to support the operation of a model 6600S or 6600E ExecuTech LCD speakerphone in addition to the telephones mentioned above. The product code for this LCD upgrade kit is PCCXE. This kit is available through normal distribution channels for field installation.

When this LCD upgrade kit is installed in an XE system, the model number designation is changed from Nxxxx to Kxxxx. The new model numbers become as follows: K0308, K0616, K0820 and K1024.

The LCD speakerphone will provide the following feature displays for the user's convenience:

- Time and Date
- Call Duration Time
- Do Not Disturb
- Line Identification When Chosen Followed By The Numbers Dialed
- Intercom Calling Party Identification
- Intercom Number Dialed
- Re-display Of Call Time Of Last Call When HOLD Key Is Pressed

A software upgrade kit is available for field installation. The EPROM chip supplied in this kit will revise the operating system software of the XE system to the latest factory issued level. The product code for the software upgrade kits are:

PSUXE-1 for N0308 and N0616
PSUXE-2 for N0820 and N1024

These kits are available through normal distribution channels.

COMMON EQUIPMENT DESCRIPTION

The common equipment is a fully electronic device. It is essentially a special purpose computer system acting as a communications controller between central office (CO), private branch exchange (PBX), or CENTREX supplied lines and the proprietary telephone stations. The software architecture of the common equipment provides complete system support and great flexibility of operation.

The common equipment is contained in a functional, modern-style metal housing of contemporary design in keeping with the needs of the modern office environment. It is engineered to be wall or rack mounted. The outline dimensions of the common equipment cabinet are illustrated in **Figure 1-1.**

STATION DESCRIPTION

The model 67xxx-xx telephone stations are electronic, microprocessor-controlled devices. They allow not only multiline pickup but also single button access to features available from the serving CO, PBX, or CENTREX switch as well as the common equipment. The outline dimensions of the system stations are illustrated in **Figure 1-2** and the images are illustrated in **Figure 1-3.**

The stations provide the following features:

- Full modular connection
- 4 fixed feature buttons with indicators
  - SPKR
  - MUTE
  - HOLD
  - ITCM
- 2 fixed feature buttons without indicators
  - TAP
  - TRANS/CONF
- Programmable buttons with and without indicators

- 7-foot, 6-conductor line cord
- 6 position, 4- or 6-conductor modular line jack
- K-type handset (hearing aid compatible)
- Ringer volume control (Off, Low, and High)
- Desk/wall reversibility

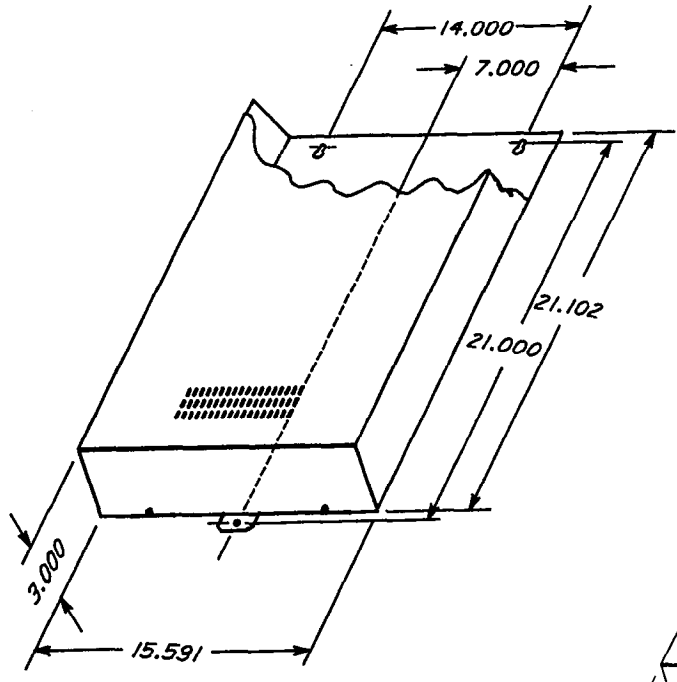
DSS/BLF CONSOLE DESCRIPTION

The DSS/BLF console is an optional device designed to be a companion to a system attendant station in high call volume situations that require a dedicated call transfer location. The console provides a direct station selection (DSS) intercom, and an associated busy lamp field (BLF). It also provides one-key access to all-call when that feature is available.

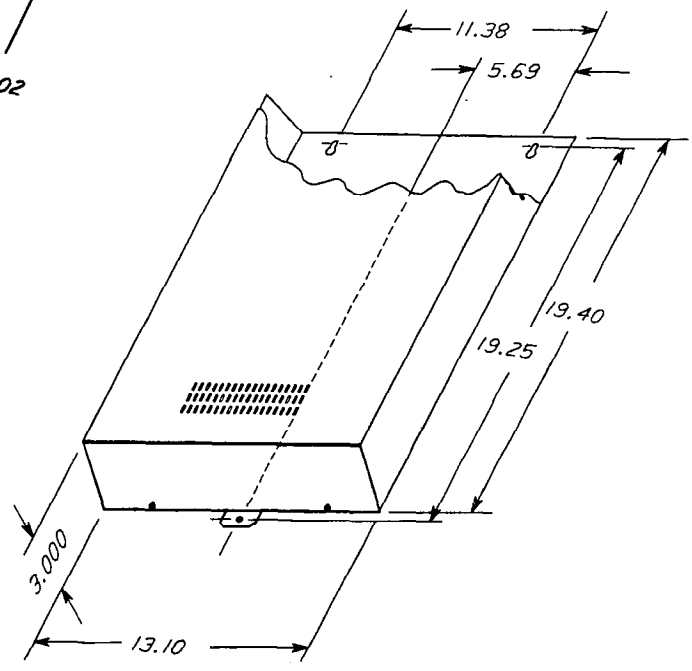
The console may also be installed at any station port to work in conjunction with a companion station connected to an adjacent paired port.

The model EB32X-xx, DB32-xx, DB32S-xx, DB40-xx and DB70-xx DSS/BLF consoles are all compatible with the XE system. The station port to which they are connected must be programmed as a DSS/BLF console port. The console buttons are fixed for DSS/BLF operation beginning with station 10 and ending with the maximum station number in the system. Theses buttons also provide autodial locations at a second level of storage (accessed with the HOLD button function). Additionally, any buttons, from beyond system station capacity through a maximum of 32, are available as autodial locations at the first level of storage. For example, a model N1024 key system and a EB32X-xx or DB32-xx console will fix the first 24 console buttons as DSS/BLF buttons, and provide the remaining eight buttons as autodial buttons. Plus, it will provide autodial locations at the second level of storage for the first 24 buttons. A total of 32 autodial storage locations are provided. For larger consoles, any buttons beyond a maximum of 32 will still be blanked. For this reason, it is recommended that the larger consoles (DB40 and DB70) not be used unless absolutely necessary since the XE system has a maximum station capacity of 24 stations thus leaving these consoles with a large quantity of blanked buttons.

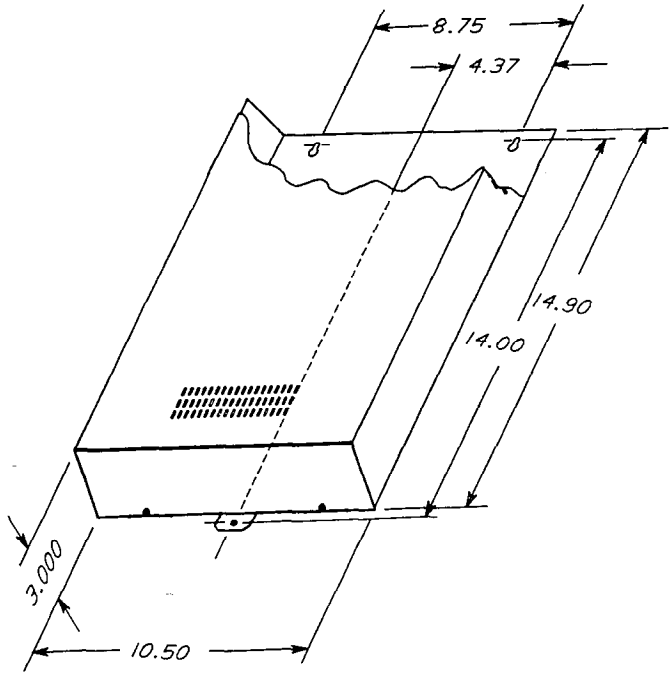
The DB32S-xx Adjunct Feature Module can be used to provide off-hook voice announce (OHVA) to a station already busy on a call and allow subsequent handsfree answerback (HFAB) by that station user. The DB32S-xx Module can also be used as a DSS/BLF console at the same time if desired. The station port to which the Adjunct Feature Module is connected must be programmed for the feature that is required. When both DSS/BLF and OHVA operation are required, the station port to which the console is connected must be programmed as an Off-Hook Call Announce port. When only DSS/BLF operation is required, program the port as a DSS/BLF Console port.



Models N0820 and N1024

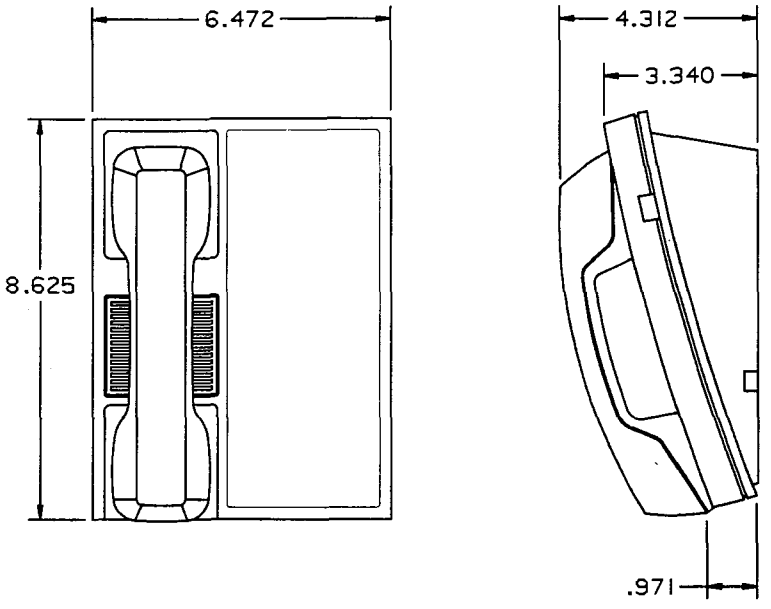


Model N0616

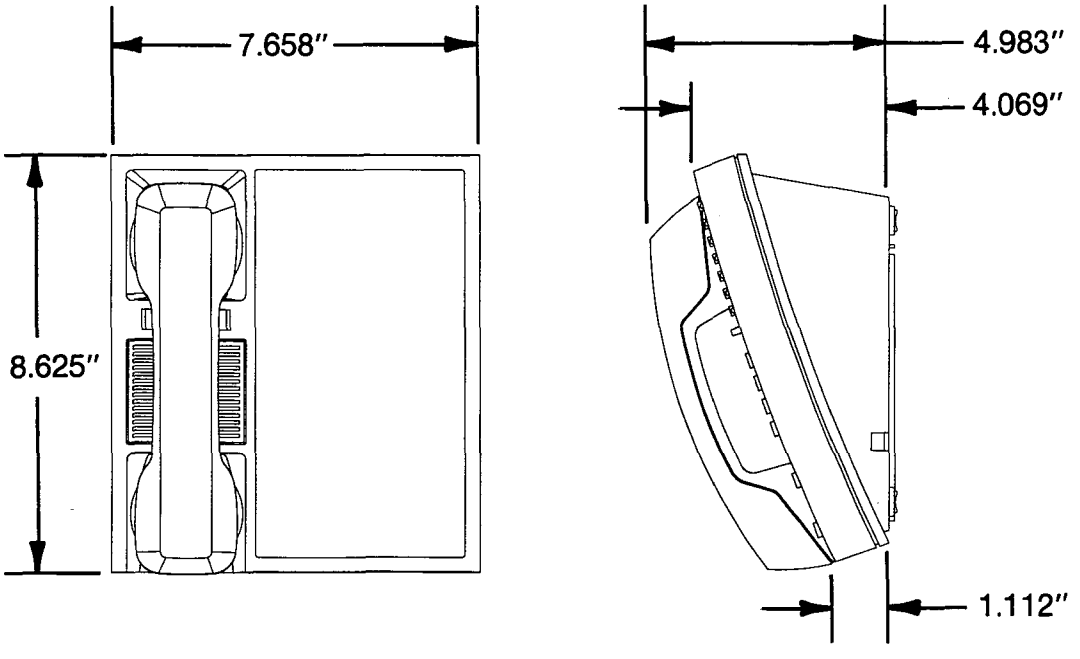


Model N0308

Figure 1-1. Outline Dimensions - Common Equipment

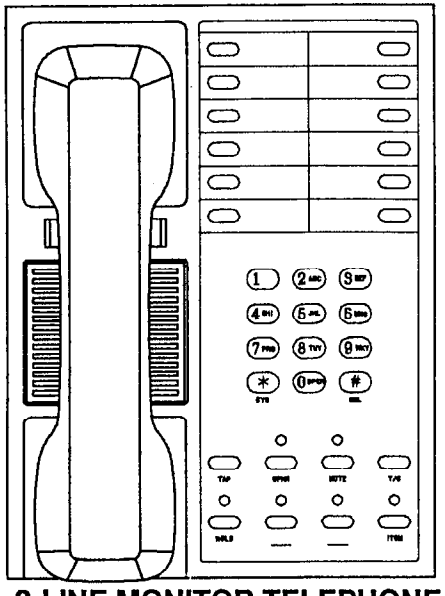


(Model Code 67xxx-xx)

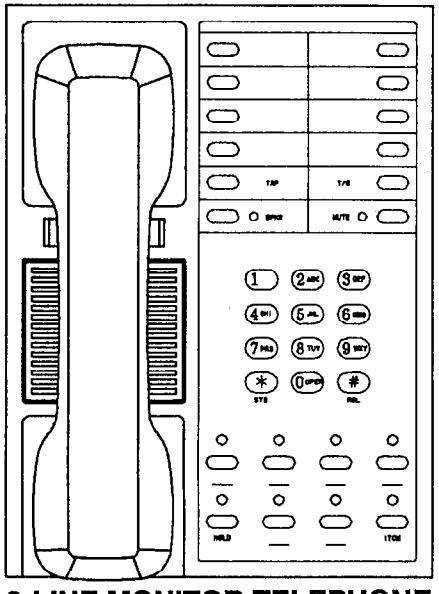


(Model Code 66xxx-xx)

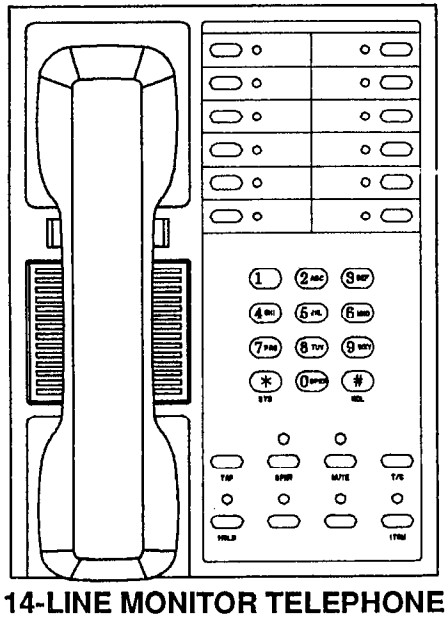
Figure 1-2. Station Outline Dimensions



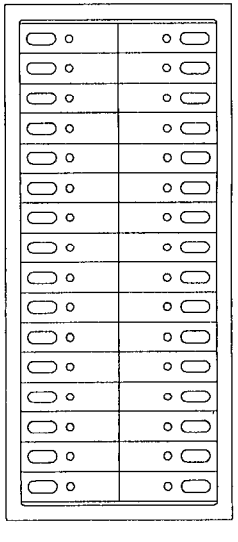
2-LINE MONITOR TELEPHONE
(6702X)



6-LINE MONITOR TELEPHONE
(6706X)

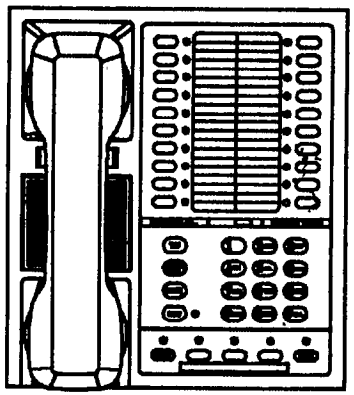


14-LINE MONITOR TELEPHONE
(6714X)

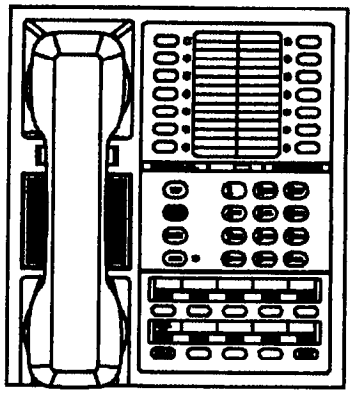


DSS/BLF CONSOLE
(EB32X)

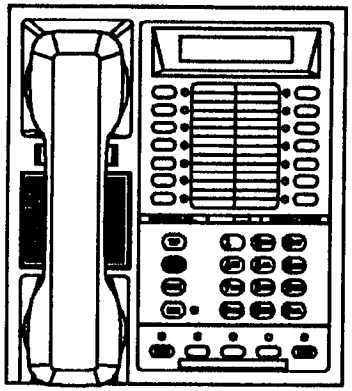
Figure 1-3a. Station Images (Model Code 67xxx-xx)



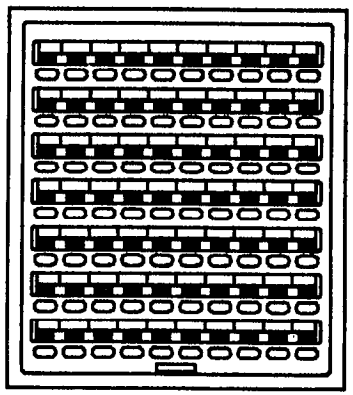
5 x 20 Image Telephone
(6620E, 6620T)



10 x 14 Image Telephone
(6614E, 6614T)



5 x 14 Image LCD Speakerphone
(6600E)



70-Button DSS/BLF Console
(DB70)

Figure 1-3b. Station Images (Model Code 66xxx-xx)

CHAPTER 2
DESCRIPTION OF SYSTEM FEATURES

ACCESS DENIED

Access to particular lines can be denied at certain stations in the system through system programming. This feature is programmable on a per line/per station basis as part of system or administration programming.

ADD-ON CONFERENCE (2 INTERNAL, 1 EXTERNAL PARTIES)

This system feature allows a station, while operating in a private mode, to add another station to an outside call.

ALL-CALL PAGING (VIA STATION SPEAKERS)

All-call paging allows all of the stations to receive announcements at the same time through the station speaker. Origination of announcements must be via a station handset. Each station can be programmed to receive and/or to originate an all-call page. The system default condition is that all stations have both receive and originate capability. The arrangement of paging as all-call is controlled by both system and administration programming. See the discussion titled, *Zone Paging (via Station Speakers)*.

ALL INTERCOM LINKS BUSY INDICATION

When all intercom paths are busy, the system causes the intercom light at each station to be on steady.

AUTO DIAL

Each multiline station provides programmable dialing features. Programmable buttons can be programmed to store numbers for automatic dialing purposes. The stored numbers can be up to fifteen digits in length and can include line or intercom selection, numbers, #, *, pauses, and flash signals. A pause is stored each time the **HOLD** button is pressed, and a flash signal is stored each time the **TAP** button is pressed. The pause and flash intervals are programmable. Any programmable button that does not have a line assignment can be programmed as an auto dial. Additionally, an auto dial number can be stored as a secondary function at every button programmed for direct station selection. Often used host PBX or CENTREX feature access codes can be stored at a programmable button location to provide one-button access to the features. Also refer to the discussions titled, *Automatic Pause Insertion, Station Speed Dial, and Programmable DSS/BLF.*

AUTO-SAVE FEATURE

The auto-save feature can be used to save the last manually dialed number at any unprogrammed button or at a specific button that was previously reserved for this purpose. The button chosen for auto-save must be blank and not currently programmed as a DSS button, line select button, or auto dial button. An auto-save can be made at a button previously used as an auto-save button; however, the previously stored number will be over-written. As many manually dialed numbers can be saved in this manner as there are separate unused buttons to be used for storage. If a dialed number is longer than 15 digits, two or more buttons can be used to save portions of it for later chain dialing.

AUTOMATIC ABANDONED HOLD RELEASE

If a distant party abandons a hold condition and disconnects, the central office (CO) will send a forward disconnect signal to the telephone system. When the key system detects this signal, it will drop the line from the hold condition and return it to service. The forward disconnect signal may be either 50 msec. or 350 msec. and the key system is programmable to match this time interval. Both the system and the administration programming can be used to set the time interval between hang-up and line-drop.

AUTOMATIC HOLD TRANSFER TO INTERCOM (ANSWER HOLD)

If the intercom line is selected while an outside line call is active, this system feature causes the outside call to be automatically placed on hold.

AUTOMATIC PAUSE INSERTION

When the system stores a dialed number for later redial, it automatically stores a pause whenever the user waits between digits. The automatic pause is inserted in the stored number sequence at the point where the manual pause in dialing occurred. The wait time is programmable between 2 sec. and 750 msec. The wait period is programmable by system or administration programming.

AUTOMATIC PRIVACY (PROGRAMMABLE)

A line can be made private or non-private through class of service programming. In the private mode, a station has exclusive use of the line during a call. No other station can access that line unless it is included through the use of the add-on conference feature. In

the non-private mode, all stations with that line appearance can gain access at the same time (sometimes known as common line pickup). A line is specified as private or non-private through system or administration programming. Also see the discussion titled, *Add-on Conference And Privacy Release.*

AUTOMATIC REDIAL (OF BUSY NUMBER OR UNANSWERED CALL)

Automatic redial of the last dialed number can be made available at every station through button programming. In most cases, the station user must program a button for use as an auto redial button; however, some telephone models provide an A16 button as part of the A-button field and this provides an auto redial function as a fixed feature. With this feature, a busy number or an unanswered call can be redialed repeatedly. Once automatic redial is activated, the station will select the line, automatically dial the number, and wait for a response. It will do this once a minute for approximately 10 minutes. The user must lift the handset to take immediate control if the call is completed. Users of the optional speakerphone station can take control by pressing the **SPKR** button instead of lifting the handset.

AUXILIARY EQUIPMENT INTERFACE

A non-key system telephone device or data device can be connected ahead of the common equipment on certain line ports across the tip and ring leads. Special terminals in the line jack are provided for this purpose. The system can detect an off-hook condition in the connected device, and turn on the line status light at the key system telephone stations with access to the line to indicate the busy condition.

AUXILIARY STATION RINGER INTERFACE

The auxiliary station ringer interface provides "dry-contact" relay closures whenever station 17 rings. The contact closures track the ringing pattern of station 17, and can be used to control an external signalling device. When a particular station port is programmed to function as a PA port, the auxiliary ringer interface relay contacts automatically become supervisory contacts. They close when the PA port is called. In this configuration, they are used to enable an external PA system. Also refer to the discussion titled, *Common Audible Ringer Interface.*

BACKGROUND MUSIC

If an external music source is provided, background music can be turned on and off at individual stations. Background music automatically turns off during calls. Also refer to the discussion titled, *External Music Source.*

BASIC KEY SERVICE (1A2)

The system provides all of the basic, 1A2-type, key service features. These features are: selective line pickup, common line pickup, multiline pickup, and hold.

BATTERY BACK-UP (CHASSIS, CABLE, AND BATTERIES)

Battery back-up assemblies including chassis, cable, and battery are offered as optional kits (available from Comdial). The assemblies are designed to connect directly to the un-interruptable power source (UPS) interface located on the common equipment chassis. No user intervention is required with this feature, and no class of service programming is required.

BATTERY BACK-UP INTERFACE

Provision has been made for attaching a Comdial provided optional battery back-up kit to give full uninterruptable system power in case of an AC power loss. The switching and trickle charge circuitry are in the common equipment, while batteries, chassis, and cable are packaged as a separate option. When plugged into an active AC power source the common equipment will constantly charge the attached batteries with a trickle current. Built-in circuitry automatically switches to battery power when AC power is lost. With batteries at full charge, a fully loaded system will operate for a minimum of one hour without AC power. No class of service programming is required.

CALL ANNOUNCE WITH HANDSFREE ANSWERBACK

The internal speaker at each multiline station provides call-announce capability over the intercom link. A handsfree response to a call-announce call can be made. This response is transmitted by the microphone built into the handset. Also refer to the discussion titled, *Voice Announce Blocking*

CALL PICKUP - DIRECTED

A user at any station can dial a special prefix code, followed by the number of a ringing station, to answer a ringing call at that station.

CALL PICKUP - SYSTEM

A user at any station can dial a special code and answer a ringing call at any station in the system. The feature can be enabled or disabled by system or administration programming.

CALL TRANSFER - SCREENED

Screened call transfer allows outside calls to be transferred from one station to another, via the intercom link, in one of two ways. If both stations have access to the line, a common line pickup transfer can be ef-

fected. If the other station does not have access to the incoming line, transfer can still take place using the system transfer feature. For a screened transfer, a call is transferred to another station with a pre-transfer announcement by the transferring party. Transferring of calls is accomplished with the T/C (TRANSFER/CONFERENCE) button.

CALL TRANSFER - UNSCREENED

An active call can be transferred to another station without being announced. The transferred call will ring the other station and await an answer. The call will automatically ring back to the transferring station after a programmable recall period. A transferred call will only ring if the station is idle. If the other station is busy on intercom or is already ringing with another call, the transferred call will immediately recall the transferring station. If the other station is idle or has background music enabled, it will start ringing immediately. If it is in any other state, it will not ring until it returns to an idle state.

CALLING STATION IDENTIFICATION

If the station number of a calling station has been programmed into the DSS/BLF of a called station, the calling station will be identified by the flashing BLF light at the called station. The lights adjacent to programmable buttons indicate status of DSS telephones: dark = idle, steady-on = in use, and flash = calling.

CLASS OF SERVICE PROGRAMMING (EACH LINE AND STATION)

Each line and station in the system can be programmed with a unique class of service operating condition. Class of service programming can be performed using instructions provided in Chapter 4.

CLASS OF SERVICE PROGRAMMING (FROM MAIN STATION)

Both system and administration class of service (COS) programming is performed from station 10 after a base level programming step is entered. System COS programming is used by the installer to configure the system and assign the line conditions. Administration COS programming is used by the on-site administrator to re-configure the system as required. Line condition assignment is not a part of administration programming. Refer to Chapter 4 for programming details.

COMMON AUDIBLE RINGER INTERFACE

Connections are available at the key service unit which provide "dry-contact" relay closures whenever an incoming line rings. These contact closures track the ringing pattern and can be used to control an external signalling device. When a particular station port is programmed to be a PA port, the common audible ringer interface contact points automatically become supervisory contacts which close when the PA port is called. In this configuration, they are used to enable an external PA system. Also, see the discussion titled, *Auxiliary Station Ringer Interface.*

DEFAULT FUNCTIONAL PROGRAM

At initial power up of the system, the operating features are set to a specific group of operating conditions (default conditions). The default conditions provide a complete operating system for normal use. The system can be left as a defaulted system or operating conditions can be reprogrammed if desired. A system can be defaulted at any time using the master clear procedure included with the system class of service programming; however, this action also clears all user stored auto dial and speed dial numbers.

DELAYED RINGING

Refer to the paragraph titled, *Flexible Ringing Assignments.*

DIAL 0 FOR SYSTEM ATTENDANT

The system attendant station (station 10) is signalled whenever the digit 0 is dialed on the intercom line.

DIRECT STATION SELECTION INTERCOM

Refer to the discussion titled, *Programmable DSS/BLF.*

DISTINCTIVE RINGING

The ringing cadence of an incoming call is the same as the ringing cadence of the TELCO, PBX, or CENTREX system. The ringing cadence of an intercom call presents two tone bursts sounded every 4 seconds.

DO NOT DISTURB

Any station can be set to a do-not-disturb mode using the **SPKR** button. While in this mode, the station will not ring on any incoming call nor will it accept an intercom call. A party making an intercom call to a station set in the do-not-disturb mode hears a fast busy tone. The feature cannot be overridden by the calling party.

DSS/BLF CONSOLE (OPTIONAL)

The DSS/BLF Console is designed to be a companion to any system station. It is useful with high call volume systems which require a dedicated call transfer location. The console provides a one-button direct station selection (DSS) intercom and an associated busy lamp field (BLF). It also provides one-button ac-

cess to system-wide, all-call paging. The console is designed to be connected to any station port and serve as a companion to the station connected to the adjacent data-paired port. System or administration programming is used to program a station port as a DSS/BLF port.

END TO END SIGNALLING ON INTERCOM

After an intercom call has been established, the system can continue to send dialing signals (DTMF tones) through the intercom path to station ports that are programmed as OPX unit ports. This feature can be performed from every station in the system, and is used by peripherals such as an OPX unit and voice mail equipment.

END TO END SIGNALLING ON LINES

After an outside call has been established, the system can continue to send dialing signals (DTMF tones) through the telco network and have them received at the distant end for inward call completion (bank by phone, etc.). This conventional, off-hook dialing feature can be performed from every station in the system. No class of service programming is required.

EXCLUSIVE HOLD

Exclusive hold prohibits a held call from being retrieved by any other station. The exclusive hold condition also links the held call to the timed hold recall timeout feature. After timeout, audible and visual signalling will occur and the exclusive hold condition will revert to a normal line hold condition. System or administration programming can enable this feature.

EXTERNAL PAGING INTERFACE

A station port or line port can be programmed to interface with an external paging amplifier. The paging amplifier can then be dial accessed through the station port or directly accessed through the line port from other stations in the system. DTMF tones can be dialed through the interface to make a zone selection if zone paging is provided by the external paging amplifier. System or administration programming can be employed to program a station port as an external paging port. Only system class of service programming can be used to program a line port as an external paging port.

EXTENDED DUAL TONE MULTIPLE FREQUENCY (DTMF) TONES

The model XE telephone system can access answering machines, banking computers, voice mail equipment, etc. that require DTMF tones which are longer than the standard 80 msec. tone. A shift to a longer tone of preprogrammed length is automatically made 10 seconds after a line is selected or 10 seconds after the last digit is dialed. A user can shift from one tone length to the other by pressing the HOLD button and then reselecting the line. It is recommended that the shortest duration possible be chosen. DTMF generation is a system feature and if several stations are using the extended DTMF feature at the same time, a delay in the time between button press and tone sound may be noticed.

FLEXIBLE LINE ASSIGNMENT

Refer to the discussion titled, *Square/non-Square System.*

FLEXIBLE RINGING ASSIGNMENTS

Ringing assignments are programmable on a per station/per line basis. Ringing can be controlled for every line that has an appearance at each station. Direct, or immediate, ringing can be programmed for some assigned lines and delayed ringing programmed for others. Direct or delayed ringing is programmed through system or administration programming.

HANDSFREE ANSWER INHIBIT

The **MUTE** button on a multiline station can be used to block all handsfree answerback response. This arrangement will prevent a station user from monitoring another station site using the monitoring ability of the voice announce feature. When the button is pressed, all handsfree answerback is disabled thus inhibiting any off-site monitoring. The speaker light will flash to indicate that this feature is active. Also refer to the discussion titled, *Mute.*

HEADSET INTERFACE

A station port can be programmed to allow the operation of special telephones which provide the user with a headset option. Programming for this feature is through either system or administration programming.

HEARING AID COMPATIBLE HANDSET

The station handset is compatible with magnetically-coupled hearing aids.

IDLE LINE PREFERENCE

The system can be programmed on a per station basis to enable idle line preference. When idle line preference is enabled, taking the handset off-hook will

automatically connect the station to any assigned line that is idle and has been arranged for this feature. The line button will not have to be pressed. This feature is mutually exclusive with prime line automatic. Programming for this feature is through either system or administration programming.

I HOLD AND I USE INDICATIONS

The light associated with a line button provides a visual indication of the status of that line. When a station user has a line in-use or on-hold at a station, the light indication provided at that station is of a different flash rate than the indication provided at the other stations in the system.

INTERCOM CALL PROGRESS TONES

Intercom call progress is marked by special tones. A steady tone is provided for dial tone. For tone signalled intercom calls, a two-tone burst is sounded every four seconds at a called station and returned to the caller as ring-back. For a voice signalled intercom call, a single tone burst is sounded at a called station and returned to the caller as ring-back. When a called station is busy on an outside call, the feed-back supplied to the caller is programmable with class of service programming. This feed-back can be either a ring-back tone or a busy tone. When set for ring-back tone, the called station sounds subdued ringing during the call. When a called station is busy on the intercom, a busy signal of one tone burst sounded each second returns to the calling station.

INTERCOM LINE LOCKOUT

Refer to the discussion titled, *Voice Announce Blocking.*

INTERCOM LINE TIMEOUT

Should the intercom line be selected with no dialing or other action taking place, the intercom will timeout after ten seconds, and return to an idle state.

LAST NUMBER REDIAL

Each station is provided with a last number redial feature. This feature will save thirty digits of the last outside number dialed. A newly dialed number will always automatically replace a previously dialed number. Upon command, the system will choose a line and redial the saved number. The system will first choose the prime line if assigned and idle. If it is busy or unavailable, the system will choose any line assigned to idle line preference. If they are unavailable, the system will chose the last line used at the station. If it is busy, no further choice is made. Also refer to the discussion titled, *Automatic Pause Insertion.*

LCD SUPPORT

The common equipment can be field modified with an optional up-grade kit which allow the system to support the use of LCD speakerphones having a Liquid Crystal Display (LCD). The LCD speakerphone ports are identified by system or administration programming.

When a system is modified, the model code of it is changed from an N prefix to a K prefix (i.e. N1024 becomes K1024, etc.).

LINE PRESELECTION

A line can be manually selected before lifting the handset (for handsfree dialing) or after the handset is lifted.

LINE TYPE

A line port is programmed as to type. The program type is chosen based upon the toll restriction that is to be applied to calls made over the line connected to that port. A line port is assigned as type 1 when any enabled toll restriction is to be applied with the first digit dialed. Such a line type is often assigned when a CO line is connected. A line port is assigned as type 2 when any enabled toll restriction is to be applied beginning with the second digit dialed. Such a line type is often assigned when a PBX or CENTREX line with any trunk access code is connected. A line port is assigned as type 3 when any enabled toll restriction is to be applied beginning with the second digit dialed whenever the first digit is a 9. If the first digit is not a 9, no restriction is applied. Such a line type is often assigned when a PBX or CENTREX line with a trunk access code of 9 is connected. Line types can only be selected as part of system class of service programming.

MANUAL HOLD

A button activated feature at each station will place an outside line on hold. Pressing the **HOLD** button holds the call, provides a distinctive flash rate of the line button indicator, and allows the user to access other station features. The holding station or any other station which has access to the line can retrieve the held call.

MEMORY RETENTION WITHOUT BATTERIES

Independent of the optional battery pack, the system memory is electronically protected during AC power failures by an electronic component sometimes referred to as a "super-cap". The stored program data will remain in memory for a minimum of 30 hours provided that the system has been powered continuously for at least 30 minutes prior to the power failure or disconnection.

MESSAGE WAITING

Special dialing codes enable a station user to control the message waiting (MW) light at other stations in the system. When the message waiting light is turned on at a station, a call can be placed to the originating station to pick up the message.

MODULAR WIRING AND JACKS/4-CONDUCTOR WIRE SYSTEM

The system can be completely interconnected by employing industry standard 50-pin connectors and modular plug/jack combinations. Station wiring is small, 4-conductor, twisted-pair cable throughout the system.

MOMENTARY BUTTONS WITH LED INDICATORS

The station buttons are momentary contact, press and release types. They provide line selection, call monitoring, and other feature selection. Visual indication of the feature selection is provided by solid-state, long-life, light emitting diodes (LEDs).

MULTILINE CONFERENCING

This feature will allow one or more multiline stations to access two outside lines at the same time resulting in a conference arrangement. Conference transmission levels are not compensated.

MUSIC INTERFACE (EXTERNAL SOURCE)

A jack is provided on the common equipment for the connection of a customer-provided KX registered music source. Also refer to the discussions titled, *Background Music and Music-on-hold.*

MUSIC-ON-HOLD

Music is provided to outside lines that are placed on hold if an external music source is connected to the system and the feature is turned on from station 10. System, administration, or attendant programming can be used to program this feature.

MUSIC-ON-HOLD SYSTEM-WIDE ENABLE/DISABLE

Music is provided to outside lines that are placed on hold if an external music source is connected to the system. Music-on-hold can be disabled system-wide by attendant action. Attendant programming is used to enable/disable this feature. Also refer to the discussions titled: *Music Interface, and Music-on-hold.*

MUTE

Each station has a **MUTE** button which, when pressed, will mute the handset transmitter (or internal microphone on speakerphones) to prevent the user's voice from being heard by the distant party. The speaker light flashes to indicate a muted condition. The button provides push-on/push-off operation. Also refer to the discussion titled, *Handsfree Answer Inhibit.*

NIGHT TRANSFER (OF RINGING)

The day, or normal, ringing of incoming lines can be transferred to a particular station or stations (chosen through class of service programming) for off-hour or special purpose answering. The night transfer mode can only be activated from station 10. Night transfer of ringing can be assigned to specific stations using system or administration programming. It is then turned on or off by using system or administration as well as attendant class of service programming.

OFF-HOOK VOICE ANNOUNCE WITH HANDSFREE ANSWERBACK

With the off-hook voice announce (OHVA) feature, an announcement can be made from one station to another station that is busy on a call. The OHVA announcement is made in a manner that permits the distant on-line party to hear it and to hear the verbal response to it unless action is taken with the MUTE button. The OHVA feature is available at stations that are equipped with a multiline telephone and an adjunct feature module (32-button DSS/BLF console with call-announce). **Two data-paired station ports are required to provide OHVA operation.**

An OHVA call is preceded by a ring burst. Then, several quick tone bursts followed by the announcement are delivered through the loudspeaker in the adjunct feature module. The called party can verbally reply to an OHVA call in a handsfree manner without interrupting the active call. Reply is made by speaking toward the OHVA microphone included in the adjunct feature module. The distant on-line party can hear this response unless the MUTE button is pressed at the called station to mute the handset transmitter.

A station that has the voice announce blocking feature turned on cannot receive an OHVA call.

Station class of service programming is used to program a station port to be a multiline telephone port and the data-paired port to be a console with call announce port. Also refer to the discussion titled: *Secure Off-Hook Voice Announce.*

ON-HOOK DIALING

Every multiline station provides manual and/or automatic dialing while the station handset is on-hook. An internal speaker monitors call progress for completion. The handset must be taken off-hook to provide the voice link on non-speakerphone stations.

OPX SUPPORT

The system supports the operation of the optional off premises extension (OPX) unit. System or administration programming arranges a station port for OPX operation.

A device (such as a model 2500 telephone set or compatible device) that is connected through an OPX unit to a station port can access both intercom and outside lines. The system default provides intercom line access when the device goes off-hook. With either prime line alone or prime line and idle line preference enabled through programming, the device connected through the OPX unit will seize an outside line when it goes off-hook. After going off-hook, the user can get the intercom line by pressing theTAP button. If no digits are dialed after going off-hook, the outside line is dropped when the TAP button is pressed. If digits are dialed after going off-hook, the outside line is placed on hold when the TAP button is pressed.

ORIGINATING DENIED

The ability to originate calls on certain lines can be denied at individual stations through system programming. The originating denied feature is programmed on a per station/per line basis. Originating denied does not prevent a user from answering a ringing line, retrieving a held call or receiving a transferred call. Call origination on a line is denied at a particular station by the system or administration programming.

PBX/CENTREX/CENTRAL OFFICE COMPATIBLE

System features and programmable buttons support the requirements of most PBXs, Central Offices, and CENTREX systems. Numbers, #'s, ✳'s, programmable pauses, and flash signals can be made a part of every stored number for access to host system feature codes.

PERSONALIZED RINGING TONE

This programmable feature enables stations to ring in a distinctive manner with one of four different tones. The ringing tones are combinations of four different frequencies and two different warble rates. Personal ringing tones can be assigned with system or administration programming.

POWER FAILURE TRANSFER

A power failure line connection is available for installing an industry-standard telephone such as a Comdial model 2500-xx. The installed power-fail telephone is automatically connected directly across line 1 by the system whenever there is an AC power failure. Normal origination and reception of calls through the power-fail telephone is possible during an AC power failure. The power-fail telephone is automatically disconnected as soon as power is restored.

POWER ON, VISUAL INDICATION

The common equipment has a red LED which monitors the status of the system, and provides an "AC power-on" indication.

PRIME LINE AUTOMATIC

If a station is programmed for prime line automatic, the designated outside line or intercom line will be automatically selected when the handset is taken off hook. Prime line pick up may be pre-empted by preselecting another line before lifting the handset. If the prime line is ringing, it is automatically answered by lifting the handset. Assign a prime line to a station through system or administration programming.

PRIVACY RELEASE

A line can be made non-private at a particular station while remaining private at all other stations. This arrangement allows other stations with that line appearance to join that particular station whenever it is on the privacy-released line. A line is specified as private or non-private at a particular station with system or administration programming. Also see the discussions titled, *Add-on Conference and Automatic Privacy.*

PROGRAMMABLE BUTTONS

All multiline keysets are equipped with a minimum of twelve programmable buttons which can be programmed a line pick-up, auto dial, station speed dial, and DSS action. Refer to the discussions titled, *Auto Dial, Programmable DSS, And Station Speed Dial.* System or administration programming is used to assign functions to programmable buttons.

PROGRAMMABLE DSS/BLF (DIRECT STATION SELECTION/BUSY LAMP FIELD)

A multiline station user can store true, one-button, direct station selection (DSS) at any programmable button location to create a DSS button. When this button is pressed, any active outside call is automatically placed on hold and an intercom call is automatically made to that previously stored station number. The visual indicators of the stations programmed at the button locations form a busy lamp field (BLF). The BLF conveys station status to the user. An auto dial number can also be programmed as a secondary function at every DSS/BLF memory location. Also refer to the discussions titled, *Tone Or Voice Signalling (Intercom) and Auto Dial.*

PULL OUT DIRECTORY

Each desk mounted telephone is equipped with a pull out directory. This directory can be used for recording the system speed dial, station speed dial, or other frequently called numbers.

PULSE/TONE SWITCHABLE

When rotary dial lines are installed, the user can switch from pulse (rotary dial signals) to tone (Dual Tone Multiple Frequency signals - DTMF). This feature is useful for accessing special circuits requiring DTMF tones such as banking machines, etc. The system is programmed on a per line basis to allow this feature at all stations. The system or administration class of service programming enables this feature on a per line basis.

RINGING LINE PREFERENCE

The system can be programmed on a per station basis to provide ringing line preference on all lines programmed for ringing at a station.

When ringing line preference is enabled at a station, taking the station off-hook automatically connects it to any outside line which happens to be ringing at the station. A line button will not have to be pressed. The ability of a particular station to answer a ringing line without line selection is enabled by the system or administration class of service programming.

SECURE OFF-HOOK VOICE ANNOUNCE

With the secure off-hook voice announce (SOHVA) feature, an announcement can be made from one station to another station that is off-hook and busy on a call. The SOHVA announcement is made in a manner that prevents the distant on-line party from hearing it or from hearing the verbal response to it because the MUTE button must be pressed for reply. The SOHVA feature is available at stations that are equipped with a telephone that includes SOHVA capability. **The telephone requires two data-paired station ports to provide SOHVA operation.**

A SOHVA call is preceded by a ring burst. Then, several quick tone bursts followed by the announcement are delivered through the handset receiver of the telephone. Delivering the announcement in this manner prevents the distant party from hearing it. A station employing a speakerphone being operated in a handsfree mode will receive a ring burst and can then be taken off-hook to receive the SOHVA call. The announcing caller receives several tone bursts to alert them that they are making a SOHVA call and that they may not get a reply should the called party choose to not respond.

Response to the SOHVA call is effected by pressing and holding the MUTE button and speaking into the handset. Because the MUTE button is pressed, the distant party is prevented from hearing the response.

The system provides SOHVA operation at every station port; however, a station that has the voice announce blocking feature turned on cannot receive a SOHVA call. Also, on handset equipped telephones, the telephone headset cannot be used to receive a SOHVA call.

Station clas of service programming is used to program a station port to be a multiline telephone port and the data-paired port as a console with call announce port. Also refer to the discussion titled: *Off-Hook Voice Announce with Handsfree Answerback* and to the Chapter 3 paragraph titled: *Secure Off-Hook Voice Announce Station* found on page 3-11.

SECURE OFF-HOOK VOICE ANNOUNCE (SOHVA) GROUPS

The ability to receive and originate SOHVA and OHVA calls is provided to every station in the system. Any station in the system can send a SOHVA or OHVA call to any other SOHVA or OHVA-equipped station in the system. Through this feature, the ability of a station to receive and/or originate SOHVA or OHVA calls can be disabled through programming so that certain stations can be grouped together for SOHVA or OHVA calling between one another while other stations in the system are excluded from this group. Stations can be arranged in up to four different groups for exclusive SOHVA or OHVA calling. For example, the stations of an executive and an assistant can be arranged into the same group as follows: Program the executive's station for receive in group 1 and program the assistant's station for originate in group 1. Do not program any other stations to have receive or originate capability in group 1. This arrangement provides exclusive SOHVA or OHVA calling between the two stations. More executive stations can be programmed to have receive capability in group 1 thus giving the assistant the ability to make SOHVA or OHVA calls to them as well. These executive stations in group 1 cannot make SOHVA or OHVA calls to one another, however, since they do not have originate capability. Both class of service and administration programming can be used to form SOHVA groups. Also refer to the discussion titled, *Secure Off-Hook Voice Announce* and *Off-Hook Voice Announce with Handsfree Answerback.*

SELF DIAGNOSTICS

Each station can execute a self test when so enabled. This test verifies processor, indicator, and tone functions. Instructions for activating self diagnostics are provided in Chapter 3, Section 3 of this publication.

SINGLE-DIGIT STATION DIALING

Refer to the discussion titled, *System Speed Dial.*

SPEAKERPHONE (OPTIONAL)

The optional speakerphone provides handsfree operation of all features, except voice signalled intercom calls. The handset must be lifted for this purpose.

SQUARE/NON-SQUARE SYSTEM

A system can be programmed to be square or non-square as desired. In a square system, a specific line is assigned to the same button on every station in the system. In a non-square system, any line can be assigned to any available programmable button on every station in the system. Also refer to the discussion titled, *Tenant Service.* Button mapping for line appearance can be performed on each station using the system or administration class of service programming.

STATION BY STATION PRIVACY

Refer to the discussions titled, *Automatic Privacy* and *Privacy Release.*

STATION SPEED DIAL

Each station can be programmed to provide ten speed dial numbers at the keypad buttons. Station speed dial numbers can be up to fifteen digits in length and can include line or intercom selection, numbers, #, ✳, pauses, and flash signals. A pause is stored each time the HOLD button is pressed, and a flash signal is stored each time the RECALL button is pressed.

SYSTEM SPEED DIAL

Thirty, system-wide, speed dial numbers are provided. The system speed dial numbers can be up to fifteen digits in length, and can include numbers, #'s, ✳'s, pauses, and flash signals. System speed dial number programming can only be performed at station 10; however, once programmed, they can be used at every station in the system. System, administration, or attendant programming can be used to program system speed dial numbers.

SYSTEM SPEED DIAL TOLL RESTRICTION OVERRIDE

This feature makes it possible to override toll restriction parameters when a system speed dial number is dialed. With it, it is possible to use toll restriction tables to restrict calls from being made to certain toll areas yet allow specific numbers in the restricted areas to be called by storing them as system speed dial numbers. With overrride enabled, toll restriction parameters assigned at a station will be overidden when a system speed dial number is called. With override disabled, toll restrictions assigned at a station will prevent it from calling a system speed dial number that matches the restrictions. Class of service programming or Administration programming can be used to enable or disable this feature. Refer to the discussions titled, *System Speed Dial* and *Toll Restriction - Flexible.*

SUBDUED RINGING

Subdued ringing is automatic at any station that is busy on an outside line.

TAP (FLASH/RECALL)

When host system custom calling features are available via a "flash" signal, the system can be programmed so that the **TAP** button will generate a "flash" signal when it is pressed. When custom calling features are not available, the **TAP** button functions as a positive disconnect or dial tone recall button. These two features are mutually exclusive. The flash/recall time is assigned through system or administration programming.

TENANT SERVICE

Two or more closely located sites can simultaneously be served by the same common equipment. Each site is provided with dedicated trunk facilities and separate feature and class of service complements. Also, refer to the discussion titled, SQUARE/NON-SQUARE SYSTEM. Button mapping for line appearance can be performed on each station using the system or administration programming.

TIMED HOLD RECALL

After a call has been on hold for a programmed length of time, the system will recall the station that placed the call on hold. It also visually signals all other stations. The audible signal is repeated at the end of each reoccurring time out period. The visual indication continues until the held call is picked up. The system or administration programming sets the timed hold recall time period.

TOLL RESTRICTION - FLEXIBLE

Flexible toll restriction can be programmed to prohibit some or all stations from calling a wide range of number combinations while allowing specific exceptions. Restrictions are specified by up to four entries on a deny table while exceptions are specified by up to four entries on an allow table. Allow entries will always override deny entries. Up to eight digits are permitted for each entry. A "match anything" digit (# symbol) can be included as part of an entry to represent any digit from 1 to 0. This is used to deny or allow a range of numbers with one entry. A separate pre-programmed 1+800 allow table permits this dialing feature to be

selected regardless of any restrictions which may be specified. The dialing of 911 and 1+911 is always allowed.

Once programmed, flexible toll restriction is assigned on a per line/per station basis. In addition to flexible restriction, or as an alternative to it, stations can be restricted with 1/0 call restriction assignment. When 1/0 call restriction is selected, 1+ 7 digit dialing can be allowed if desired. Either system or administration programming is used to specify the deny and allow entries and assign the restriction to line and station.

TONE OR VOICE SIGNALLING (INTERCOM)

Intercom calls can be tone signalled or voice signalled as desired. The tone signalled intercom call must be answered by lifting the handset. The voice signalled intercom call can be responded to in a handsfree manner. The class of service programming determines which signalling method is employed as the primary method when an intercom call is made. The alternate method is available through user action at the station. Intercom call progress is marked by special tone signals. The system or administration programming determines which type of intercom signalling is first option signalling for the system. Also refer to the discussions titled, *Intercom Call Progress Tones* and *Voice Announce Blocking.*

VOICE ANNOUNCE BLOCKING

This feature allows the user to block voice announced intercom signalling by dialing a special code. This feature, when enabled, also blocks the reception of a SOHVA call.

ZONE PAGING (VIA STATION SPEAKERS)

Zone paging allows groups of stations to receive announcements through the station speakers. The programming can enable zone paging in up to three different zones. A station can be programmed to only receive announcements or programmed to originate announcements as well. Each station can be programmed to be in any or all zones for both receiving and originating announcements. The ability of each station to originate and/or receive a page, and the arrangement of the paging into different zones are controlled by system or administration programming. Also, refer to the discussion titled, *All-Call Paging (via Station Speakers).*

CHAPTER 3
INSTALLATION

SECTION 1
STANDARD INSTALLATION DETAILS

MOUNTING CONSIDERATIONS

- The common equipment cabinet should be attached vertically to any sturdy, flat, surface or vertically rack mounted if desired.
- Cabinet must be located within four (4) feet of a proper electrical outlet. The system requires a dedicated 117VAC 15 AMP circuit, with a third-wire ground, supplied to a standard electrical outlet (NEMA 5-15R).
- The distance between the common equipment and the TELCO/PBX jacks must be 25 feet or less as per FCC requirements. A nominal distance of 7 feet is recommended.
- The mounting location must be secure and dry and have adequate ventilation. The temperature range of the location must be within 32-122 degrees F (0-50 degrees C), and the relative humidity must be less than 90 percent non-condensing.
- If the mounting surface is damp or if it is concrete or masonry material, a backboard must be attached to the mounting surface to be used for common equipment mounting. Suitable mounting backboards are available commercially or can be constructed out of 1/2-inch plywood cut to size.
- Tools and hardware required:
  - Fasteners - wood screws (1/4 x 1-inch round head), toggle bolts, or wall anchors
  - Screwdriver - to match fasteners
  - Electric drill - if prepared holes are required
  - Connecting tool - for fastening wires to a type-66 connector block.
  - Crimping tool - for 623-type modular plugs.

INSTALLATION NOTICE

Per The Underwriters Laboratories regulation 1459, 2nd edition, be aware of the following precautions when installing telephone equipment that is to be directly connected to the telephone company network:

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.

MOUNTING PROCEDURE

1. Unpack, and carefully inspect the common equipment and telephones for shipping damage. Notify the shipper immediately of any damages found. Verify that the packages contain all parts and accessories needed for proper installation and operation.
2. If a backboard is required at the mounting location, attach it securely to provide a stable mounting surface for the equipment.
3. The common equipment is attached using three mounting holes located as shown on **Figure 3-1**. While refering to **Figure 3-1**, measure and mark the location of the mounting holes on the mounting surface.
4. Drill holes in the mounting surface of a proper size to accommodate the hardware being used. If necessary, prepare these holes with inserts, anchors or other attachment devices as dictated by the type of mounting surface.
5. Insert the top screws into the mounting surface, and tighten them to within approximately 1/8-inch of the surface.
6. Hang the cabinet on the top screws using the mounting holes located on the rear of the cabinet. Note that these holes are elongated with an enlargement at one end. This feature allows the cabinet to slide down on the screws to secure the mounting when the cabinet is hung on them.
7. Insert a third screw through the mounting tab located on the lower edge of the cabinet and into the mounting surface, and tighten it into place
8. Place the individual telephones as desired and in keeping with accepted industry and office standards. A telephone can be wall mounted if necessary as they are desk/wall reversible.
9. Interconnect the system per the details shown in **Tables 3-1** and **3-2** and **Figure 3-3** shown at the end of this section

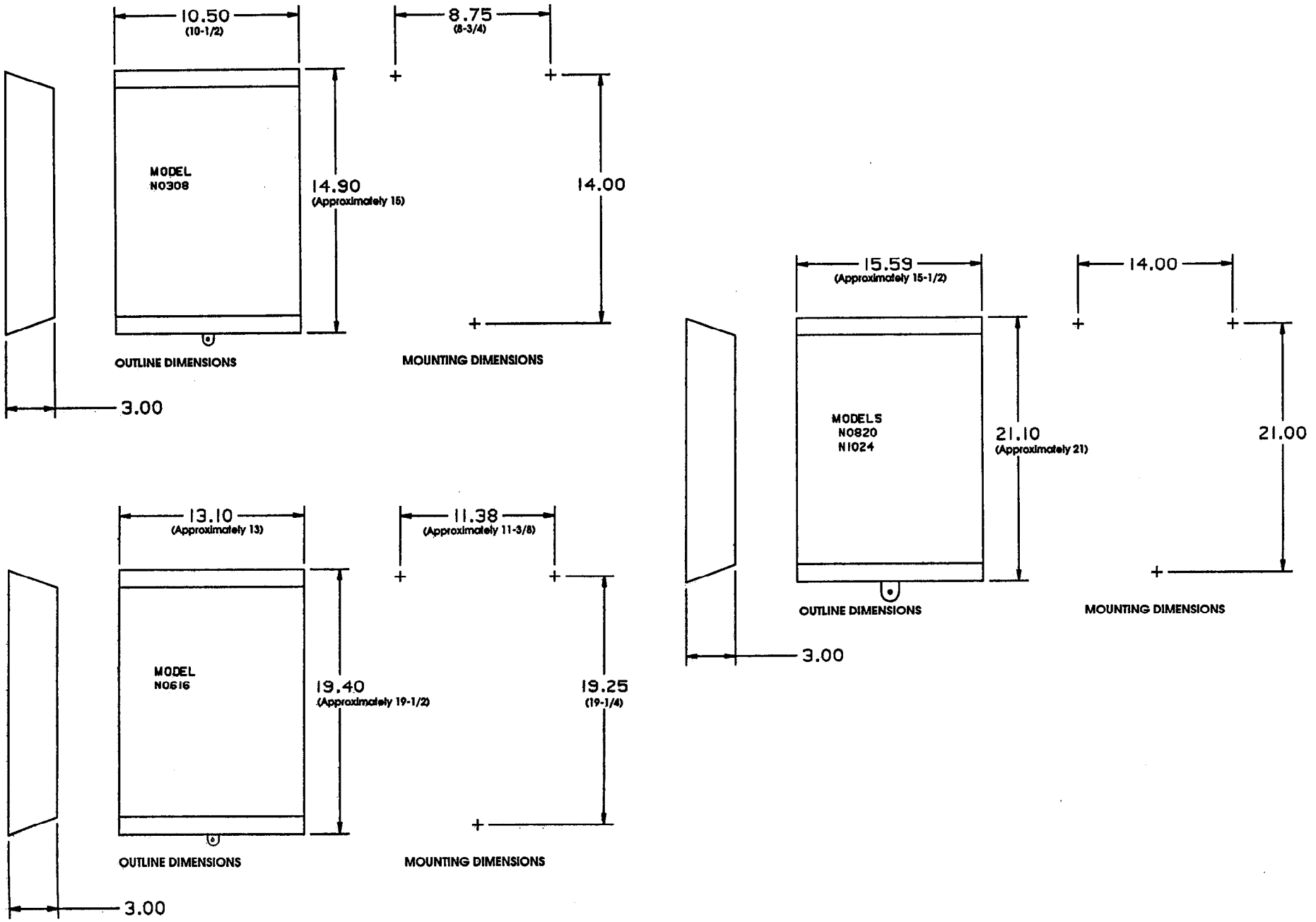


Figure 3-1. Mounting Details

AC POWER CONNECTION

Employ a dedicated 117VAC 15 AMP circuit, with a third-wire ground, supplied to a standard electrical outlet (NEMA 5-15R) for the AC power connection. AC power connection is illustrated in **Figure 3-2** shown below.

- A plug-in power line surge protector should be installed between the power cord and the AC outlet.
- Do not connect the AC power cord until the installation has been checked.
- To apply AC power, connect the power cord to the electrical outlet.

BATTERY BACK-UP

The common equipment provides an interface connector for the connection of an optional external battery assembly. This assembly is available separately as a kit.

CAUTION

Be sure that the AC power cord is connected to the electrical outlet before connecting the external battery assembly to the common equipment interface connector. This ensures that internal protection circuitry is operating to prevent damage that could result from improper connection.

- When charged to full potential, the optional Comdial model BBU01 external battery assembly provides a minimum of one hour of operation should the AC power to the system be interrupted. No calls will be dropped when an AC power failure causes the system to automatically switch over to BBU01 operation
  The BBU01 external battery assembly may include batteries from either of the following suppliers:
  - Model PS-1265 from Power-Sonic Corporation, Redwood City CA, 94032.
  - Model EP1265-26 from Elpower Corporation, Santa Anna, CA 92704
- During AC operation, the common equipment provides re-charging current to maintain the voltage potential of the external battery assembly at an operational level.

NOTE: *The optional external battery assembly requires approximately ten (10) hours to completely re-charge to full potential after it has been completely discharged and, in some cases, when initially installed.*

SYSTEM GROUNDING

The common equipment cabinet has internal secondary surge protection on all line ports. In order for this protection to be effective, the cabinet **MUST** be connected to a reliable earth ground such as a metal cold water pipe or a building frame ground. The grounding wire must be of #10 or #12 insulated, solid copper and separate from the three-wire AC line cord. A ground stud is located on the common equipment cabinet for this purpose. System grounding is illustrated in **Figure 3-2** on page 3-4.

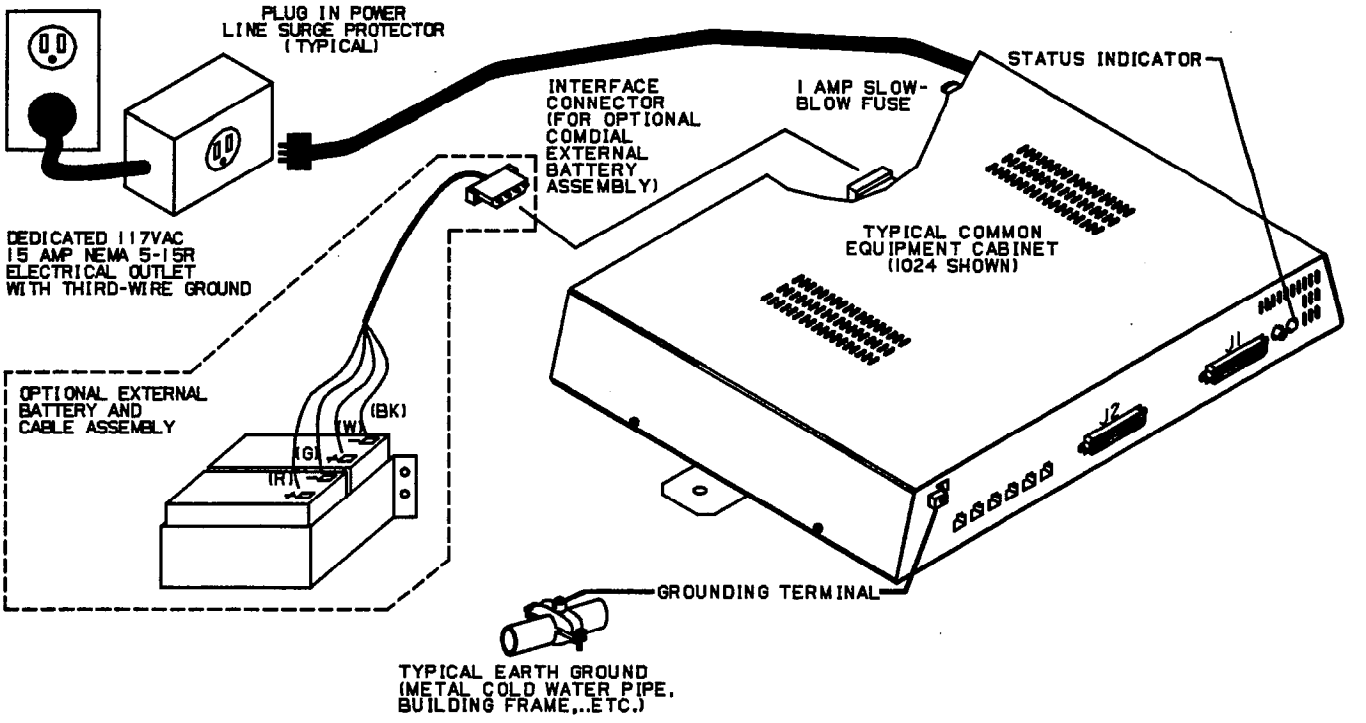


Figure 3-2. AC Power Connection and System Grounding

LINE CONNECTIONS

The common equipment cabinet line terminations are standard modular plug/jack connections. Each modular jack (2-6) provides termination for two lines. Modular jacks 2 and 3 also provide termination for an auxiliary pair in addition to the two outside lines. CO line terminations can be at a type 66M-xx connector block or at individual 6-position modular jacks. **Table 3-1** shows the line connection details.

The line cord that is routed between the CO line termination and the common equipment cabinet termination should be twisted-pair wiring.

Six-wire twisted pair cable is recommended for wiring between the CO termination and modular jacks 2 and 3 to provide auxiliary equipment interface wiring. Refer to page 3-16 for details.

CAUTION

To help ensure that external overvoltage surges do not damage the system, verify that gas discharge tubes or similar protection devices are installed, and properly grounded, on all connected outside lines.

STATION CONNECTIONS

- Connections between the common equipment and the stations for models N0616, N0820, and N1024 are via two type 66M-xx connector blocks which are cable connected to the common equipment 50-pin male connectors. **Table 3-2a** shows the station connection detais. Station connections for the model N0308 are via standard modular plug/jack connections provided on the side of the common equipment cabinet. These jacks are labeled by station number. **Table 3-2b** details these connections.

- The maximum distance allowed from the common equipment to the station when using #24 gauge, twisted-pair cable is 1500 feet.

NOTE: *If spare conductors exist in the cables that are run between the common equipment 66M-xx connector blocks and the station jacks, it is a good practice to connect them to earth ground. Doing this may help prevent them from inducing radio frequency and/or AC interference into the system.*

CAUTION

The polarity between the individual wires in a particular voice or data pair is not critical; however, do not connect the voice circuits to the data circuits.

STATION PAIRING

Station ports are paired for both data and overload protection as follows:

10--11	14--15	18--19	22--23	26--27	30--31
12--13	16--17	20--21	24--25	28--29	32--33

Table 3-1. Line Connections

(Model N0308)

JACK	PIN NO.	CONNECTION	TELEPHONE NUMBER
1	1	No Connection	
	2	No Connection	
	3	Power Failure Station TIP	
	4	Power Failure Station RING	
	5	No Connection	
	6	No Connection	
2	1	Auxiliary 1 TIP	
	2	Line 2 RING	
	3	Line 1 RING	
	4	Line 1 TIP	
	5	Line 2 TIP	
	6	Auxiliary 1 RING	
3	1	No Connection	
	2	Auxiliary 2 TIP	
	3	Line 3 RING	
	4	Line 3 TIP	
	5	Auxiliary 2 RING	
	6	No Connection	

(Models N0616, N0820, and N1024)

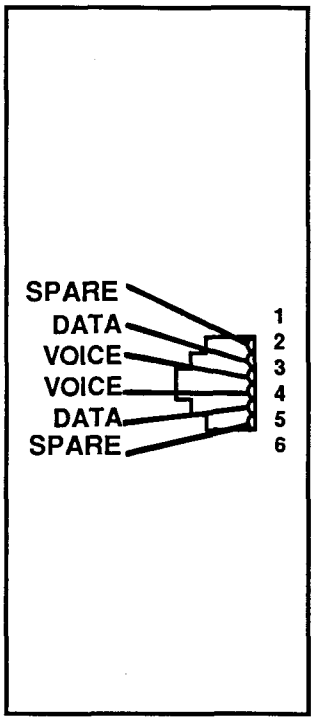
JACK	PIN NO.	CONNECTION	TELEPHONE NUMBER	
1	1	No Connection		
	2	No Connection		
	3	Power Failure Station TIP		
	4	Power Failure Station RING		
	5	No Connection		
	6	No Connection		
2	1	Auxiliary 1 TIP		
	2	Line 2 RING		
	3	Line 1 RING		
	4	Line 1 TIP		
	5	Line 2 TIP		
	6	Auxiliary 1 RING		
3	1	Auxiliary 2 TIP		
	2	Line 4 RING		
	3	Line 3 RING		
	4	Line 3 TIP		
	5	Line 4 TIP		
	6	Auxiliary 2 RING		N0616
4	1	No Connection		
	2	Line 6 RING		
	3	Line 5 RING		
	4	Line 5 TIP		
	5	Line 6 TIP		
	6	No Connection		
5	1	No Connection		
	2	Line 8 RING		
	3	Line 7 RING		
	4	Line 7 TIP		
	5	Line 8 TIP		
	6	No Connection		N0820
6	1	No Connection		
	2	Line 10 RING		
	3	Line 9 RING		
	4	Line 9 TIP		
	5	Line 10 TIP		
	6	No Connection		N1024

Table 3-2a. Station Connections (Model N0616, N0820, and N1024)

N0616 = Station 10 - 25
N0820 = Station 10 - 29
N1024 = Station 10 - 33

25-PAIR CABLE CONNECTIONS			4-WIRE CONNECTIONS			J-1 CONNECTIONS		J-2 CONNECTIONS	
WIRE COLOR	PAIR	PIN NO.	CLIP TERM.	PAIR	WIRE COLOR	STA	LOCATION	STA	LOCATION
WHITE-BLUE	1	26	1	VOICE	GREEN	10		22	
BLUE-WHITE		1	2		RED				
WHITE-ORANGE	2	27	3	DATA	YELLOW				
ORANGE-WHITE		2	4		BLACK				
WHITE-GREEN	3	28	5	VOICE	GREEN	11		23	
GREEN-WHITE		3	6		RED				
WHITE-BROWN	4	29	7	DATA	YELLOW				
BROWN-WHITE		4	8		BLACK				
WHITE-SLATE	5	30	9	VOICE	GREEN	12		24	
SLATE-WHITE		5	10		RED				
RED-BLUE	6	31	11	DATA	YELLOW				
BLUE-RED		6	12		BLACK				
RED-ORANGE	7	32	13	VOICE	GREEN	13		25	
ORANGE-RED		7	14		RED				
RED-GREEN	8	33	15	DATA	YELLOW				
GREEN-RED		8	16		BLACK				
RED-BROWN	9	34	17	VOICE	GREEN	14		26	
BROWN-RED		9	18		RED				
RED-SLATE	10	35	19	DATA	YELLOW				
SLATE-RED		10	20		BLACK				
BLACK-BLUE	11	36	21	VOICE	GREEN	15		27	
BLUE-BLACK		11	22		RED				
BLACK-ORANGE	12	37	23	DATA	YELLOW				
ORANGE-BLACK		12	24		BLACK				
BLACK-GREEN	13	38	25	VOICE	GREEN	16		28	
GREEN-BLACK		13	26		RED				
BLACK-BROWN	14	39	27	DATA	YELLOW				
BROWN-BLACK		14	28		BLACK				
BLACK-SLATE	15	40	29	VOICE	GREEN	17		29	
SLATE-BLACK		15	30		RED				
YELLOW-BLUE	16	41	31	DATA	YELLOW				
BLUE-YELLOW		16	32		BLACK				
YELLOW-ORANGE	17	42	33	VOICE	GREEN	18		30	
ORANGE-YELLOW		17	34		RED				
YELLOW-GREEN	18	43	35	DATA	YELLOW				
GREEN-YELLOW		18	36		BLACK				
YELLOW-BROWN	19	44	37	VOICE	GREEN	19		31	
BROWN-YELLOW		19	38		RED				
YELLOW-SLATE	20	45	39	DATA	YELLOW				
SLATE-YELLOW		20	40		BLACK				
VIOLET-BLUE	21	46	41	VOICE	GREEN	20		32	
BLUE-VIOLET		21	42		RED				
VIOLET-ORANGE	22	47	43	DATA	YELLOW				
ORANGE-VIOLET		22	44		BLACK				
VIOLET-GREEN	23	48	45	VOICE	GREEN	21		33	
GREEN-VIOLET		23	46		RED				
VIOLET-BROWN	24	49	47	DATA	YELLOW				
BROWN-VIOLET		24	48		BLACK				
VIOLET-SLATE	25	50	49			STATION17		COMMON	
SLATE-VIOLET		25	50			AUDIBLE		AUDIBLE	

Table 3-2b. Station Connections (Model N0308)



JACK	PIN NO.	CONNECTION	STATION NUMBER
4	1	No Connection	10
	2	Data	
	3	Voice	
	4	Voice	
	5	Data	
	6	No Connection	
5	1	No Connection	11
	2	Data	
	3	Voice	
	4	Voice	
	5	Data	
	6	No Connection	
6	1	No Connection	12
	2	Data	
	3	Voice	
	4	Voice	
	5	Data	
	6	No Connection	
7	1	No Connection	13
	2	Data	
	3	Voice	
	4	Voice	
	5	Data	
	6	No Connection	
8	1	No Connection	14
	2	Data	
	3	Voice	
	4	Voice	
	5	Data	
	6	No Connection	
9	1	No Connection	15
	2	Data	
	3	Voice	
	4	Voice	
	5	Data	
	6	No Connection	
10	1	No Connection	16
	2	Data	
	3	Voice	
	4	Voice	
	5	Data	
	6	No Connection	
11	1	No Connection	17
	2	Data	
	3	Voice	
	4	Voice	
	5	Data	
	6	No Connection	

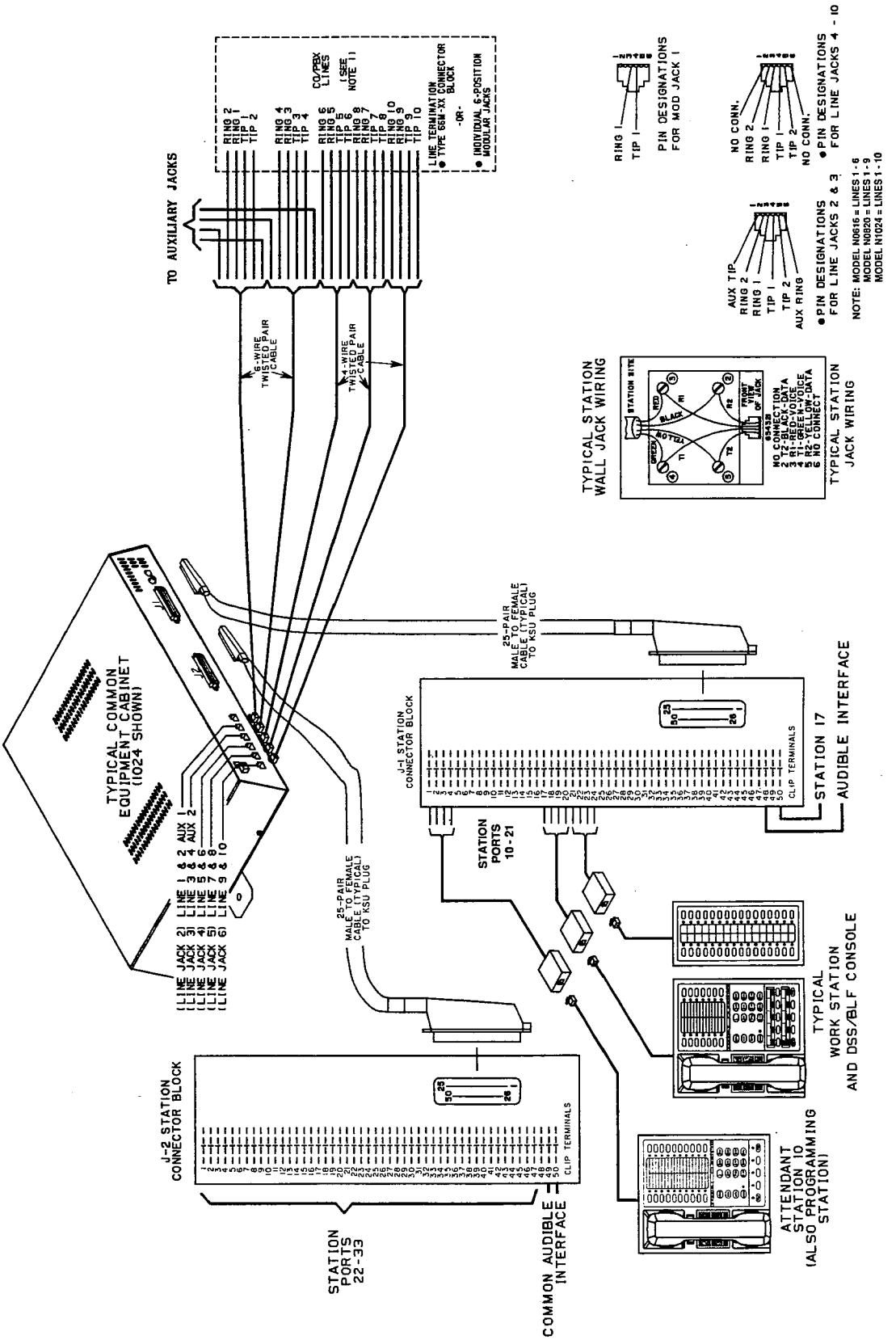


Figure 3-3a. Interconnection Details (Models N0616, N0820, and N1024)

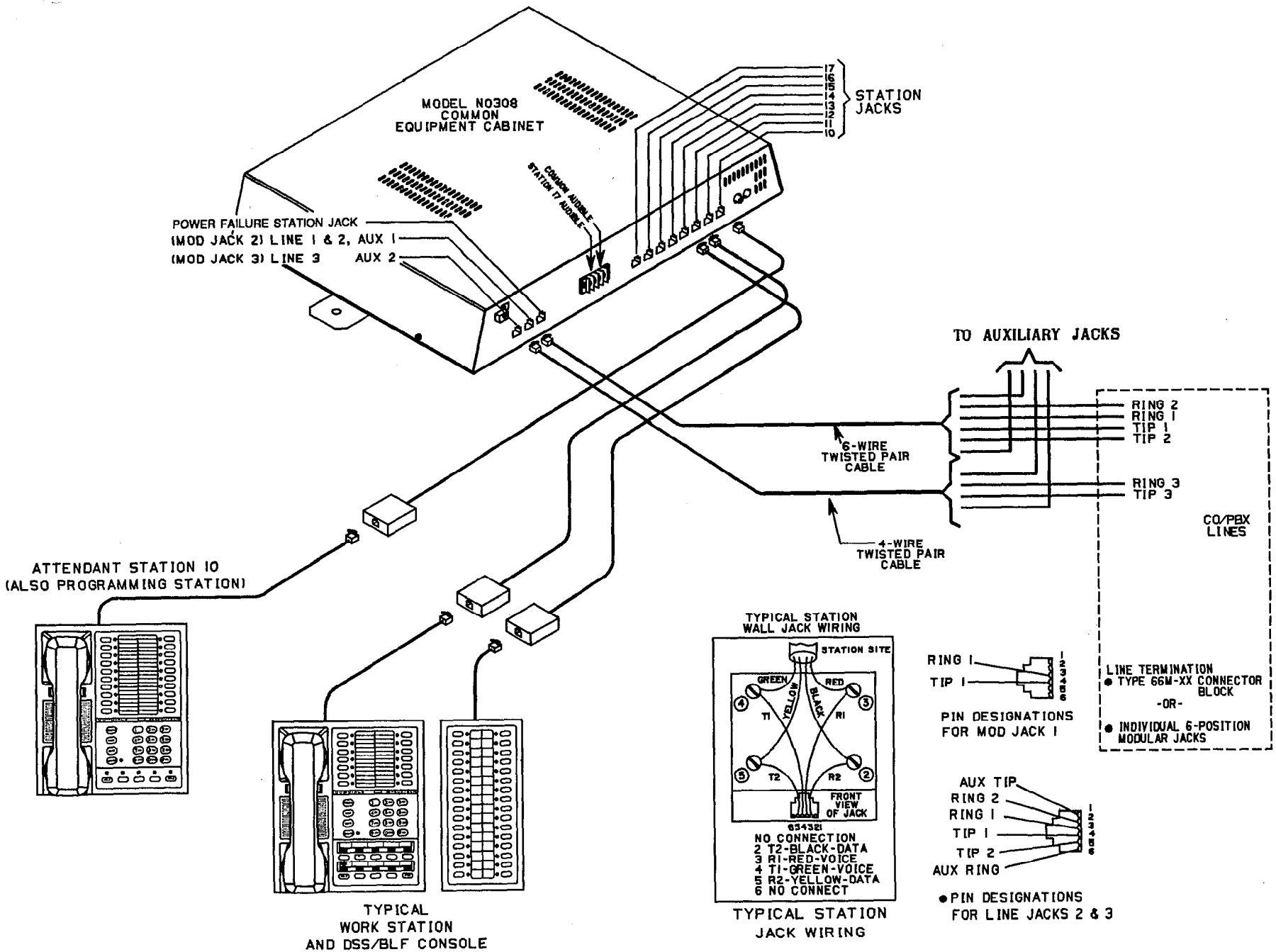


Figure 3-3b. Interconnection Details (Model N0308)

SECTION 2
OPTION INSTALLATION DETAILS

DSS/BLF CONSOLE CONNECTION

The optional DSS/BLF console may be installed at any station port (except port 10) to work in conjunction with a companion station connected to the adjacent port (e.g. port 10 for station and port 11 for console). Console port installation is illustrated in **Figure 3-3a** and **3-3b**, shown on the previous pages.

The model EB32X-xx, DB32-xx, DB32S-xx, DB40-xx, and DB70-xx DSS/BLF consoles are all compatible with the XE system. The station port to which they are connected must be programmed as a DSS/BLF console port as described on page 4-12. The console buttons are fixed for DSS/BLF operation beginning with station 10 and ending with the maximum station number in the system. These buttons also provide auto dial locations at a second level of storage (accessed with the HOLD button function). Additionally, any buttons, from beyond system station capacity through a maximum of 32, are available as auto dial locations at the first level of storage. For example, a model N1024 key system and a EB32X-xx or DB32-xx console will fix the first 24 console buttons as DSS/BLF buttons, and provide the remaining eight buttons as auto dial buttons. Plus, it will provide auto dial locations at the second level of storage for the first 24 buttons. A total of 32 auto dial storage locations are provided. For larger consoles, any buttons beyond a maximum of 32 will still be blanked. For this reason it is recommended that the larger consoles (DB40 and DB70) not be used unless absolutely necessary since the XE system has a maximum station capacity of 24 stations thus leaving these consoles with a large quantity of blanked buttons.

- The installed distance limit between the common equipment and a console is the same as that specified for a regular station. Connect all four wires (voice pair and data pair) of the console cable to the station connector block.
- The voice pair connections of the console can be used simultaneously to enable a PA port function or to provide off-hook voice announce capability..
- See information headed *External Paging Interface - Station PA Port.* If an enable signal is required with the particular PA equipment being used, the console and PA equipment connections are limited to station ports 15 and 17.
- The DSS/BLF console port must be programmed as a DSS/BLF port before console operation can take place.
- The console port must be also programmed as a PA port if a PA amplifier has been connected to the voice pair as part of the system.

OFF-HOOK VOICE ANNOUNCE WITH HANDSFREE ANSWERBACK

The DB32S-xx Adjunct Feature Module can be used to provide off-hook voice announcing (OHVA) to a station already busy on a call and allow subsequent handsfree answerback (HFAB) by that station user. The DB32S-xx Module can also be used as a DSS/BLF console at the same time if desired. The station port to which the Adjunct Feature Module is connected must be programmed for the feature that is required as discussed on page 4-12. When both DSS/BLF and OHVA operation are required, the station port to which the console is connected must be programmed as an Off-Hook Call Announce port. When only DSS/BLF operation is required, program the port as a DSS/BLF Console port.

- **Two data-paired station ports are required to provide the OHVA/HFAB feature.**
  - Connect a telephone to the first data-paired port
  - Connect the DB32S-xx Adjunct Feature Module to the voice pair and the data pair of the second data-paired port.

SECURE OFF-HOOK VOICE ANNOUNCE STATION

The XE system supports the Secure Off-Hook Voice Announce (SOHVA) feature provided by telephones with the following product codes:

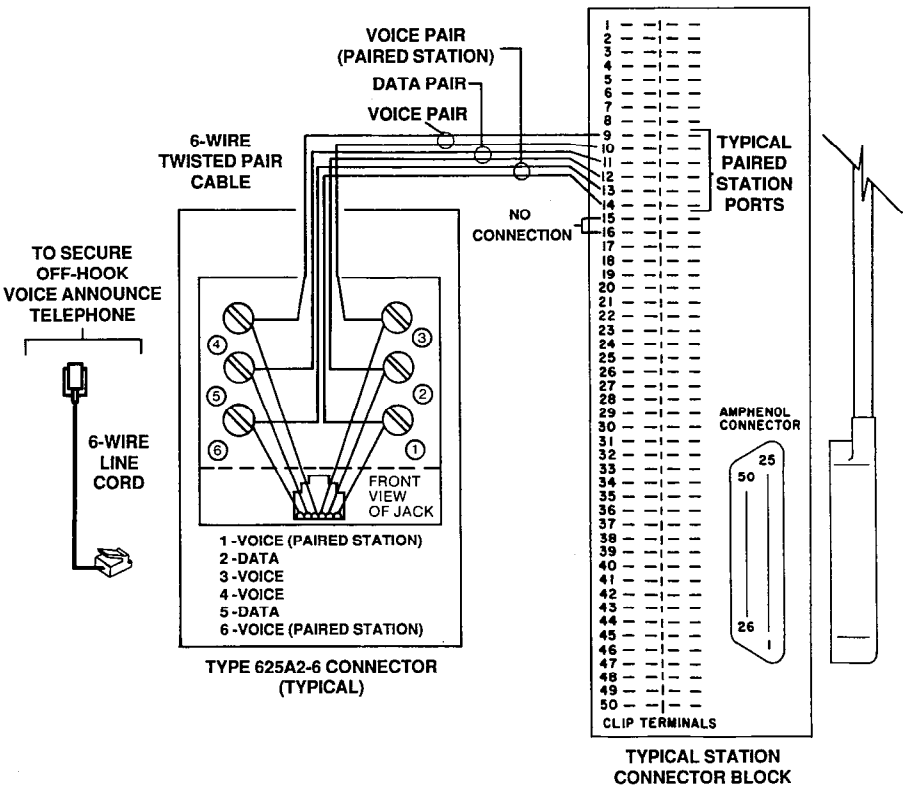
- 6714X-xx all revs.
- 6600E-xx Rev. B and later
- 6614E-xx Rev. D and later
- 6614T-xx Rev. C and later
- 6620E-xx Rev. D and later
- 6620T-xx Rev. I and later

NOTE: *If OHVA capability is required, it is provided by the model DB32S-xx console (adjunct feature module) as described in the previous paragraph.*

Two data-paired ports are required to provide SOHVA support. The SOHVA equipped telephones contain a 6-position, 3-pair line jack. Using 6-wire, twisted-pair cable, connect the two inside pairs of the line jack to the first data-paired port and connect the outside pair to the second data-paired port. Refer to **Figure 3-4** for an illustration of this wiring.

- Connect pins 3 and 4 to the voice pair and pins 2 and 5 to data pair of the first data-paired port.
- Connect pins 1 and 6 to the voice pair of the second data-paired port.

For the feature to be enabled, the first port must be programmed as a telephone port and the second port must be programmed as an Off-Hook Call Announce port as discussed on page 4-12.



SIGNAL NAME	JACK CONN.	BLOCK CONN.
VOICE (PAIRED STATION)	1	14
DATA	2	12
VOICE	3	10
VOICE	4	9
DATA	5	11
VOICE (PAIRED STATION)	6	13

Figure 3-4 Secure Off-Hook Voice Announce Connections

POWER FAILURE STATION

The system provides one tip and ring pair connected to line one as an emergency, power failure circuit. This power failure pair is located on Mod jack 1 for all common equipment models. This jack is the rightmost jack when facing the right side of the cabinet as shown in **Figure 3-5**. The power failure pair is only active during an AC power failure. An industry standard single-line telephone, such as a Comdial 2500-xx can be connected to the power failure pair and used to provide communications capability should the AC power to the system be interrupted.

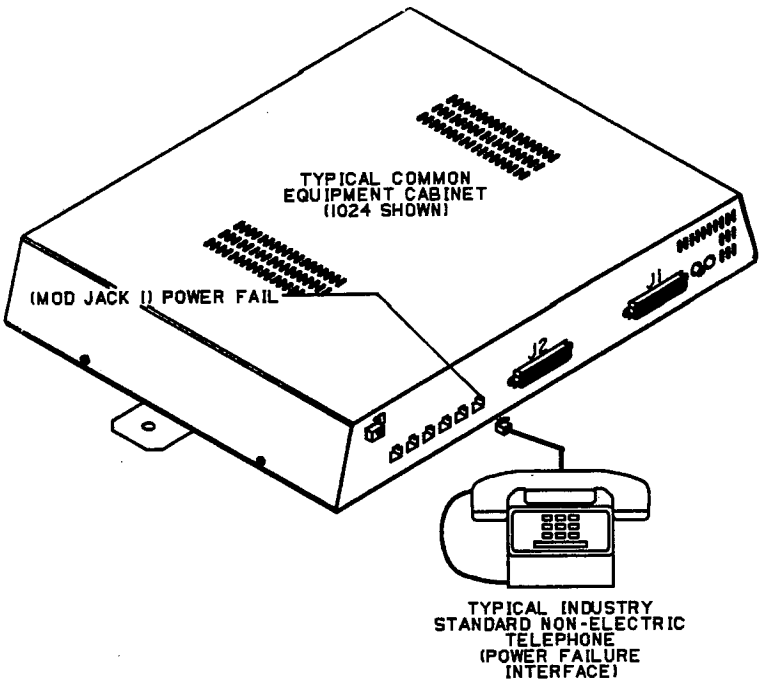


Figure 3-5. Power Failure Station Connection.

COMMON AUDIBLE AND AUXILIARY STATION INTERFACE (STATION 17 AUDIBLE)

Two sets of relay closure dry-contact points are available. These are located at the **J-1** and **J-2** connector blocks for models N0616, N0820, and N1024 and at the barrier-type terminal strip on the model N0308 common equipment cabinet. These closures track the ringing pattern. They are closed during the ringing period and open during the silent period. **Figure 3-6** shows connection details for this feature.

- **Station 17 Audible**: (J-1 connections 49 and 50) provides a dry-contact closure whenever system station 17 rings.
- **Common Audible**: (J-2 connections 49 and 50) provides a dry-contact closure whenever any of the TELCO/PBX lines, connected to the common equipment, ring.

CAUTION

Do not exceed a 1 amp at 24 volts AC or DC (.5 amp at 48 volts) load on these control terminals. If the load requirements exceed this limit, connect the load through an external slave relay. DO NOT CONNECT THESE CONTROL TERMINALS DIRECTLY TO THE 117VAC LINE.

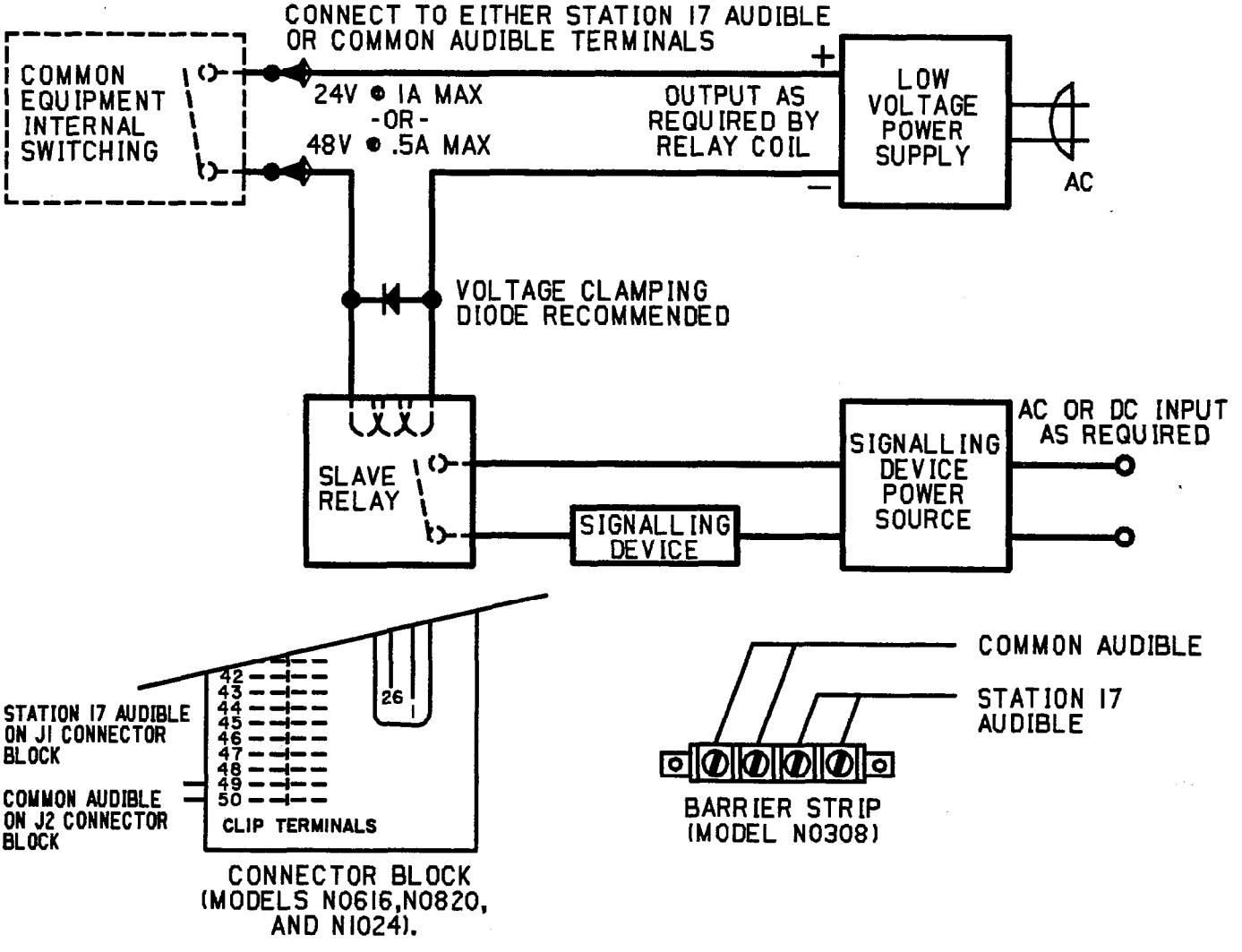


Figure 3-6. Common Audible and Auxiliary Station Interface

EXTERNAL PAGING INTERFACE - STATION PA PORT

Any station port can be programmed as a PA port and used to couple a station voice path to an external paging amplifier. Refer to Chapter for programming details. **Figure 3-7** shows connection details for this feature.

- The audio input of an external paging amplifier can be connected to the audio pair of the station port at the **J-1** or **J-2** connector blocks for models N0616, N0820, and N1024 or at the barrier-type terminal strip on the model N0308 common equipment cabinet.
- The audio input connection must be isolated with a 600 ohm to 600 ohm audio matching transformer. Terminate the audio input of the paging amplifier with a 600 ohm (nominal value) resistor.
- **If station port 15 is programmed as a PA port,** the Common Audible contact points on **J-2** are automatically reconfigured as PA enable terminals. The contact closure now occurs when PA station 15 is dialed. The normal common audible function is disabled as long as station 15 is a PA station.
- **If station port 17 is programmed as a PA port,** the Auxiliary Station Interface (station 17 audible) contact points are automatically reconfigured as PA enable terminals. The contact closure now occurs when PA station 17 is dialed. The normal auxiliary station interface function is disabled as long as station 17 is a PA station.

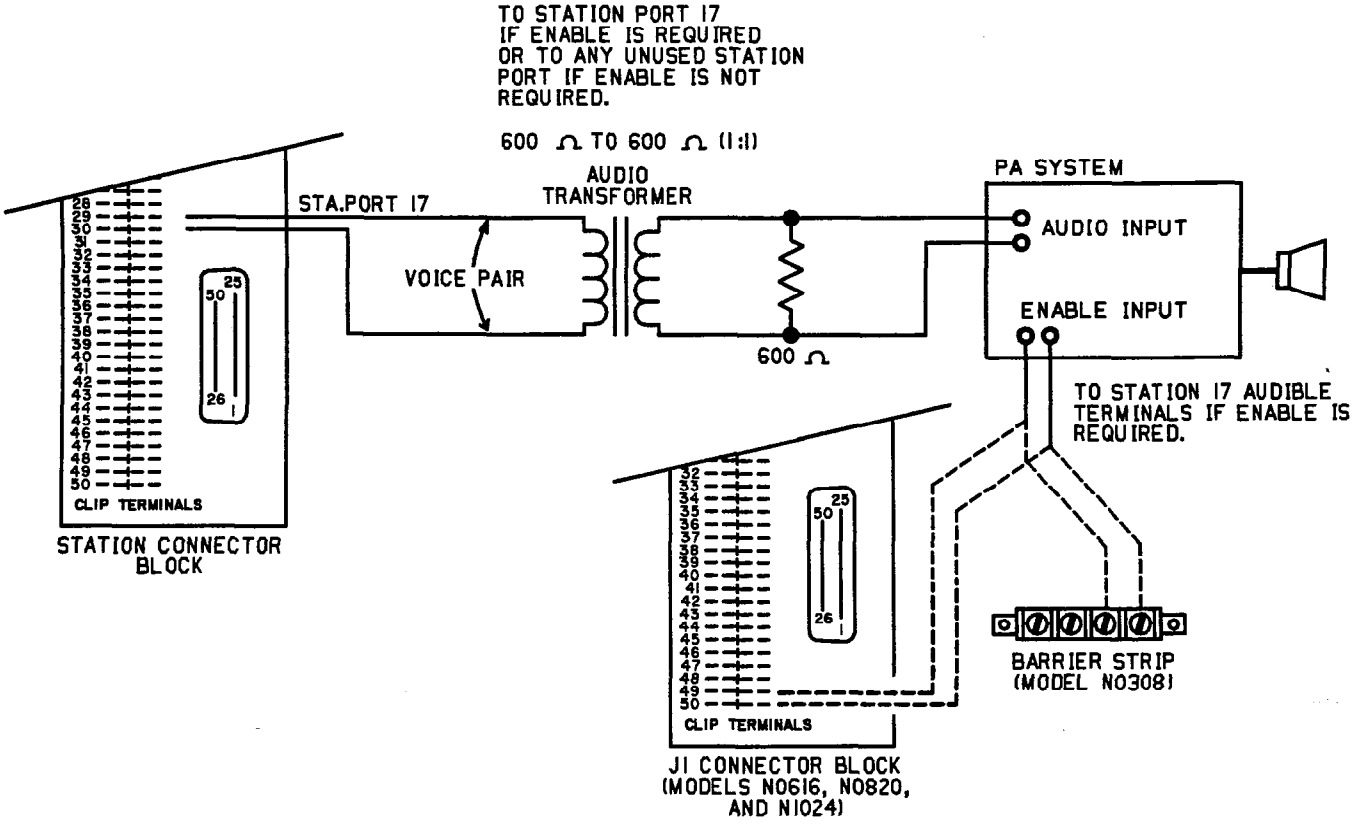


Figure 3-7. External Paging Interface - Station PA Port

EXTERNAL PAGING INTERFACE - LINE PORT

A line port can be programmed to be an AUXILIARY port and connected to an external paging amplifier. Refer to Chapter 4 for programming details. Station access to this area paging is via the line button for the AUXILIARY line. **Figure 3-8** shows connection details for this feature.

- Connect the audio input of an external paging amplifier to the tip and ring leads of the AUXILIARY (line) port.

A DTMF tone select, zone-paging amplifier can be employed if desired. If used, the zone-select code can be dialed after the AUXILIARY line select button is pressed.

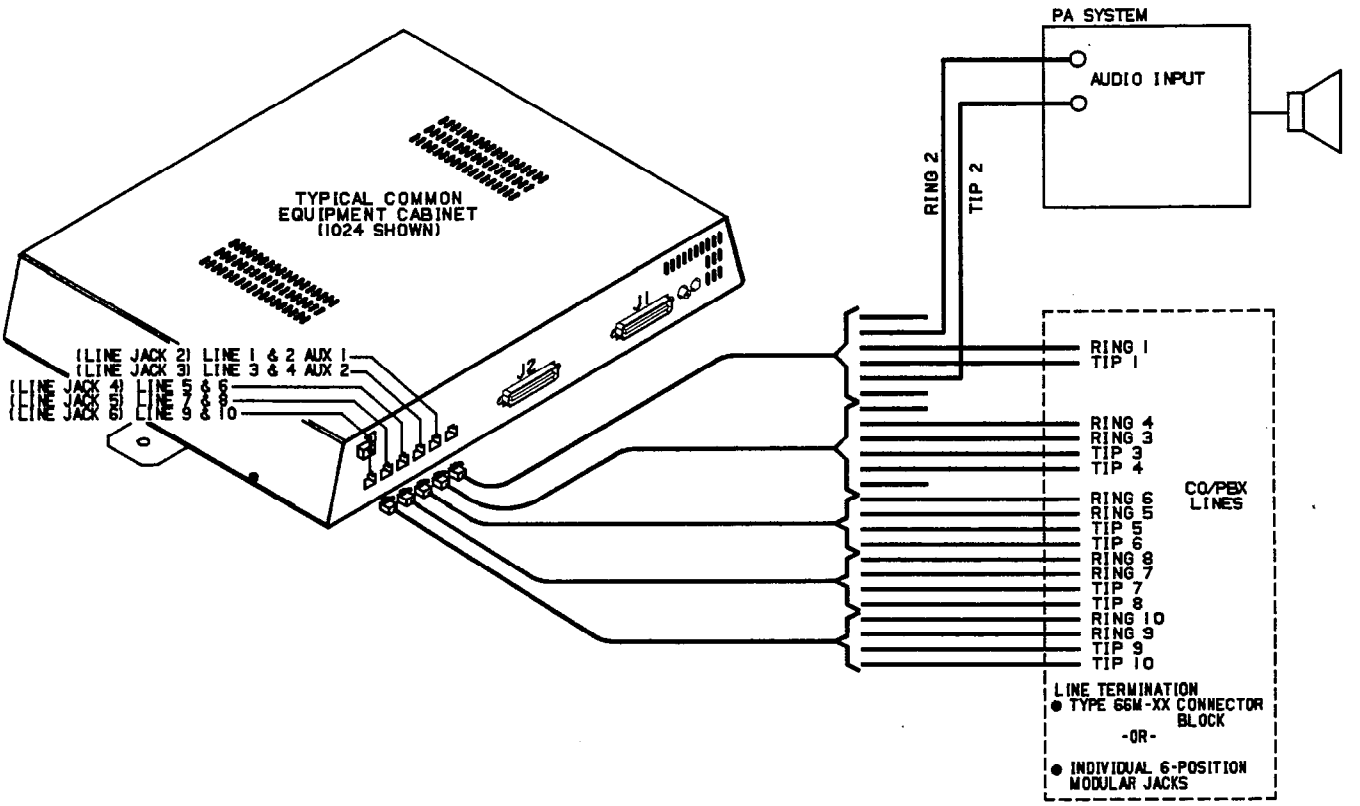


Figure 3-8. External Paging Interface - Line Port

AUXILIARY EQUIPMENT INTERFACE

A non-key system telephone device or a data device can be connected ahead of the common equipment. Refer to **Table 3-1** on page 3-4 and **Figure 3-9** below for connection details for this feature.

The system can detect an off-hook condition in the connected device, and turn on the line status light at the button system telephones to indicate that the line is busy.

- Connection is across tip and ring of lines 2 and 4 using the auxiliary interface connections.
- Auxiliary interface connections are provided at terminals 1 and 6 of common equipment modular jacks 2 and 3.

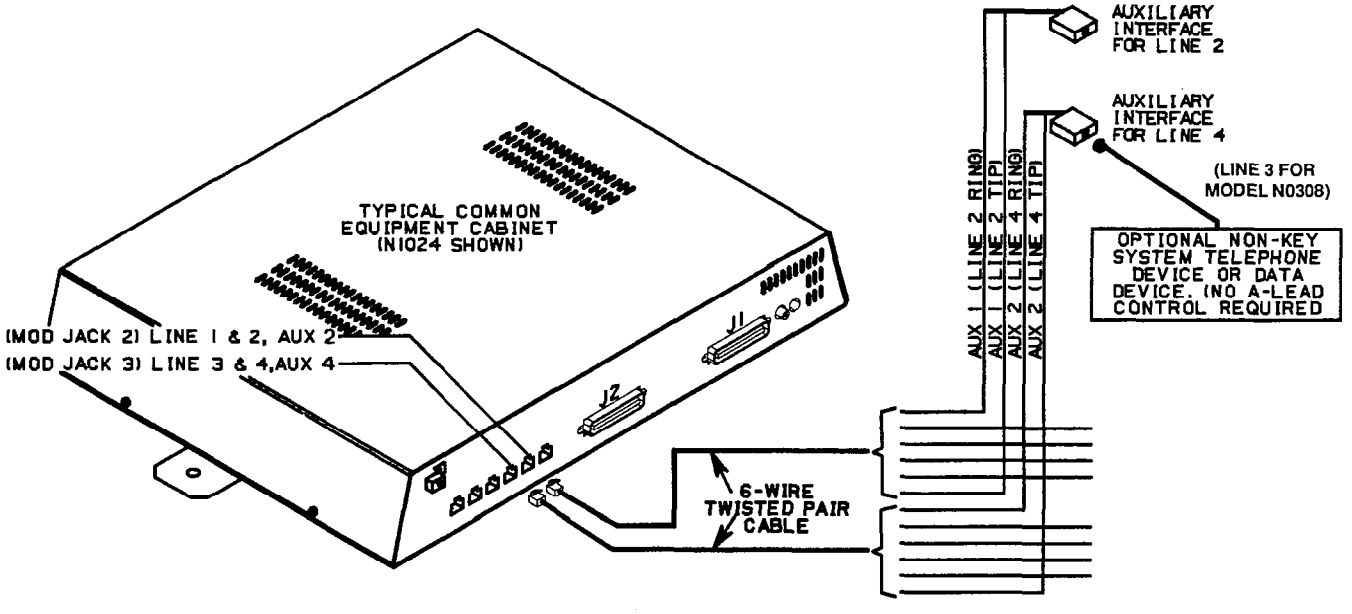


Figure 3-9. Auxiliary Equipment Interface Connections

MUSIC INTERFACE

If music is to be part of the system, connect music source to the common equipment music interface jack (RCA-type phono jack) provided for this purpose. Refer to **Figure 3-10** for jack location details. The impedance of this input is approximately 500 ohms. Level adjustment of the music source may be necessary. This may be done during system checkout.

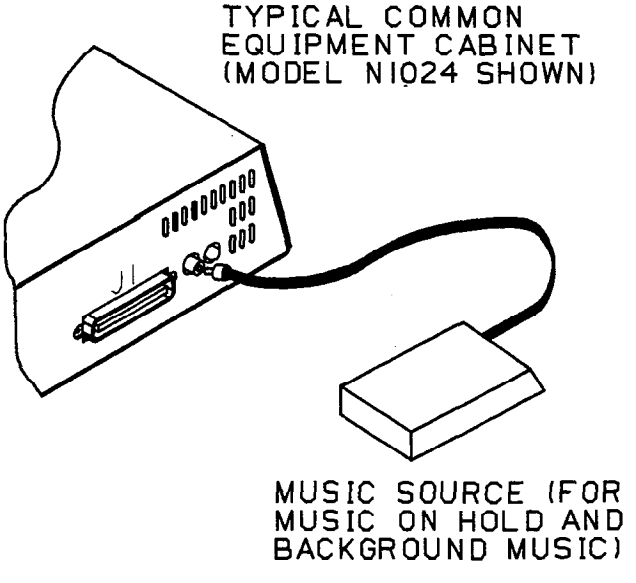


Figure 3-10. Music Interface

SECTION 3
CHECKOUT AND FAILURE ISOLATION

INSTALLATION CHECKOUT

RESISTANCE CHECK

Make the following resistance measurements at the station connector blocks under the following conditions.

- AC power cord disconnected from electrical outlet.
- Common equipment connected to station connector blocks.
- Stations wired, and wiring punched down on blocks.
- Bridging clips removed from blocks to isolate stations from common equipment.

1. Measure the resistance of each installed station and wiring from the station side of the connector blocks. Resistance values will vary with cable length and station type but should be within the following limits.

MEASURED PAIR	MEASURED STATION RESISTANCE IN OHMS
VOICE PAIR	40 - 150
DATA PAIR	0.3 - 100

2. Measure the resistance of the common equipment and cables from the common equipment side of the station connector blocks. Resistance values should be within the following limits.

MEASURED PAIR	MEASURED COMMON EQUIPMENT RESISTANCE IN OHMS
VOICE PAIR	40 - 50
DATA PAIR	0.3 - 0.5

VOLTAGE CHECK

Refer to **Table 3-3** and make the following voltage measurements at the station connector blocks under the following conditions:

- Bridging clips installed
- AC power connected to the common equipment

Measure the voltage across one voice line and one data line and then across the other voice line and the other data line for each even and odd station. The measured voltage must be as follows:

GENERAL CHECK

1. Check the red light emitting diode (LED) system status indicator. Be sure that it is on steady. If it is off or flashing, disconnect and reconnect the AC power plug.
2. Refer to the station User's Guide for operating information. Perform a general operational test of the system by exercising the system features from station port 10.

Table 3-3. Voltage Measurements

UNIT UNDER TEST	66M-xx BLOCK CONNECTION	METER LEAD POLARITY	MEASURED VOLTAGE
TYPICAL EVEN STATION (Repeat for each even sta.)	Voice 1	(+)	+34(+/- 8) VDC
	Data 3	(-)	
	Voice 2	(+)	+34 (+/- 8) VDC
	Data 4	(-)	
TYPICAL ODD STATION (Repeat for each odd sta.)	Voice 5	(+)	-34 (+/- 8) VDC
	Data 7	(-)	
	Voice 6	(+)	-34 (+/- 8) VDC
	Data 8	(-)	
Variant readings can indicate a possible wiring, station, or common equipment problem.			

FAILURE ISOLATION

SYSTEM STATUS INDICATOR

The red LED located near the fuse holder is the system status indicator. This indicator should turn on steady when AC power or the optional external battery power is applied to the common equipment. If the indicator flashes after power up, it could be indicating a processor failure. Unplug and reconnect the AC power, and observe the LED indication. If it still shows a flashing indication, equipment replacement may be necessary. A flashing indicator when battery power is being employed is an indication of battery discharge.

STATION SELF TEST

1. Disconnect the line cord at the station base.

NOTE: *The adjacent odd or even station will be disabled during the time that the station line cord is being disconnected and reconnected..*

2. Press and hold the MUTE button, and reconnect the line cord to the station connector. The station will automatically perform a self test routine. Release the MUTE button as soon as the test begins. The sequence of the test is as follows:
   - The indicators will light in sequence.
   - Indicators will then turn off in an orderly sequence.
   - The ringer will sound - Be sure that the ringer volume control is set to the medium or high volume setting. On some telephone models, the ringer may sound before the indicators are turned off.
3. Replace any station that does not pass the self test.

DSS/BLF CONSOLE SELF TEST

1. Disconnect the console line cord plug from the line.
2. Press and hold the station 10 select button while reconnecting the line cord plug to the line.

NOTE: *The companion station will be disabled during the time that the console is being disconnected and reconnected.*

3. Release the station 10 select button, and note that the BLF indicators will each turn on in sequence beginning with the station 10 indicator. The indicators will then turn off and the console will become operational.

FAILURE INDICATIONS

If erratic light indications or ring signals occur at a paired station, an open data pair at either station may be the fault.

- A station with an open data line may work properly on a short loop but fail on a long loop.

Stations are paired for overload current protection. If a fault occurs which causes more than 300 ma. of current to be drawn, the paired stations are disabled by circuit action.

Disconnect the disabled stations and reconnect them one at a time to isolate the faulty one.

SECTION 4
INSTALLER/USER INFORMATION REGARDING FCC RULES AND REGULATIONS

This electronic button system complies with Federal Communications Commission (FCC) Rules, Part 68. The FCC registration label on the KSU contains the FCC registration number, the ringer equivalence number, the model number, and the serial number or production date of the system.

NOTIFICATION TO TELEPHONE COMPANY

Unless a telephone operating company provides and installs the system, the telephone operating company which provides the lines must be notified before a connection is made to them. The lines (telephone numbers) involved, the FCC registration number, and the ringer equivalence number must be provided to the telephone company. The FCC registration number and the ringer equivalence number of this equipment are provided on the label attached to the KSU.The user/installer is required to notify the telephone company when final disconnection of this equipment from the telephone company line occurs.

COMPATIBILITY WITH TELEPHONE NETWORK

When necessary, the telephone operating company provides information on the maximum number of telephones or ringers that can be connected to one line, as well as any other applicable technical information. The telephone operating company can temporarily discontinue service and make changes which could affect the operation of this equipment. They must, however, provide adequate notice, in writing, of any future equipment changes that would make the system incompatible.

INSTALLATION REQUIREMENTS

Connection of the electronic button system to the telephone lines must be through a universal service order code (USOC) outlet jack supplied by the telephone operating company. If the installation site does not have the proper outlet, ask the telephone company business office to install one. The correct outlet jack for this system is either a type RJ21X or type RJ14C.

PARTY LINES AND COIN LINES

Local telephone company regulations may not permit connections to party lines and coin lines by anyone except the telephone operating company.

TROUBLESHOOTING

If a service problem occurs, first try to determine if the trouble is in the on-site system or in the telephone company equipment. Disconnect all equipment not owned by the telephone company.
If this corrects the problem, the faulty equipment must not be reconnected to the telephone line until the problem has been corrected. Any trouble that causes improper operation of the telephone network may require the telephone company to discontinue service to the trouble site after they notify the user of the reason.

REPAIR AUTHORIZATION

FCC regulations do not permit repair of customer owned equipment by anyone except the manufacturer, their authorized agent, or others who might be authorized by the FCC. However, routine repairs can be made according to the maintenance instructions in this publication, provided that all FCC restrictions are obeyed.

RADIO FREQUENCY INTERFERENCE

The electronic button system contains incidental radio frequency generating circuitry and, if not installed and used properly, may cause interference to radio and television reception. This equipment has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules. These limits are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area may cause interference to radio and television reception; in which case the user is encouraged to take whatever measures may be required to correct the interference. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: Reorient the television or radio's receiving antenna, and/or relocate the KSU, the individual telephone stations, and the radio or TV with respect to each other. If necessary, the user should consult the manufacturer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful: "How to Identify and Resolve Radio-TV Interference Problems." This booklet is available from the Government Printing Office, Washington D.C. 20402. Stock No. 004-000-00345-4.

This digital apparatus does not exceed the (Class A) limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pes de bruits radioélectriques dépassant les limites applicables aux appareils numériques (de la class A) prescrites dans le Réglement sur le brouillage radioélectrique édicté par le ministére des Communications du Canada.

RINGER EQUIVALENCE NUMBER

The REN of each line is 0.4B. The FCC requires the installer to determine the total REN for each line, and record it at the equipment.

CHAPTER 4
SYSTEM PROGRAMMING

SECTION 1
INTRODUCTION

System programming is divided into three categories:

- **Class Of Service Programming**: The class of service programming is unlimited as to the features that can be programmed using it. Class of service programming is usually performed by the installer when the system is first put in service.

- **Administration Programming**: The administration programming can be used to program all system features except line attributes. This procedure is usually employed by on-site administration personnel whenever system needs dictate.

- **Attendant Programming**: The attendant programming is limited to those features which may need re-programming by the attendant on a daily basis such as:

  - night transfer of ringing
  - music on hold
  - system speed dial numbers.

All programming is performed at station port 10 by dialing special codes and pressing special buttons as detailed in this chapter. **Figure 4-1** illustrates the button locations for applicable telephone models. **Figure 4-2** shows a block diagram illustration of the system programming.

It is recommended that a 14-line monitor telephone (such as mfg. code 6714X) be used for programming since it provides all needed program buttons and LED indicators for program status feedback.

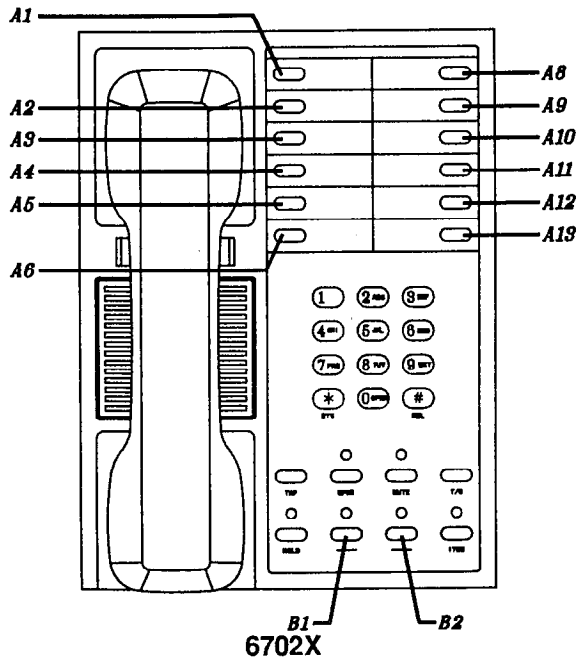
It is not recommended that the 6-line monitor telephone (mfg. code 6706X) be used for programming unless all of the installed system telephones are mfg. code 6706X telephones. If this telephone is used for programming the following special considerations must be noted:

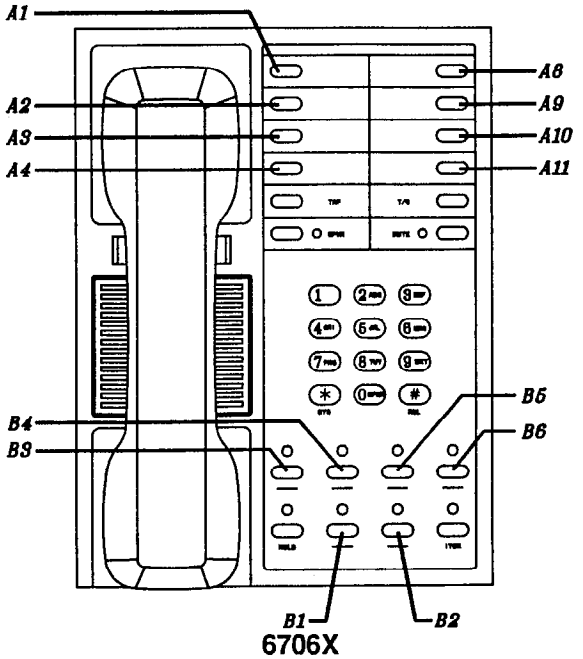
- Program button B1 = A5 and button B2 = A12 for all COS programming requirements except button mapping. When button mapping is performed on B1 and B2, with a line assignment represented by A5 (line 5) or A12 (line 12), press B1 or B2 twice. The first press represents the button location. The second press represent the line assignment.

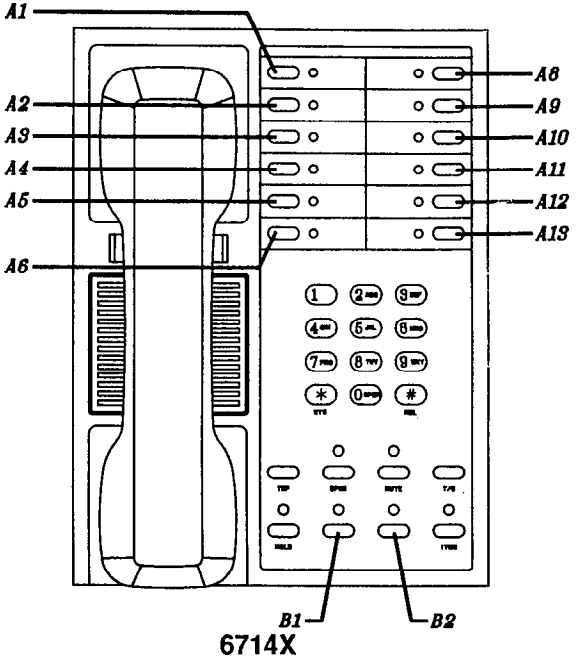
- Program buttons A6 and A13 cannot be represented on the mfg. code 6706X telephone.

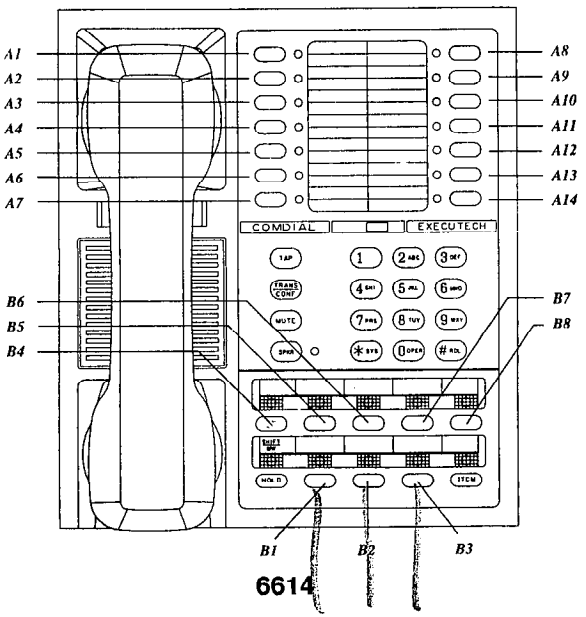
Programming can also be performed with an ExecuTech LCD speakerphone mfg. code: 6600E-xx. When this telephone is employed, the display shows the name of each class of service feature as it is being programmed. Programming can also be performed with an ExecuTech multiline telephone (such as models 6614E, 6614T, 6620E or 6620T).

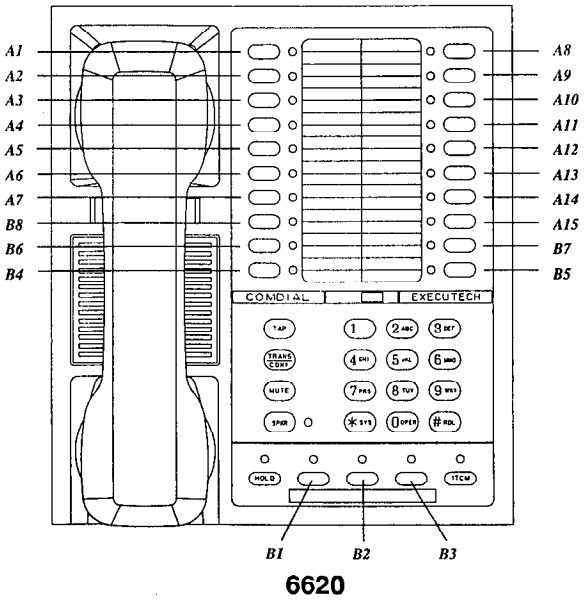
Programming overlays for all applicable telephone models are included at the end of this chapter.











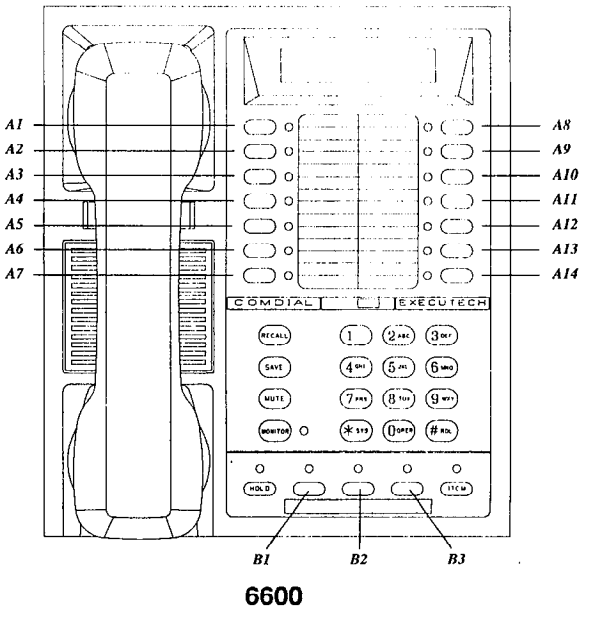
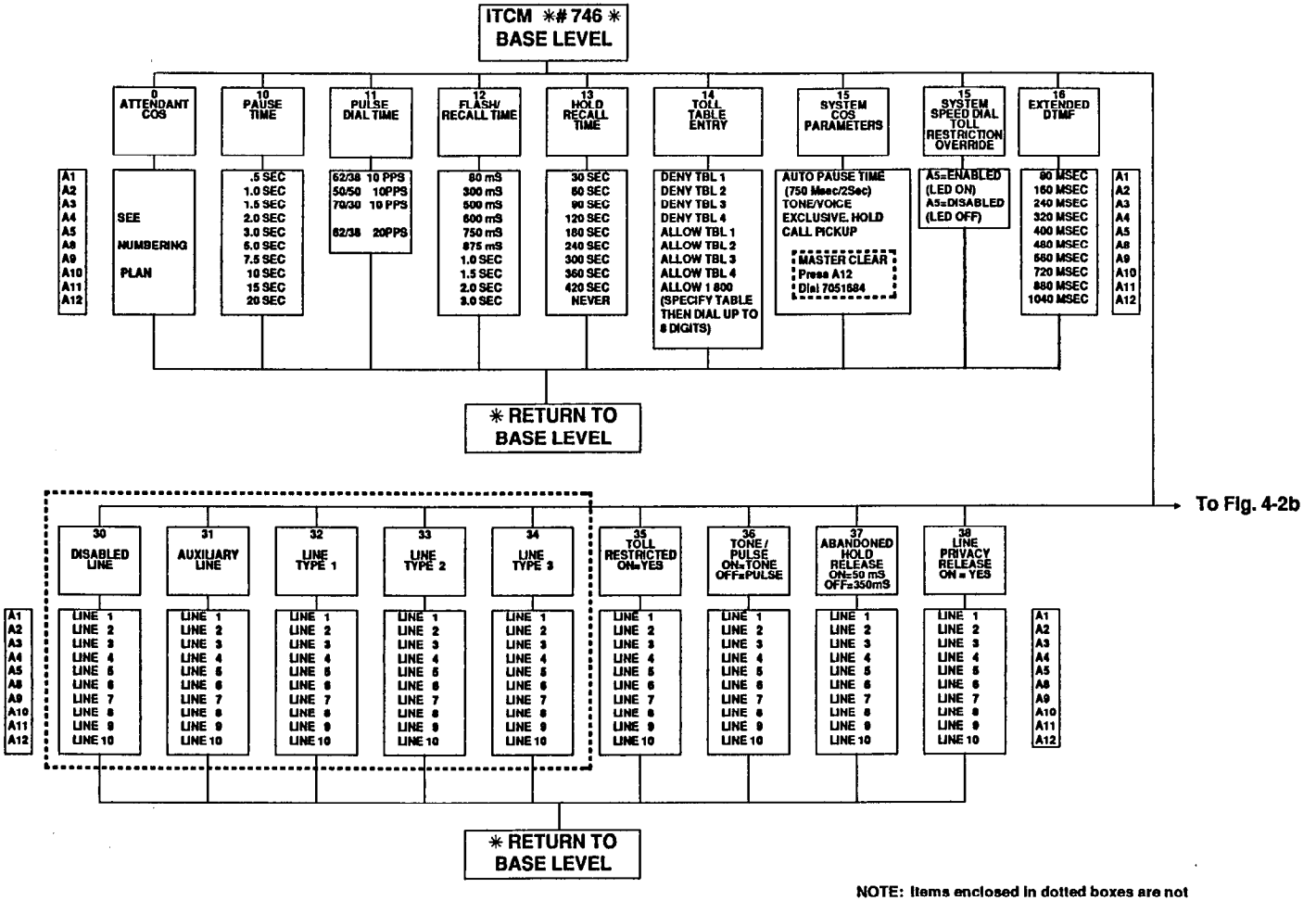


Figure 4-1. Program Key Locations



NOTE: Items enclosed in dotted boxes are not permitted for System Administrator (ITCM * #236 * for base level).

Figure 4-2a. System Programming Block Diagram

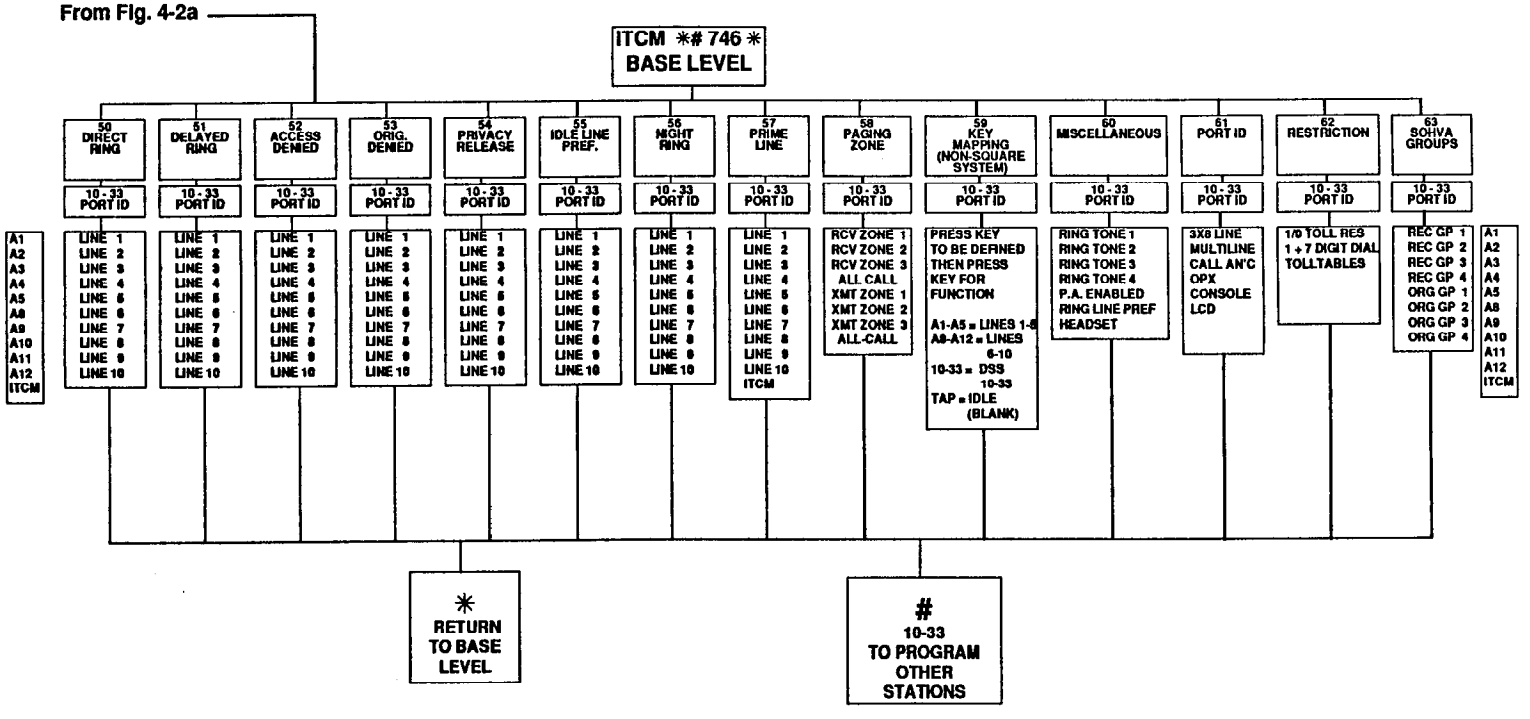


Figure 4-2b. System Programming Block Diagram

SECTION 2
CLASS OF SERVICE PROGRAMMING

Class of service programming is usually performed by the system installer. Class of service programming procedures provide the means for programming all of the system variables including the master clear. The installer may elect to program only the line attributes and allow the remainder of the system variables to remain set to their default values.

Perform class of service programming as shown below.

System administration programming can be performed by on-site personnel to change all system variables, except master clear and line attributes, to match site requirements.

❶ Mark the desired selections in the charts to record programming needs.

❷ Enter the base level programming mode.
Press: **ITCM ✳ # 7 4 6 ✳.**
(Press: **ITCM ✳ # 2 3 6 ✳** for System Administration programming)

TYPICAL FEATURE PROGRAMMING SEQUENCE

Enter Base Level: Press **ITCM**, then dial **✳ # 7 4 6 ✳.**

Automatic Pause Insertion: When the system stores a dialed number for later redial, it automatically stores a pause whenever the user waits between digits. The wait period is programmable.	Dial **15.** Press prog. button **A1.** LED ON = 2 Sec. Press ✳ for next feature.	BUTTON: A1 | A1 TIME: 750 Msec | 2 Sec ENTRY DEFAULT = 2 SEC.
Tone or Voice Signalling: Intercom calls can be tone signalled or voice signalled. The first choice in signaling is programmable.	Dial **15.** Press **A2** LED ON = TONE Press ✳ for next feature.	BUTTON: A2 | A2 FEA.: TONE | VOICE ENTRY DEFAULT = VOICE
Exclusive Hold: The user can set a hold condition whereby only the station placing the call on hold can retrieve it. Exclusive hold can be disabled by programming action.	Dial **15.** Press **A3.** LED ON = ENABLED Press ✳ for next feature.	BUTTON: A3 | A3 FEA.: ENABLED | DISABLED ENTRY DEFAULT = ENABLED
Call Pickup System: A call can be answered at one telephone when it is ringing at another telephone. Call pickup can be disabled by programming action.	Dial **15.** Press **A4.** LED ON = ENABLED Press ✳ for next feature.	BUTTON: A4 | A4 FEA.: ENABLED | DISABLED ENTRY DEFAULT = DISABLED

Press ✳ **SPKR** to end programming.

❸ Dial a feature code to select a programming parameter.

A current program setting is indicated by a lighted LED next to the applicable programming button. When a toggle (ON/OFF) action is provided by a single button, the lighted LED indicates when the feature is active.

❹ Press ✳ to return to the base level.

❺ Press **SPKR** to end procedure.

Enter Base Level: Press **ITCM**, then dial ✳ **# 7 4 6** ✳.

Master Clear: The entire programming configuration as discussed in the following programming procedures, can be defaulted to the factory settings all at once using this master clear procedure.

CAUTION

This programming action clears all memory entries including any previously programmed autodial numbers, and returns the system to a startup default condition.

Press **ITCM**.
Dial ✳ **# 7 4 6** ✳.
Dial **15**.
Press **A12**.
Dial **7051684**.
Press ✳ for base level
OR
Press **MNTR (SPKR)**.

Pause Time: During auto dials and speed dials it is sometimes necessary to delay the sending of digits to give switching equipment time to prepare to receive the digits. A pause can be stored to effect the delay. A pause is stored whenever the user presses the HOLD button. The pause length options are stored in seconds.

Dial **10**.
Press prog. button.
Press ✳ for next feature.

BUTTON	A1	A2	A3	A4	A5	A8	A9	A10	A11	A12
SEC	0.5	1.0	1.5	2.0	3.0	5.0	7.5	10	15	20
ENTRY										
DEFAULT = 2.0 SEC.										

Pulse Dial Time: Either ten or twenty pulses per second, and three different make/break ratios for the pulse dialing signals (rotary dial signals) can be set to match CO requirements.

Dial **11**.
Press prog. button.
Press ✳ for next feature.

BUTTON	A1	A2	A3	A4
RATIO	62/38 @ 10 pps	50/50 @ 10 pps	70/30 @ 10 pps	62/38 @ 20 pps
ENTRY				
DEFAULT = 62/38 @ 10 PPS				

Recall/Flash: A line disconnect (recall) or a PBX feature select signal (flash) can be generated depending upon the programmed time.

Dial **12**.
Press prog. button.
Press ✳ for next feature.

BUTTON	A1	A2	A3	A4	A5	A8	A9	A10	A11	A12
SEC	.080	.300	.500	.600	.750	.875	1.0	1.5	2.0	3.0
ENTRY										
DEFAULT = 2.0 SEC.										

Timed Hold Recall: After a call has been on hold for a programmed length of time, the system will recall the station that placed the call on hold. The timing is in seconds.

Dial **13**.
Press prog. button.
Press ✳ for next feature.

BUTTON	A1	A2	A3	A4	A5	A8	A9	A10	A11	A12
SEC	30	60	90	120	180	240	300	360	420	never
ENTRY										
DEFAULT = 30 SEC.										

Press ✳ **SPKR** to end programming.

Enter Base Level: Press **ITCM**, then dial ✳ **# 7 4 6** ✳.

14, 35, 62

Flexible Toll Restriction: Restricts stations from dialing a range of number combinations while allowing specific exceptions. The restrictions are specified by entries on a deny table while the exceptions are specified by entries on an allow table. In addition, a preprogrammed 1+800 allow table allows that dialing feature regardless of other restrictions which may be in effect. These programmed tables must be assigned on a per station basis before the restrictions can take effect.

- Maximum of 8 digits per line entry.
- 1+911 and 911 can never be restricted.
- Allow entries override deny entries.

***NOTE**: The deny and allow entries are part of one toll table. Any stations which receive this table assignment will be subject to both deny and allow restrictions.*

Assign the restriction to the lines and stations per the instructions on page 4-8.

Dial **14.**
Select table
- **A1** = DENY ENTRY LINE 1
- **A2** = DENY ENTRY LINE 2
- **A3** = DENY ENTRY LINE 3
- **A4** = DENY ENTRY LINE 4
- **A5** = ALLOW ENTRY LINE 1
- **A8** = ALLOW ENTRY LINE 2
- **A9** = ALLOW ENTRY LINE 3
- **A10** = ALLOW ENTRY LINE 4
- **A11** = ALLOW 1+800 calls

Dial number.
(**#** = match anything digit.)
Select next table, and repeat.
Press ✳ for next feature.

TABLE TYPE	ENTRY LINE	ENTRY DIGITS 1	2	3	4	5	6	7	8
DENY	1	1	7	1	4				
	2								
	3								
	4								
ALLOW	1	1	2	1	3				
	2	1	3	1	0				
	3								
	4								
ALLOW 1+800		YES			NO				

TYPICAL EXAMPLE

TABLE TYPE	ENTRY LINE	ENTRY DIGITS 1	2	3	4	5	6	7	8
DENY	1	9	7	6					
	2	4	1	1					
	3								
	4								
ALLOW	1	1	8	0	4	9	7	8	#
	2								
	3								
	4								
DEFAULT = NONE ASSIGNED									

Feed-Back Tone:Choose the type of feed-back tone supplied when intercom calling a station that is busy on an outside line. Either select a busy tone or leave the system defaulted to provide a ring-back tone.

Dial **15.**
Press **A8.**
LED ON = Busy Tone

RING-BACK	
BUSY TONE	
DEFAULT = RING-BACK	

Press ✳ **SPKR** to end programming.

Enter Base Level: Press **ITCM**, then dial ✳ **# 7 4 6** ✳.

Assign restriction to lines: Lines must be programmed to accept toll restriction before the restriction that is assigned to the stations will take effect.

Dial **35**.
Press prog. buttons to assign restriction to lines
Press ✳ for next feature

BUTTON	A1	A2	A3	A4	A5	A8	A9	A10	A11	A12
LINE	1	2	3	4	5	6	7	8	9	10
ENTRY										
DEFAULT = NONE ASSIGNED										

Assign restrictions to stations: Station dialing can be restricted with 1/0 toll restriction and with deny/allow toll table restriction. Either method can be assigned to restrict station dialing on a per station basis. Both methods can be assigned at the same time if that arrangement is desired. Also, 1+7-digit dialing can be allowed when needed. When 1+7-digit dialing is allowed, the 1/0 restriction must also be assigned.

Dial **62.**
Dial port ID (**10-33**).
- Select 1/0 toll restriction.
  - Press **A1**

- Select 1=7-digit allow, only if needed. Note that, 1/0 restriction must also be selected .
  - Press **A1, A2**

- Select deny/allow toll table restriction (if required and programmed).
  - Press **A3.** Note that 1/0 or 1/0 and 1+7-digit restriction can also be selected if desired by pressing:
    - **A1, A3** or **A1, A2, A3**

Dial **#** + PORT ID for next sta.
OR
Press ✳ for next feature.

STA.	ENTRIES
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
DEFAULT = NONE ASSIGNED	

Press ✳ **SPKR** to end programming.

Enter Base Level: Press **ITCM**, then dial ✳ **# 7 4 6** ✳.

System Speed Dial Toll Restriction Override: This feature provides a method for overriding toll restriction parameters when a system speed dial number is dialed. With this feature enabled, it is possible to restrict calls to certain areas with assigned toll restriction tables yet allow specific numbers in the restricted areas to be called by storing them as system speed dial numbers.	Dial **15.** Press **A5.** LED ON = override enabled. Press ✳ for next feature.	SYSTEM SPEED DIAL TOLL RESTRICTION ENABLED DISABLED DEFAULT = DISABLED
Automatic Pause Insertion: When the system stores a dialed number for later redial, it automatically stores a pause whenever the user waits between digits. The wait period is programmable.	Dial **15.** Press prog. button **A1.** LED ON = 2 Sec. Press ✳ for next feature.	BUTTON: A1 / A1 TIME: 750 Msec / 2 Sec ENTRY DEFAULT = 2 SEC.
Tone or Voice Signalling: Intercom calls can be tone signalled or voice signalled. The first choice in signalling is programmable.	Dial **15.** Press **A2** LED ON = TONE Press ✳ for next feature.	BUTTON: A2 / A2 FEA.: TONE / VOICE ENTRY DEFAULT = VOICE
Exclusive Hold: The user can set a hold condition whereby only the station placing the call on hold can retrieve it. Exclusive hold can be disabled by programming action.	Dial **15.** Press **A3.** LED ON = ENABLED Press ✳ for next feature.	BUTTON: A3 / A3 FEA.: ENABLED / DISABLED ENTRY DEFAULT = ENABLED
Call Pickup System: A call can be answered at one telephone when it is ringing at another telephone. Call pickup can be disabled by programming action.	Dial **15.** Press **A4.** LED ON = ENABLED Press ✳ for next feature.	BUTTON: A4 / A4 FEA.: ENABLED / DISABLED ENTRY DEFAULT = DISABLED

PROGRAMMING NOTE: *All features described on this page can be programmed after dialing 15 once. Just press the program button for each feature to be programmed.*

Press ✳ **SPKR** to end programming.

Enter Base Level: Press **ITCM**, then dial ✳ **# 7 4 6** ✳.

Extended DTMF: The system can access answering machines, banking computers, voice mail, etc. that require DTMF tones that are longer than standard tones. This programming option enables the programmed DTMF tone to automatically activate after the station has been off-hook 10 sec. or more	Dial **16**. Press prog. button. Press ✳ for next feature.	BUTTON: A1 A2 A3 A4 A5 A8 A9 A10 A11 A12 MSEC: 80 160 240 320 400 480 560 720 880 1040 DEFAULT = 80 MSEC.
Line Disabled: A line can be taken out of service because of line defect or other reason.	Dial **30**. Press prog. button. LED ON = DISABLED Press ✳ for next feature.	BUTTON: A1 A2 A3 A4 A5 A8 A9 A10 A11 A12 LINE: 1 2 3 4 5 6 7 8 9 10 ENTRY: DEFAULT = NONE ASSIGNED
Auxiliary Line: A line can be conditioned to serve as a port for an external paging amplifier. (See Note 1)	Dial **31**. Press prog. button. LED ON = AUX LINE Press ✳ for next feature.	BUTTON: A1 A2 A3 A4 A5 A8 A9 A10 A11 A12 LINE: 1 2 3 4 5 6 7 8 9 10 ENTRY: DEFAULT = NONE ASSIGNED
Line Type 1: A line port is assigned as type 1 when any enabled toll restriction is to be applied with the first digit dialed. Such a line type is often assigned when a CO line is connected. (See Note 1)	Dial **32**. Press prog. button. LED ON = TYPE 1 Press ✳ for next feature.	BUTTON: A1 A2 A3 A4 A5 A8 A9 A10 A11 A12 LINE: 1 2 3 4 5 6 7 8 9 10 ENTRY: DEFAULT = ALL LINES ASIGNED
Line Type 2: A line port is assigned as type 2 when any enabled toll restriction is to be applied beginning with the second digit dialed. Such a line type is often assigned when a PBX or CENTREX line with any trunk access code is connected. (See Note 1)	Dial **33**. Press prog. button. LED ON = TYPE 2 Press ✳ for next feature.	BUTTON: A1 A2 A3 A4 A5 A8 A9 A10 A11 A12 LINE: 1 2 3 4 5 6 7 8 9 10 ENTRY: DEFAULT = NONE ASIGNED

NOTE 1: *When a line type is unassigned (LED OFF), it enters a disabled state. It must be reassigned as a particular type be enabled. It cannot be enabled using the Line Disabled feature.*

Press ✳ **SPKR** to end programming.

Enter Base Level: Press **ITCM**, then dial ✳ **# 7 4 6** ✳.

Line Type 3: A line port is assigned as type 3 when any enabled toll restriction is to be applied beginning with the second digit dialed whenever the first digit is a 9. If the first digit is not a 9, no restriction is applied. Such a line type is often assigned when a PBX or CENTREX line with a trunk access code of 9 is connected. (See Note 1 on page 4-10)	Dial **34** Press prog. button. LED ON = TYPE 3 Press ✳ for next feature.	BUTTON | A1 | A2 | A3 | A4 | A5 | A8 | A9 | A10 | A11 | A12 LINE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 ENTRY | | | | | | | | | | | **DEFAULT = NONE ASSIGNED**
Pulse/Tone Switchable: When rotary dial lines are installed, the user can switch from pulse (rotary dial signals) to tone (Dual Tone Multiple Frequency signals) for accessing special circuits requiring DTMF tones such as banking machines. This pulse/tone switchability must be programmed for the line. Lines are defaulted for tone signalling only.	Dial **36.** Press prog. button. LED ON = TONE Press ✳ for next feature.	BUTTON | A1 | A2 | A3 | A4 | A5 | A8 | A9 | A10 | A11 | A12 LINE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 ENTRY | | | | | | | | | | | **DEFAULT = TONE**
Abandoned Hold Release: When a distant party abandons a hold condition and disconnects, the central office will send a forward disconnect signal to the telephone system. The forward disconnect signal may be either 50 msec. or 350 msec. in length. Program the system to match central office time.	Dial **37.** Press prog. button. LED ON = 50 msec. Press ✳ for next feature.	BUTTON | A1 | A2 | A3 | A4 | A5 | A8 | A9 | A10 | A11 | A12 LINE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 ENTRY | | | | | | | | | | | **DEFAULT = 50 MSEC.**
Automatic Privacy: A line can be made private or nonprivate. In the private mode, a station has exclusive use of a line during a call. Lines are private unless reprogrammed to be nonprivate.	Dial **38.** Press prog. button. LED ON = NONPRIVATE Press ✳ for next feature	BUTTON | A1 | A2 | A3 | A4 | A5 | A8 | A9 | A10 | A11 | A12 LINE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 ENTRY | | | | | | | | | | | **DEFAULT = PRIVATE**

Press ✳ **SPKR** to end programming.

Enter Base Level: Press **ITCM**, then dial ✳ **# 7 4 6** ✳.

		STATION 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Port Definition: A station port can be programmed to accept one of several different types of station equipment or to support off-hook call announce connections. **3/8 LINE TELEPHONE** = 6414X, 6414S **MULTILINE TELEPHONE** = 6614, 6614S, 6614E, 6614T, 6620, 6620S, 6620E, 6620T, 6702X, 6706X, 6714X **OFF-HOOK CALL ANNOUNCE** = All SOHVA - equipped telephones (See page 1-3) DB32S **OPX UNIT** = OPX-1 **DSS/BLF CONSOLE** = EB32X, DB32, DB40, DB70 **LCD SPEAKERPHONE** = 6600S, 6600E	Dial **61**. Dial port ID (**10-33**). Press prog. button. • **A1** = 3/8 LINE TELEPHONE • **A2** = MULTILINE TELEPHONE • **A3** = OFF-HOOK CALL ANNNOUCE • **A4** = OPX UNIT (Prime line intercom automatically enabled when OPX port is assigned) • **A5** = DSS/BLF CONSOLE • **A8** = LCD SPEAKERPHONE Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.	**DEFAULT = MULTILINE TELEPHONE**
Flexible Ringing Assignment: Ringing assignments are programmable on a per line/per station basis. Delayed ringing can be program enabled for some lines and direct, or immediate, ringing can be program enabled for others.	**Direct ringing** Dial **50**. Dial port ID (**10-33**). Press **A1-A5, A8-A12** (for lines 1-10) Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.	**DEFAULT = ALL LINES ASGND AT STA 10, 17 & 32**
	Delayed ringing Dial **51**. Dial port ID (**10-33**). Press **A1-A5, A8-A12** (for lines 1-10). Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.	**DEFAULT = NO LINES ASGND**

Press ✳ **SPKR** to end programming.

Enter Base Level: Press **ITCM**, then dial ✳ **# 7 4 6** ✳.

		STATION 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Night Transfer (of ringing): The day, or normal, ringing of incoming lines can be transferred to a particular station or stations by the attendant for off-hour or special purpose answering. Stations are assigned to receive night transfer by programming action.	Dial **56**. Dial port ID (**10-33**). Press **A1-A5**, **A8-A12** (for lines 1-10). Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.	**DEFAULT = ALL LINES ASGND AT STA 10, 17 & 32**
Access Denied: Access to particular lines can be denied at individual stations.	Dial **52**. Dial port ID (**10-33**). Press **A1-A5**, **A8-A12** (for lines 1-10). LED ON = DENIED Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.	**DEFAULT = DISABLED**
Originating Denied: The ability to originate calls on certain lines can be denied at individual stations.	Dial **53**. Dial port ID (**10-33**). Press **A1-A5**, **A8-A12** (for lines 1-10). LED ON = DENIED Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.	**DEFAULT = DISABLED**
Privacy Release: A line can be made non-private at a particular station while remaining private at all other stations. Stations can be programmed to automatically release line privacy when on certain lines.	Dial **54**. Dial port ID (**10-33**). Press **A1-A5**, **A8-A12** (for lines 1-10). LED ON = RELEASED Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.	**DEFAULT = NOT RELEASED**

Press ✳ **SPKR** to end programming.

Enter Base Level: Press **ITCM**, then dial ✳ **# 7 4 6** ✳.

		STATION 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Idle Line Preference: Going off-hook automatically selects an idle line for use. Lines available for selection are assigned by programming.	Dial **55**. Dial port ID (**10-33**). Press **A1-A5, A8-A12** (for lines 1-10). Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.	**DEFAULT = DISABLED**
Ringing Line Preference: A ringing line will automatically be answered when a station is taken off-hook.	Dial **60**. Dial port ID (**10-33**). Press prog. button **A8**. LED ON = AS'GND Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.	**DEFAULT = DISABLED**
Prime Line: A line designated to a particular station is automatically selected for use when that station is taken off-hook.	Dial **57**. Dial port ID (**10-33**). Press **A1-A5, A8-A12** (for lines 1-10) or press **ITCM**. Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.	**DEFAULT = DISABLED**

Press ✳ **SPKR** to end programming.

Enter Base Level: Press **ITCM**, then dial ✳ **# 7 4 6** ✳.

		STATION 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
All-Call and Zone Paging: Stations can receive voice announcements through the telephone speaker, or through an external paging speaker connected to a PA port, and transmit them with the telephone handset. Announcements can be to certain areas of the system or to all stations in the system.	Dial **58**. Dial port ID (**10-33**). Press prog. button. • **A1** = RECEIVE ZONE 1 • **A2** = RECEIVE ZONE 2 • **A3** = RECEIVE ZONE 3 • **A4** = RECEIVE ALL-CALL • **A5** = XMIT ZONE 1 • **A8** = XMIT ZONE 2 • **A9** = XMIT ZONE 3 • **A10** = XMIT ALL-CALL Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.	**DEFAULT = ALL CALL ASGND**
Personal Ringing Tones: A station can be programmed to ring in one of four distinctive tones.	**Dial 60**. Dial port ID (**10-33**). Press prog. button. • **A1** = TONE 1 • **A2** = TONE 2 • **A3** = TONE 3 • **A4** = TONE 4 Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.	**DEFAULT = TONE 1**
External Paging Interface - Station Port: A station port can be programmed to interface with an external paging amplifier (PA port).	Dial **60**. Dial port ID (**10-33**). Press prog. button **A5**. Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.	**DEFAULT = NOT ASSIGNED**

Press ✳ **SPKR** to end programming.

Enter Base Level: Press **ITCM**, then dial ✳ **# 7 4 6** ✳.

		STATION																							
		10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
Headset Interface: A station port can be programmed to allow headset operation provided by a special telephone.	Dial **60**. Dial port ID (**10-33**). Press prog. button **A9**. Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.																								

Secure Off-Hook Voice Announce (SOHVA) Groups: The ability of a station to receive and/or originate SOHVA or OHVA calls can be disabled through programming so that certain stations can be grouped together for SOHVA or OHVA calling between one another while other stations in the system are excluded from this group. Stations can be arranged in up to four different groups for exclusive SOHVA or OHVA calling.

NOTE: SOHVA and OHVA calling requires two data-paired station ports.

Dial **63**.
Dial port ID (**10-33**).
- Press progam button to disable receive capability.
  LED ON = disabled
  A1 = receive group 1
  A2 = receive group 2
  A3 = receive group 3
  A4 = receive group 4
- Press progam button to disable originate capability.
  LED ON = disabled
  A5 = originate group 1
  A8 = originate group 2
  A9 = originate group 3
  A10 = originate group 4

Press ✳ for next feature.

STA	REC GP 1	2	3	4	ORIG GP 1	2	3	4
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								

STA	REC GP 1	2	3	4	ORIG GP 1	2	3	4
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								

DEFAULT = ALL STATIONS RECEIVE AND ORIGINATE SOHVA AND OHVA

Press ✳ **SPKR** to end programming.

Enter Base Level: Press **ITCM**, then dial ✳ **# 7 4 6** ✳.

Non-Square System: Each programmable button at every station can be assigned individually (mapped) to select any line assigned to that station or to provide other button functions. Programmable buttons can be assigned as direct station select (DSS) buttons to provide one-key access to system stations. Programmable buttons can be assigned as idle (blanked) to provide autodial buttons for the user.

NOTE: *When a line is reassigned from a defaulted button location to a different button location, the defaulted button must then be assigned to an idle condition (blanked). This action must be taken to ensure that status indications for the line will appear at the LED of the button that is now assigned to have line appearance.*

A button must be blanked even though it does not appear on the particular telephone being programmed.

1. Dial **59**.
2. Dial port ID (10-33)
3. Press station button to be programmed.
   - **A1 - A14** and **B1 - B8**.

NOTE: *If programming with a model 6702X or 6714X telephone that does not include a full complement of buttons, dial a number to select the button to be programmed*

1 - 8 = B1 - B8
9 = A7
0 = A14

4. Press prog. button to assign line.
   - **A1 - A5** = Lines 1 - 5.
   - **A8 - A12** = Lines 6 - 10

   -OR-

   - Dial **10 - 33** for DSS Sta 10 - 33

   -OR-

   Press **TAP** for idle (blank) buttons for user autodial purposes
5. Press **#** + PORT ID for next station

   -OR-

   Press ✳ for next feature.

EXAMPLE: To re-assign line 7 from B7 default to A8 location at station port 15 containing model 6706X telephone,

1. Dial **15** (for station port 15)
2. Press **A8** (to select button A8)
3. Press **A9** (to re-assign line 7)
4. Dial **7** (to select B7 location even though not present on model 6706X telephone).
5. Press **TAP** (to move line 7 status LED for button A8)

BUTTON	B1	B2	B3	B4	B5	B6	B7	B8	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14
STA 10																						
STA 11																						
STA 12																						
STA 13																						
STA 14																						
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STA 31																						
STA 32																						
STA 33																						

DEFAULT SETTINGS

B1 = LINE 1
B2 = LINE 2
B3 = LINE 3
B4 = LINE 4
B5 = LINE 5
B6 = LINE 6
B7 = LINE 7
B8 = LINE 8
A7 = LINE 9
A14 = LINE 10

Press ✳ **SPKR** to end programming.

SECTION 3
ATTENDANT PROGRAMMING

Attendant programming can be performed from station 10 at any time during system operation.

NIGHT TRANSFER (of ringing)

The day, or normal, ringing of incoming lines can be transferred to a particular station or stations by the attendant for off-hour or special purpose answering.

1. Press **ITCM** ✳ **#** .
2. Dial **03**.
3. Press prog. button **A1** to toggle feature on or off. The light next to program key **A1** will turn on when night transfer is active and ITCM light will flash.
4. Press ✳ for next feature or press **MNTR (SPKR)** to end.

MUSIC ON HOLD

Music is provided to outside lines that are placed on hold if an external music source is connected to the system. Music on hold can be disabled by attendant action.

1. Press **ITCM** ✳ **#.**
2. Dial **04**.
3. Press prog. button **A1** to toggle feature on or off. The light next to the program key **A1** will turn on when music on hold is active.
4. Press ✳ for next feature or press **MNTR (SPKR)** to end.

SYSTEM SPEED DIALING

A special system-wide list of numbers can be programmed for automatic dialing by all users.

1. Press **ITCM** ✳ **#.**
2. Dial **02.**
3. Dial location **(01-30)**. Listen for tone bursts.
4. Press line button for preselect (if desired).

NOTE: *When no line is preselected and the system speed dial is used, the system will automatically pick the prime line assigned to the station (if enabled) or pick the most previously used line at that station.*

5. Dial number (up to 15 digits).
6. Press **TRANS/CONF** button for next location and repeat procedure.
   -OR-
   Press **SPKR** to end.
   -OR-
7. Press **TRANS/CONF** button, then press ✳ for next feature.
8. Press ✳ for next feature or press **MNTR (SPKR)** to end.

LOC	NUMBER	LOC	NUMBER	LOC	NUMBER
01		11		21	
02		12		22	
03		13		23	
04		14		24	
05		15		25	
06		16		26	
07		17		27	
08		18		28	
09		19		29	
10		20		30	

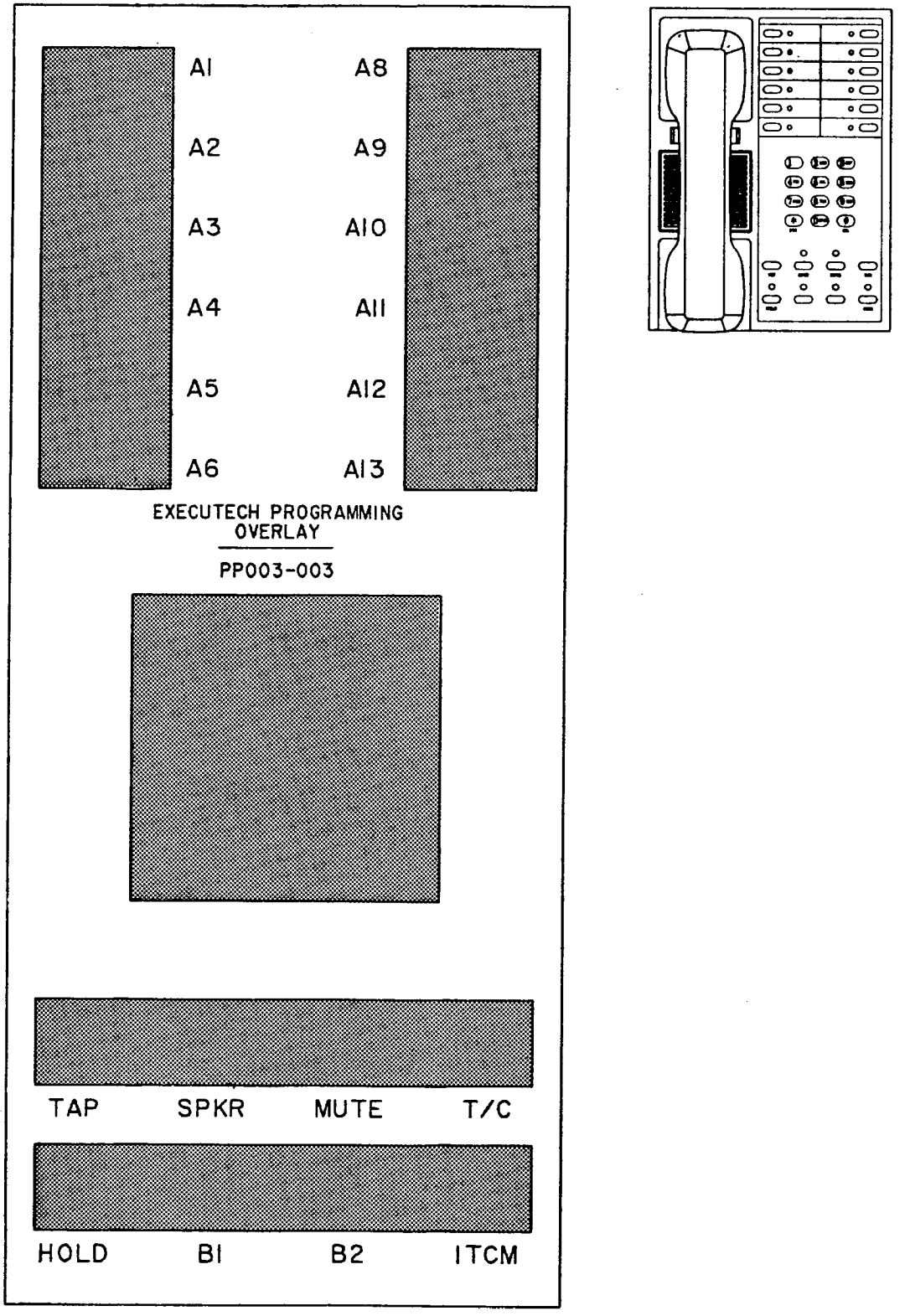
SYSTEM CLOCK

If the system has been modified to provide LCD speakerphone support, the system clock can be programmed to maintain current date and time information. The display will not show the date and time until this feature is programmed as follows:

1. Press **ITCM** ✳ **#** .
2. Dial **01**.
3. Dial two digits **(00-99)** for year.
4. Dial two digits **(01-12)** for month.
5. Dial two digits **(01-31)** for day.
6. Dial two digits **(00-23)** for hour.
7. Dial two digits **(00-59)** for minute.
8. Dial one digit **(1-7)** for day of week -- Sun. = 1, Sat. = 7.
9. Press ✳ for next feature or press **MNTR (SPKR)** to end.

STATION 10 - PROGRAMMING OVERLAY

- Cut out along border.
- Cut out shaded openings.
- Fit over station faceplate.



STATION 10 - PROGRAMMING OVERLAY

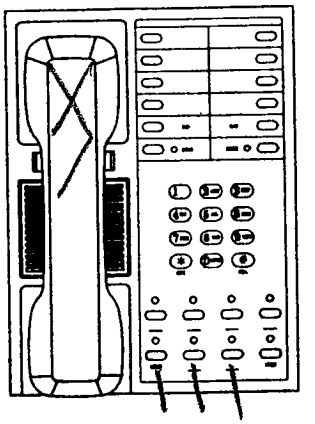
- Cut out along border.
- Cut out shaded openings.
- Fit over station faceplate.

Mike Smidt
800
818.904 0235

	A1	A8	
	A2	A9	
	A3	A10	
	A4	A11	
	TAP	T/C	
	SPKR	MUTE	

EXECUTECH XE SYSTEM
PROGRAMMING OVERLAY
PP003-002

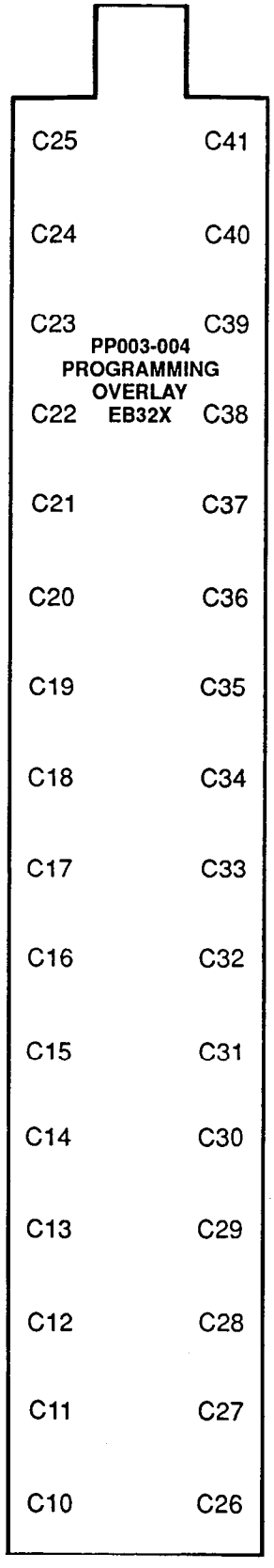
B3	B4	B5	B6	
HOLD	A5 (OTHER COS) B1 (KEY MAPPING)	A12 (OTHER COS) B2 (KEY MAPPING)		ITCM

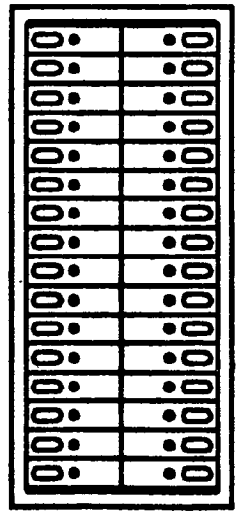


PERFORMING CLASS OF SERVICE PROGRAMMING WITH A MODEL 6706X TELEPHONE IS NOT RECOMMENDED UNLESS ALL TELEPHONES INSTALLED IN THE SYSTEM ARE MODEL 6706X TELEPHONES.

STATION 10 - PROGRAMMING OVERLAY

- Cut out along border.
- Fit over station faceplate.





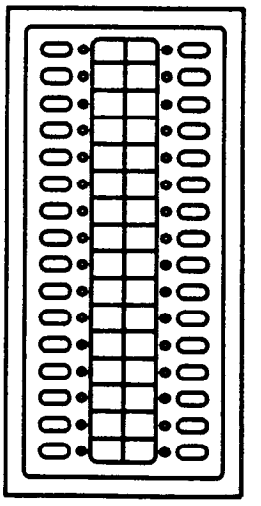
32-BUTTON ADJUNCT FEATURE MODULE EB32X

STATION 10 - PROGRAMMING OVERLAY

- Cut out along border.
- Fit over station faceplate.

703804-456
PROGRAMMING
OVERLAY
DB32S

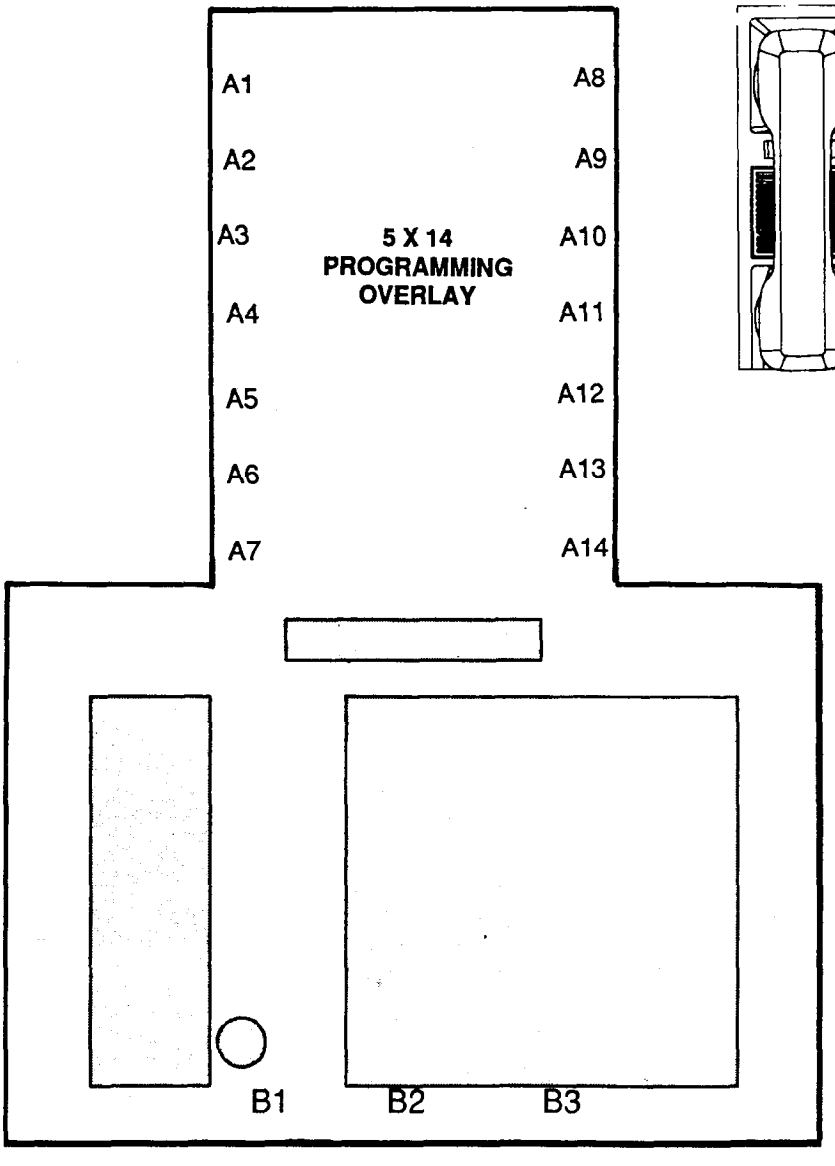
C25	C41
C24	C40
C23	C39
C22	C38
C21	C37
C20	C36
C19	C35
C18	C34
C17	C33
C16	C32
C15	C31
C14	C30
C13	C29
C12	C28
C11	C27
C10	C26

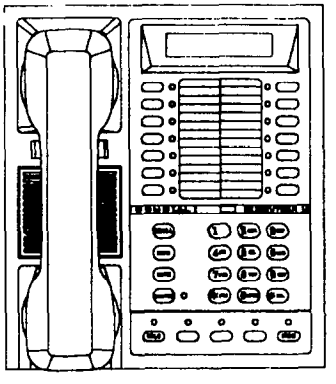


32-BUTTON ADJUNCT
FEATURE MODULE
DB32S

STATION 10 - PROGRAMMING OVERLAY

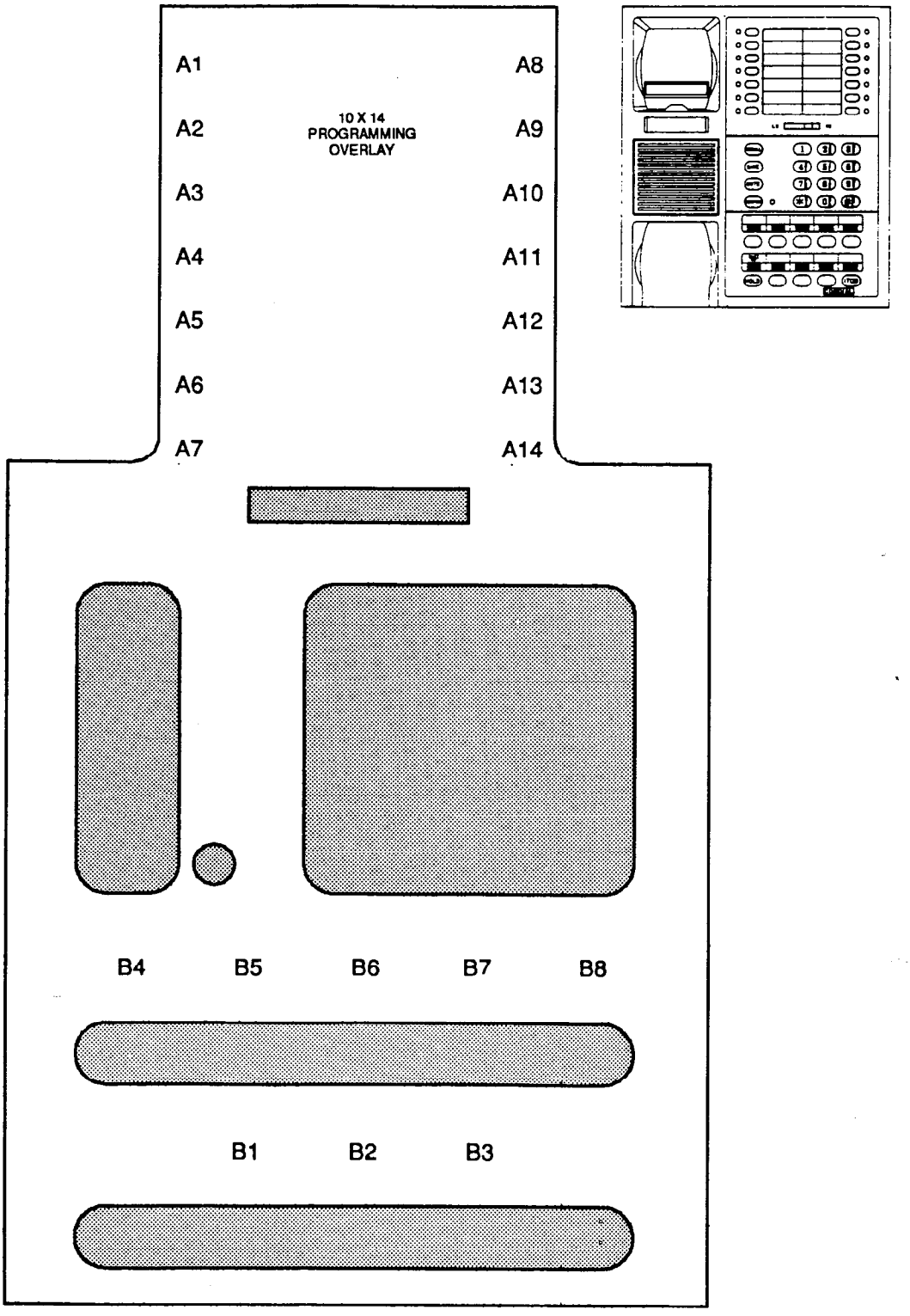
- Cut out along border.
- Cut out shaded openings.
- Fit over station faceplate.





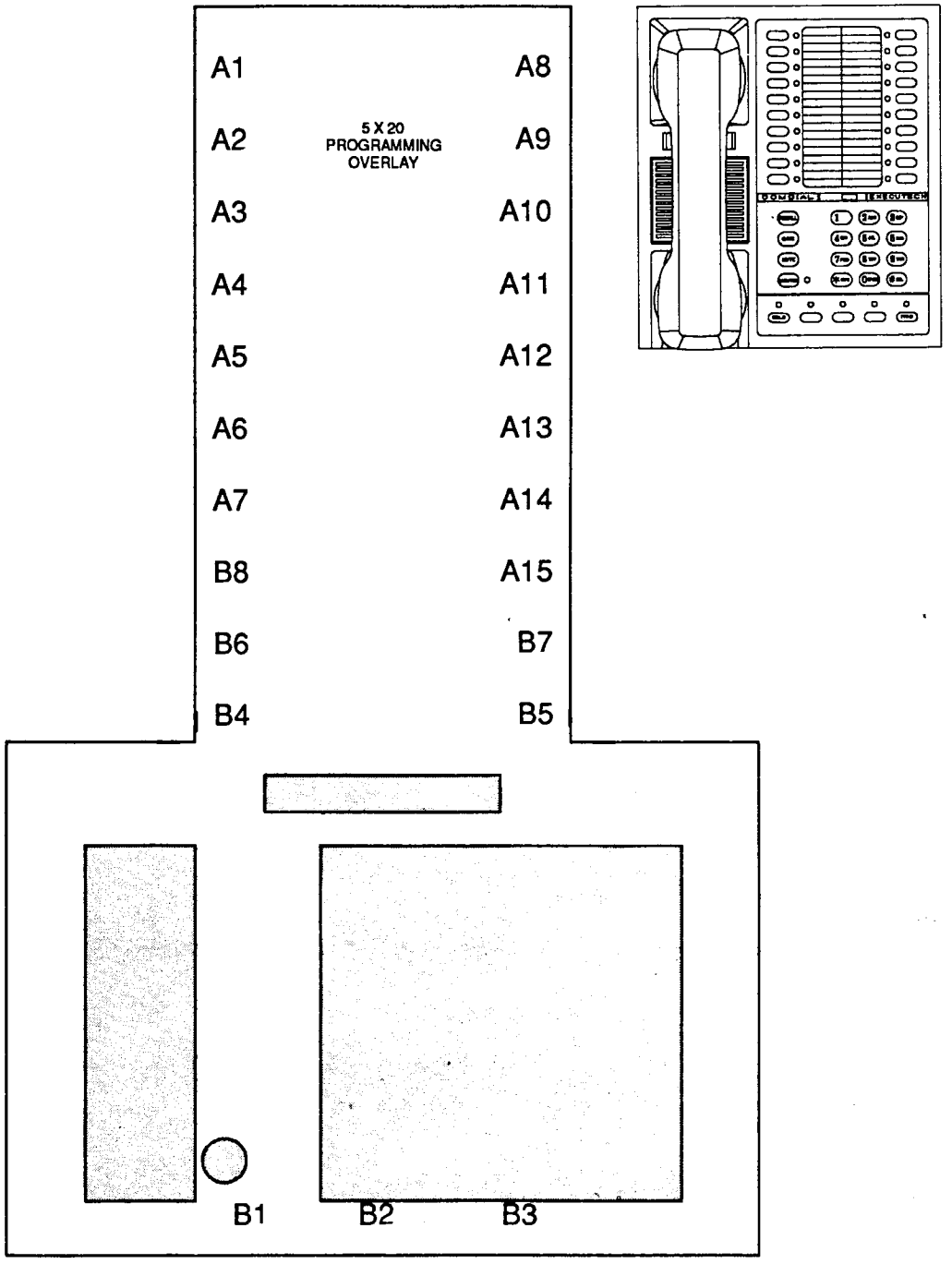
STATION 10 - PROGRAMMING OVERLAY

- Cut out along border.
- Cut out shaded openings.
- Fit over station faceplate.



STATION 10 - PROGRAMMING OVERLAY

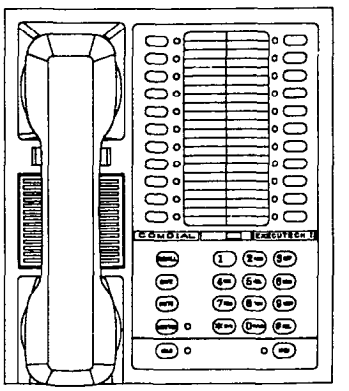
- Cut out along border.
- Cut out shaded openings.
- Fit over station faceplate.



STATION 10 - PROGRAMMING OVERLAY

- Cut out along border.
- Cut out shaded openings.
- Fit over station faceplate.

A1	2 X 22 PROGRAMMING OVERLAY	A8
A2		A9
A3		A10
A4		A11
A5		A12
A6		A13
A7		A14
B7		B8
B5		B6
B3		B4
B1		B2



CHAPTER 5
SYSTEM OPERATING PROCEDURES

SECTION 1
STATION OPERATION

ANSWERING CALLS

ANSWERING OUTSIDE CALLS

Calls appear at buttons that have actual line assignments.

- Press line button of ringing line (line button with flashing light).
- Lift handset.

NOTE: *If a prime line is assigned and is ringing, or if the telephone can answer any ringing line (ringing line preference enabled), do not press the line button of the ringing line.*

ANSWERING INTERCOM CALLS

To answer a voice call,

- Speak toward the telephone.
- Lift handset if privacy is desired.

NOTE: *Voice calling can be blocked. See the discussion titled, Voice Announce Blocking for details.*

To answer a tone call,

- Lift handset to talk.

CALL PICKUP ANSWERING

DIRECT

To answer a call that is ringing at another telephone,

- Lift handset.
- Press **ITCM**.
- Dial ✳ **4**.
- Dial extension number of ringing telephone.

SYSTEM-WIDE

To answer a call that is ringing at any station in system,

- Lift handset.
- Press **ITCM**.
- Dial **# 4**.

HANDSFREE ANSWERBACK (HFAB)

While a station is busy on a call, an off-hook voice announcement may be received either as a non-secure off-hook voice announcement (OHVA) or as a secure off-hook voice announcement (SOHVA). An OHVA announcement is sounded through the loudspeaker of a paired 32-button console (model DB32S-xx adjunct feature module). A SOHVA announcement is sounded through the handset receiver of certain model multiline telephones.

Neither OHVA nor SOHVA calls will be received at stations that have the voice announce blocking feature enabled (see page 5-5).

To respond to an OHVA announcement,

- Hear ring burst.
- Hear alerting tone (several quick tone bursts) and announcement sounded from loudspeaker in adjunct feature module.
- Speak toward microphone opening in front edge of the adjunct feature module housing to reply.

NOTE *The distant party cannot be prevented from overhearing the announcement; however, the user can press and hold the **MUTE** button to prevent the distant party from hearing the response.*

To respond to a SOHVA announcement,

- Hear ring burst.
- Hear tone alert and announcement in handset receiver. Distant party cannot hear announcement.
- Press and hold **MUTE** button, and reply by speaking into handset transmitter. Distant party cannot hear response.

MAKING CALLS

OUTSIDE LINE CALLING

- Press line button to select line.

NOTE: *Selecting a line is not necessary if:*

- *A priority line has been assigned to a telephone (prime line feature enabled).*
- *The telephone automatically picks an idle line for use when the handset is lifted (idle line preference feature enabled).*

- Listen for dial tone.
- Dial number.

When party answers,

- Lift handset.

To end call,

- Hang up handset.

INTERCOM CALLING

Intercom calls may be manually dialed or automatically dialed using a pre-programmed Direct Station Selection (DSS) button.

VOICE CALLING

To voice call an intercom station,

- Lift handset.
- Press **ITCM**.
- Dial extension number. (To call system operator, dial **0**.)
- Speak to called party.

To voice call a DSS number,

- Lift handset.
- Press programmable button that is programmed for desired station.
- Speak to called party.

NOTE: *The outside line is automatically placed on hold when a DSS button is pressed or when the ITCM button is pressed prior to manually dialing an intercom extension number.*

TONE CALLING

To tone call an intercom station,

- Lift handset.
- Press **ITCM**.
- Dial extension number.
- Press **ITCM** again. Called telephone will ring.

NOTE: *Some systems may be programmed to tone signal as the first option. Pressing ITCM a second time is not necessary in this case*

To tone call a DSS number,

- Lift handset.
- Press programmable button that is programmed for desired station.
- Press **ITCM**. Called telephone will ring.

NOTE: *The lights (LEDs) adjacent to programmable buttons indicate status of DSS telephones:* ***DARK*** *indicates idle telephone,* ***STEADY-ON*** *indicates telephone in use.* ***FLASHING*** *indicates station is ringing.*

MAKING OHVA/SOHVA CALLS

To make a voice announcement to another station that is busy on a call,

- Lift handset.
- Make intercom call.
- Hear warning tone (several quick tone bursts), and make announcement.
- Wait on line for reply.

NOTE: *The announcement may be received as an off-hook voice announcement (OHVA) or as a secure off-hook voice announcement (SOHVA). The method in which the announcement is received is not controlled by the caller. Rather, it is dependent upon the type of equipment being used at the called station, how that equipment is wired, and class of service programming. A multiline telephone and DB32S-xx console (adjunct feature module) combination can receive an OHVA call but cannot receive a SOHVA one. Certain multiline telephones can receive calls in a SOHVA manner without the companion console but cannot receive calls in an OHVA manner. Neither OHVA nor SOHVA calls can be made to stations that have the voice announce blocking feature enabled (see page 5-5).*

SPEED DIALING

To dial station speed dial numbers,

- Press keypad digit **0 - 9** for desired personal speed dial number.

-OR-

If on line listening to dial tone,

- Press **HOLD** and then press desired keypad digit **0 - 9**.

To dial system speed dial numbers,

- Press ✳.
- Press keypad digits **01 - 30** for desired system speed dial number.

-OR-

If on line listening to dial tone,

- Press **HOLD** ✳ and then press desired keypad digits **01 - 30**.

AUTOMATIC DIALING

To automatically dial numbers,

- Press desired programmable button.
- If desired programmable button is also programmed for DSS (one-button intercom) calling, press **HOLD** and then press desired programmable button.

NOTE: *Some telephone models provide an A16 button as part of the A-field buttons. This A16 button provides an automatic redial function as a fixed feature. Operation of this fixed automatic redial button is the same as that given for the programmed automatic redial button.*

AUTOMATIC REDIALING

To activate automatic redial,

- Press programmable button pre-programmed for that purpose.
- Number will be dialed once a minute for ten minutes.

If called number is busy,

- Press automatic redial programmable button to immediately start the redial cycle.

If call is answered,

- Take control by lifting handset. If control is not taken, call will drop.

To cancel automatic redial,

- Press automatic redial button, lift and replace handset, or press any station button.

NOTE: *Any user-originated station activity during automatic redial will cancel the feature.*

LAST NUMBER REDIAL

The last number previously dialed can be automatically redialed with one-button or two-button action.

- Dial **#**. (If on-line listening to dial tone, press **HOLD** then dial **#**.)
- Listen for ringing or busy tone.
  - Ringing tone: When party answers, lift handset.
  - Busy tone: Press **MNTR (SPKR)** to disconnect.

AUTO-SAVE

The last manually dialed number can be automatically saved for later redial. As many numbers may be saved as there are blank programmable buttons available: however, the automatic saving of a number where one is already saved will result in the over-writing of the original saved number.

To auto-save a manually dialed number,

- Lift handset or press **MNTR (SPKR)**.
- Press line select button (if idle line preference is not enabled) to select line.
- Dial number from keypad.

If you wish to save number,

- Press desired programmable button to auto-save number.
- Hang up.

To dial an auto-save number,

- Press line select button (if idle line preference is not enabled) to select line.
- Press auto-save button. Number is automatically dialed.

EXTENDED DTMF

The length of the DTMF tone can be extended from the standard length to a pre-programmed longer length.

To extend tone length,

- Take station off-hook (lift handset).
- Press line button to select line if not automatically selected by going off-hook.
- Wait 10 seconds, and dial number. System will then generate long DTMF tones when dialing
  -OR-
- Immediately press **HOLD**, then press line button of selected line to set the system to generate long DTMF tones without waiting for delay conversion.

To alternate between long length and standard length DTMF tones during a call,

- Press **HOLD**, then press line button for selected line.

HOLDING CALLS

MANUAL HOLD

To place call on hold while on line,

- Press **HOLD**.

To retrieve held call,

- Press line button with flashing light.
  -OR-
- Press **TAP** if station does not have line appearance.

EXCLUSIVE HOLD (Only your telephone can retrieve held call.)

- Press **HOLD** twice.

HOLD RECALL FEATURE

After a preprogrammed length of time, a call placed on hold will automatically ring back to the telephone that placed it on hold. If the call is on exclusive hold, it will revert to manual hold after the hold recall time period. The call can then be retrieved by anyone with that line appearance.

TRANSFERRING OUTSIDE CALLS

SCREENED TRANSFER

To transfer an outside call to another station in the system,

- Answer outside call (Do not press HOLD.)
- Press **TRANS/CONF**. (Outside call is placed on hold automatically.)
- Dial extension number of party to be transferred to (or press **DSS** button for one-button intercom calling).
- When intercom party answers, announce call and line number.
- Hang up handset.

If the called party is busy or does not answer,

- Press **TAP** or flashing line button to retrieve call.

UNSCREENED TRANSFER

To transfer an outside call to another station in the system,

- Answer outside call. (Do not press HOLD.)
- Press **TRANS/CONF**. (Outside call is placed on hold automatically.)
- Dial extension number of party to be transferred to (or press **DSS** button for one-button intercom calling).
- Hang up handset.

NOTE: *If the station to which an unscreened transfer is made is busy, the transferred call will camp-on at the station. The call will automatically ring the station when it become idle. If a transferred call is not answered after a preprogrammed time, it will ring back to the transferring station.*

To answer recall of transferred call,

- Press **TAP** button.

CONFERENCING

Conference transmission levels are not compensated and are dependent upon the quality of the external lines.

MULTILINE CONFERENCE (2 external parties, 1 internal party)

To set up a multiline conference,

- Establish first outside call. (Do not press HOLD.)
- Press **TRANS/CONF**. (Outside call is placed on hold automatically.)
- Establish second outside call. (Do not press HOLD.)
- Press **TRANS/CONF**. Conference is established.

To drop one conferee and remain active in conference with other conferee,

- Press **HOLD**. Both lines placed on hold.
- Press line key of party to be dropped.
- Press and release hookswitch.
- Press line key of party to be retained.
- Resume conversation.

ADD-ON CONFERENCE (1 external party, 2 internal parties)

- Establish outside call.
- Press **TRANS/CONF** (outside call placed on hold automatically).
- Dial extension number of intercom party.
- Wait for answer.
- Press **TRANS/CONF** (a three-way connection is established).

MESSAGING

MESSAGE WAITING CONTROL

The message waiting light at any telephone can be turned from another telephone to alert the user that a message awaits pickup.

To turn on MW light,

- Press **ITCM**.
- Dial ✳ **3**.
- Dial extension number of station to be alerted. (The MW light of called station will flash.)

To turn off MW light,

- Press **ITCM**.
- Dial **# 3**.
- Dial extension number of station that was alerted. (The MW light of called station will turn off.)

To turn off MW light while delivering message,

- Press **HOLD**.

To receive message at an alerted station,

- Observe flashing MW light.
- Lift handset.
- Press **ITCM HOLD**.
- Connection to message depositor is automatic.

VOICE ANNOUNCE BLOCKING

To block voice calls,

- Press **ITCM**.
- Dial ✳ **2**.
- Hang up.

To un-block voice calls,

- Press **ITCM**.
- Dial **# 2**.
- Hang up.

LINE MONITORING

To activate while on a call,

- Press **MNTR (SPKR)**. Monitor light will turn on.
- Hang up handset.

NOTE: *If a distant party places the call on hold, the station user can monitor in a handsfree manner until the party returns, and then lift the station handset to resume the call.*

To cancel,

- Lift handset to resume conversation

-OR-

- Press **MNTR (SPKR)** to disconnect. Monitor light will turn off.

RECALL/FLASH

FLASH

PBX, CENTREX and custom calling services may require this feature.

If a system has been configured for flash,

- Press **TAP** to generate a timed flash signal.

RECALL

This feature provides disconnect and dial tone recall.

If a system has been configured for recall,

- Press **TAP** to disconnect current call and receive a new dial tone for another call.

NOTE: *A system can be configured for either flash or recall but not for both.*

PAGING

EXTERNAL PAGING

(Requires external paging unit)

- Press line button dedicated to paging.

ALL-CALL AND ZONE PAGING

To page,

- Lift handset.
- Press **ITCM.**
- Dial zone number - (**4**, **5**, **6**, or **7** for all-call).
- Make announcement.
- Hang up handset.

DO NOT DISTURB

To silence a station ringer and appear busy to intercom calls,

- Press **MNTR (SPKR)**. (Associated light will turn on).

NOTE: *The calling party will hear two quick tone bursts every three seconds. The feature cannot be overridden by the calling party.*

To cancel,

- Press **MNTR (SPKR)** again. (Associated light will turn off.)

MUTE / HANDSFREE ANSWER INHIBIT

The MUTE button is in a non-latching mode when the station handset is lifted and in a latching mode when the station is operated in a handsfree manner.

To prevent distant party from hearing while handset is lifted,

- Press and hold **MUTE**. Speaker light will flash.

To resume two-way conversation,

- Release **MUTE**. Speaker light will turn off.

To inhibit handsfree answer of intercom calls,

- Press and latch **MUTE**. Speaker light will flutter.

To enable handsfree answer of intercom calls,

- Press and release **MUTE**. Speaker light will turn off.

PULSE/TONE SWITCHING

If the local telephone service is pulse (rotary) but tone generation is required during the call, convert to tone while dialing as follows:

- Press **#** at point in dialing sequence where conversion to tone is required. (System will switch back to pulse dialing when call is ended.)

NOTE: Pulse/Tone switching can be stored at a programmable button by pressing # during number storage.

PERSONAL RINGING TONES

A station user can select one of four different ringing tones for use at a station.

- Press **ITCM** ✳ ✳.
- Dial **4**.
- Dial **1**, **2**, **3**, or **4** (selects tones 1, 2, 3, or 4).

TONE	FREQUENCY PAIR	WARBLE RATE
TONE 1	509/610 Hz	10 Hz
TONE 2	763/1016 Hz	10 Hz
TONE 3	509/610 Hz	19 Hz
TONE 4	763/1016 Hz	19 Hz

BACKGROUND MUSIC

Music must be supplied by the system before it can be turned on at a telephone. Background music, when supplied, automatically turns off during calls.

To turn music on,

- Press **ITCM**.
- Dial ✳ **1. (SPKR light will turn on.)**
- Adjust loudness of music with call monitor speaker volume control.

To turn music off,

- Press **ITCM**.
- Dial **# 1. (SPKR light will turn off.)**

SPEAKERPHONE OPERATION (ExecuTech Model 6600S-xx and 6600E-xx Telephones Only)

The optional speakerphone can exercise the previously described features in a handsfree manner. Handsfree calling and call answering is as described below.

To place a call,

- Press line button or **ITCM**.
- Dial number or press programmable button.
- When party answers, speak toward the telephone.

To answer a call,

- Press a line button.
- Speak toward the telephone.

To end a call,

- Press **SPKR**.

To switch from speakerphone to handset,

- Lift handset.

To switch from handset to speakerphone,

- Press **SPKR**.
- Hang up handset.

STATION USER PROGRAMMING

AUTODIAL PROGRAMMING

Autodial numbers can be stored at any programmable button locations that do not have a line assigned to them. They can also be programmed as a secondary function at every DSS/BLF memory location. Console buttons that are fixed for DSS/BLF operation also provide autodial locations at a second level of storage. Plus any available buttons between the system station capacity through a maximum of 32 are available as autodial locations at the first level of storage.

Typical autodial numbers are: frequently dialed telephone numbers or extension numbers, or frequently used host system or key system feature codes. When programming an autodial number, first decide over which circuit the call must be made. Then, determine the digits that normally have to be manually dialed to reach the called party or feature. This circuit selection and digit sequence can be stored as an autodial for later one or two-button access. If line pre-selection is not programmed, the system will automatically pick the prime line assigned to the telephone (if enabled), or pick the last used line at that station and place the call over that selection.

To program autodial numbers,

- Press **ITCM** ✳ ✳ **1**.
- Press desired programmable button. Listen for fast tone bursts.
- Press specific line button or **ITCM** button to store line or intercom preselection if desired (optional).
- Dial the number sequence to be stored. (Up to 15 digits can be stored. Valid digits include **0 - 9**, **#**, and ✳.)
  - To store a pause if required, press **HOLD**.
  - To store a hookflash if required, press **TAP**.

To store another number,

- Press **TRANS/CONF**.
- Press next programmable button.
- Make line or intercom preselection if desired (optional).
- Dial number for storage.
- Repeat this procedure until all desired numbers are stored.

To store autodial number at DSS programmed button,

- Press **TRANS/CONF**.
- Press desired DSS button (see page 5-9 for DSS button programming).
- Make line or intercom preselection if desired (optional).
- Dial number for storage
- Repeat this procedure until all desired numbers are stored.

To end autodial programming,

- Press **MNTR** (**SPKR**).

STATION SPEED DIAL PROGRAMMING

Station speed dial numbers can be stored by the station user for later redial. The storage locations are keypad digits 0 through 9 on the station. Before attempting to program, decide on the following items: (1) the number or feature to be stored, (2) which storage location will be used (0 - 9), (3) the circuit that the call will go over (individual line or intercom).

To program numbers,

- Press **ITCM** ✳ ✳ **2.**
- Dial a memory location (**0** through **9**).
- Press specific line button or **ITCM** button to store line or intercom preselection if desired (optional).
- Dial the number sequence to be stored. (Up to 15 digits can be stored. Valid digits include **0 - 9, #,** and ✳.)
  - To store a pause if required, press **HOLD.**
  - To store a hookflash if required, press **TAP.**

Example: Store a telephone number under location 0. The sample number is 1(804)555-2222. Program it as follows:

ITCM, ✳, ✳, 2, 0, Line Button, 1, 8, 0, 4, 5, 5, 5, 2, 2, 2, 2.

To store another number,

- Press **TRANS/CONF.**
- Press next speed dial location.
- Make line pre-selection if desired.
- Dial number for storage.
- Repeat this procedure until all desired numbers are stored.

To end station speed dial programming,

- Press **MNTR (SPKR).**

DIRECT STATION SELECTION/BUSY LAMP FIELD (DSS/BLF) PROGRAMMING

One-button intercom calling with visual indication of telephone status can be programmed at telephone buttons not assigned to lines. The DSS/BLF console buttons are fixed by the system for DSS/BLF operation beginning with station 10 and ending with the maximum station number in the system.

To program DSS,

- Press **ITCM** ✳ ✳ **3.**
- Press button to be programmed as DSS button.
- Dial extension number.
- Repeat last two steps for all desired extension numbers.

To end DSS programming,

- Press **MNTR (SPKR).**

NOTE: *An autodial number can also be programmed as a secondary function at every DSS/BLF memory location. See Automatic Dialing instructions for programming details.*

AUTOMATIC REDIAL BUTTON PROGRAMMING

The system will allow the last previously dialed number to be automatically and repeatedly redialed for approximately ten minutes. A button must be programmed to provide this feature.

To program a programmable button for use as an automatic redial button,

- Press **ITCM** ✳ ✳ 1.
- Press desired programmable button.
- Press **#.**
- Press **MNTR (SPKR).**

SECTION 2
ATTENDANT STATION OPERATION

SYSTEM CLOCK

If the system has been modified to provide LCD speakerphone support, the system clock can be programmed to maintain current date and time information in the display. The clock information is not displayed until the feature is programmed.

1. Press **ITCM.**
2. Dial ✳ **# 0 1.**
3. Dial two digits (**00-99**) for yr.
4. Dial two digits (**01-12**) for mo.
5. Dial two digits (**01-31**) for day.
6. Dial two digits (**00-23**) for hr.
7. Dial two digits (**00-59**) for min.
8. Dial one digit (**1-7**) for day of week (Sun.=1, Sat.=7)
9. Press **MNTR (SPKR)** to end.

SYSTEM SPEED DIAL PROGRAMMING

A special system-wide list of numbers can be programmed for automatic dialing by all users.

1. Press **ITCM**
2. Dial ✳ **# 0 2.**
3. Dial **01 - 30** to chose storage location. Listen for tone bursts.
4. Press specific line button or **ITCM** button to store line or intercom preselection if desired (optional).

NOTE: *When no line is preselected and the system speed dial is used, the system will automatically pick the prime line assigned to the station (if enabled) or pick the most previously used line at that station.*

5. Dial the number to be stored (15 digits maximum).
   - Press **HOLD** to store pause (if required).
   - Press **TAP** to store flash (if required).
6. Press **TRANS/CONF** to save number.
7. Repeat steps 3 - 7 to store next number.
8. Press **MNTR (SPKR)** to end.

NIGHT TRANSFER (of ringing)

The day, or normal, ringing of incoming lines can be transferred to a particular station or stations (chosen through class of service programming) for off-hour or special-purpose answering. Additionally, stations can be arranged through class of service programming, to be able to answer any ringing outside line.

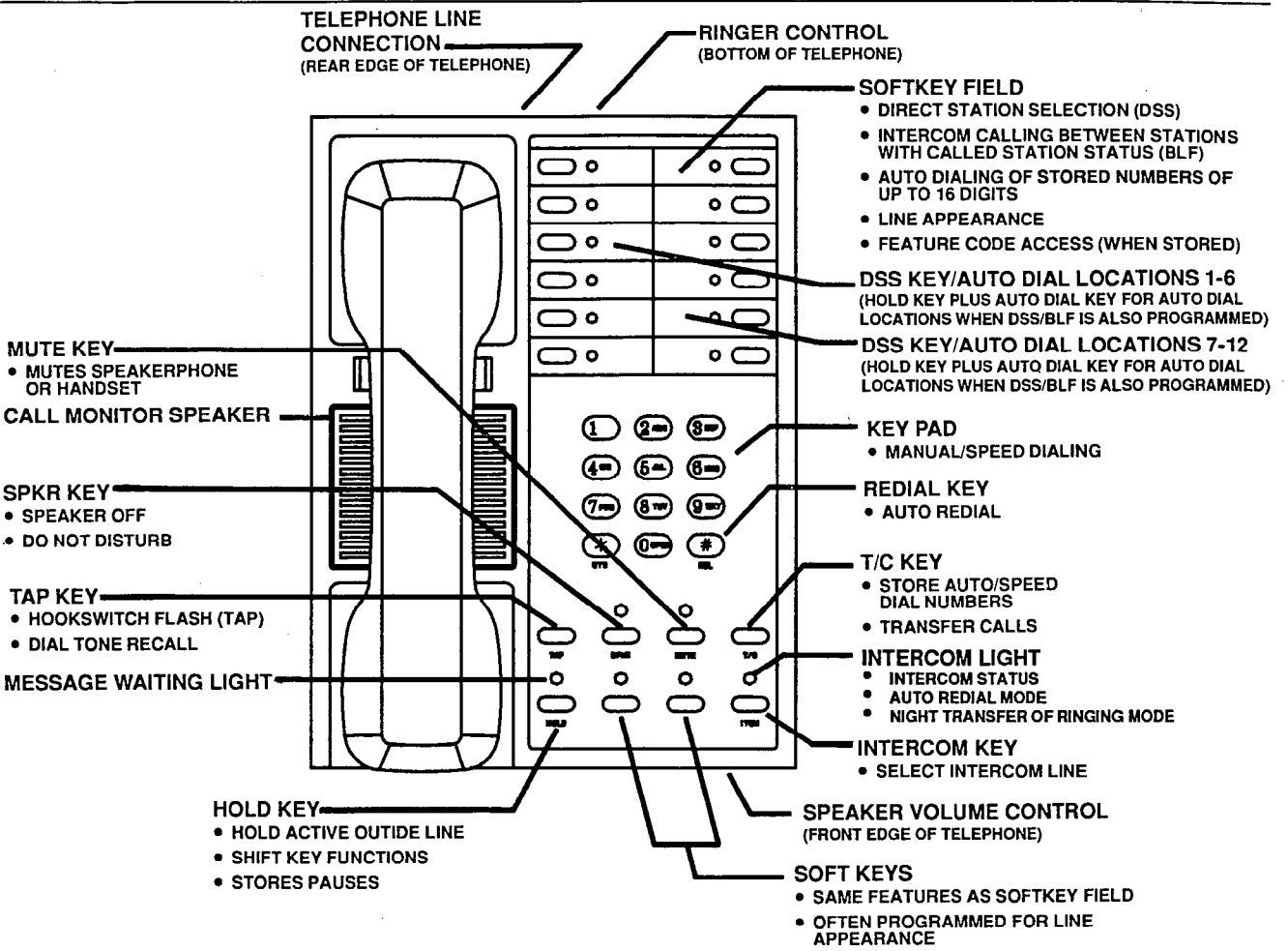
1. Press **ITCM.**
2. Dial ✳ **# 0 3.**
3. Press **A1** (top, left-hand programmable button) to toggle feature on or off. Associated light will turn on when night transfer is active and turn off when it is inactive.
4. Press **MNTR (SPKR)** to end.

NOTE: *When this feature is on, the ITCM light will flash.*

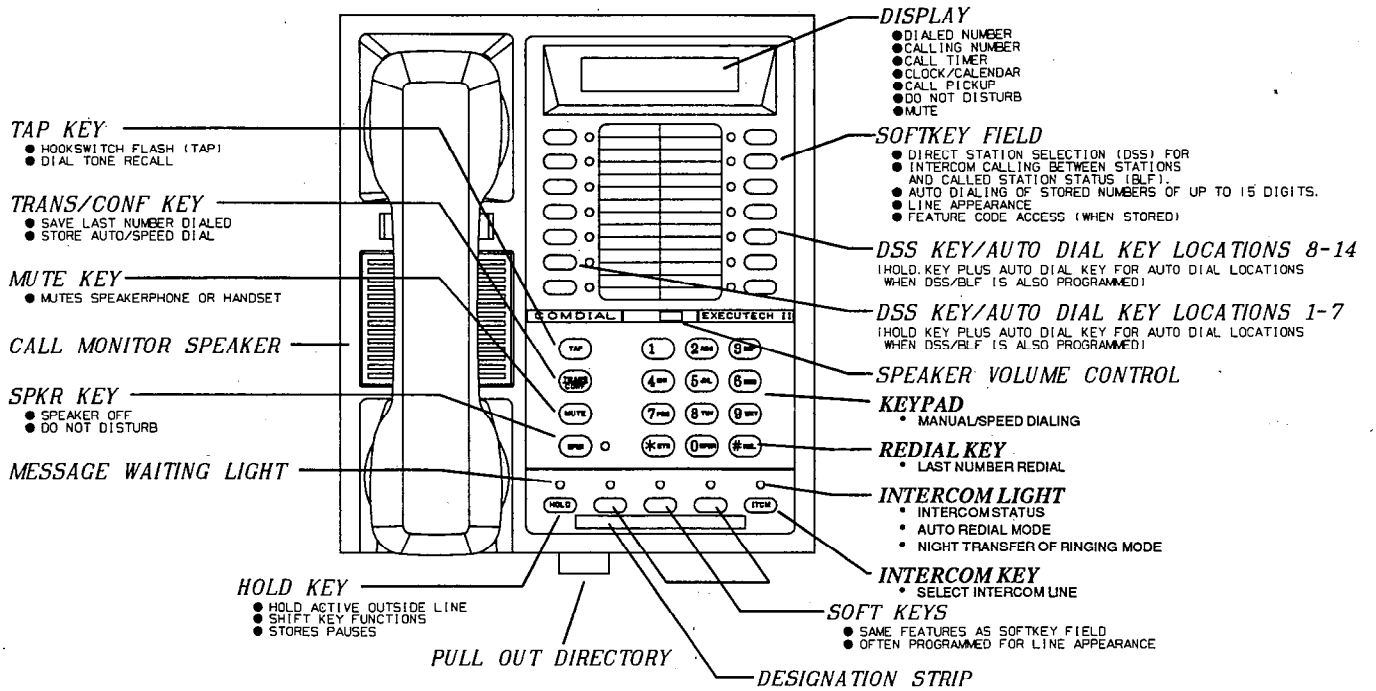
MUSIC ON HOLD

Music that is provided to outside lines while they are on hold can be disabled and enabled by attendant action.

1. Press **ITCM.**
2. Dial ✳ **# 0 4.**
3. Press **A1** (top, left-hand programmable button) to toggle feature on and off. Associated light will turn on when music on hold is provided and turn off when it is disabled.
4. Press **MNTR (SPKR)** to end.



Typical Telephone - Model 6714X-xx shown.



Typical telephone - Model 6600E-xx shown.

Figure 5-1. Controls and Indicators.

SECTION 4
SYSTEM OPERATING CHARACTERISTICS

FEATURE DIALING CODE NUMBERING PLAN

FEATURE DESCRIPTION		DIALING CODES
All Call Page		**ITCM 7**
Attendant Calling		**ITCM 10 or 0**
Automatic Redial		PROGRAMMED BUTTON To program: **ITCM, * * 1,** BUTTON, **#, MNTR (SPKR)**
Background Music	On	**ITCM * 1**
	Off	**ITCM # 1**
Call Pickup	Directed	**ITCM * 4** + Ext. No.
	System	**ITCM # 4**
Do Not Disturb	Set	**MNTR (SPKR)**
	Cancel	**MNTR (SPKR)**
Handsfree Answer Inhibit	Set	**MUTE**
	Cancel	**MUTE**
Message Waiting	Set	**ITCM * 3** + Ext No.
	Cancel From Idle	**ITCM # 3** + Ext. No.
	Cancel On Line	**HOLD**
	Retrieve Message	**ITCM HOLD**
Music On Hold (Station 10 only)	On	**ITCM * # 04 A1**
	Off	**ITCM * # 04 A1**
Night Transfer (Station 10 only)	On	**ITCM * # 03 A1**
	Off	**ITCM * # 03 A1**
Personal Ringing Tones	Set Tone 1	**ITCM * * 41**
	Set Tone 2	**ITCM * * 42**
	Set Tone 3	**ITCM * * 43**
	Set Tone 4	**ITCM * * 44**
Pulse/Tone Switching		**#** during dialing.
Redial (Last number dialed)		**# (HOLD #** when on line)
Speed Dial	Station	**1 - 0 (HOLD 1 - 0** when on line)
	System	*** 01 - * 30 (HOLD *01 - * 30** when on line)
Voice Announce Block	On	**ITCM * 2**
	Off	**ITCM # 2**
Zone Page	Zone 1	**ITCM 4**
	Zone 2	**ITCM 5**
	Zone 3	**ITCM 6**

RINGER VOLUME CONTROL

Each station has a ringer volume control. Depending upon the model, the ringer control is located on the front edge, rear edge, or bottom of the telephone. Adjust the control lever to OFF, LOW or HIGH volume as desired.

STATUS INDICATORS AND TONE SEQUENCES

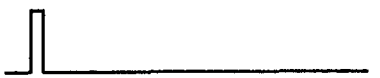
The following pages describe the light and ring patterns associated with system operation.

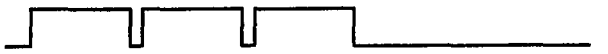
NOTE: *The values shown are typical. They are provided for illustration purposes only.*

SYSTEM RINGING PATTERNS

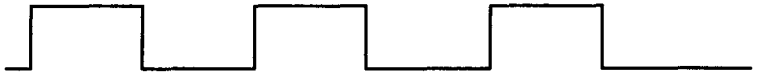
CO/PBX Line Ring	Host system ring cadence	**RING CADENCE DEPENDENT UPON HOST SYSTEM**
Intercom Tone Signalling	Two 140 msec. tone bursts sounded every four seconds	
Voice Signalling alert	One 210 msec. tone burst	
Timed hold recall at station that put call on hold	Three 140 msec. tone bursts sounded at the end of each *timeout period*	

INTERCOM CALL PROGRESS TONES
(Heard through handset receiver or over monitor speaker)

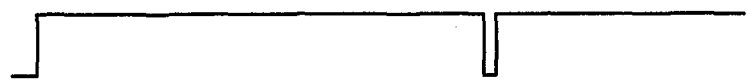
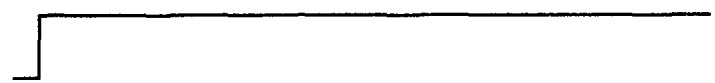
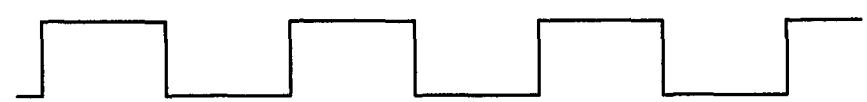
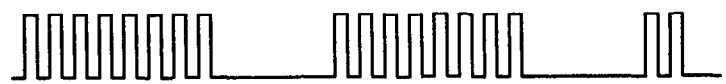
Dial Tone Base Level Tone	Continuous on	
Called station ring-back Called station busy on outside line	560 msec. tone burst sounded twice every 4 sec.	
Base level program entry Programming confirmation System speed dial entry confirmation Memory dial intercom, line, group and/or recall selection confirmed All-call page selection confirmed PA station port selection confirmed	70 msec. tone burst sounded once	

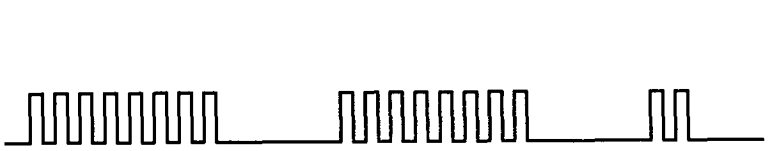
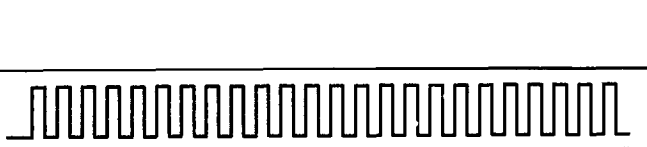
Error tone - incorrect entry	560 msec. tone burst sounded three times	
Busy tone - intercom	560 msec. tone bursts	
Called station in do-not-disturb mode Fasy busy tone	140 msec.tone burst sounded twice every sec.	
System is awaiting memory dial number or key mapping entry after location is specified	70 msec. tone bursts sounded continuously	

LINE SELECT LIGHTS

Idle	Steady off	
Ringing	Continuous flash (560 msec. on - 560 msec. off)	
In use-your station	Steady on with wink off (2.3 sec. on - 70 msec. off)	
In use-other station	Steady on	
On hold-your station	Winking with repeative off periods (winking rate - 560 msec. off)	
On hold-other station	Continuous winking (490 msec. on - 70 msec. off)	

INTERCOM LIGHT

In use-your station	Steady on with wink off (2.3 sec. on - 70 msec. off)	
All links busy	Steady on	
Auto redial active	Continuous flutter (70 msec. on - 70 msec. off)	
Night mode - Station 10	Flutter with repeative off periods (flutter rate - 560 msec. off)	

Exclusive hold	Steady on	
Held call timeout your station	Flutter with repeative off periods (flutter rate - 560 msec. off)	
Held call timeout other station	Continuous flutter (70 msec. on - 70 msec. off)	

MESSAGE WAITING LIGHT

Message Waiting	Continuous flash (560 msec. on - 560 msec. off)	

BLF LIGHTS

DSS station idle	Steady off	
DSS station busy on intercom calling you	Continuous flash (560 msec. on - 560 msec. off)	
DSS station busy on outside line or intercom line DSS station in do not disturb mode.	Steady on	

SPEAKER LIGHT

On line and speaker on (mike also on if speakerphone) Do not disturb mode Background music on	Steady on	
Mute **-OR-** Handsfree answer inhibit	Continuous flutter (70 msec. on - 70 msec. off)	
Do not disturb plus Mute **-OR-** Active line plus Mute	Flutter with repeative on periods (flutter rate - 560 msec. on)	

CHAPTER 6
MAINTENANCE

TECHNICAL ASSISTANCE AND REPAIR SERVICE

TECHNICAL ASSISTANCE

Should you experience difficulty with installation, checkout, or programming, and have made an attempt to isolate the problem using information provided herein; or should you encounter problems at a later date which cannot be resolved by referring to this manual, call the Comdial Technical Service staff. They can be reached at **1-800-366-8224** between the hours of **8:00 AM and 8:00 PM Eastern time, Monday through Friday**.

When calling for technical assistance, you should be at the job site and you should have in your possession, as a minimum, an accurate volt-ohm meter and a copy of this manual.

REPAIR SERVICE

If your common equipment cabinet or an individual station needs repair, it may be returned to Comdial. Comdial will, at their option, either repair the defective equipment or replace it with a remanufactured unit. This repair will be done for a fixed charge. For information on this charge, please call or write to the address given below.

Comdial
P.O. Box 7266
Charlottesville, VA 22906
Attention: Repair Department
Telephone: (804) 978-2400

When returning equipment for repair, pack it carefully to prevent damage. Any damages during shipment will be the responsibility of the purchaser. The equipment should be shipped freight or postage prepaid. The shipping address is:

Comdial
1180 Seminole Trail
Charlottesville, VA 22901
Attention: Repair Department

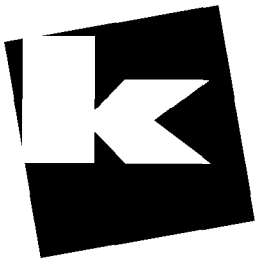
FUSE LOCATION

The system is protected against short circuit damage by a 1 amp slow-blow fuse located on the left side of the common equipment cabinet. Always replace the fuse with one of the same value and type, otherwise, equipment damage could result.

WIRING

Refer to **Chapter 2, Section 3**, *Checkout and Failure Isolation*, for instructions for testing the system wiring and components for possible failure.

PUBLICATIONS INDEX



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RSTAR

COMDIAL

ExecuTech XE
Key System

Class Of Service
Programming Chart

This publication is applicable for the following common equipment:

MODEL	MANUFACTURING CODE
N0308	REV H and later
N0616	REV H and later
N0820	REV K and later
N1024	REV K and later

IMI 66-065.03
9/90

CLASS OF SERVICE PROGRAMMING CHART FOR ExecuTech XE KEY SYSTEM

The ExecuTech XE key systems are preprogrammed to a user-oriented set of operational parameters or class of service known as the default values. In many cases, this default class of service will provide operating conditions that are completely acceptable to the end-user's needs. This means that the system is completely operational as soon as it is installed and power is applied.

On occasions where the default settings do not fit the end-user's needs, the system can be re-programmed to change the class of service to meet local requirements. This programming chart is used to first plan the required changes and then to implement them.

To program a system,

- Enter base level: **ITCM ✳ # 7 4 6 ✳**
- **(Optional step)** Master Clear: Dial **15**, press **A12**, dial **7 0 5 1 6 8 4.**

CAUTION

This step clears all memory entries, *including any previously programmed autodial numbers*, and returns system to start-up default.

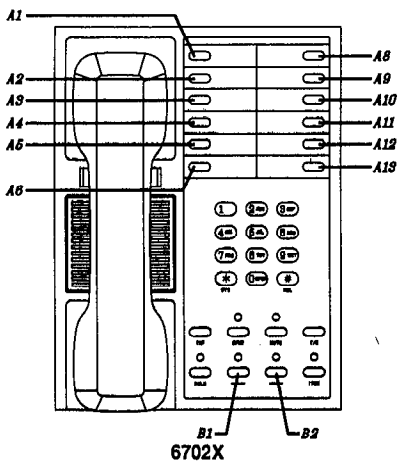
- Mark the desired selections in the charts below to record programming needs.
- Dial feature code.

NOTE: *Current program setting is indicated by lighted LEDs next to applicable progamming key. When a toggle action is provided by a single key, the lighted LED indicates that the feature is active.*

- Press A-field key to choose new programming.
- Press ✳ to return to base level for next feature.

-OR-

- Press **PKR** to end programming.



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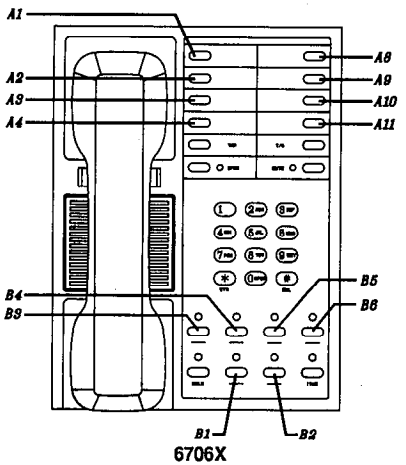

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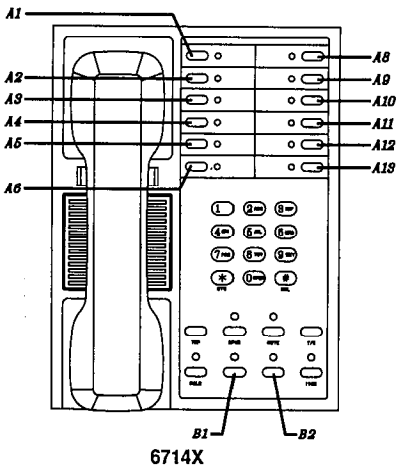

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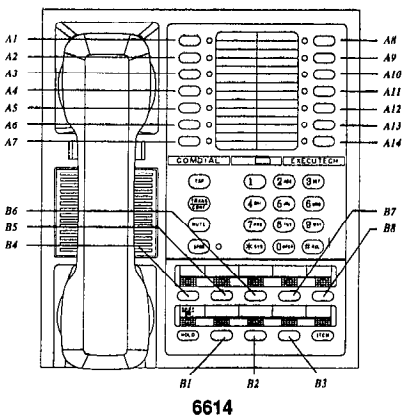

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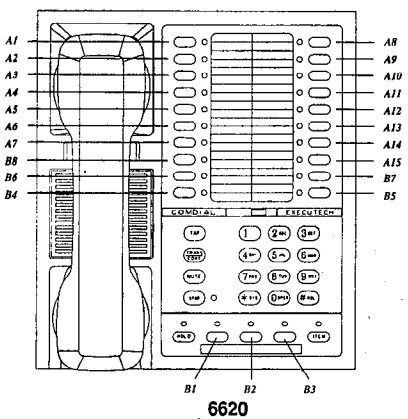

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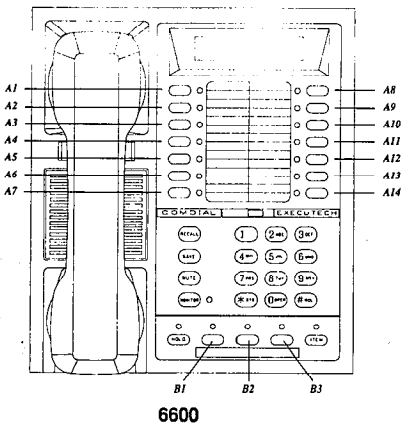

6600

Enter Base Level: Press **ITCM**, then dial ✳ **# 7 4 6** ✳.

Master Clear: The entire programming configuration as discussed in the following programming procedures, can be defaulted to the factory settings all at once using this master clear procedure. ***CAUTION*** ***This programming action clears all memory entries including any previously programmed autodial numbers, and returns the system to a startup default condition.***	Press **ITCM**. Dial ✳ **# 7 4 6** ✳. Dial **15**. Press **A12**. Dial **7051684**. Press ✳ for base level **OR** Press **MNTR (SPKR)**.	
Pause Time: During auto dials and speed dials it is sometimes necessary to delay the sending of digits to give switching equipment time to prepare to receive the digits. A pause can be stored to effect the delay. A pause is stored whenever the user presses the HOLD button. The pause length options are stored in seconds.	Dial **10**. Press prog. button. Press ✳ for next feature.	BUTTON: A1 A2 A3 A4 A5 A8 A9 A10 A11 A12 SEC: 0.5 1.0 1.5 2.0 3.0 5.0 7.5 10 15 20 ENTRY DEFAULT = 2.0 SEC.
Pulse Dial Time: Either ten or twenty pulses per second, and three different make/break ratios for the pulse dialing signals (rotary dial signals) can be set to match CO requirements.	Dial **11**. Press prog. button. Press ✳ for next feature.	BUTTON: A1 A2 A3 A4 RATIO: 62/38 @ 10 pps 50/50 @ 10 pps 70/30 @ 10 pps 62/38 @ 20 pps ENTRY DEFAULT = 62/38 @ 10 PPS
Recall/Flash: A line disconnect (recall) or a PBX feature select signal (flash) can be generated depending upon the programmed time.	Dial **12**. Press prog. button. Press ✳ for next feature.	BUTTON: A1 A2 A3 A4 A5 A8 A9 A10 A11 A12 SEC: .080 .300 .500 .600 .750 .875 1.0 1.5 2.0 3.0 ENTRY DEFAULT = 2.0 SEC.
Timed Hold Recall: After a call has been on hold for a programmed length of time, the system will recall the station that placed the call on hold. The timing is in seconds.	Dial **13**. Press prog. button. Press ✳ for next feature.	BUTTON: A1 A2 A3 A4 A5 A8 A9 A10 A11 A12 SEC: 30 60 90 120 180 240 300 360 420 never ENTRY DEFAULT = 30 SEC.

Press ✳ **SPKR** to end programming.

Enter Base Level: Press **ITCM**, then dial ✳ **# 7 4 6** ✳.

Flexible Toll Restriction: Restricts stations from dialing a range of number combinations while allowing specific exceptions. The restrictions are specified by entries on a deny table while the exceptions are specified by entries on an allow table. In addition, a preprogrammed 1+800 allow table allows that dialing feature regardless of other restrictions which may be in effect. These programmed tables must be assigned on a per station basis before the restrictions can take effect.

- Maximum of 8 digits per line entry.
- 1+911 and 911 can never be restricted.
- Allow entries override deny entries.

***NOTE**: The deny and allow entries are part of one toll table. Any stations which receive this table assignment will be subject to both deny and allow restrictions.*
Assign the restriction to the lines and stations per the instructions on page 4-8.

Dial **14.**
Select table
- **A1** = DENY ENTRY LINE 1
- **A2** = DENY ENTRY LINE 2
- **A3** = DENY ENTRY LINE 3
- **A4** = DENY ENTRY LINE 4
- **A5** = ALLOW ENTRY LINE 1
- **A8** = ALLOW ENTRY LINE 2
- **A9** = ALLOW ENTRY LINE 3
- **A10** = ALLOW ENTRY LINE 4
- **A11** = ALLOW 1+800 calls

Dial number.
(**#** = match anything digit.)
Select next table, and repeat.
Press ✳ for next feature.

TABLE TYPE	ENTRY LINE	ENTRY DIGITS 1	2	3	4	5	6	7	8
DENY	1								
	2								
	3								
	4								
ALLOW	1								
	2								
	3								
	4								
ALLOW 1+800		YES			NO				

TYPICAL EXAMPLE

TABLE TYPE	ENTRY LINE	ENTRY DIGITS 1	2	3	4	5	6	7	8
DENY	1	9	7	6					
	2	4	1	1					
	3								
	4								
ALLOW	1	1	8	0	4	9	7	8	#
	2								
	3								
	4								
DEFAULT = NONE ASSIGNED									

Press ✳ **SPKR** to end programming.

Enter Base Level: Press **ITCM**, then dial ✳ **# 7 4 6** ✳.

Assign restriction to lines: Lines must be programmed to accept toll restriction before the restriction that is assigned to the stations will take effect.	Dial **35.** Press prog. buttons to assign restriction to lines Press ✳ for next feature	BUTTON | A1 | A2 | A3 | A4 | A5 | A8 | A9 | A10 | A11 | A12 LINE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 ENTRY DEFAULT = NONE ASSIGNED
Assign restrictions to stations: Station dialing can be restricted with 1/0 toll restriction and with deny/allow toll table restriction. Either one or both methods can be assigned to restrict station dialing on a per station basis. Also, 1+7-digit dialing can be allowed if 1/0 restriction is assigned.	Dial **62.** Dial port ID (**10-33**). Select 1/0 toll restriction. • **A1** = 1/0 RESTRICTION • **A2** = ALLOW 1+7-DIGIT (if 1/0 is also restricted) **AND/OR** Select deny/allow toll table restriction (if required and programmed). • Press **A3.** • Dial **#** + PORT ID for next sta. **OR** Press ✳ for next feature.	STA. | ENTRIES 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 DEFAULT = NONE ASSIGNED

Press ✳ **SPKR** to end programming.

Enter Base Level: Press **ITCM**, then dial ✳ **# 7 4 6** ✳.

System Speed Dial Toll Restriction Override: This feature provides a method for overriding toll restriction parameters when a system speed dial number is dialed. With this feature enabled, it is possible to restrict calls to certain areas with assigned toll restriction tables yet allow specific numbers in the restricted areas to be called by storing them as system speed dial numbers.	Dial **15**. Press **A5**. LED ON = override enabled. Press ✳ for next feature.	SYSTEM SPEED DIAL TOLL RESTRICTION ENABLED DISABLED DEFAULT = DISABLED
Automatic Pause Insertion: When the system stores a dialed number for later redial, it automatically stores a pause whenever the user waits between digits. The wait period is programmable.	Dial **15**. Press prog. button **A1**. LED ON = 2 Sec. Press ✳ for next feature.	BUTTON: A1 / A1 TIME: 750 Msec / 2 Sec ENTRY DEFAULT = 2 SEC.
Tone or Voice Signalling: Intercom calls can be tone signalled or voice signalled. The first choice in signalling is programmable.	Dial **15**. Press **A2** LED ON = TONE Press ✳ for next feature.	BUTTON: A2 / A2 FEA.: TONE / VOICE ENTRY DEFAULT = VOICE
Exclusive Hold: The user can set a hold condition whereby only the station placing the call on hold can retrieve it. Exclusive hold can be disabled by programming action.	Dial **15**. Press **A3**. LED ON = ENABLED Press ✳ for next feature.	BUTTON: A3 / A3 FEA.: ENABLED / DISABLED ENTRY DEFAULT = ENABLED
Call Pickup System: A call can be answered at one telephone when it is ringing at another telephone. Call pickup can be disabled by programming action.	Dial **15**. Press **A4**. LED ON = ENABLED Press ✳ for next feature.	BUTTON: A4 / A4 FEA.: ENABLED / DISABLED ENTRY DEFAULT = DISABLED

PROGRAMMING NOTE: *All features described on this page can be programmed after dialing 15 once. Just press the program button for each feature to be programmed.*

Press ✳ **SPKR** to end programming.

Enter Base Level: Press **ITCM**, then dial ✳ **# 7 4 6** ✳.

Extended DTMF: The system can access answering machines, banking computers, voice mail, etc. that require DTMF tones that are longer than standard tones. This programming option enables the programmed DTMF tone to automatically activate after the station has been off-hook 10 sec. or more	Dial **16**. Press prog. button. Press ✳ for next feature.	BUTTON: A1 A2 A3 A4 A5 A8 A9 A10 A11 A12 MSEC: 80 160 240 320 400 480 560 720 880 1040 DEFAULT = 80 MSEC.
Line Disabled: A line can be taken out of service because of line defect or other reason.	Dial **30**. Press prog. button. LED ON = DISABLED Press ✳ for next feature.	BUTTON: A1 A2 A3 A4 A5 A8 A9 A10 A11 A12 LINE: 1 2 3 4 5 6 7 8 9 10 ENTRY: DEFAULT = NONE ASSIGNED
Auxiliary Line: A line can be conditioned to serve as a port for an external paging amplifier. (See Note 1)	Dial **31**. Press prog. button. LED ON = AUX LINE Press ✳ for next feature.	BUTTON: A1 A2 A3 A4 A5 A8 A9 A10 A11 A12 LINE: 1 2 3 4 5 6 7 8 9 10 ENTRY: DEFAULT = NONE ASSIGNED
Line Type 1: A line port is assigned as type 1 when any enabled toll restriction is to be applied with the first digit dialed. Such a line type is often assigned when a CO line is connected. (See Note 1)	Dial **32**. Press prog. button. LED ON = TYPE 1 Press ✳ for next feature.	BUTTON: A1 A2 A3 A4 A5 A8 A9 A10 A11 A12 LINE: 1 2 3 4 5 6 7 8 9 10 ENTRY: DEFAULT = ALL LINES ASIGNED
Line Type 2: A line port is assigned as type 2 when any enabled toll restriction is to be applied beginning with the second digit dialed. Such a line type is often assigned when a PBX or CENTREX line with any trunk access code is connected. (See Note 1)	Dial **33**. Press prog. button. LED ON = TYPE 2 Press ✳ for next feature.	BUTTON: A1 A2 A3 A4 A5 A8 A9 A10 A11 A12 LINE: 1 2 3 4 5 6 7 8 9 10 ENTRY: DEFAULT = NONE ASIGNED

NOTE 1: *When a line type is unassigned (LED OFF), it enters a disabled state. It must be reassigned as a particular type be enabled. It cannot be enabled using the Line Disabled feature.*

Press ✳ **SPKR** to end programming.

Enter Base Level: Press **ITCM**, then dial ✳ **# 7 4 6** ✳.

Line Type 3: A line port is assigned as type 3 when any enabled toll restriction is to be applied beginning with the second digit dialed whenever the first digit is a 9. If the first digit is not a 9, no restriction is applied. Such a line type is often assigned when a PBX or CENTREX line with a trunk access code of 9 is connected. (See Note 1 on page 4-10)	Dial **34** Press prog. button. LED ON = TYPE 3 Press ✳ for next feature.	BUTTON | A1 | A2 | A3 | A4 | A5 | A8 | A9 | A10 | A11 | A12 LINE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 ENTRY DEFAULT = NONE ASSIGNED
Pulse/Tone Switchable: When rotary dial lines are installed, the user can switch from pulse (rotary dial signals) to tone (Dual Tone Multiple Frequency signals) for accessing special circuits requiring DTMF tones such as banking machines. This pulse/tone switchability must be programmed for the line. Lines are defaulted for tone signalling only.	Dial **36.** Press prog. button. LED ON = TONE Press ✳ for next feature.	BUTTON | A1 | A2 | A3 | A4 | A5 | A8 | A9 | A10 | A11 | A12 LINE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 ENTRY DEFAULT = TONE
Abandoned Hold Release: When a distant party abandons a hold condition and disconnects, the central office will send a forward disconnect signal to the telephone system. The forward disconnect signal may be either 50 msec. or 350 msec. in length. Program the system to match central office time.	Dial **37.** Press prog. button. LED ON = 50 msec. Press ✳ for next feature.	BUTTON | A1 | A2 | A3 | A4 | A5 | A8 | A9 | A10 | A11 | A12 LINE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 ENTRY DEFAULT = 50 MSEC.
Automatic Privacy: A line can be made private or nonprivate. In the private mode, a station has exclusive use of a line during a call. Lines are private unless reprogrammed to be nonprivate.	Dial **38.** Press prog. button. LED ON = NONPRIVATE Press ✳ for next feature	BUTTON | A1 | A2 | A3 | A4 | A5 | A8 | A9 | A10 | A11 | A12 LINE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 ENTRY DEFAULT = PRIVATE

Press ✳ **SPKR** to end programming.

Enter Base Level: Press **ITCM**, then dial ✳ **# 7 4 6** ✳.

		STATION 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Port Definition: A station port can be programmed to accept one of several different types of station equipment or to support off-hook call announce connections. **3/8 LINE TELEPHONE** = 6414X, 6414S **MULTILINE TELEPHONE** = 6614, 6614S, 6614E, 6614T, 6620, 6620S, 6620E, 6620T, 6702X, 6706X, 6714X **OFF-HOOK CALL ANNOUNCE** = All SOHVA - equipped telephones (See page 1-3) DB32S **OPX UNIT** = OPX-1 **DSS/BLF CONSOLE** = EB32X, DB32, DB40, DB70 **LCD SPEAKERPHONE** = 6600S, 6600E	Dial **61**. Dial port ID (**10-33**). Press prog. button. • **A1** = 3/8 LINE TELEPHONE • **A2** = MULTILINE TELEPHONE • **A3** = OFF-HOOK CALL ANNNOUCE • **A4** = OPX UNIT (Prime line intercom automatically enabled when OPX port is assigned) • **A5** = DSS/BLF CONSOLE • **A8** = LCD SPEAKERPHONE Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.	**DEFAULT = MULTILINE TELEPHONE**
Flexible Ringing Assignment: Ringing assignments are programmable on a per line/per station basis. Delayed ringing can be program enabled for some lines and direct, or immediate, ringing can be program enabled for others.	**Direct ringing** Dial **50**. Dial port ID (**10-33**). Press **A1-A5, A8-A12** (for lines 1-10) Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.	**DEFAULT = ALL LINES ASGND AT STA 10, 17 & 32**
	Delayed ringing Dial **51**. Dial port ID (**10-33**). Press **A1-A5, A8-A12** (for lines 1-10). Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.	**DEFAULT = NO LINES ASGND**

Press ✳ **SPKR** to end programming.

Enter Base Level: Press **ITCM**, then dial ✳ **# 7 4 6** ✳.

		STATION 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Night Transfer (of ringing): The day, or normal, ringing of incoming lines can be transferred to a particular station or stations by the attendant for off-hour or special purpose answering. Stations are assigned to receive night transfer by programming action.	Dial **56**. Dial port ID (**10-33**). Press **A1-A5, A8-A12** (for lines 1-10). Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.	**DEFAULT = ALL LINES ASGND AT STA 10, 17 & 32**
Access Denied: Access to particular lines can be denied at individual stations.	Dial **52**. Dial port ID (**10-33**). Press **A1-A5, A8-A12** (for lines 1-10). LED ON = DENIED Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.	**DEFAULT = DISABLED**
Originating Denied: The ability to originate calls on certain lines can be denied at individual stations.	Dial **53**. Dial port ID (**10-33**). Press **A1-A5, A8-A12** (for lines 1-10). LED ON = DENIED Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.	**DEFAULT = DISABLED**
Privacy Release: A line can be made non-private at a particular station while remaining private at all other stations. Stations can be programmed to automatically release line privacy when on certain lines.	Dial **54**. Dial port ID (**10-33**). Press **A1-A5, A8-A12** (for lines 1-10). LED ON = RELEASED Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.	**DEFAULT = NOT RELEASED**

Press ✳ **SPKR** to end programming.

Enter Base Level: Press **ITCM**, then dial ✳ **# 7 4 6** ✳.

		STATION
		10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Idle Line Preference: Going off-hook automatically selects an idle line for use. Lines available for selection are assigned by programming.	Dial **55**. Dial port ID (**10-33**). Press **A1-A5, A8-A12** (for lines 1-10). Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.	**DEFAULT = DISABLED**
Ringing Line Preference: A ringing line will automatically be answered when a station is taken off-hook.	Dial **60**. Dial port ID (**10-33**). Press prog. button **A8**. LED ON = AS'GND Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.	**DEFAULT = DISABLED**
Prime Line: A line designated to a particular station is automatically selected for use when that station is taken off-hook.	Dial **57**. Dial port ID (**10-33**). Press **A1-A5, A8-A12** (for lines 1-10) or press **ITCM**. Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.	**DEFAULT = DISABLED**

Press ✳ **SPKR** to end programming.

Enter Base Level: Press **ITCM**, then dial ✳ **# 7 4 6** ✳.

		STATION 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
All-Call and Zone Paging: Stations can receive voice announcements through the telephone speaker, or through an external paging speaker connected to a PA port, and transmit them with the telephone handset. Announcements can be to certain areas of the system or to all stations in the system.	Dial **58**. Dial port ID (**10-33**). Press prog. button. • **A1** = RECEIVE ZONE 1 • **A2** = RECEIVE ZONE 2 • **A3** = RECEIVE ZONE 3 • **A4** = RECEIVE ALL-CALL • **A5** = XMIT ZONE 1 • **A8** = XMIT ZONE 2 • **A9** = XMIT ZONE 3 • **A10** = XMIT ALL-CALL Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.	**DEFAULT = ALL CALL ASGND**
Personal Ringing Tones: A station can be programmed to ring in one of four distinctive tones.	**Dial 60**. Dial port ID (**10-33**). Press prog. button. • **A1** = TONE 1 • **A2** = TONE 2 • **A3** = TONE 3 • **A4** = TONE 4 Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.	**DEFAULT = TONE 1**
External Paging Interface - Station Port: A station port can be programmed to interface with an external paging amplifier (PA port).	Dial **60**. Dial port ID (**10-33**). Press prog. button **A5**. Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.	**DEFAULT = NOT ASSIGNED**

Press ✳ **SPKR** to end programming.

Enter Base Level: Press **ITCM**, then dial ✳ **# 7 4 6** ✳.

		STATION																							
		10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
Headset Interface: A station port can be programmed to allow headset operation provided by a special telephone.	Dial **60**. Dial port ID (**10-33**). Press prog. button **A9**. Press **#** + PORT ID for next sta. **OR** Press ✳ for next feature.																								

Secure Off-Hook Voice Announce (SOHVA) Groups: The ability of a station to receive and/or originate SOHVA or OHVA calls can be disabled through programming so that certain stations can be grouped together for SOHVA or OHVA calling between one another while other stations in the system are excluded from this group. Stations can be arranged in up to four different groups for exclusive SOHVA or OHVA calling.

NOTE: *SOHVA and OHVA calling requires two data-paired station ports.*

Dial **53**.
Dial port ID (**10-33**).
- Press progam button to disable receive capability. LED ON = disabled
  - **A1** = receive group 1
  - **A2** = receive group 2
  - **A3** = receive group 3
  - **A4** = receive group 4
- Press progam button to disable originate capability. LED ON = disabled
  - **A5** = originate group 1
  - **A8** = originate group 2
  - **A9** = originate group 3
  - **A10** = originate group 4

Press ✳ for next feature.

STA	REC GP 1	REC GP 2	REC GP 3	REC GP 4	ORIG GP 1	ORIG GP 2	ORIG GP 3	ORIG GP 4
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								

STA	REC GP 1	REC GP 2	REC GP 3	REC GP 4	ORIG GP 1	ORIG GP 2	ORIG GP 3	ORIG GP 4
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								

DEFAULT = ALL STATIONS RECEIVE AND ORIGINATE SOHVA AND OHVA

Press ✳ **SPKR** to end programming.

Enter Base Level: Press **ITCM**, then dial ✳ **# 7 4 6** ✳.

Non-Square System: Each programmable button at every station can be assigned individually (mapped) to select any line assigned to that station or to provide other button functions. Programmable buttons can be assigned as direct station select (DSS) buttons to provide one-key access to system stations. Programmable buttons can be assigned as idle (blanked) to provide autodial buttons for the user.

NOTE: *When a line is reassigned from a defaulted button location to a different button location, the defaulted button must then be assigned to an idle condition (blanked). This action must be taken to ensure that status indications for the line will appear at the LED of the button that is now assigned to have line appearance.*

A button must be blanked even though it does not appear on the particular telephone being programmed.

1. Dial **59**.
2. Dial port ID (10-33)
3. Press station button to be programmed.
   - **A1 - A14** and **B1 - B8**.

NOTE: *If programming with a model 6702X or 6714X telephone that does not include a full complement of buttons, dial a number to select the button to be programmed*

1 - 8 = B1 - B8

9 = A7

0 = A14

4. Press prog. button to assign line.
   - **A1 - A5** = Lines 1 - 5.
   - **A8 - A12** = Lines 6 - 10

   -OR-

   - Dial **10 - 33** for DSS Sta 10 - 33

   -OR-

   Press **TAP** for idle (blank) buttons for user autodial purposes
5. Press **#** + PORT ID for next station

   -OR-

   Press ✳ for next feature.

EXAMPLE: To re-assign line 7 from B7 default to A8 location at station port 15 containing model 6706X telephone,

1. Dial **15** (for station port 15)
2. Press **A8** (to select button A8)
3. Press **A9** (to re-assign line 7)
4. Dial **7** (to select B7 location even though not present on model 6706X telephone).
5. Press **TAP** (to move line 7 status LED for button A8)

BUTTON	B1	B2	B3	B4	B5	B6	B7	B8	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14
STA 10																						
STA 11																						
STA 12																						
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STA 29																						
STA 30																						
STA 31																						
STA 32																						
STA 33																						

DEFAULT SETTINGS

B1 = LINE 1
B2 = LINE 2
B3 = LINE 3
B4 = LINE 4
B5 = LINE 5
B6 = LINE 6
B7 = LINE 7
B8 = LINE 8
A7 = LINE 9
A14 = LINE 10

Press ✳ **SPKR** to end programming.

Notes

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